
ANNEX C: APPROVED TERMS OF REFERENCE

Annex C Table of Contents

ATTACHMENT	NAME
C-1	MoFE Scoping Report/ToR Approval Letter
C-2	GoN approved ToR
C-3	Public Hearing Municipality Recommendation Letters



C - 1

MoFE Scoping Report/ToR Approval Letter



Signature





10110 . २२०७६/०४ . ०५

नेपाल सरकार

वन तथा वातावरण मन्त्रालय

EX: पो.ब.नं. : ३५८७
सिंहदरवार, काठमाडौं

वातावरण तथा जैविक विविधता महाशाखा



पत्र संख्या:- वा.प्र.अ.शा.-०८-२०७६/०७७

चलानी नं. : २८

प्राप्त पत्र संख्या र मिति:-

मिति : २०७६/०४/०५

विषय : विद्युत प्रसारण आयोजनाको EIA को लागि रुख संख्या निर्धारण गर्न LIDAR Survey Data प्रयोग गर्न अनुमति प्रदान गरिएको सम्बन्धमा ।

श्री मिलेनियम च्यालेन्ज एकाउण्ट नेपाल
लाल दरबार, दरवारमार्ग, काठमाडौं ।

प्रस्तुत विषयमा तहाँ मिलेनियम च्यालेन्ज एकाउण्ट नेपालले लप्सीफेदी-रातामाटे, रातामाटे नयाँ हेटौंडा, रातामाटे-नयाँ दमौली, नयाँ दमौली- नयाँ बुटवल, नयाँ बुटवल-नेपाल भारत सिमाना ४०० के. भि. विद्युत प्रसारण लाइन र रातामाटे, नयाँ दमौली र नयाँ बुटवल ४०० के. भि. सब स्टेशन आयोजनाको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन तयार गर्ने प्रयोजनको लागि LIDAR Survey को Data प्रयोग गरी प्रमाणीकरणको लागि Sample Plot तयार गरी गणना समेत गर्ने गरी रुख संख्या निर्धारण गर्ने प्रयोजनको लागि अनुमति माग गरी यस मन्त्रालयमा दिनु भएको पत्रमा कारवाही हुँदा प्रस्तावक श्री मिलेनियम च्यालेन्ज एकाउण्ट नेपाललाई लप्सीफेदी-रातामाटे, रातामाटे नयाँ हेटौंडा, रातामाटे-नयाँ दमौली, नयाँ दमौली- नयाँ बुटवल, नयाँ बुटवल-नेपाल भारत सिमाना ४०० के. भि. विद्युत प्रसारण लाइन र रातामाटे, नयाँ दमौली र नयाँ बुटवल ४०० के. भि. सब स्टेशन आयोजनाको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन तयार गर्ने प्रयोजनको लागि LIDAR Survey को Data प्रयोग गरी प्रमाणीकरणको लागि Sample Plot तयार गरी गणना समेत गर्ने गरी रुख संख्या निर्धारण गर्ने प्रयोजनको लागि देहायमा उल्लेखित शर्तहरू समेतको पालना गर्ने गरी अनुमति प्रदान गर्ने नेपाल सरकार, वन तथा वातावरण मन्त्रालय (सचिबस्तर) को मिति २०७६/०४/०२ को निर्णयानुसार अनुरोध गर्दछु ।

शर्तहरू:

१. LIDAR Survey तथा Data Analysis गर्ने क्रममा वन तथा भू-संरक्षण विभाग र वन अनुसन्धान तथा प्रशिक्षण केन्द्रका अधिकृतस्तरका प्राविधिक कर्मचारीहरूलाई समेत संलग्न गराउनु पर्नेछ ।
२. प्रमाणीकरण (Verification) को लागि निर्धारण भएको Sample Plot हरूमा Inventory गर्दा सम्बन्धित डिभिजन वन कार्यालयहरूका अधिकृतस्तरका प्राविधिक कर्मचारीहरूलाई समेत संलग्न गराउनु पर्नेछ ।
३. LIDAR Survey बाट प्राप्त Data हरूको विद्युतिय प्रति यस मन्त्रालयलाई समेत उपलब्ध गराउनु पर्नेछ ।
४. उच्च Resolution LIDAR data को प्रयोगले ९०% भन्दा कम घनत्व भएको वनक्षेत्रहरूमा मात्र रुखको संख्या निर्धारण गर्न सकिने भएकोले सो भन्दा बढी घनत्व भएको वन क्षेत्रमा अन्य विधि प्रयोग गरी गणना गर्नुपर्नेछ र प्रयोग गरिएको सम्पूर्ण विधि प्रक्रियाहरूको विवरण वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा उल्लेख गर्नुपर्नेछ ।



(Signature)

(Signature)
सुभाष कुमार शर्मा
सहायक वन अधिकृत

बोधार्थ:

श्री वन तथा भू-संरक्षण विभाग, बबरमहल, काठमाडौं ।

श्री वन अनुसन्धान तथा प्रशिक्षण केन्द्र, बबरमहल, काठमाडौं ।





C - 2

GoN approved ToR



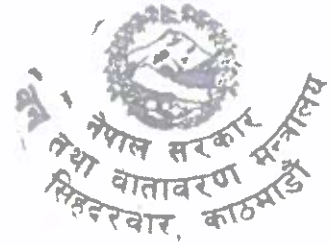
Signature





TERMS OF REFERENCE
for
ENVIRONMENTAL IMPACT ASSESSMENT STUDY
of
ELECTRICITY TRANSMISSION PROJECT (400 kV)
NEPAL

Submitted to:
GOVERNMENT OF NEPAL



Ministry of Forests and Environment

through

Department of Electricity Development

and

Ministry of Energy, Water Resource and Irrigation

Yak & Yati Complex, Durbar Marg, Kathmandu, Nepal

Office: 977-1-4338392/4238353

Submitted by:
GOVERNMENT OF NEPAL

Ministry of Finance

Millennium Challenge Account Nepal

Prepared by:

Stantec supported by ERM/POWER Engineers

(with contribution from TMS/NESS)

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Nepal Cell: +977 9823110122



February 2019
(Updated May 2019)





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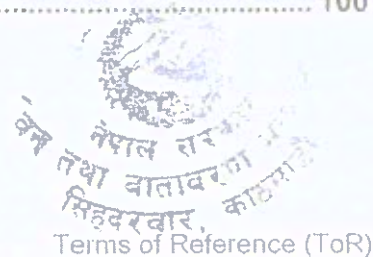
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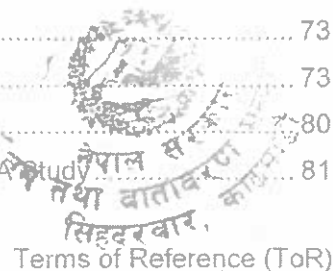
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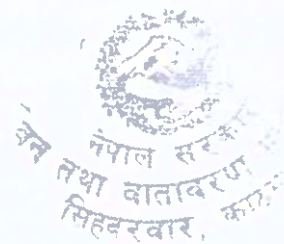


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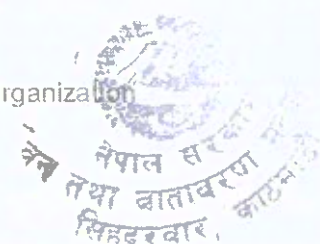


ABBREVIATIONS AND ACRONYMS

ACSR	Aluminum Conductor Steel Reinforced
AIS	Air Insulated Switchgear
Aol	Area of Influence
BCN	Bird Conservation Nepal
CAAN	Civil Aviation Authority Nepal
CFUG	Community Forest User Group
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CLO	Community Liaison Officer
DFS	Detailed Feasibility Study
DHM	Department of Hydrology and Meteorology
DoED	Department of Electricity Development
EIA	Environmental Impact Assessment
EMF	Electrical and Magnetic Fields
EPC	Engineering, Procurement, and Construction
EPR	Environment Protection Rule
ERM	Environmental Resources Management
ESHSMF	Environmental, Social, Health and Safety Management Plan
ESMP	Environmental and Social Management Plan
ETP	Electricity Transmission Project
FGD	Focus Group Discussion
GIS	Geographic Information System (also Gas Insulated Switchgear)
GoN	Government of Nepal
GP	Gaunpalika
GPS	Geographical Positioning System
ha	hectare
Hz	Hertz
ICIMOD	International Centre for Integrated Mountain Development
IEE	Initial Environment Examination
IFC	International Finance Corporation
IUCN	International Union for the Conservation of Nature
kg	kilogram
KII	Key Informant Interview



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km	kilometer
kV	kilovolt
LAHURNP	Lawyers Association for Human Right
LiDAR	Light Detection and Ranging
m	meter
m ²	square meters
m ³	cubic meters
masl	meters above sea level
MCA-Nepal	Millennium Challenge Account Nepal
MCC	Millennium Challenge Corporation
MoEWRI	Ministry of Energy, Water Resource, and Irrigation
MoF	Ministry of Finance
MoFE	Ministry of Forests and Environment
MVA	Mega Volt Ampre
NEA	Nepal Electricity Authority
NEFIN	Nepal Federation of Indigenous Nationalities
NGO	Non-Governmental Organization
NP	Nagarpalika
NTFP	Non-Timber Forest Product
NTNC	National Trust for Nature Conservation
O&M	Operation and Maintenance
OMCN	Office of Millennium Challenge Nepal
PCTMCDB	President Chure-Terai Madhesh Conservation Development Board
PIC	Public Information Centers
QA/QC	Quality Assurance/Quality Control
ROW	Right-of-Way
SNNP	Shivapuri Nagarjuna National Park
STI	Sexually Transmitted Infections
TIP	Trafficking in persons
TL	Transmission Line
ToR	Terms of Reference
US	United States
UNESCO	United Nations Educational, Scientific and Cultural Organization
WWF	World Wildlife Fund



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1 TITLE OF THE PROPOSAL, NAME AND ADDRESS OF THE INSTITUTION PREPARING THE REPORT

1.1 BACKGROUND

An underlying cause of Nepal's constraints to economic growth has been identified as the inadequate supply of electricity. Historically, Nepal has suffered from the worst electricity shortages in South Asia, and new investment in Nepal's electricity sector is critical to achieve significant and sustainable economic growth. The availability of electricity is further reduced by Nepal's inability to import power when it is needed and significant losses in transmission and distribution.

The Electricity Transmission Project (ETP) involves the construction and operation of approximately 308 kilometers (km) of 400 kilovolt (kV) transmission lines and three new substations. ETP is a significant component of Nepal's east-west transmission backbone and includes the Nepali section of the second major planned cross border interconnection with India. These lines are designed to improve the distribution of generated electricity around Nepal, and both ways between Nepal and India.

1.2 NAME AND ADDRESS OF PROPONENT

The Proponent of the Nepal Electricity Transmission Project (ETP or Project) is the Millennium Challenge Account Nepal (MCA-Nepal), which is a Government of Nepal (GoN) agency formed by a cabinet level executive order in accordance with the Development Board Act 2013 BS (1956 AD) in order to manage the compact program developed by the Office of the Millennium Challenge Nepal (OMCN) in coordination with the Millennium Challenge Corporation (MCC), USA. The MCA-Nepal will be the agency responsible for implementing the Project.

Contact details of the Project Proponent are as follows:

Government of Nepal
Ministry of Finance
Millennium Challenge Account Nepal (MCA-Nepal, formerly the Office of Millennium Challenge Nepal (MCA-Nepal)
Hotel Yak & Yeti Complex, Kathmandu, Nepal.
Tel No.: +977-1-4238353, 4238392
Email: shyam.upadhyaya@mca-1.org
Website: <https://mcanp.org/>



1.3 NAME AND ADDRESS OF CONSULTANT

Stantec Consulting International LLC (assisted by subcontract partners Power Engineers Inc. and Environmental Resources Management) has been commissioned to undertake the Consulting Services for Project Preparation and Technical Supervision Services for the Nepal Electricity Transmission Project: Transmission and Substation Activities, which includes the preparation of an Environmental Impact Assessment (EIA) for the Project, for submission to and approval by GoN, including this ToR.

Contact details of the Consultant are as follows:

Stantec Consulting International LLC
1101 14th Street NW Suite 1200
Washington, District of Columbia 20005-5637 USA

Address in Nepal:

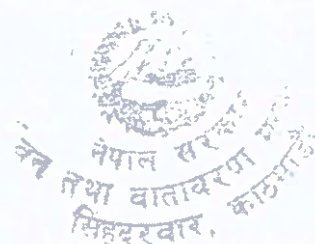
Contact: Ibro Hadzismajlovic
House 736/68 Narayan Gopal Sadak Lazimpat
Kathmandu, Nepal (Opposite to Machhapuchchhre Bank)
Phone number: +977-1-4415861
Email: Ibro.Hadzismajlovic@stantec.com

1.4 OBJECTIVES OF TOR

The primary objective of the Terms of Reference (ToR) is to guide the EIA study and ascertain the major issues that are likely to arise due to Project implementation. It further defines the scope of the study, and study areas, human resources and financial resources required during EIA implementation.

The other objectives of this ToR are thus as follows:

- Identify concerns and issues for consideration in the subsequent EIA;
- Document the baseline conditions of the Project area;
- Determine the assessment methods to be used;
- Identify affected area and parties;
- Provide an opportunity for the public to determine issues to be assessed, and facilitate early agreement on contentious issues; and
- Establish a ToR for the EIA study.



1.5 OBJECTIVES OF EIA STUDY

The main objectives of the EIA study are to identify the environmental and social concerns and opportunities associated with the different phases of the Project, identify mitigation and enhancement measures, and incorporate these into the Project planning so as to optimize the environmental and social outcomes from the Project.

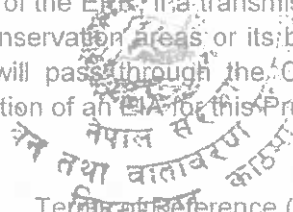
Specifically, the objectives of the EIA are to:

- Introduce the Project and provide a platform for the relevant stakeholders, including the proponent, consultants and relevant authorities to provide suggestions and concerns prior to the preparation of EIA;
- Establish the existing status of the physical, biological, socio-economic and cultural components of the transmission line affected areas including the substations;
- Examine the activities of the Project in order to identify the potential environmental aspects/issues and impacts;
- Evaluate and establish potential adverse impacts of the proposed development Project and to propose mitigating measures and appropriate management plan to eliminate or minimize the impacts;
- Identify various alternatives and consideration of possible impacts to assess appropriate mitigation measures;
- Evaluate and establish potential adverse impacts of the proposed development Project and to propose mitigating measures and appropriate management plan to eliminate or minimize the impacts;
- Reduce the overall environmental and economic costs of the Project as far as practicable, as well as optimizing Project benefits;
- Conduct the proposed development Project in compliance with Nepali regulations and laws, MCC Environmental Guidelines, and guidelines for conducting EIA published by the Department of Electricity Development (DoED 2001); and
- Establish an Environmental Management Plan based on recommendations stated in the EIA report.

1.6 LEGAL RATIONALITY FOR EIA STUDY

The ETP is a transmission line with a capacity of 400 kV, extending about 308 km in length. As per the Environment Protection Rules 1997 (EPR-second amendment gazette 2065-11-26/09-03-2009) (EPR), an Initial Environmental Examination (IEE) is required for transmission lines with a capacity of more than 132 kV.

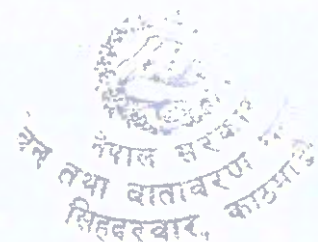
However, if a transmission line displaces more than 100 people, the Project Proponent is required to conduct an EIA as per Schedule 2 (E-6) of the EPR. It is anticipated that the ETP Project will displace 518 structures (Draft Feasibility Study, Volume 3) and about 887 people (assuming 3 structures per household on average and 5.2 persons per household, from 2011 census data), and therefore necessitates an EIA. Site specific information on displacement will be provided in the EIA. In addition, as per Schedule 2(K-3) of the EPR, if a transmission line passes through national parks, wildlife sanctuaries and conservation areas or its buffer zone, an EIA is required. The proposed transmission line will pass through the Chure Conservation Area, which also triggers the need for the preparation of an EIA for this Project.



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Prior to conducting the Scoping meetings, the proponent received consent from the President Chure-Terai Madhesh Conservation Development Board (PCTMCDB), GoN, which also stated the requirement for an EIA for the proposed ETP (see Annex A). The Concerns raised by the Board will be addressed during the EIA phase.

The ToR has been prepared in compliance with the EPR, 1997 to describe the scope for the EIA study, and with reference to the format provided in Appendix G of the Hydropower Environmental Impact Assessment Manual (July 2018), which has been endorsed by the Ministry of Forests and Environment (MoFE), GoN.



2 PROJECT INFORMATION

2.1 GENERAL INTRODUCTION OF THE PROJECT

The overall aim of this Project is to help enable industrial and commercial development, and to improve the living conditions for large numbers of the residents of Nepal's cities, towns and villages.

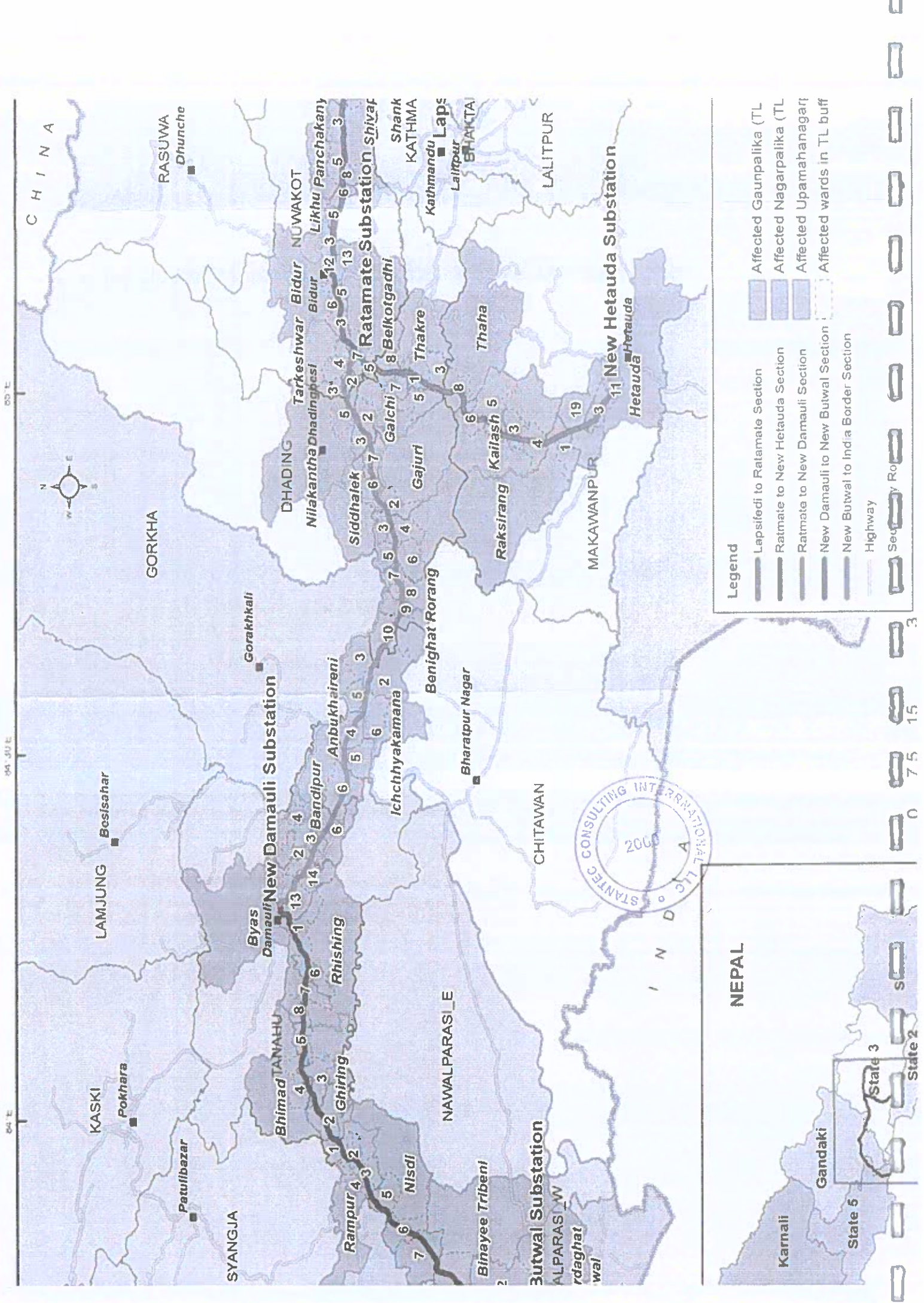
The ETP configuration is one of the outcomes of a Detailed Feasibility Study (DFS) commissioned by the MCC to identify transmission projects which would provide the greatest contribution to Nepal's development needs. The DFS included elements of stakeholder engagement, site surveys, technical assessments, and environmental and social assessments, which contributed to the screening and scoping of the environmental and social aspects of the candidate projects.

The MCA-Nepal ETP is a 400-kV double circuit transmission line spanning approximately 308 km and including construction of approximately 1,056 transmission towers and three new substations (New Butwal, New Damauli, and Ratmate), along with improvements within the existing sites of two other substations (New Hetauda and Lapsipedi), as shown in Figure 2-1. This section includes a description of the Project location, facilities, land requirements, impact areas, construction activities, and operations and maintenance.

The GoN, through a cabinet decision on September 21, 2018 (2075-06-05), has declared the ETP as a National Pride Project. The decision is referenced in Annex A.

The ETP is funded by the U.S. Government and the GoN. Because it is a government undertaking, a survey license is not required for this Project. However, MCA-Nepal has received a Letter of Authorization from Department of Electricity Development (DoED) in lieu of a survey license to proceed with the necessary Project surveys and studies. Consent letters from government agencies - (DoED, President Chure Terai Madhesh Conservation Development Board (PCTMCDB), Civil Aviation Authority Nepal (CAAN) - are attached in Annex A.





- Legend**
- Lapsfedi to Ratamate Section
 - Ratmate to New Hetauda Section
 - Ratmate to New Damauli Section
 - New Damauli to New Butwal Section
 - New Butwal to India Border Section
 - Highway
 - Secondary Road
 - Affected Gaunpalika (TL)
 - Affected Nagarpalika (TL)
 - Affected Upamahanagar
 - Affected wards in TL buff



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2.2 PROJECT OBJECTIVES, NEED AND RELEVANCY

The overall aim of this Project is to help enable industrial and commercial development, and to improve the living conditions for large numbers of the residents of Nepal's cities, towns and villages.

The MCA-Nepal ETP is a 400-kV double circuit transmission line spanning approximately 308 km and including construction of approximately 1,056 transmission towers and three new substations (Ratmate, New Damauli and New Butwal), along with improvements within the existing sites of two other substations (Lapsiphedi and New Hetauda), as shown in Figure 2-1.

The proposed transmission line and its substations will help to evacuate hydropower from projects in various river basins along the alignment including:

- Lapsiphedi substation: Sunkoshi and Indrawati basins
- Ratmate substation: the Trishuli basin
- New Damauli substation: the Marshyangdi and Seti basins and;
- New Butwal/New Damauli substations: the Kaligandaki basin

This section includes a description of the Project location, facilities, land requirements, impact areas, construction activities, and operations and maintenance.

For ease of reference, in this document the transmission line has been divided into 5 sections, TL1-TL5, reflecting the description contained in the DoED authorization letter (2075-04-10) for the Project, namely:

- | | | |
|----------------|-------------------------------------------------|-------|
| • TL1 Section: | Lapsiphedi substation to Ratmate substation | 57 km |
| • TL2 Section: | Ratmate substation to New Hetauda substation | 56 km |
| • TL3 Section: | Ratmate substation to New Damauli substation | 88 km |
| • TL4 Section: | New Damauli substation to New Butwal substation | 84 km |
| • TL5 Section: | New Butwal substation to India Border | 23 km |



2.3 LOCATION AND ACCESSIBILITY

2.3.1 Project Location

Under Nepal's new administrative organization, the current Project alignment is located in 3 provinces, 10 districts, and 31 local government units that fall unto 3 municipality types (Upamahanagarपालिका [sub-metropolitan city], नगरपालिका [municipality], and गाउँपालिका [rural municipality]). The three provinces are Province 3, Gandaki and Province 5. Table 2.1 lists the names of districts and local administrative units along with the length of transmission lines. Figures 2.2 to 2.6 present administrative maps of each five transmission line segments.



Table 2-1 Project Length by Local Administrative Unit

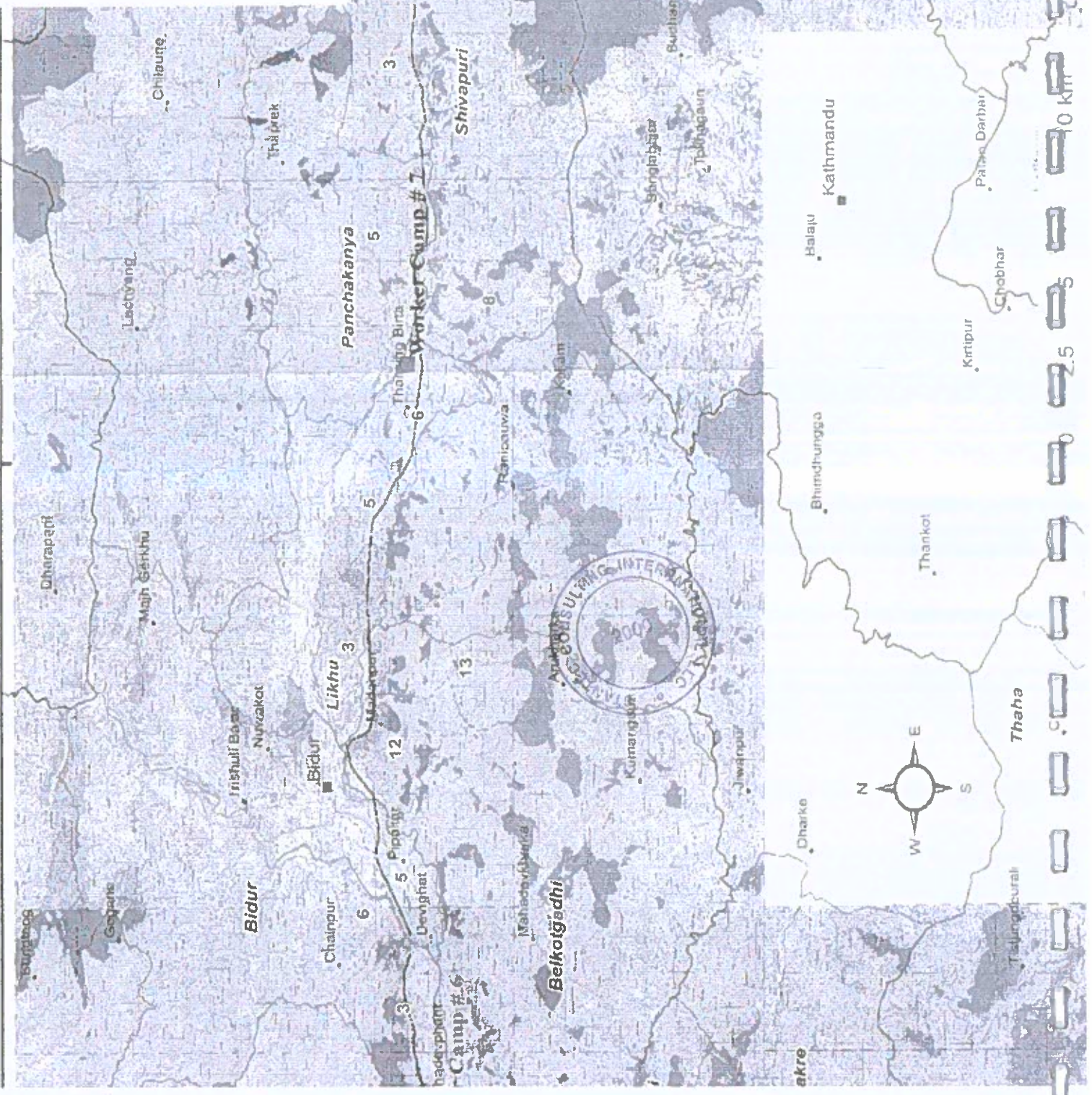
TL Section	District	Local Administrative Unit Name	Wards	Type of Administrative Unit	Length of TL (km)
TL Section 1	Kathmandu	Shankharapur	1, 2,3	Nagarpalika	4.9
	Sindhupalchok	Melamchi	1, 2,3,4	Nagarpalika	9.9
		Shivapuri	2,3,4,8	Gaunpalika	13.0
	Nuwakot	Panchakanya	5	Gaunpalika	4.5
		Likhu	3,5,6	Gaunpalika	8.8
		Bidur	3,5,6	Nagarpalika	9.3
		Belkotgadhi	7,12	Nagarpalika	6.6
Total				57.0	
TL Section 2	Nuwakot	Belkotgadhi	7,5	Nagarpalika	4.5
	Dhading	Galchhi	8	Gaunpalika	4.6
		Thakre	1,3	Gaunpalika	7.5
	Makawanpur	Thaha	8	Nagarpalika	4.9
		Kailash	3,4,5,6	Gaunpalika	17.2
		Raksirang	1	Gaunpalika	4.8
		Hetauda	3,11,19	Upamahanagarpalika	12.5
Total				56.0	
TL Section 3	Nuwakot	Belkotgadhi	7	Nagarpalika	1.8
		Tarkeshwar	2,3,4	Gaunpalika	5.4
		Nilakantha	5	Nagarpalika	3.2
	Dhading	Galchhi	2,3,5	Gaunpalika	
		Siddhalek	8	Gaunpalika	9.3
		Benighat Rorang	5,6,7,10	Gaunpalika	24.2
	Chitwan	Ichchhyakamana	2,3,4	Gaunpalika	7.6
		Anbukhaireni	4,5,6	Gaunpalika	16.0
	Tanahu	Bandipur	2,3,4,6	Gaunpalika	7.1
		Byas	1,5,13,14	Nagarpalika	13.4
Total				88.0	
TL Section 4	Tanahu	Byas	13	Nagarpalika	2.5
		Rhishing	1,8	Gaunpalika	16.1
		Bhimad	4,5	Nagarpalika	4.4
		Ghiring	1,2,3,5	Gaunpalika	15.4
	Palpa	Rampur	2,3,4	Nagarpalika	9.3

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TL Section	District	Local Administrative Unit Name	Wards	Type of Administrative Unit	Length of TL (km)
		Nisdi	5,6,7	Gaunpalika	15.6
	Nawalparasi (East of Bardaghat Susta)	Binayee	5	Gaunpalika	9.0
	Nawalparasi (West of Bardaghat Susta)	Bardaghat	2	Nagarpalika	0.2
		Sunwal	11,13	Nagarpalika	11.5
Total					84.0
TL Section 5	Nawalparasi (West of Bardaghat Susta)	Sunwal	13	Nagarpalika	3.3
		Ramgram	1,8,11,12,17	Nagarpalika	10.5
		Palhi Nandan	1,2,3	Gaunpalika	9.2
Total					23.0
Grand Total					308.0

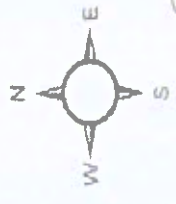


85° 15' E



Legend

- Worker Camp
- Trans
- Camp



0 2.5 5 7.5 10 km

03 E



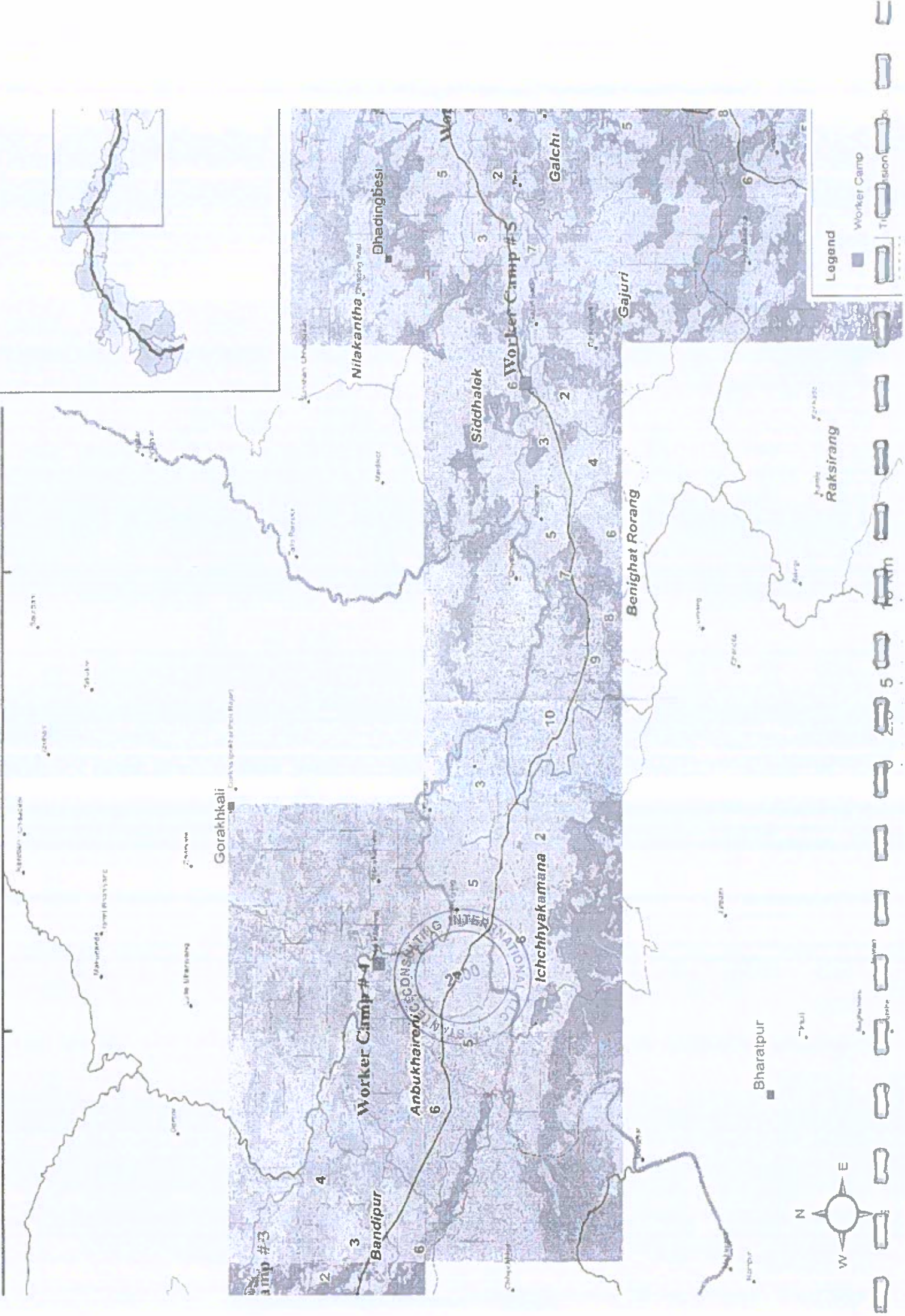
Legend

- Worker Camp
- - - Transmission Line (buffer of)

blakawank, Gadh



84°30'E 84°45'E



Legend

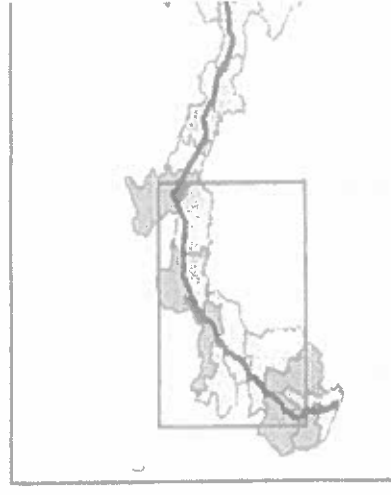
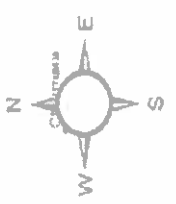
- Worker Camp
- Tribal Reservation
- Road

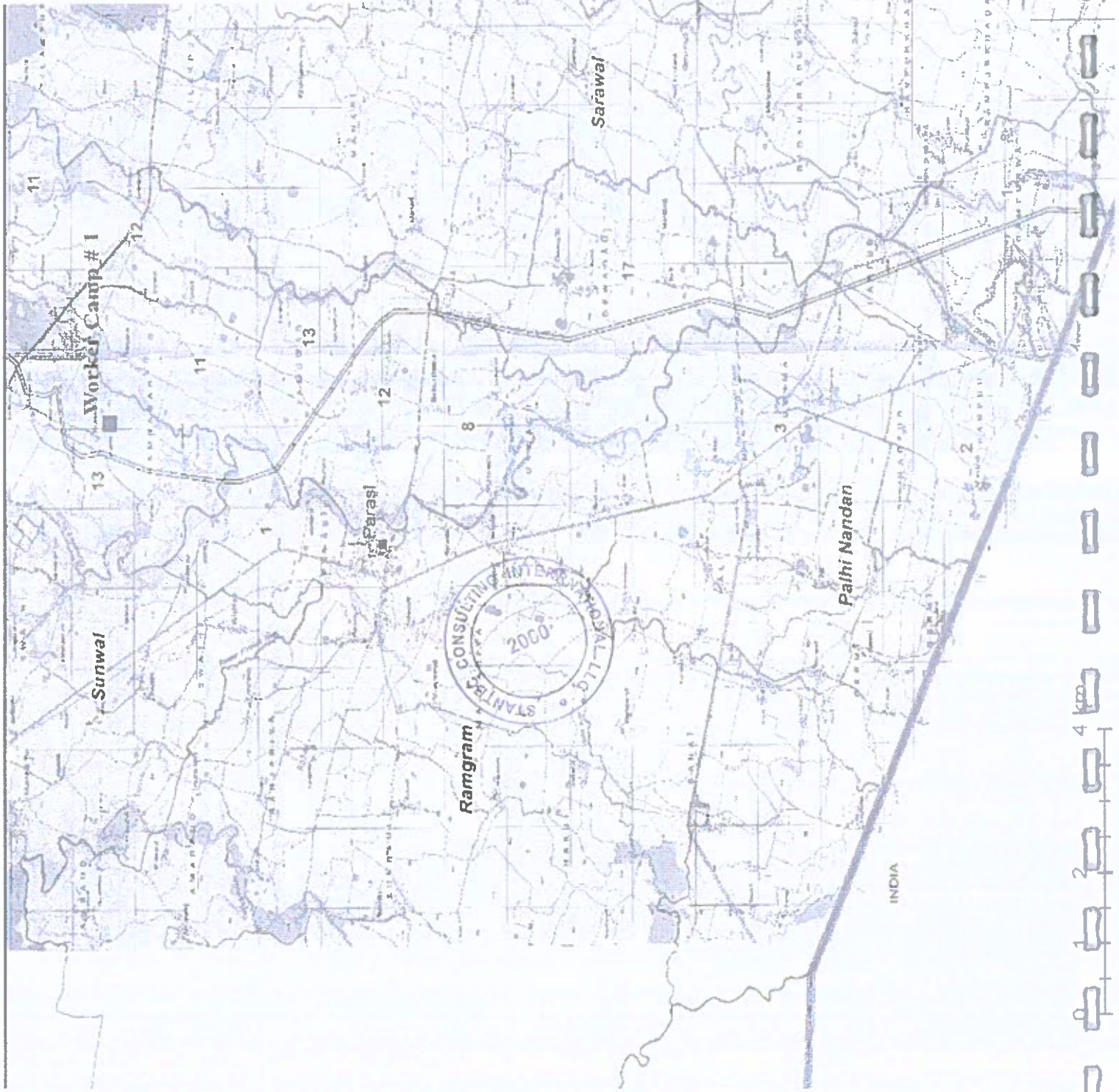


83°45'E

84°E

84





Bardag

W

Legend

- Worker Camp
- Transmission
- Affected area

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INDIA

0 1 2 3 4 km

2.3.2 Accessibility

Project facilities are mostly accessible through an existing road networks that will be used to provide access to the transmission line alignment and substation locations so far as possible. The roads that are expected to be used are listed below and, for those roads for which Department of Roads coordinates are available, illustrated in Figures 2-7 to 2-11. For locations that cannot be reached directly by existing roads (mainly the transmission tower sites), porters and pack animals, winches, or possibly helicopters will be used to access the sites via existing paths and tracks, avoiding the creation of new access roads. The EIA will describe and evaluate impacts associated with providing construction and operation/maintenance access to each tower. In addition, land requirement for any required permanent or temporary access roads or trails will be included in the EIA.

TL Section 1: Lapsiphedhi substation to Ratmate substation

- Kathmandu - Lapsiphedhi Road
- Lapsiphedhi - Bhotechour - Mid-hill Highway
- Kathmandu - Chhahare - Devighat Road

TL Section 2: Ratmate substation to New Hetauda substation

- Devighat - Galchhi - Mugling - Narayanghat Road
- Kathmandu - Naubise - Galchhi Road
- Muwakhola - Orlang Road
- Hetauda - Manahari - Raksirang Road
- Hetauda - Namtar - Kalikatar Road
- Kalikatar - Raksirang Road
- Naubise - Agra - Kalikatar Road
- Palung – Dadabas - Mahadevbesi Road

TL Section 3: Ratmate substation to New Damauli substation

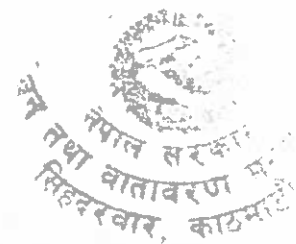
- Devighat - Galchhi - Mugling - Narayanghat Road
- Kathmandu - Naubise - Galchhi Road
- Prithvi Highway (Mugling-Damauli - Khairenitar)
- Damauli-Ghumouni Road
- Damauli - Chhabdi Road

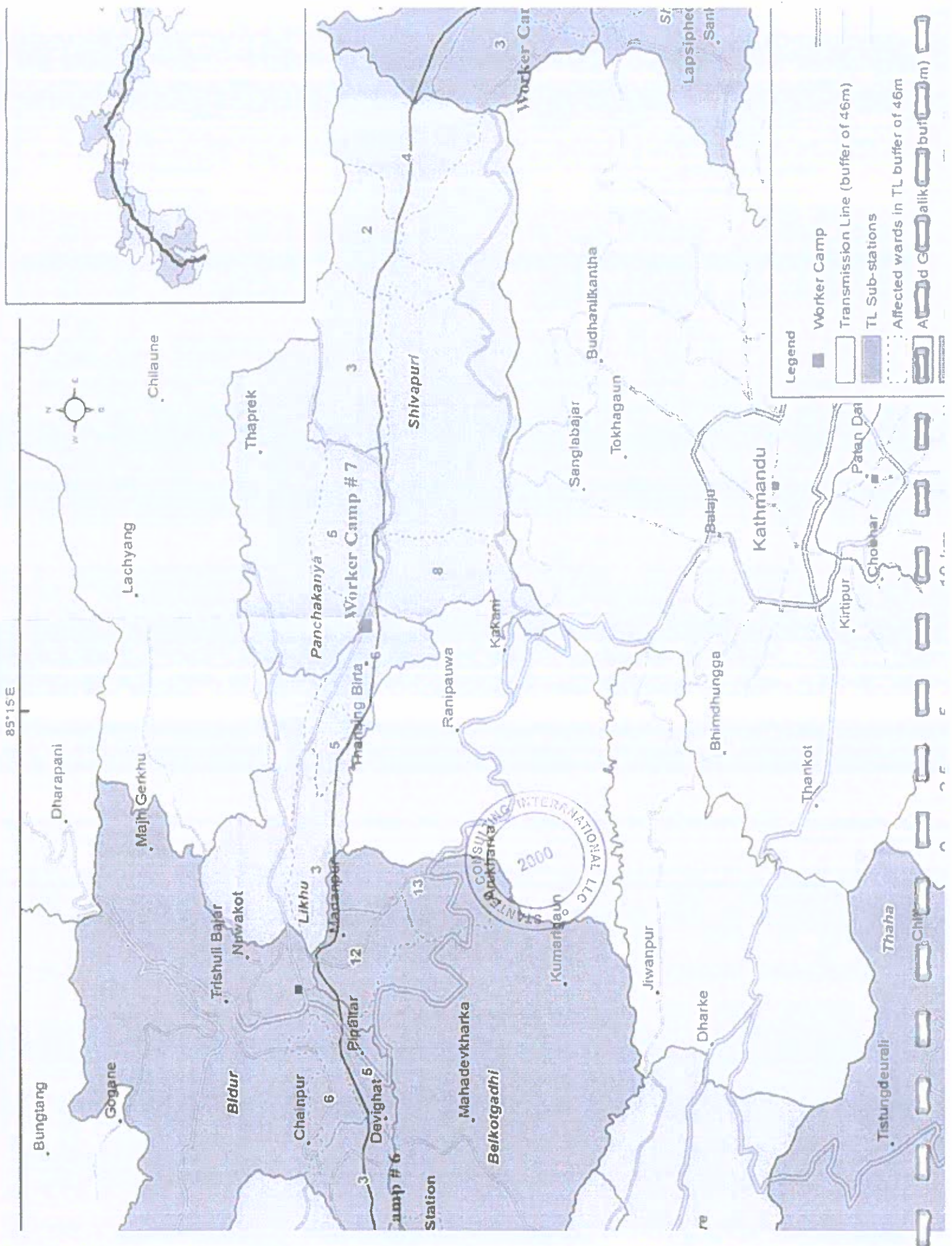
TL Section 4: New Damauli substation to New Butwal substation

- Khairenitar - Bhimad - Ghiring - Butwal Road
- Rampur - Nisdi - Daunne Road
- Daunne - Honshi Cement - Deurali (Dhurkot) Road
- Butwal - Narayanghat section of East-West Highway

TL Section 5: New Butwal substation to India Border

- Sunuwal - Parasi - Maheshpur Road

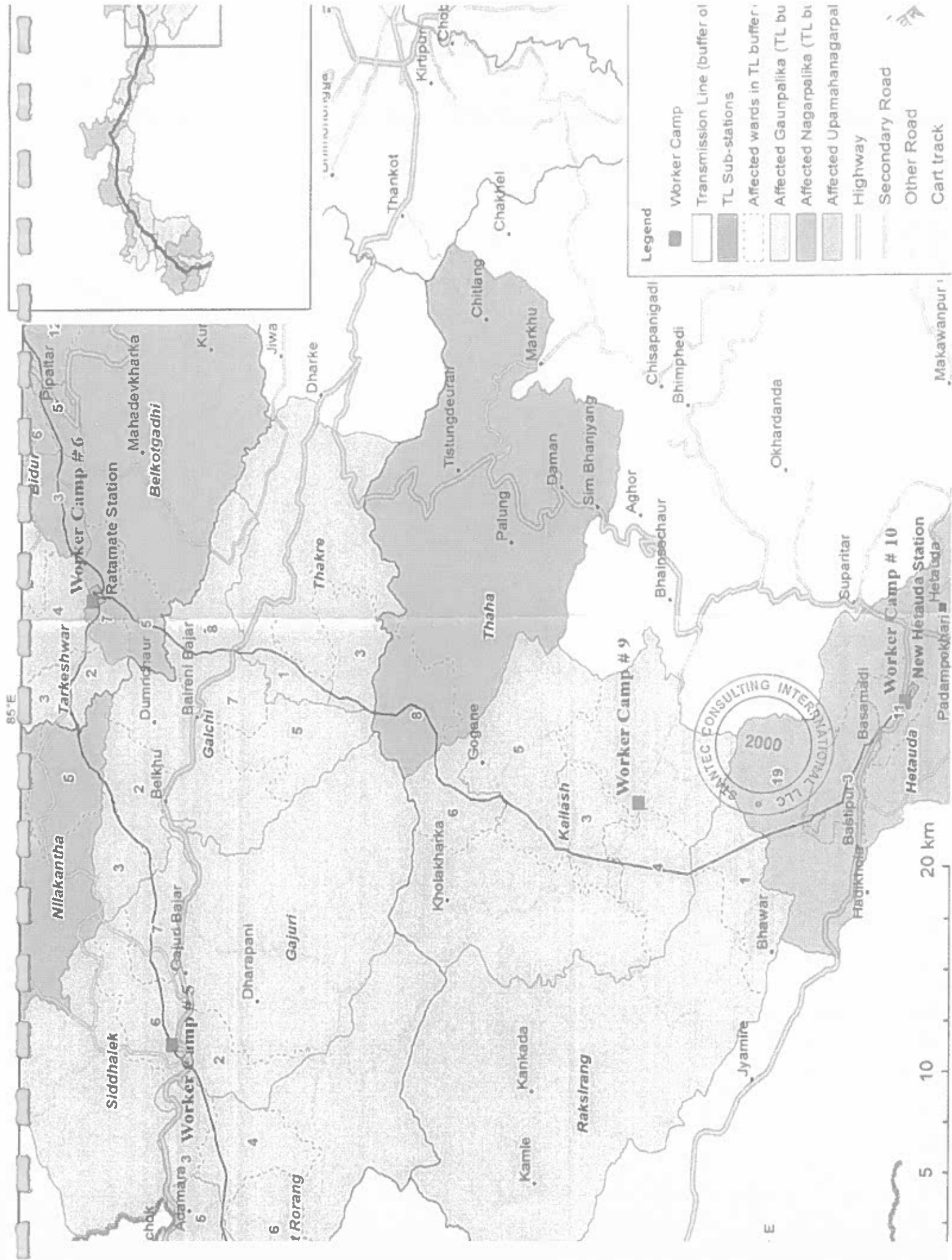


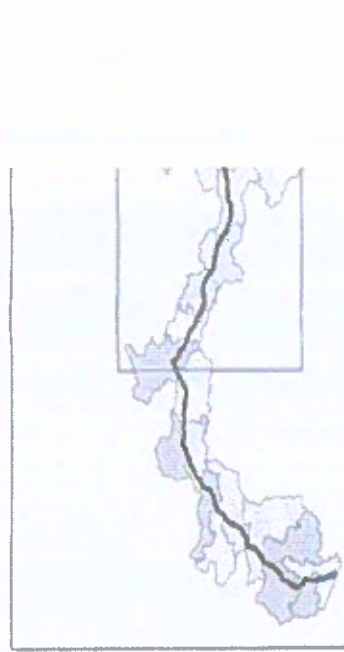
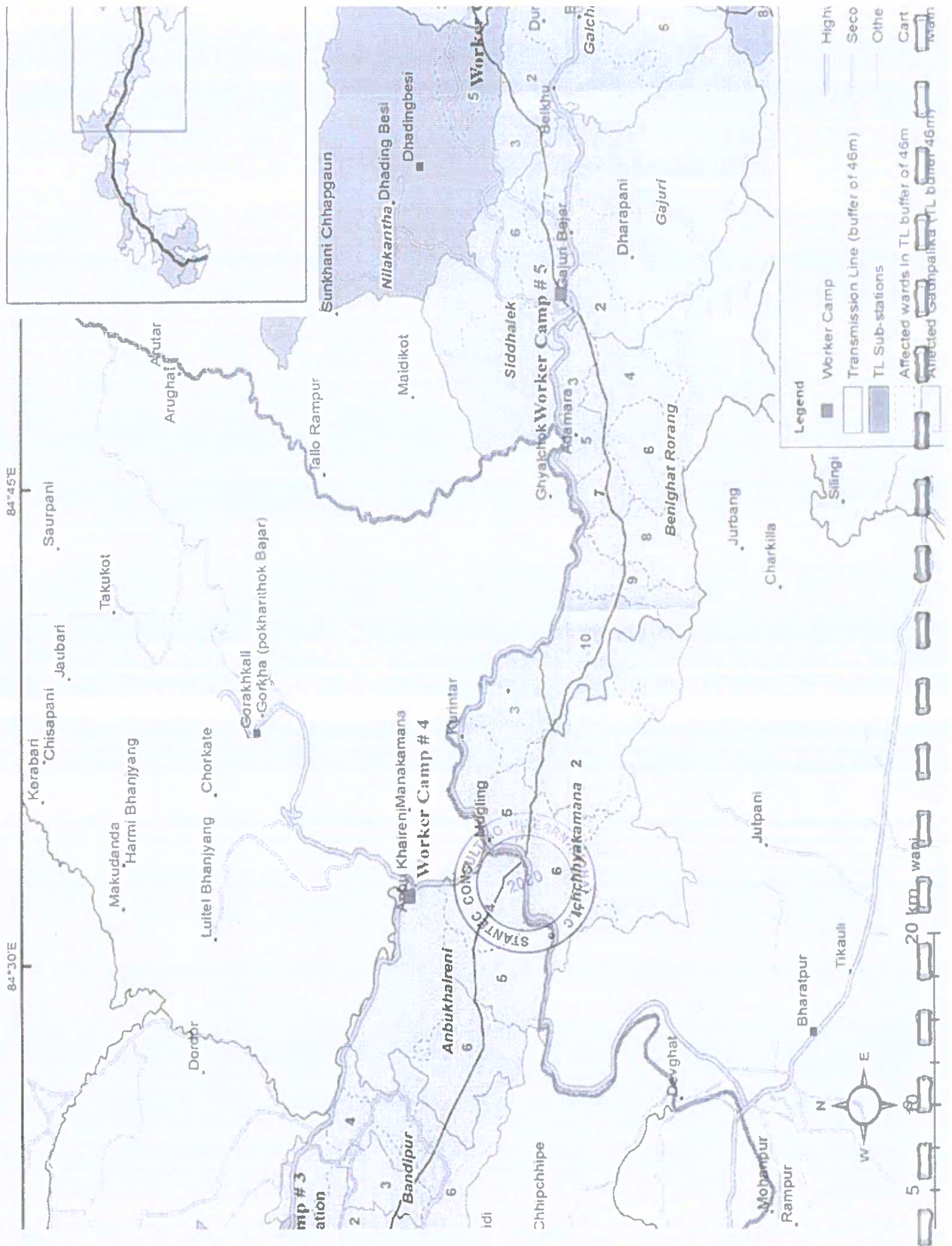


85°15'E



- Legend**
- Worker Camp
 - Transmission Line (buffer of 46m)
 - - - TL Sub-stations
 - Affected wards in TL buffer of 46m
 - Affected wards in TL buffer of 46m





84°30'E

84°45'E

84°30'E

84°45'E

84°30'E

84°45'E

- Legend**
- Worker Camp
 - Transmission Line (buffer of 46m)
 - TL Sub-stations
 - Affected wards in TL buffer of 46m
 - High
 - Seco
 - Othe
 - Cart

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20 km

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10

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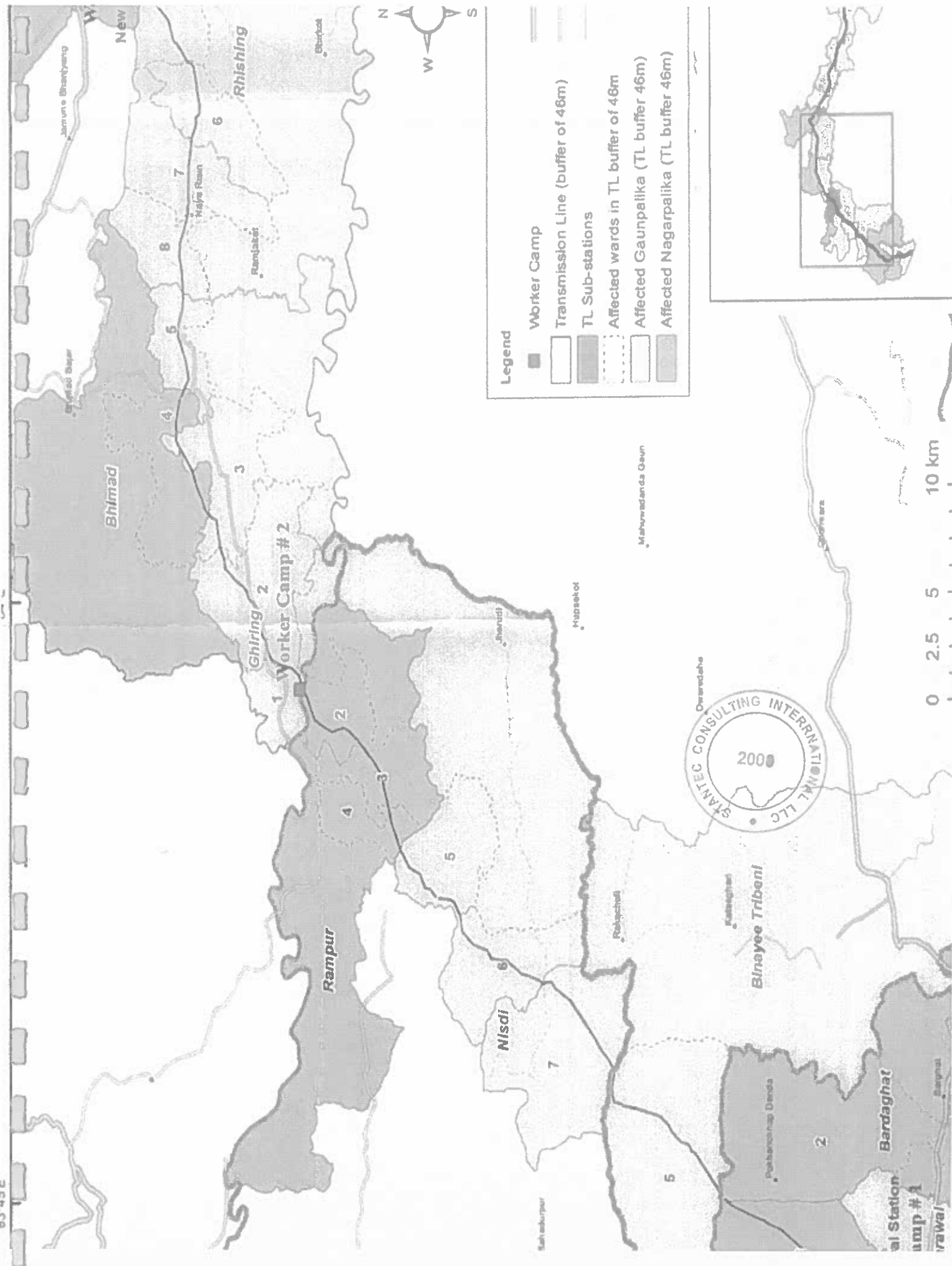
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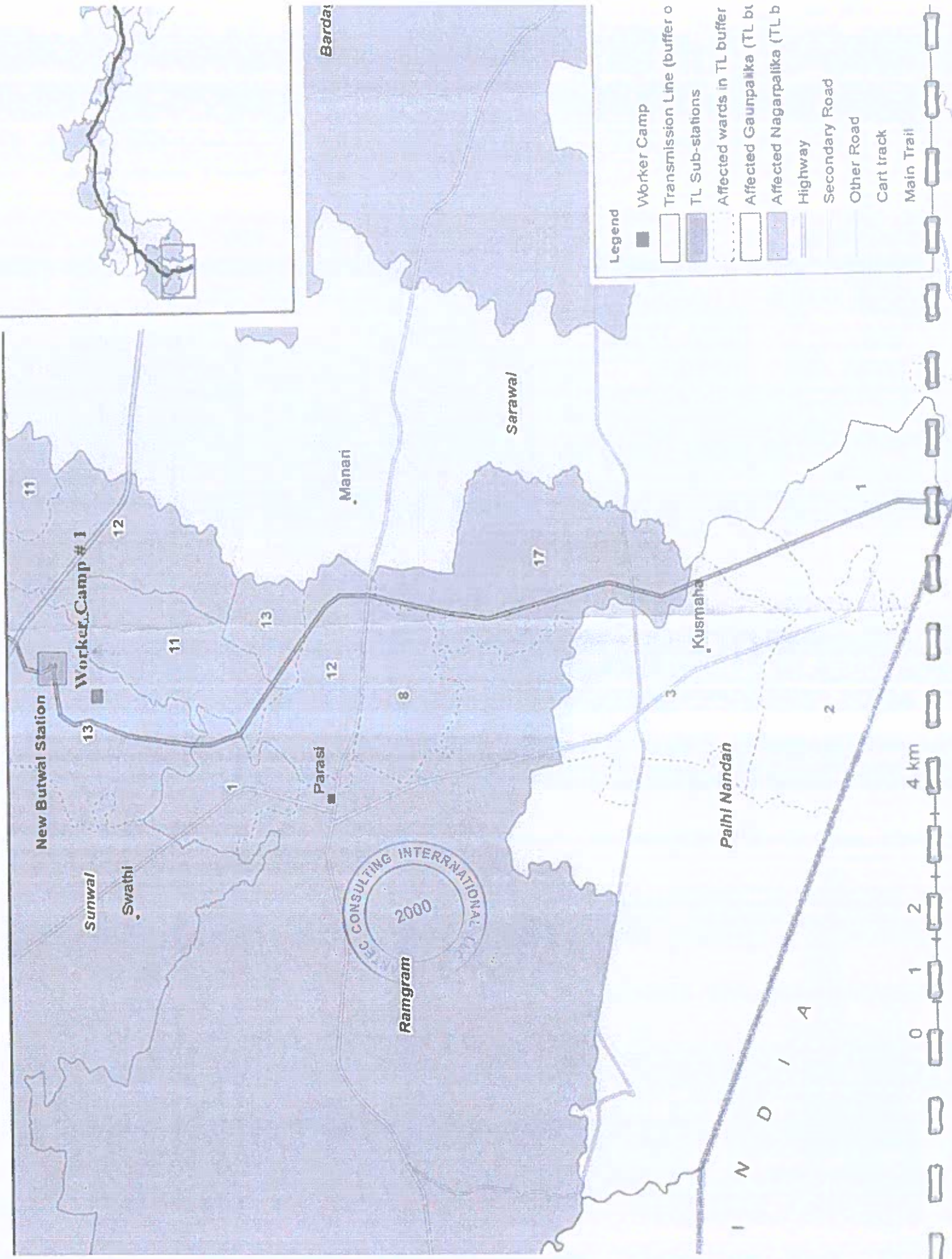
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Labels on the map include: Kerabari, Chisapani, Jaubari, Saurpani, Takukot, Arughat, Arutar, Tallo Rampur, Moidikot, Nilakantha, Dhading Besi, Dhadingbesi, 5 Worker Camp, Siddhalek, Ghyalchok Worker Camp # 5, Galun Bajar, Dharapani, Gajuri, Benighat Rorang, Jurbang, Charkilla, Silingi, Jutpani, Manakamana, Worker Camp # 4, Anbukhale, Chhipchhipe, Mobampur, Rampur, Bharatpur, Tikauli, Darghat, Luitel Bhanjyang, Chorkate, Harmi Bhanjyang, Gorakhkali, Gorakha (pokharinok Bajar), Makudanda, Dordor, Bandipur, and various ward numbers (1-10).





2.4 TYPE/NATURE OF THE PROJECT

This proposed Project is an electric transmission type project, including transmission lines, substations, and associated facilities required for Project construction. It is intended to be a significant component of Nepal's east-west transmission backbone and includes the second major planned cross-border interconnection with India.

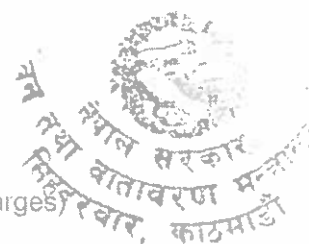
2.5 SAILENT FEATURES OF THE PROJECT

This section describes the salient features of the ETP, including the transmission lines, substations, and associated facilities.

2.5.1 Transmission Line

The proposed transmission line route is 308 km long and will involve construction of approximately 1,056 transmission towers. This route was selected to avoid or minimize impacts to the following resources:

- Environmental Resources (avoided)
 - All National Parks and associated Buffer Zones, including the Shivapuri Nagarjun National Park and buffer area
 - All National Wildlife Reserves and associated buffers
 - All Ramsar wetlands
 - Important Bird Areas
 - Bird Conservation Nepal-identified important nesting sites, wintering grounds, foraging areas, and colonies
 - World Wildlife Fund (WWF) designated Biodiversity Hotspots;
 - Kulekhani Watershed
 - National Trust for Nature Conservation/WWF Long Term Climate Change Monitoring Plots
 - Bat caves
- Environmental Features (reduced)
 - Forest clearing
 - Bird migratory routes
 - Known vulture, griffon, crane, ibisbill and eagle nesting and roosting areas
- Social Features (avoided)
 - Cultural heritage sites
- Social Features (reduced)
 - Building/structures within the Project Right-of-Way (ROW)
 - Towns and large villages
- Engineering Features (minimized)
 - Elevations over 2000 meters (m) (to minimize corona discharges)
 - Extremely steep terrain



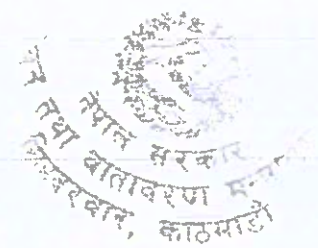
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- o Landslide prone areas
- o Crossings of proposed hydropower reservoirs
- o Conflicts with airspace

Table 2-2 provides a summary of the transmission line salient features.

Table 2-2 Transmission Line Salient Features

Feature	Description	Remarks
General		
Name of Project	Electricity Transmission Project (ETP)	
Project Provinces	3 Provinces	Province 3 (6 districts) Gandaki (2 districts) Province 5 (2 districts)
Project Districts	10 Districts	Nawalparasi (West of Bardaghat Susta), Nawalparasi (East of Bardaghat Susta), Palpa, Tanahu, Chitwan, Dhading, Nuwakot, Makawanpur, Sindhupalchok, Kathmandu
Construction period (years)	5	
Operational life expectancy (years)	50	
Financial Arrangements		Project funding is via a grant from the Millennium Challenge Corporation (a U.S. government agency) and contributions from the GoN
System Data:		
System nominal voltage (kV)	400	
System maximum voltage (kV)	420	
Number of Phases	6	(3 double circuit)
System nominal frequency (Hz)	50	
Line Data:		
Total ROW Length (km)	308	
ROW Width (m)	46	23 meter each side from center line
Highest elevation along the route (masl)	1918	
Lowest elevation along the route (masl)	101	
Circuit	Double Circuit	
Conductor	Aluminum Conductor Steel Reinforced (ACSR) Moose	Quad (four bundle)
Conductor size (mm ²)	597	
Conductor type (ACSR)	ACSR	
Conductor diameter (mm)	31.78	
Ultimate strength (kg)	16785	
Modulus of elasticity final (kg/mm ²)	7035	
Coefficient of linear expansion (per °C)	19.30x10 ⁻⁶	
Standard mass of conductor (kg/km)	1997	
Electrical D.C. resistance at 20°C (ohm/km)	0.05458	



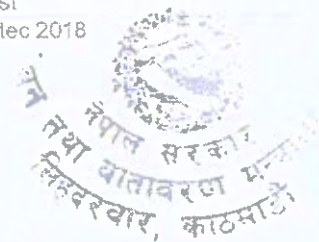
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Feature	Description	Remarks
Standard unjointed length on reel (m)	1800/ 2000/ 2200	
Number of overhead ground wires	2 per tower	1 galvanized steel, 1 optical
Design Data		
Temperature		
Maximum ambient temperature °C	50	
Minimum ambient temperature °C	0	
Maximum temperature of conductor °C	80	
Everyday temperature of conductor °C	32	
Wind Loads		
Wind pressure on the whole projected area of conductors kg/m ²	As Per IEC 60826	
Wind pressure on the whole projected area of steel angle members kg/m ²		
Wind pressure on 1.71 times projected area of steel angle face of structure kg/m ²		
Number of Highway Crossings	15	Lapsiphedhi - Bhotechour - Mid-hill Highway Kathmandu - Chhahare - Devighat Road Devighat - Galchhi - Mugling - Narayanghat Road Kathmandu - Naubise - Galchhi Road Muwakhola - Orlang Road Damauli-Ghumouni Road Khairenitar - Bhimad - Ghiring - Rampur Road Rampur - Nisdi - Daunne Road Daunne - Honshi Cement - Deurali (Dhurkot Road) Butwal - Narayanghat section of East-West Highway Sundaul - Maneshpur Road Hetauda - Manahara - Raksirang Road Hetauda - Namtar - Kalikatar Road Kalikatar - Raksirang Road Naubise - Agra - Kalikatar Road
Number of 66 kV Crossings	2	Devighat HEP - New Chabel Trishuli HPP - Bajaju
Number of 132 kV Crossings	6	Butwal - Bardghat Damauli - Bharatpur Bharatpur - Marsyangdi 4 and 5 Marsyangdi - Siuchatar (two crossings), Bharatpur - Hetauda
Number of 220 kV Crossings (all under construction)	5	Trishuli 3A - Matatirha New Marsyangdi - New Bharatpur New Hetauda - New Bharatpur Kusma HUB - New Butwal Marsyangdi - Bad Bhanjyan (Matatirha)
Number of 400 kV Crossing	None	
Total Number of towers	1056	

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Feature	Description	Remarks
Type of Towers		
Suspension (DA)	261	Numbers based on current alignment and subject to change during detailed survey and construction period. Approximate land area required for each tower is 400 m ²
Angle/Tension (DB, DC, DD)	795	Numbers based on current alignment and subject to change during detailed survey and construction period. Approximate land area required for each tower is 900 m ²
Tower foundation type	Pad and chimney concrete foundation	Foundations will be designed to withstand uplift, settlement/bearing pressure, overturning, and sliding (as appropriate) when subjected to the applied system loading. Allowances will also be made for hydrostatic pressure that may occur and the effects of seasonal rains, drying out or other cyclic loading.
Minimum clearance (m)		At + 80°C conductor temperature
To Ground	10.0	
Residential area	10.0	
Crossing Road	10.8	
Crossing Highways	10.8	
Crossing Communication Lines	6.5	
Crossing Rivers (non-navigable)	9	Clearance above highest flood level
Crossing Rivers (Navigable)	Variable	Clearance set in relation to the maximum height of the vessel anticipated to use the waterway, in consultation with the relevant navigational/ port authorities.
To metal clad or roofed buildings or building or structures upon which a man may stand (m)	8.4	
Power line crossings (above or below) by voltage rating of crossing line (kV)		
(Nominal/Highest)	6.49	
66/72	6.49	
132/145	6.49	
220/245	6.49	
400/420		
Average tower span (m)	292	
Maximum Tower span (m)	400	
Phase spacing (Vertical) (mm)	9500	
Shield Angle (DEG)	5	
Insulators	Glass or porcelain	
Project Cost	\$470 Million	Approximate cost

Source: MCA-Nepal/Proc/005 Draft Design Manual and Base Design Report: Stantec 2018



2.5.1.1 Transmission Towers

The DFS recommended the use of self-supporting lattice type galvanized steel frame tower structures, taking into consideration the length of the lines and cost.

- Suspension Towers (DA type): these towers are used in lines for straight-run or minor angle deviations of up to 2 degrees. Suspension (passing through) clamps support the conductors on this type of tower.
- Angle/Tension Towers (DB and DC type): these towers are used at locations where the deviation angle exceeds 2 or 3 degrees or where the towers are subjected to uplift loads. These towers are further classified as small angle towers for deviation angles of 2 or 3 to 15 degrees (called DB), and medium angle towers for deviation angles of 15 to 30 degrees (called DC). Tension (dead end) clamps support the conductors on this type of tower.
- Dead End Towers (DD type): dead-end towers are used at line termination points and can hold a deviation angle of about 30 to 60 degrees. They are also used as anti-cascading towers, which are used at certain intervals in line routes to prevent the propagation of a failure.

The allocation of the different transmission towers types across the five sections of the route is presented in Table 2-3

Table 2-3 Tower Type by Transmission Line Section

Transmission Line Section	Total Line Length (km)	Total Number of Towers	Tower Type DA	Tower Type DB	Tower Type DC	Tower Type DD
TL1 Ratmate to Lapsipedi	57	186	82	47	28	29
TL2 Ratmate to New Hetauda	56	190	76	68	21	25
TL3 New Damauli to Ratmate	88	313	9	214	45	45
TL4 New Butwal to New Damauli	84	310	48	167	51	44
TL5 New Butwal to India Border	23	57	46	1		
Total	308	1,056	261	497		



2.5.1.2 Safety and Security Measures

Each tower will be protected by two overhead cables that serve to shield the energized circuits from lightning strikes. In addition, each tower will be grounded, which establishes an electrical path from the steel tower to the earth in order to allow stray currents (which occur on all transmission lines due to lightning, switching, and surge events) to be conducted to the earth.

The Electric and magnetic fields (EMF) that naturally occur with energized circuits will be minimized at the base of the transmission line by establishing proper distances between the ground and the energized conductors and by arranging the phasing of the electrical circuits in a way that enables EMF cancellation.

2.5.1.3 Interconnection with India

The Project will coordinate a common structure from which transmission lines of the Nepal Electricity Authority (NEA) will connect to the transmission line of India's power authority. This coordination will ensure that the physical design of the structure is capable of meeting the strength requirements of both utilities so the electrical phasing is thoroughly synchronized between the two systems.

2.5.2 Substations

2.5.2.1 Constructability, Operability, Maintainability, and Safety and Reliability

Substations are typically used to transform voltage from high transmission voltages to lower distribution voltages for use by consumers. The physical layout and configuration of any high-voltage substation is based on two underlying principles:

- Constructability, Operability, Maintainability, and Safety
 - Constructability – practical design, including provisions for future expansion with minimal impact on the normal operations of existing components;
 - Operability – ensure substation operators can control substation components and systems according to their precise design intent in any switching configuration, and assuming extreme environmental conditions specific to the substation location;
 - Maintainability – of each individual substation component and the substation yard in general, with minimal impact on the normal operation of other substation components; and
 - Safety – of people who may come in contact with any substation component, intentionally or by accident.
- Reliability
 - Substation must be able to operate with minimal or no interruptions in power flow under various static (component failures) and dynamic (system transients) contingencies.
 - Due to cost impacts, each substation is evaluated individually based on its overall importance to the power system, and criticality of loads/generators interconnected through the substation.
 - No restrictions of power transfer during the maintenance of one breaker.

Each factor has a significant impact on the overall cost and size of the substation. Table 2-4 provides a summary of the substations salient features.

Table 2-4 Substation Salient Features

Substation Feature	Description
Site Area	From 4 to 20 hectares
Switchgear	Gas Insulated Switchgear at New Damauli, Ratmate, New Hetauda and Lapsipedi Air Insulated Switchgear at New Butwal
Staffing	50 people
Nominal system voltage and scheme	400 kV, Breaker and half configuration
Maximum voltage	420 kV
Corona extinction voltage	320 kV
Rated frequency	50 Hz
Grounding	Effectively earthed
HV conductor material	Aluminum/Aluminum Conductor Steel Reinforced (ACSR)
Minimum clearances	
Phase to Phase	4200 mm
Phase to Earth	3500 mm
Sectional clearance	6500 mm
Live part to tower body (no swing)	3050 mm
Seismic factor	0.5 g (equivalent to g-force)
Construction period	5 years
Operating life expectancy	Approximately 50 years

2.5.2.2 Substation Acquisition, Permitting, and Construction Responsibilities

Responsibilities for substation land acquisition, permitting, and construction is quite complex amongst the five substations because of the number of international financial institutions and the scope of their involvement. Table 2-5 summarizes the entities involved with each of these substations and the degree of their involvement.

MCA-Nepal will construct three of these substations (New Butwal, New Damauli, and Ratmate). For the other two substations (New Hetauda and Lapsipedi), MCA-Nepal will only tie into bays set aside by others for the MCA-Nepal lines.

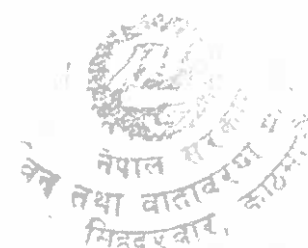


Table 2-5 Entities Responsible for Substation Land Acquisition, Environmental Permits, and Construction

Substation	Land Acquisition Responsibility	Environmental Permits	Construction Responsibility
New Butwal	NEA (land has already been acquired)	Asian Development Bank/NEA	MCA-Nepal constructs 0.15 km access road and 400 kV substation
New Damauli	NEA (In process)	MCA-Nepal in coordination with KfW	MCA-Nepal constructs 0.45 km access road and 400 kV substation
Ratmate	MCA-Nepal	MCA-Nepal	MCA-Nepal constructs 0.5 km access road and 400 kV substation
New Hetauda	NEA (land has already been acquired)	World Bank/NEA	MCA-Nepal to add two 400 kV bays for the lines coming from Ratmate
Lapsipedi	NEA (land has already been acquired)	Asian Development Bank/NEA	MCA-Nepal to tie into existing substation

2.5.2.3 Configuration

Table 2-6 summarizes the configuration for each of the substations.

Table 2-6 Summary of Substation Configurations

Substation	400 kV Bays	220 kV Bays	132 kV Bays	Transformers
New Butwal (Air Insulated Switchgear)	2 bays for lines to New Damauli 2 bays for lines to India 4 bays for future 400 kV lines	Space for 2 future bays	Space for 1 future bay	2x2, 3 phase MVA, 400/220 Space for 2x2, 3 phase, 315 MVA 400/220 kV future transformer
New Damauli (Gas Insulated Switchgear)	2 bays for lines to Ratmate 2 bays for lines to New Butwal	Space for 6 future bays by NEA/KfW	Space for 2 future bays by NEA/KfW	1 bay for 3x single phase, 167 MVA, 400/220 kV transformer Space for 2 bays 3x single phase, 167 MVA, 400/220 kV future transformer
Ratmate (Gas Insulated Switchgear)	2 bays for lines to New Damauli 2 bays for lines to New Hetauda 2 bays for lines to Lapsipedi 2 bays for lines to China Space for 2 bays for future lines from Budhi Gandaki Hydro	Space for 8 future bays	1 x 132 kV bay Space for 1 future bay	1 bay for 3x single phase, 167 MVA, 400/220 kV transformer Space for 1 bay for 3x single phase, 167 MVA, 400/220 kV future transformer
New Hetauda (Gas Insulated Switchgear)	2 bays for lines from Ratmate	Provided by others	Provided by others	Provided by others
Lapsipedi (Gas Insulated Switchgear)	2 bays for lines from Ratmate	Provided by others	Provided by others	Provided by others

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2.5.2.4 Substation Infrastructure

MCA-Nepal will provide the following infrastructure to support the three substations it will be constructing:

- Control building, which will include offices, control panels, battery/chargers, alternating current/direct current panels, protection and control panels, and washroom;
- Gas Insulated Switchgear or Air Insulated Switchgear building;
- Storage and maintenance building to provide covered storage for spare parts for major equipment unsuitable for long-term outdoor storage; space for water pumps has been allocated in this building as well;
- Staff living quarters and parking;
- Water treatment building, water storage tank, and distribution system for potable water;
- Septic system for domestic wastewater treatment and disposal; and
- Firefighting water tank.

An auxiliary power supply (i.e., a diesel generator set) will be provided to allow for black starts and provide backup power when no other sources are available. The Project's Environmental and Social Management Plan will include an Emergency Response Plan to address any potential emergencies at the substations.

2.5.2.5 Safety and Security

Each substation will have a guard house, perimeter security fence, adequate grounding, shielding, lighting, and controlled gate access to protect the public and the facility.

2.5.3 Associated and Ancillary Project Facilities

2.5.3.1 Work Camps

Ten work camp locations have been identified along the ETP alignment, as described in Table 2-7 below and marked in Figures 2-7 to 2-11. These locations have been selected to avoid forest areas and residential areas, and are expected to be acquired for the period of construction works from the landowners on a rental basis. To reduce the total land area affected by the Project, work camps have also been located within the footprints of the new substations at Ratmate, New Damauli, and New Butwal.

Each work camp will provide storage and laydown areas for materials and equipment.

The sites will be equipped with sanitation systems (currently expected to be septic systems), water sources from onsite wells or community water systems, and electrical power obtained from the local grid or onsite generator sets.

The work camps will also include site offices, yard areas, and fuel stores. Onsite mobile plant will include light and heavy duty cranes, and trucks. Substation sites will also use bulldozers, graders, front-end loaders, and cement mixers during site preparation, foundation laying, and building construction. All mobile equipment will be parked in designated areas within the secure work camps.

The potential environmental and social impacts relating to the construction and operation of the work camps, including solid and liquid waste management, sanitation, water and power supplies, and the transportation of materials and personnel to and from the work camps, will be addressed in the EIA.

Improvements to access roads are needed for Ratmate, New Damauli, and New Butwal substations, 0.5 km, 0.45 km, 0.15 km in length respectively. Access roads to the other work camps are not expected to be required because the sites are located next to existing roads.

Table 2-7 Work Camp Locations

Work Camps	Location	Transmission Line Section	Area in ha	Present Land Use
Work camp 1	New Butwal Substation (Bichalyapur)	TL5	1	Within substation site
Work camp 2	Near Rampur Bazaar (Bhantar, Tanahau)	TL4	1	Agriculture
Work camp 3	New Damauli Substation (Bhadkhala)	TL4 and TL3	1	Within substation site
Work camp 4	At Anbukhairani	TL3	1	Agriculture
Work camp 5	Near Gajuri (Kharamtar)	TL3	1	Agriculture
Work camp 6	Ratmate	TL2, TL3, and TL1	1	Within substation site
Work camp 7	Chharae, Nuwakot	TL1	1	Agriculture
Work camp 8	Near Chisapani Bhanjyang, Sindhupalchowk	TL1	1	Agriculture
Work camp 9	At Kailash GP, Makawanpur	TL2	1	Agriculture
Work camp 10	Near New Hetauda SS	TL2	1	Agriculture

2.5.3.2 Transmission Tower Construction Camps

Construction of the transmission towers will require about 60 temporary camps at about 5 km intervals along the route. These camps are expected to be about 0.25 hectares (ha) in size and will be rented from the landowner, with camp locations selected to avoid forested areas. The camps will provide accommodation for up to 75 workers on each tower foundation, tower erection, and the stringing teams as they move along the alignment, and for storage of materials. Camps locations will be selected to avoid forested areas.

At these camps, wastewater will be discharged to temporary septic pits, and power will be provided either by connecting to the local distribution network or by portable diesel generators. Water will be sourced from nearby rivers and streams where this will not impact local water requirements, or carried to site. All other materials will be carried from the nearest existing road to and from the construction site by porters, pack animal, or motorbike. For very remote tower locations such as Benighat Rorang, Ichhakamana, and parts of Chure, helicopter transport may be used.

The method of access to each of the transmission line tower sites will be included in the EIA.

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2.5.3.3 Other Associated and Ancillary Facilities

The Project will not require a dedicated quarry or crusher plant as the project's aggregate requirements for concrete are too dispersed along the over 308 km route to make a dedicated quarry/crusher economic. The Project will secure aggregate from existing quarry/aggregate operations or from nearby rivers, if the EIA establishes that this can be achieved without impacting the ecological resources of the area. Cement batch plants will not be required, as concrete will be mixed at a small scale at each tower site and at the substation sites. Similarly, because tower locations are not expected to generate large amounts of excavated materials, dedicated muck disposal sites are not expected to be required. Access roads are discussed in Section 2.3.2.

2.6 PROJECT ACTIVITIES

Following the stakeholder engagement and disclosure process, EIA approval by GoN, the obtaining of forest clearance permits, and the implementation of the land acquisition process, MCA-Nepal will select an Engineering, Procurement, and Construction (EPC) Contractor to build the transmission line. This section describes the construction methods that will be used to construct the Project, the construction workforce, and the planned construction schedule.

2.6.1 Construction Stage

2.6.1.1 Construction Methods

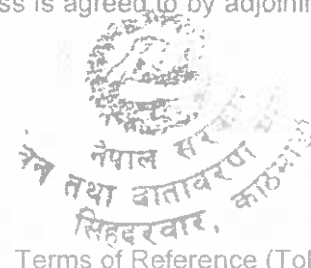
The EPC Contractor will construct the transmission lines in general accordance with the following procedure. Multiple construction crews will be working simultaneously; the procedure describe below will be ongoing concurrently at several locations along the route.

2.6.1.2 Clear the Site

Construction crews will survey the 46-meter-wide ROW and clear or trim vegetation to meet regulatory clearance requirements to ensure the reliable operation of the line. The type of clearing depends on the height of the trees, type of vegetation growing on the site, and presence of sensitive areas. Trees that could become tall enough to grow or fall into the transmission line must be removed. The Project's Environmental and Social Management Plan (ESMP) will specify the nature and extent of tree cutting or trimming.

2.6.1.3 Construct Access

The EPC Contractor must provide safe access to the work sites for its construction crews and their equipment. As indicated above, it is anticipated that access roads will only need to be constructed for the three substation sites. Access to the tower locations will be via porters, pack animals, winches, and possibly helicopters. Access may require limited clearing for construction of trails and installation of footbridges and culverts, depending on the type of access required. The EPC Contractor will access the work sites within the ROW, unless there are impassable obstacles blocking the route or if temporary access is agreed to by adjoining property owners.



2.6.1.4 Transport Materials to Tower Sites

Trucks will transport construction materials (e.g., tower materials, wire, and cement) to the tower sites whenever possible, but in many cases human porters, draught animals, and motorcycles will be used.

2.6.1.5 Excavate and Install the Foundations and Anchors

Most transmission towers have a concrete foundation. The construction crew will begin by removing and setting aside the topsoil for reuse and excavating the tower foundation with a backhoe or by hand. The size of the excavated area depends on the type of soil, presence of bedrock, and the type of tower. The construction crew will use pumps, if necessary, to remove groundwater and dry the site. Once the foundation area is excavated and dry, a steel rebar cage is positioned and backfilled with concrete. The construction crew will install anchors, which depend on the type of tower.

2.6.1.6 Assemble and Erect the Towers

Once the foundation is cured, the steel sections of the towers are winched into place and bolted together. Generally, the EPC Contractor will assemble the towers on site and construct them from the ground up. The selected towers use pre-fabricated sections, which allow for simple construction in remote locations.

2.6.1.7 String the Wire

With the towers in place, the next step is to string the transmission line wire ("conductor"). The wires are unreeled and strung section by section from tower to tower. There is a cable drum with a reel and tensioner at one end, and a puller and take-up reel at the other. In this step, workers make sure that the tension levels in the wires are within acceptable limits and that there is adequate clearance between the ground and the cables. Practices are adapted to account for sensitive and special environments.

2.6.1.8 Install the Counterpoise Wires

Counterpoise wires are installed to ground each tower and protect the line from lightning. A counterpoise wire is a special conductor that ensures the electrical connection between some or all of the line's towers and the ground. When minor excavation and filling work is required, mitigation measures are implemented. For example, counterpoise wires are not installed near wetlands to avoid heavy machinery traffic and excavation.

2.6.1.9 Restore the Site

Once a tower is complete and the wire strung, and depending on particular site conditions, the EPC Contractor restores the site typically by:

- Removing all the debris and waste;
- Dismantling the temporary accesses (roads, bridges, culverts);
- Repairing any infrastructure that was damaged during the work (roads, fences, etc.); and
- Restoring all disturbed areas using native shrubs, groundcover, and seeds.

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This general approach would be adopted for both private and non-private land. The EPC Contractor will meet with the respective landowners to ensure they are satisfied with the restoration. The EPC Contractor also takes responsibility for any damage that may have occurred as part of the work and compensates the landowners according to Project regulations. The specifics of the restoration works and any compensation arrangements will be undertaken in accordance with the Project Environmental, Social, Health, and Safety Management Plan (ESHSMP), and will be monitored and audited so as to confirm compliance with the ESHSMP.

2.6.2 Project Operation and Maintenance Stage

The proper maintenance of transmission systems and substation not only improves reliability but also generates revenue. Preventive or periodic maintenance is very relevant for keeping equipment continuously in service. The objectives of the O&M strategy will be to:

- Achieve system availability as specified by the regulator/system administrator at the most economic cost;
- Carry out periodic preventive maintenance so as to maximize the life of transmission lines; and
- Minimize the down time of the transmission lines for maintenance purposes.

This section provides a general overview of the Project's Operations and Maintenance (O&M) procedures, labor force requirements, and operating life expectancy.

2.6.2.1 Project Operation and Maintenance Procedures

Once construction is completed, MCA-Nepal will turn the Project facilities over to NEA for O&M as part of the overall electric transmission system of Nepal. NEA will operate the system in an efficient, coordinated, and economical manner, in compliance with the latest IE rules, safety regulations, grid code, Electricity Act, Central Board of Irrigation and Power Manual, Standards of Performance Regulation, and other applicable regulations and laws. NEA will use experienced and trained staff to carry out preventive maintenance and condition monitoring of the transmission system. All necessary tools and equipment will be procured and kept in storage at various locations along the transmission system to reduce downtime.

O&M procedures will include:

- **Ground patrolling:** Trim overgrown trees; monitor for structure encroachment into the ROW; detect and replace displaced vibration dampers/springs and other components; conduct thermo-vision scanning; stabilize soil erosion; repair rusting tower members; and replace stolen tower members and accessories.
- **Pre-monsoon patrolling:** Inspect foundation and tower conditions for each of the tower locations that will be difficult to access during the monsoons, or that are vulnerable to water logging, soil erosion, and flooding.
- **Post-monsoon patrolling:** Inspect each of the locations that could not be visited during the monsoon, checking for any damage to/exposure of the foundations, missing tower parts, damaged revetments, and all others that are scheduled for regular ground patrolling.



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2.6.2.2 Operation and Maintenance Workforce

Transmission line inspection and maintenance activities are expected to require about 50 personnel per line section, or about 250 personnel total for the ETP, comprising about 5 percent skilled, 10 percent semi-skilled, and 85 percent unskilled workers.

The operations at each substation would involve approximately 50 people, including about 40 percent skilled and 60 percent semi-skilled. There would be a few additional support staff for general maintenance and cleaning.

2.6.2.3 Project Operating Life

The nominal operational period of the Project's infrastructure is approximately 50 years. However, although it is likely that towers, cables, and substation elements might need replacing, the facilities (substation and transmission line) should be able to be used indefinitely. Therefore, for the purposes of the EIA, the infrastructure should be considered permanent.

2.7 CONSTRUCTION PLANNING

Construction planning includes permanent, restricted, and temporary land requirements; required human resources and other construction materials; associated Project facilities; and the Project implementation schedule.

2.7.1 Project Land Requirements

Total land requirement of the ETP is 1472.02 ha. Of this area, 115.11 ha will be acquired permanently, 1334.91 ha will become restricted use land because it falls under ROW and 22 ha will be used temporary.

About 565 ha of the total land requirement is classified as forest land and about 861 ha as agricultural land. The remaining 46 ha falls under the barren, river flood plain and other land (which is also considered as forest land) categories. Therefore total forest land requirement for the project is approximately 611 ha. Work camps will be located within substation sites or on private agricultural land. Table 2-9 summarizes the land required for this project. Initial studies suggest that majority of forest land falls under the category of community forest. There are approximately 210 community forests in the project footprint. Site-specific information on categories of forest land affected by the project will be provided in the EIA.

Table 2-8 summarizes land requirement by project components, temporary and permanent and requirement as well as land categorized by government and private land. Details of land requirement by categories will be provided in the EIA Report.

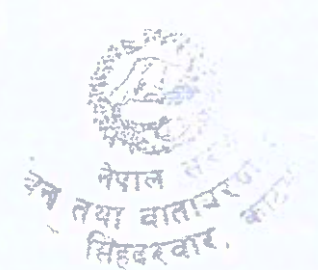
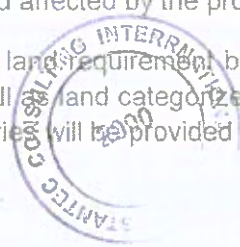


Table 2-8 Project Land Requirements

Project Component	Facilities	Land Area (ha)				
		Forest	Agricultural	Barren	River & Flood Plain	Others
Permanent						
Substations (acquisition)	New Butwal New Damauli Ratmate	0 0 0	6 6.5 20	0 0 0	0 0 0	0 0 0
Suspension Towers (acquisition) Angle/Tension Towers (acquisition)	261 towers (400 m ² per tower) 795 towers (900 m ² per tower)	4.15 28.6	5.91 40.63	0.02 0.15	0.16 1.13	0.15 1.05
New Substation Access Roads (Construction)	New Butwal - 900m ² (0.15km x 6m) New Damauli - 2700m ² (0.45km x 6m) Ratmate - 3000m ² (0.5km x 6m)	0 0 0	0.09 0.27 0.3	0 0 0	0 0 0	0 0 0
Sub-Total Restricted		32.75	79.7	0.17	1.29	1.2
ROW (easement)	Approximately 308-km-long (46-m-wide ROW ¹)	532.54	759	2.8	21.05	19.52
Sub-Total Temporary		532.54	759	2.8	21.05	19.52
Associated Project Facilities	3 Work Camps for New Substations (Located within in Substation area)	0	0	0	0	0
Associated Project Facilities	2 Work Camps for Existing Substations (1 ha each)	0	2	0	0	0
Associated Project Facilities	5 Work Camps for Transmission Lines (1 Ha each)	0	5	0	0	0
Associated Project Facilities	60 Construction Camps for Transmission Towers (0.25 ha each)	0	15	0	0	0
Sub-Total Grand Total		565.29	860.7	2.97	22.34	20.72



2.7.2 Project's Resource Requirements

2.7.2.1 Construction Workforce

The DFS estimated that construction of the ETP will require approximately 3,000 full-time equivalent workers over the construction duration, with approximately 30/70 skilled/unskilled labor split, and also indicated that women could fill nearly 40 percent of these positions (DFS Volume 2, pg. 206). The Project workforce will be drawn from the Project area to the extent possible, especially for unskilled labor; the hiring of women and individuals from marginalized and traditionally excluded groups will be prioritized.

Assuming that the substations are constructed at the same time, with 5 construction crews of about 40 workers each, and that the transmission line is also constructed simultaneously along the 5 route sections, with each section using 2 tower construction teams of 75 workers each, and two stringing teams of 75 worker each, the peak workforce will be about 1,700 workers.

2.7.2.2 Operation and Maintenance Workforce

Transmission line inspection and maintenance activities are expected to require about 50 personnel per line section, or about 250 personnel total for the ETP, comprising about 5 percent skilled, 10 percent semi-skilled, and 85 percent unskilled workers.

The operations at each substation would involve approximately 50 people, including about 40 percent skilled and 60 percent semi-skilled. There would be a few additional support staff for general maintenance and cleaning.

2.8 CONSTRUCTION MATERIALS AND EQUIPMENT

2.8.1 Construction Materials

The main construction materials for the Project will comprise galvanized steel for the transmission towers, steel reinforced aluminum wire for the conductors, and cement and aggregates to produce concrete for the tower and substation foundations.

Indicative amounts of the materials required for each tower are provided by tower type in Table 2-9 below

Table 2-9 Materials Required Per Tower

Tower Type	Concrete (m ³)	Steel bars (Ton)	Cement (bags)	Course Aggregate (m ³)	Fine Aggregate (m ³)	Tower Components (Steel) (kg)
DA	30	2.51	227	25	13	9,310
DB	73	7.48	557	62	31	15,469
DC	90	9.28	686	96	38	17,801
DD	121	12.60	930	103	51	21,912

Source: Stantec EIA team

Tower Type: DA = Double Circuit A type 0-2 degrees; DB= Double Circuit B type 2-15 degrees; DC=Double Circuit C type 15-30 degrees; DD= Double Circuit D type 30-60 degrees

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Indicative total amounts of materials required by each tower type, and the overall totals for all the towers required for the ETP are provided in Table 2-10 below.

Table 2-10 Total Materials Required for Tower Construction

Tower Type	Total Concrete	Total Steel bars	Total Cement	Total Course Aggregate	Total Fine Aggregate	Number of Towers	Tower Components (Steel)
	(m ³)	(Ton)	(bags)	(m ³)	(m ³)		(Ton)
DA	7,830	655	59,247	6525	3,393	261	2,430
DB	36,281	3,718	276,829	30,814	15,407	497	7,688
DC	13,500	1,392	102,900	14,400	5,700	150	2,670
DD	17,908	1,865	137,640	15,244	7,548	148	3,243
Total All Towers	75,519	7,629	576,616	66,983	32,048	1,056	16,031

Source: Stantec EIA team

Tower Type: DA = Double Circuit A type 0-2 degrees; DB= Double Circuit B type 2-15 degrees; DC= Double Circuit C type 15-30 degrees; DD= Double Circuit D type 30-60 degrees

Toxic Chemicals

Toxic chemicals such as acids are not expected to be required for the construction works, although diesel and petrol will be used as fuel for vehicles and generators. Any fuels stored on site will be stored in designated areas in suitable containers such as steel drums or above ground tanks, which will be bunded to provide containment in the event of spills or leaks. Explosives are not currently expected to be required for the Project. Indicative figures for the transmission line components required for the ETP are provided in Table 2-11.

Table 2-11 Transmission Line Components

Transmission Line Component	Amount Required for ETP
Aluminum Conductor Steel Reinforced (ACSR) Conductor Wire	7,600 km
Optical Ground Wire (OPGW)	318 km
Overhead Ground Wire (OHGW)	318 km
Insulator discs	910,000
Suspension insulator assemblies	1,600
Dead end/strain assemblies	9,400
Jumper assemblies	300

Source: Stantec EIA team



2.8.2 Construction Equipment

Construction equipment will include light and heavy duty cranes, winches, trucks and light vehicles.

Substation sites will also use bulldozers, graders, front-end loaders, and cement mixers during site preparation, foundation laying, and building construction. All mobile equipment will be parked in designated areas within the secure worksites. Helicopters may be used for delivery of materials to very remote tower locations.

Construction power will either be obtained from local distribution supply, or from portable generator sets at the transmission tower sites and diesel fueled generator sets at the substation sites.

2.9 SOURCES OF CONSTRUCTION POWER AND AGGREGATE

Construction Power

Construction power for the work camps will either be obtained from the local distribution supply, or from diesel generator sets, as per the listing below. Power at the transmission tower construction sites will also be obtained from either of these two sources.

- Work camp 1 Supply from Butwal Substation
- Work camp 2 Diesel generator sets
- Work camp 3 Supply from Damauli Substation
- Work camp 4 Diesel generator sets
- Work camp 5 Diesel generator sets
- Work camp 6 Supply from Nuwakot Substation
- Work camp 7 Diesel generator sets
- Work camp 8 Supply from Melamchi Substation
- Work camp 9 Diesel generator sets
- Work camp 10 Supply from Hetauda Substation

Aggregates

Aggregates and sand for the tower foundations may be sourced from local rivers, such as Trishuli river, Likhu Khola, Kailash Khola, Rapti Khola, Seti River, Kalgandaki River, Nisdi Khola, Arun Khola and other local aggregate source and local streams by manual extraction, if the EIA establishes that this can be achieved without impacting the ecological resources of the area.

2.10 PROJECT IMPLEMENTATION SCHEDULE

MCA-Nepal estimates that construction of the ETP will take no longer than 5 years, which is a requirement of the agreement between the MCC and the GoN. The construction schedule is currently anticipated to be 2020 through 2024.

The anticipated Project implementation schedule is shown in Table 2-12 below and in Figure 2-12.

Table 2-12 Project Implementation Schedule

Key Activity	Start ¹ (dd/mm/yy)	Finish (dd/mm/yy)
Pre-Construction Phase		
Completion of Bidding Documents	01/09/19	
Pre-Construction Schedule for Tendering	01/09/19	15/12/19
Technical Evaluation of Bids	15/12/19	15/03/20
Commercial Evaluation	15/03/19	15/04/20
Negotiation and Contract Award	15/04/20	15/06/20
Insurance Advance	15/06/20	31/08/20
Construction – Transmission Lines		
Detailed Design	01/09/20	31/03/21
Procurement of Material	01/01/20	31/12/20
Construction Mobilization	01/12/20	01/12/20
Construction	01/12/20	01/12/23
Testing and Commissioning and Energization	01/12/23	31/05/24
Handing Over to NEA	31/08/24	
Construction - Substations		
Detailed Design	01/09/20	31/03/21
Procurement of Equipment	01/01/21	31/08/22
Construction Mobilization	01/01/21	01/01/21
Construction	01/01/21	01/04/23
Testing and Commissioning	01/04/23	31/08/23
Energization	01/01/24	05/24
Handing Over to NEA	01/06/24	2000

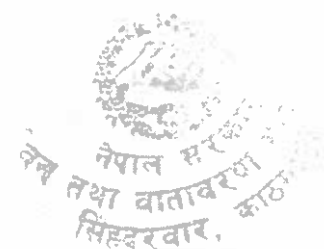
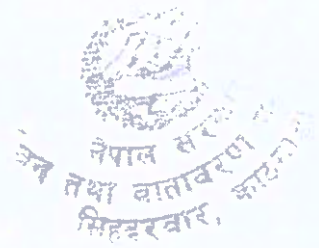
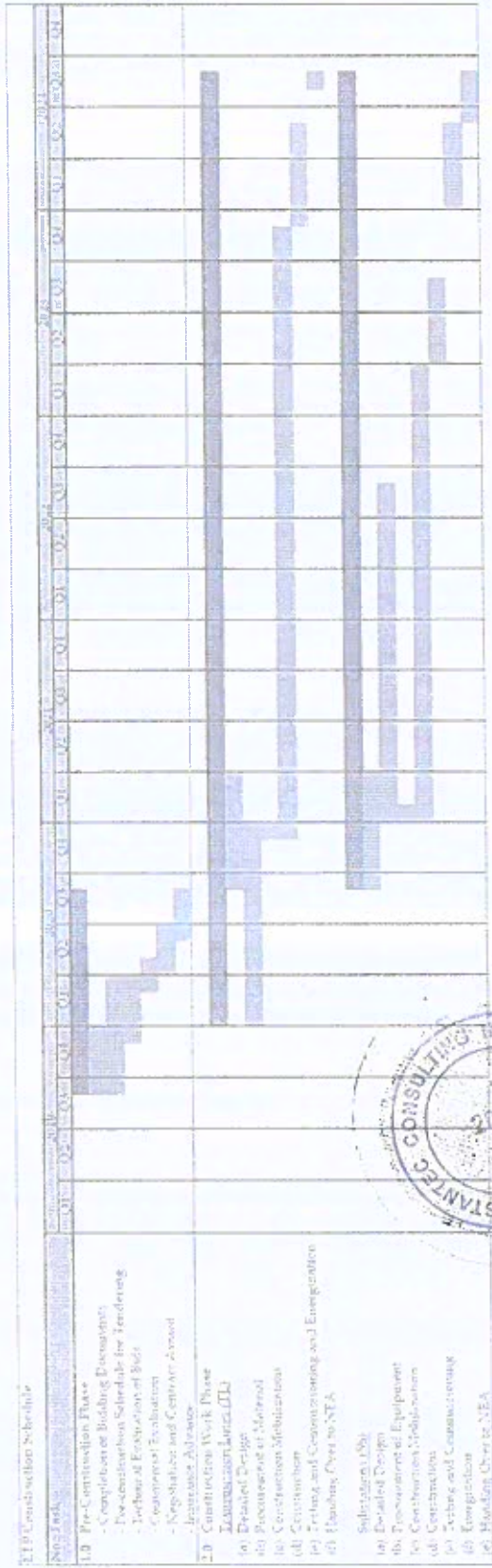


Figure 2-12 ETP Construction Schedule



3 REQUIRED INFORMATION AND COLLECTION METHODS

3.1 REQUIRED DATA AND INFORMATION FOR PREPARING THE REPORT

A comprehensive understanding of the pre-Project baseline conditions is an important component for evaluating impacts from the ETP. The baseline will also inform the types and scale of enhancement and mitigation measures to be adopted by the Project, and the types, locations, and frequency of monitoring that will be required during construction and operation to establish and demonstrate that the benefits of the Project are being delivered and that mitigation measures are being implemented and are achieving the level of control anticipated by the EIA.

The following data will be gathered through different sources.

Physical:

Physical Data:

- Digital terrain model
- Digital elevation model
- Topographic base map
- Aerial photographs from LiDAR; and
- Cadastral survey maps.

Land cover data:

- Settlements
- Roads
- Railroads
- Low density vegetation
- Medium density vegetation
- High density vegetation
- Riparian vegetation
- Wetlands
- Rivers
- Streambed
- Agriculture - non-irrigated
- Agriculture – irrigated
- Barren or non-vegetated land
- Existing distribution lines
- Structures (houses, sheds, schools, temples etc.)



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Climate:

- Climatic and meteorological data such as seasonal variations trends of temperature, rainfall, humidity, wind, etc.

Geology and Soil:

- Geomorphic features, soil types, thickness and geological properties, including erodibility and agricultural suitability, mineralization and mining activities data.

Water Resource:

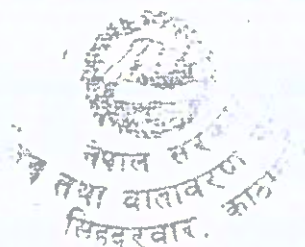
- Location, flow, quality, hydrological data, discharge characteristics, etc.

Biological:

- Protected areas, classified forests of biodiversity significance, internationally and nationally recognized areas of biodiversity significance within the ecological zones as relevant for the TL AoI
- Forest types, structure, condition, dominant species and status of Non-Timber Forest Products
- Terrestrial, avian and where relevant, aquatic species of conservation significance.
- List of Rare, Threatened, Endangered and Protected plants including medicinal and aromatic plants, with their conservation values and significances
- Ecologically sensitive habitats of plants.
- Natural or Modified Habitats (defined by Initial Finance Corporation [IFC] PS6) such as wetlands (rivers, streams, marshes), forests and other vegetation types, such as rocky formations providing habitat for the above species
- Areas important for species life histories, such as breeding, roosting, congregation sites or terrestrial and aerial migratory corridors
- Any other areas of ecological or evolutionary significance
- Species of ethnobotanical or ethno-zoological significance.
- Natural World Heritage Sites
- Ramsar sites
- Man-and-Biosphere Reserve
- Leasehold Forests
- Religious Forests
- Community Forests

Socio-economic and Cultural:

- Demography and Population;
- Household characteristics: household head (male, or female headed), social and kinship networks, source of income and livelihoods, members who have migrated away for work, risk/prevalence of trafficking in persons (TIP);
- Impact of the 2015 earthquake;
- Employment patterns, including self-employment;



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- Poverty incidence causes and trends;
- Agriculture;
- Trade and Industries;
- Health and sanitation;
- Education and literacy
- Gender Issues - women – roles, responsibilities, socio-economic and empowerment challenges (including access to credit, assets, land, financial structures and training);
- Caste structures and community dynamics;
- Infrastructure in project area - access to roads and transportation, energy, etc;
- Indigenous peoples;
- Poverty by caste and ethnicity;
- Profile of local economic trends linked to migration, influx, general industrial and infrastructure development;
- Impacts on social harmony and structure, socio-cultural practices, norms, values and culture due to influx of labor;
- HIV/AIDS and sexually-transmitted infections (STI), gender-based violence and child labor;
- Cultural and heritage and religious sites, festivals in project area;
- Archaeological sites in the Chabeni-Satpati region of Nawalparasi district (extended from Tribeni Ghat up to the base of the Chure Hills);
- Forms of cultural heritage;
- Proximity to endangered Adivasi groups;
- Leasehold forests;
- Religious forests; and
- Community forests.

3.2 METHODOLOGY FOR DATA COLLECTION

The proposed methodologies for establishing the baseline of the physical, biological, and social environment are described below. They involve three broad methodologies: i) Review of relevant literature; (ii) Compilation and analysis of secondary data; and ii) collection, analysis and interpretation of primary data through a focused program of baseline studies designed to characterize resources at the local level.

Information sources of all data will be specified and referenced within the EIA report; for field surveys, the year, time of year and the methodologies employed will be stated, and standard reference formats will be provided for secondary data.

3.2.1 Literature Review

With the benefit of the information gained from the scoping exercise, the Stantec EIA team will further research and review relevant literature during the preparation of the EIA. This will include published and unpublished literature from Department of Archaeology; Tribhuvan University, Centre for Nepal and Asia Studies; UNESCO Nepal; National Federation of Indigenous Peoples, Department of Mines and Geology, the Topographic Survey Department, Ministry of Forests and Environment, Central Bureau of Statistics, District Coordination Committee Offices, and other concerned agencies, DoED, Ministry of Forests and Environment, the Department of Hydrology and Meteorology (DHM), Ministry of Energy, Water Resource and Irrigation, NEA, the Federation of community Forestry Users Nepal and the Nepal Federation of Indigenous Nationalities. Other sources of literature include IUCN, International Centre for Integrated Mountain Development (ICIMOD), World Wildlife Fund (WWF), National Trust for Nature Conservation (NTNC), Bird Conservation Nepal (BCN), and President Chure Tarai Madesh Conservation Board. IEE and EIA reports of other transmission line projects in Nepal will also be reviewed.

3.2.2 Secondary Data Collection

In addition to primary data collection, the team will collect and review secondary data including Census data, district profiles, and any other relevant documents including:

- District/municipalities/rural municipalities profile;
- Existing literature and studies on benefit sharing;
- Central Bureau Statistics:
- Annual Household Survey;
- Nepal Living Standards Survey;
- Municipalities/ Rural municipalities yearly or three-yearly plans.
- Available Topographic maps from Department of Survey, google and aerial images;
- Relevant Policies, Acts, Rules and Guidelines/Manuals etc.;
- Published data form Ministry of Forests and Environment, Department of Hydrology and Meteorology, Ministry of Energy, Water Resource and Irrigation;
- Available air quality monitoring data from published (e.g., Ministry of Forests and Environment - <http://pollution.gov.np/#/stations?k=82776s>) and unpublished sources (e.g., data from local consultants) will be used to generally characterize ambient air quality in the vicinity of the ROW.
- Available noise monitoring data will be obtained to generally characterize existing noise levels along the project ROW from published and unpublished sources, such as Nepal Journal of Science and Technology www.nast.org.np/njst/index.php/njst/article/download/139/103/, Nepal Health Research Council - <http://library.nhrc.gov.np:8080/nhrc/handle/123456789/554> Lambert Academic Publishing - *Air and Noise Quality Monitoring in Semi Urban Areas of Nepal*, Studies from nearby areas, such as https://www.researchgate.net/profile/Dr_Ahmad_Kamruzzaman_Majumder/publication/n/237521677_Assessment_of_Traffic_Noise_Pollution_in_Banepa_A_Semi-Urban_Town_of_Nepal/links/02e7e51f8c0e00350b000000/Assessment-of-Traffic-Noise-Pollution-in-Banepa-A-Semi-Urban-Town-of-Nepal.pdf?origin=publication_detail;
- Peer reviewed scientific literature on biodiversity;
- Distribution maps produced by the Integrated Biodiversity Assessment Tool (IBAT);

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- IUCN Red-list distribution of species;
- National Red-list for birds and mammals;
- Databases on Reptifebase and Amphibase;
- Government reports on wildlife management plans.

3.2.3 Primary Data Collection

3.2.3.1 Physical and Chemical Environment

3.2.3.1.1 Physiography and Topography

Once a preliminary route is selected, helicopters will fly over the entire route using the Light Detection and Ranging (LiDAR) remote sensing method to obtain highly accurate (minimum of 10 points per square meter and minimum accuracy of 15 cm in elevation [Z direction]) and land cover data for a minimum 400 m wide corridor centered on the preliminary route. The results of the LiDAR survey include a digital terrain model, a digital elevation model, a topographic base map, aerial photographs, and vector maps.

PROJECT SPECIFIC PARAMETERS	
PARAMETER	DESCRIPTION
Horizontal Datum	WGS 84
Vertical Datum	WGS 84
Projection	PPP Methodology
Units	SI Survey Meters
Required Corridor Width	400 meters
Aerial Imagery Resolution	10 point per square meter

The digital terrain model, digital elevation model, topographic base map, and aerial photographs will all be reviewed to identify steep slopes, landslide-prone areas, and other topographic vulnerabilities. This analysis will be used in support of final tower spotting.

The Stantec team will ground truth the LiDAR data especially for any areas that appear that they may pose any significant topographic/slope risks.

3.2.3.1.2 Geology and Soils

The following activities will be undertaken for assessing the transmission line and sub-stations geology and soil attributes.

This desktop study will be validated through the execution of the field soil boring program, which will include the following scope.

Soil Borings

Drill approximately sixty (60) bore holes and conduct related soil testing and reporting. This number shall cover the proposed transmission line routes and three substations (two substations are being constructed by other projects) as follows:

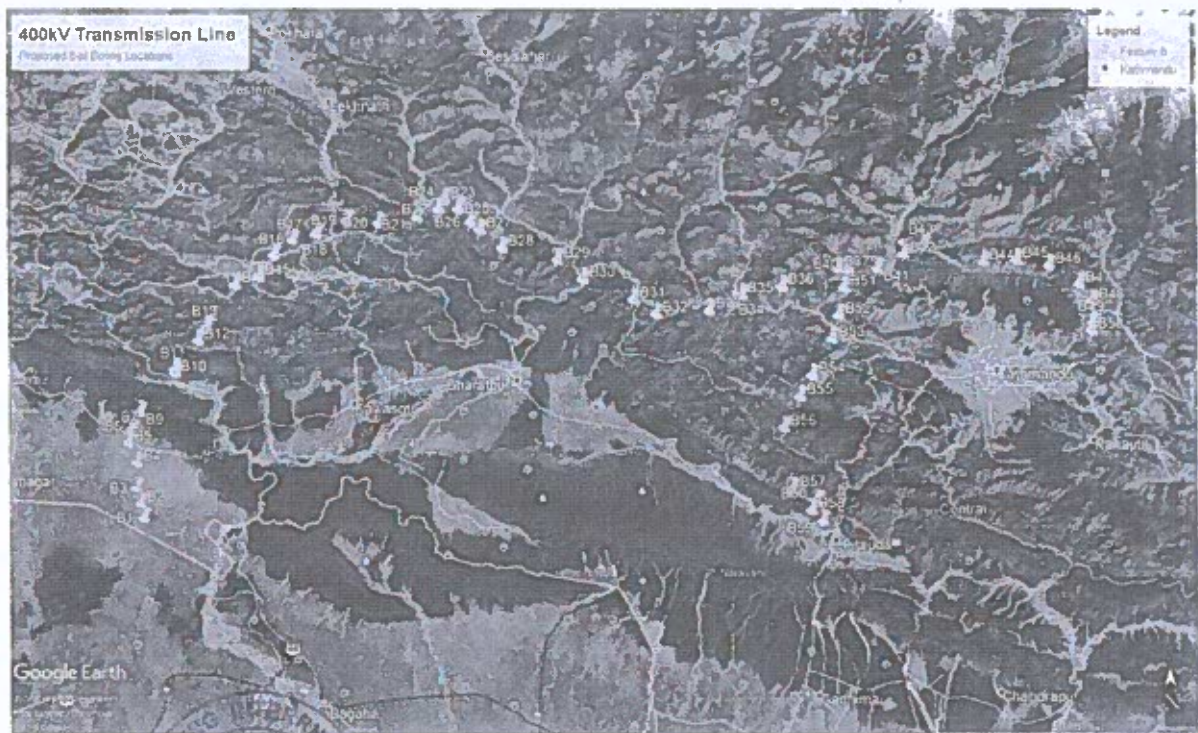
- India to New Butwal Segment
 - 5 borings along transmission line

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- 2 borings and resistivity tests at New Butwal substation
- New Butwal to New Damauli Segment
 - 14 borings along transmission line
 - 2 borings and resistivity tests at New Damauli substation
- New Damauli to Ratmate Segment
 - 13 borings along transmission line
 - 2 borings and resistivity tests at Ratmate substation
- Ratmate to Lapsiphedhi Segment
 - 12 borings along transmission line
- Ratmate to New Hetauda Segment
 - 10 borings along transmission line

Figure 3.1 presents proposed soil boring locations.

Figure 3-1 Proposed Soil Boring Locations



The soil borings will be conducted as follows:

- Borings shall be drilled to specified minimum depths.
- Standard penetration tests shall be obtained at intervals to allow accurate logging of the soil nature, thickness and characteristics and to obtain material for geotechnical testing.

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- When cohesive soils are encountered, at least one thin-walled tube sample shall be taken for each significant stratum of cohesive soil, or as required to adequately describe the design parameters.
- No boring shall terminate in soft soil, fill or organic material. Each boring shall penetrate the minimum amount of good material.
- Should rock be encountered before reaching the specified depth of the boring, rock coring will be performed.
- The borings will be logged on a continuous basis during drilling. Soil shall be visually classified in the field using USCS by ASTM D2487. A record of SPT blow counts shall be made. The following characteristics shall be noted in the sequence presented below for each soil type encountered:
 - Soil Type – Primary, Secondary (i.e. clay, sand)
 - Color – primary colors only
 - Consistency/Density – using blow count, Pocket Penetrometer
 - Plasticity – visual observation
 - Moisture – visual observation
 - Grain Size Distribution – note the presence of boulders
 - Any Other Features – such as mineralization, organics, odor, lack of bedding or structure, etc.

Where fill is encountered, it shall be described in great detail and shall include such information as approximate amount of organic material, topsoil, wood, or other decaying matter, loose or well compacted, amount of moisture, amount and type of debris, whether compactable or to be removed, etc.

For each boring, the location of the bore hole, depths of investigation, soil and rock types encountered will be documented.

Rock Coring

Where rock coring is required, continuous cores shall be obtained, labeled, and stored in appropriate core boxes. Rock materials shall be described in the sequence described below and in accordance with standard geologic nomenclature, including:

- Rock Type
- Relative Hardness
- Density
- Texture
- Color
- Weathering
- Bedding
- Fractures, Joints, Bedding Planes, and Cavities (including any filling material and whether open or closed)
- Rock Quality Designation (RQD)
- Other Descriptive Features (fossils, pits, crystals, etc.)

Soil Resistivity Tests

Soil resistivity tests will also be conducted at the substation sites and at intervals along the transmission line corridor to determine the field conditions that affect resistivity, document ground resistance parameters representative of the soil type encountered and make recommendations and notes on potential corrosive environment and considerations along the centerline.

Soil samples shall be collected, for the purpose of laboratory soil box resistivity testing, during the execution of borings at 0.5 m, 1.5 m, 3.0 m, 4.5 m and 6 m depth intervals. These samples shall be laboratory tested for resistivity based on ASTM G57-06 (Standard Test Method for Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method). The soil samples shall be stored in air tight containers sealed to protect the sample and its natural water contents.

Geological Hazards

The geotechnical team will also perform field based terrain stability and hazard identification to support the route selection and tower spotting activities, including estimates of ground motion values for the area and liquefaction potential.

Lab Testing and Analysis

All laboratory testing shall be performed in accordance with current applicable ASTM standards. The laboratory shall have the general capability for soil and rock testing as indicated in ASTM D3740, "Evaluation of Agencies Engaged in the Testing and/or Inspection of Soil and Rock as used in Engineering Design and Construction." The laboratory tests shall be made to provide data for the classification of the soil and rock encountered in the field and for the prediction of their engineering behavior when used as construction materials or for the support of the structures at the site or sites.

- Index Testing - Index testing including, but not limited to, dry density, moisture content, gradation, and Atterberg limits, shall be performed to adequately classify the soil in accordance with ASTM standards and evaluate subsurface conditions.
- Strength Testing - Strength testing shall be performed on undisturbed and/or relatively undisturbed soil samples to determine cohesion, angle of internal friction, shear strength and stress-strain modulus. Shear strength testing may include, but not be limited to, Triaxial Compression Tests UU, CD, or CUPP, direct shear, and/or consolidation testing, Uniaxial compression of rock specimens for determination of Uniaxial strength and shear modulus shall be performed to complete the engineering analysis and develop foundation design criteria.
- Design Parameters - The Engineer will use established calculation procedures for external stability of chimney & pad foundations and bond capacity of rock/soil pre-tensioned anchors. The Subcontractor shall provide the soil design parameters required for these engineering procedures. The values shall be listed in a tabular fashion for each distinctive soil layer of each boring. All design parameters shall be specified as ultimate and not working values, because the Engineer will design the structure foundations using factored loads.
- Testing for Water Soluble Sulfates - Testing for water soluble sulfates, shall be performed on a representative number of soil samples to evaluate the corrosive potential of the soil to buried concrete foundations. The Subcontractor shall measure

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the level of water soluble sulfate (SO₄) in the soil and categorize it as "negligible" to "very severe" based on Table 4.3.1 of ACI 318.

- Testing for pH of the Soil - Testing for pH of the soil shall be performed on a representative number of soil samples to evaluate the corrosive potential of the soil to buried metal foundations and grounding systems. The Subcontractor shall measure the level of pH in the soil in accordance with ASTM G51. Where test borings encounter soil strata that are classified as peat or muck, the soil samples from these strata shall be tested for pH in accordance with ASTM D2976, Standard Test Method for pH of Peat Materials.

Ground truthing

As needed, supplemental ground truthing will be conducted for critical areas of potential geological and soil vulnerability.

3.2.3.1.3 Land Use/Land Cover

A fit-for-purpose 10 meter resolution land cover classification will be created for the ROW using the most recent and cloud free open source Sentinel 2 satellite imagery¹ developed by the European Space Agency. The land-cover model will incorporate both automated and semi-automated analyses to identify natural and manmade features within the terrestrial component of the right-of-way. The analysis will be completed using a combination of supervised classification techniques (such as maximum likelihood classification) and manual identification primarily using geospatial analysis programs such as ESRI ArcPro to characterize all land into the following coverage following categories:

- Settlements
- Roads
- Railroads
- Low density vegetation
- Medium density vegetation
- High density vegetation
- Riparian vegetation
- Wetlands
- Rivers
- Streambed
- Agriculture - non-irrigated
- Agriculture – irrigated
- Barren or non-vegetated land

This land cover analysis will also include LiDAR identified physical features in accordance with Table 3-1.



Table 3-1 LiDAR-Identified Physical Features

Feature Code Table				
Feature Code	Feature Code Name	Feature Code Description	Planimetric Layer Name	Processing Category
1	Survey Monument			Feature On Ground
2	Permanent Benchmark			Feature On Ground
3	Property Bar			Feature On Ground
4	Section Corner			Feature On Ground
5	Right of Way (Edge)			Feature On Ground
13	Set PI	<i>Point on ground at the point of inflection on the surveyed line centerline</i>	Centerline	Feature On Ground
103	Water, Surface	<i>Surface elevation of bodies of water</i>	Water	Feature On Ground
104	Edge of Water	<i>Water edge of large bodies of water, lakes, rivers, etc.</i>	Water	Feature On Ground
105	Mass Ground	<i>Filtered and cleaned ground points</i>	N/R	Mass Points C
106	Obstructed Ground	<i>Elevation of point uncertain due to obstructions such as weeds, foliage, etc.</i>	N/R	Feature On Ground
107	Centerline of Creek	<i>Centerline of small creeks, less than 4'-0" wide</i>	Creek	Feature On Ground
108	Wetland Boundary	<i>Edge of wetland area</i>	Water	Feature On Ground
109	Road, Overhead	<i>Road surface on a bridge</i>	Road	Feature Above Ground
110	Road, Edge	<i>Edge of road, two lane: dirt, gravel or paved; small shoulder; no fog lines</i>	Road	Feature On Ground
113	Highway, Edge	<i>Edge of highway, two or four lanes, paved; large shoulder; fog lines</i>	Road	Feature On Ground
114	Trail, Edge	<i>Edge of trail, single lane, generally dirt or gravel for vehicle travel</i>	Trail	Feature On Ground
116	Drive, Edge	<i>Edge of drive, access to house or business</i>	Drive	Feature On Ground
119	Railroad Overhead	<i>Railroad on a bridge</i>	Rail	Feature Above Ground
120	Airstrip	<i>Runway at an airport</i>	Airstrip	Feature On Ground
121	Cemetery	<i>Burial ground and headstones</i>	N.R	Feature On Ground
122	Parking	<i>Edge of parking lot, parking is for business</i>	Parking	Feature On Ground
123	Slope, Top		Slope	Feature On Ground
124	Slope, Bottom		Slope	Feature On Ground
126	Ditch, Bottom	<i>Centerline of small ditches, less than 4'-0" wide</i>	Ditch	Feature On Ground
127	Rail Top	<i>Top of railroad rails</i>	Rail	Feature On Ground

Feature Code Table				
Feature Code	Feature Code Name	Feature Code Description	Plani-Metric Layer Name	Processing Category
132	Treeline	Identifies the treeline or shrubline	N/R	Mass Points B
200	Mass Structure	Transmission and Distribution Structure Points	N/R	Mass Points A
201	Existing Pole	Top of power pole, not on surveyed line	N/R	Feature Above Ground
202	Distribution Pole	Pole of surveyed distribution line	N/R	Feature Above Ground
203	Transmission Pole	Pole of surveyed transmission line	N/R	Feature Above Ground
205	Transmission Tower	Tower of surveyed transmission line	N/R	Feature Above Ground
206	Pole, Top	Top of surveyed poles	N/R	Feature Above Ground
207	Tower, Top	Top of surveyed towers	N/R	Feature Above Ground
210	Centerline Exist. Structure	Ground pt @ the midpoint of transmission structure on surveyed line	N/R	Feature On Ground
211	Substation Bus		N/R	Feature Above Ground
212	Misc. Power Structure	Ground pt @ the base of misc. power structure, such as substation structures, electric pedestal, pad mount transformer, etc.	N/R	Feature On Ground
215	Conductor	Surveyed conductor		Feature Above Ground
216	Shield Wire	Surveyed shield wire		Feature Above Ground
219	Attachment, on Str*		N/R	Feature Above Ground
220	Existing Anchor	Ground pt where the guy-anchor enters the earth		Feature On Ground
221	Anchor Line	Guy wire between structure and anchors	Guywire	Feature Above Ground
238	Crossing, Distribution Conductor	Distribution line span crossing the surveyed line; insulator length shorter than approximately 0.6 m with small phase spacing. Voltage <46 kV	Crossing	Mass Points B
239	Crossing, Transmission Conductor	Transmission line span crossing the surveyed line; insulator length longer than approximately 0.6 m with larger phase spacing. Voltage >46 kV	Crossing	Mass Points B
240	Crossing, Conductor	Undetermined line span crossing the surveyed line	Crossing	Mass Points B
241	Crossing, Top of Structure	Top of structure supporting line crossing span	N/R	Feature Above Ground
242	Mass Conductor	Transmission and Distribution Wire Points	N/R	Mass Points B
301	Top of Building, Corner	Above ground pt on buildings, houses, sheds, etc.	Building	Feature Above Ground

Feature Code Table				
Feature Code	Feature Code Name	Feature Code Description	Planimetric Layer Name	Processing Category
302	Base of Building, Corner	Ground pt of buildings, houses, sheds, etc.	Building	Feature On Ground
303	Building, Roof	Top of buildings, houses, sheds, etc.	Building	Feature Above Ground
307	Concrete Slab	Misc Concrete Slab	Concrete	Feature On Ground
308	Silo, Base	Ground pt @ the base of silo or grain bin	Silo	Feature Above Ground
310	Misc. Foundation Corner	Above ground pt, top of concrete for foundation supporting any type structure	Concrete	Feature On Ground
320	Ground at Fence, Corner	Ground pt at fence corner	Fence	Feature On Ground
321	Ground at Fence	Ground pt at fence	Fence	Feature On Ground
322	Fence, Top	Top of fence for a well maintained fence taller than 6'-0".	Fence	Feature Above Ground
331	Wall, Top	Above ground pt on wall taller than 6'-0"	Wall	Feature Above Ground
332	Wall, Base	Ground pt @ the base of wall	Wall	Feature On Ground
335	Bridge	Edge of Bridge	Bridge	Feature Above Ground
336	Dam	Outline of Dam	Dam	Feature On Ground
340	Tower, Base	Ground pt @ the base of communication tower, water tower, look-out tower, etc.	N/R	Feature On Ground
341	Tower, Top	Top of tower, radio tower, cell tower, etc.	N/R	Feature Above Ground
350	Misc. Structure	Used for unidentifiable structures	MiscStr	Feature Above Ground
351	Guard Rail	Ground pt @ the base of guard rail	GuardRail	Feature Above Ground
360	Fuel Tank	Top of fuel tank	Tank	Feature Above Ground
365	Swimming Pool	Edge of swimming pool	Pool	Feature On Ground
400	Pole, Streetlight	Top of streetlight	N/R	Feature Above Ground
402	Pole, Telephone	Top of telephone pole	N/R	Feature Above Ground
406	Sign, Top	Top of sign	Sign	Feature Above Ground
411	Underground Pipeline	Outline of below ground pipeline	Pipe	Feature On Ground
412	Above Ground Pipeline	Outline of above ground pipeline	Pipe	Feature Above Ground

As needed, land cover will be ground-truthed in the field to validate the GIS land cover interpretation or to confirm areas that are difficult to categorize.

3.2.3.1.4 Water Resources

Aerial imagery from LiDAR will be used to determine the width of all river, stream, lake, and pond crossings. Floodplain boundary will be assessed in the field by project water resource engineers or geomorphologists based on physical morphological features indicative of floodplains and conversations with local residents regarding approximate historic height of floods. If any towers need to be located within the floodplain (none known at this time), more detailed engineering assessment to estimate river heights and velocities will be conducted. Field investigations will be conducted to identify any springs along the ROW, with tower locations adjusted to avoid them.

3.2.3.1.5 Noise

Since the transmission lines will not generate any appreciable noise, primary noise data collection will be focused on the substation locations. At each of the five substation locations, measurements will be taken by a digital noise meter fitted with data logger. Noise readings will be taken at an interval of 2 seconds for 24 hours and the data will be stored. For monitoring at receiver locations, the same information will be collected, using hand held noise monitors. Noise readings will be noted at an interval of 2 seconds for a period of 15 minutes every hour for 24 hours. A suitable microphone shield will be fitted to the noise meter to cut down on interference from wind. At each location hourly, day time, and night time and day-night equivalent noise levels (Leq_{hourly} , Leq_{day} & Leq_{night}) will be computed from the hourly sound pressure level values measured between 0600 to 2200 hours and night time equivalent noise levels will be computed from the hourly sound pressure level values measured between 2200 to 0600 hours. This data will also be utilized to calculate statistical noise level indicators (L_{max} , L_{min} , L_{10} , L_{50} , L_{90} .)

The specification of the digital noise meters and the data logger that NESS will be using for the surveys are shown in Table 3-2.

Table 3-2 Specification of the Digital Noise Meters

Particular	Details
Brand	REED 2000
Model	RD-4023
Product No.	297250
Type	Triple range, Type 2
Measuring Range	30 to 130dB
Resolution	0.1dB
Accuracy	31.Hz±3.5dB; 63Hz±2.5dB; 125Hz±2.0dB; 250Hz±1.9dB; 500Hz±1.9dB; 1kHz±1.4dB; 2kHz±2.6dB; 4kHz±3.6dB; 8kHz±5.6dB
Frequency Weighting	A: Human Ear Listening; C: FLAT Response
Time Weighting	FAST: 200ms; SLOW: 500ms
Frequency Range	31.5 to 8000Hz
Auto Sampling Rate	1, 2,5, 10,30, 60, 120,300, 600, 1800, 3600seconds
Memory Card	SD Memory Card, 1GB to 16GB
Data Output	USB/RS232 PC Computer interface

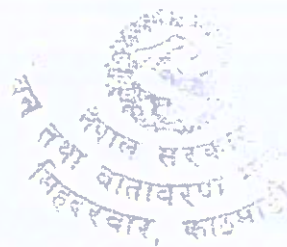
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Particular	Details
AC Output	0.5Vrms corresponding to each range step
Output Impedance	600 ohm
Power Supply	6 x 1.5V UM3/AA Batteries
Dimensions	Meter: 245x68x45mm (9.65x2.68x1.77"); Microphone: 12.7mm (0.5") diameter
Weight	489g (1.08lb)
Fast Time Weighting	
Max Response	-1.0dB
Fast Time Weighting	
Tolerance	+1dB / -2dB
Slow Time Weighting	
Max Response	-4.1dB
Slow Time Weighting	
Tolerance	±2dB
Sound Level Calibrator, Specifications	
Model	SC – 05
Output Sound Pressure Levels	94dB and 114dB
Accuracy	±0.5dB
Output Frequency	1000Hz±4%
Power Supply	One 9V Battery
Dimensions	120x51x43mm
Weight	Approx. 130 g
Compliance	IEC 942 Class 2
Manufacturer	Reed Instruments, US

Source: NESS

Noise monitoring is proposed to be carried out at the following locations: one monitoring station at each of the five substation locations.

- Ratmate (Nuwakot District);
- New Damauli (Tanahun District);
- New Butwal (Nawalparasi District);
- Lapsipedi (Kathmandu District); and
- New Hetauda (Makwanpur District).



Two further monitoring stations are proposed at two separate locations considering settlements in the vicinity of each substation.

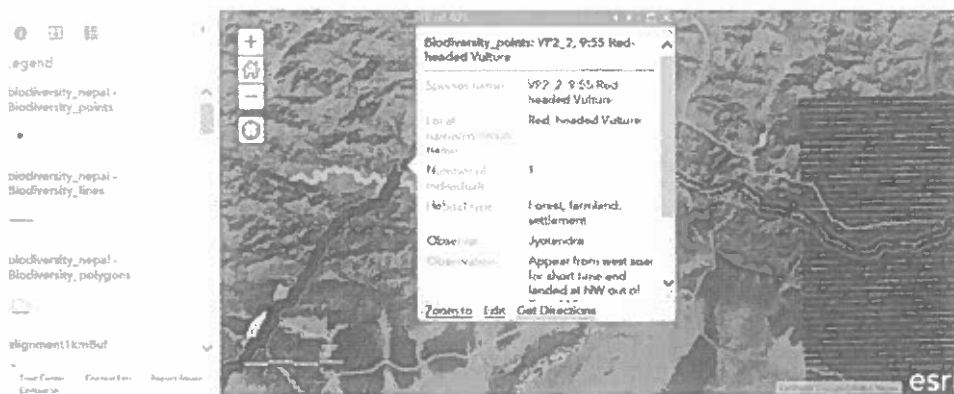
3.2.3.2 Biological Environment

Biological data will be collected for flora, terrestrial fauna, and birds. To ensure real time updating of survey data, for daily review by the team leaders and to ensure minimal inaccuracy

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of data resulting from transcription, the Biodiversity Collector app will be used. The Collector app is designed to access an ArcGIS database of the TL alignment which provides information on segment name, tower number, topography, land use and areas of national and international significance for biodiversity conservation. Users can enter data on the location of sighting of a species, species and species behaviour information and attach a photo of the species. The Collector app works on GPS enabled phones within our outside data networks. The data will be synced to the ArcGIS server. A screenshot of data entry into the collector app is provided in Figure 3-2.

Figure 3-2 Screenshot of Collector APP



3.2.3.2.1 Flora Survey

A quadrat of 20 m X 20 m will be laid down to characterize the forest community in the Project area. The quadrats for the other life forms i.e. shrubs and herbs, will be nested within the tree quadrats. One nested quadrat will be used to sample 50 ha of forest area, which is approximately the mean size of a community forests in Nepal. If forest areas are larger, than additional quadrats will be surveyed. The number of quadrats will thereby be proportional to the forest areas surveyed which will ensure good representation of all forest land. After selection of the final TL alignment, a 1% survey of forest land within the Area of Direct Impact will be conducted to estimate the number of trees within the ROW in accordance with Department of Forestry procedures.

The GPS coordinate of a point within the quadrat will be recorded for reference. Photographs will be taken of the site. The entire plot will be visited by a botanist and the plants will be recorded in a field data sheet. Botanists will identify these plants based on Flowering Plants of Nepal (Vol. 1) (Rajbhandari, KR and Rai, SK, 2017), **The Checklist of CITES listed flora of Nepal (Joshi, N, Sharma (Dhakal), K and Saud, DS 2017) *** Nepal Gazette Published by the Government of Nepal Volume 3, Ministry of Forests and Soil Conservation (now MoFE), 2074/7/17.

The plants with conservation significance will be directly loaded in the Biodiversity Collector APP (Figure 3.4), when possible. The quadrats will be first sub-divided into four quarters with ropes, from whose centre the canopy cover photo will be taken. The canopy cover will be estimated by the CANOPEO app that uses these photos to provide approximate canopy cover.

For shrubs, 5 m X 5 m quadrats will be laid at four corners of the tree quadrats. The shrubs and tree saplings will be recorded and photographs will be taken. Similarly, for herbs, 1m X

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1m quadrats will be laid at four corners of the tree quadrat. Herbs and shrubs which are not found in their respective quadrats but found within the tree quadrats will also be recorded.

As mentioned above quadrats will be selected based on the presence of natural habitat likely to have floral biodiversity value such as community forests, WWF biodiversity hotspots and critical biodiversity areas. These forests will be selected to ensure that all ETP segments vegetation types and altitudinal ranges are covered. Non forest areas will not be sampled.

Ethnobotanical use will be recorded from the local people or the members of forest user groups for each quadrat. Plants found in the site but not recorded within the quadrat will also be recorded as having significance for the life of people. The vegetation types will be determined based on the dominant trees and altitude. Vegetation types will be classified using Stainton (1972). Timber volume (Quarter Garth formula) and firewood volume (*Chatta*) will be calculated as prescribed by schedule 7 of Forest Rule, 1995.

$$\text{Timber Volume} = \frac{\text{Girth}^2}{16} \times \text{Length}$$

Table 3-3 provides the flora plot numbers within each of the TL segments. Figure 3-2 provides location of all Vantage Points and Transects. Figure 3-3 provides Terrestrial Flora Quadrat and Fauna Transect Map

Table 3-3: Floral Plot Numbers within TL Segments

TL Segment	Number of Quadrats
1. Lapshipedi to Ratmatae	21
2. Ratmate to New Hetauda	18
3. Ratmatae to New Damauli	22
4. New Damauli to New Butwai	34
5. New Butwal to India Border	0



Figure 3-3 Location of all Vantage Points and Transects



3.2.3.2.2 Terrestrial Fauna Survey

Line transects will be used to record presence of terrestrial fauna. Terrestrial fauna includes mammals, reptiles and amphibians. Each line transect will be approximately 1 km long.

On each line transect both direct evidence such as a clear sighting of the species observed or identified vocalization, or indirect evidence, such as scat (for carnivores), pellets (for smaller herbivores and lagomorphs), dung (for large herbivores), pugmarks ((for carnivores), hoofmarks (for smaller herbivores), padmarks (for elephants and rhinos) and scrapes (for larger carnivores), will be recorded. Species will be only identified based on direct evidence or if the indirect evidence is clearly attributed to the given species. The location of all direct and indirect evidence will be recorded with a GPS.

In addition community members encountered along the trails, such as non- timber forest produce collectors, livestock graziers or timber/firewood collectors will be interviewed for presence of species of conservation significance by showing them appropriate field guides. For mammals Menon (2014) will be used and for reptiles and amphibians, Schleich and Kästle (2002) will be used. Figure 3-4 provides the location of all transects within each TL segment.

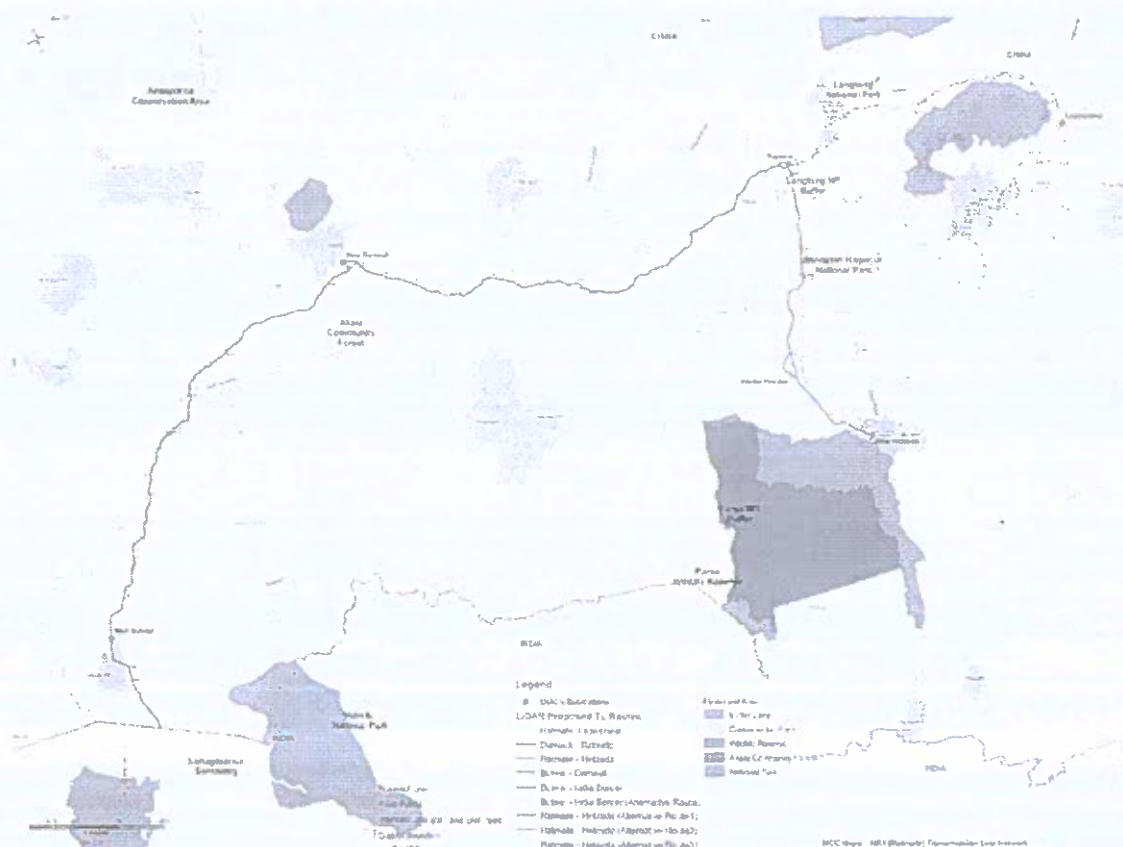
Camera trapping will be conducted to document the presence of primarily nocturnal animals. The specific number and location of the camera traps will be determined by the results of the terrestrial survey described above. The camera traps will be operated in each location for approximately 10 days.

Table 3-4 Total Sampling Transacts of all Segments

TL Segment	Number of Transects
1. Lapshiphedi to Ratmatae	16
2. Ratmate to New Hetauda	13

TL Segment	Number of Transects
3. Ratmatae to New Damauli	28
4. New Damauli to New Butwal	34
5. New Butwal to India Border	0

Figure 3-4 Terrestrial Flora Quadrat and Fauna Transect Map



3.2.3.2.3 Avifauna Survey

Line transect surveys will be used to record bird sightings i.e. direct and indirect observations (e.g. nests and bird calls) along a fixed pre-determined survey route. The survey routes will be determined by choosing locations that cover all identified important habitats within a 500 m strip on either side of the TL alignment. Each line transect will be repeated to capture temporal differences – 05:30-10:30 for morning transects and 15:00-18:30 for evening transects. For each sighting, the following information will be recorded:

- Species name;
- Common name;
- No. of individuals;
- Age/Sex where possible;
- Distance on the transect or survey route (every 100 m point will be marked along the permanent transects/survey routes);

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- Habitat type in which bird(s) sighted;
- Activity of the sighted bird(s) i.e. roosting, foraging, nesting, etc.;
- Geographical coordinates for each sighting; and
- For raptors and other birds of conservation significance (endemic & threatened - national & international), the flight height & direction of movement/flight was recorded.

The locations of all birds sighted will be recorded with a GPS. Vantage point surveys will record bird activity within a 500 m strip on either side of the TL alignment over the course of a single day (05:30-18:30). The vantage point surveys will be determined by choosing locations that cover all potential flight paths of bird species during the study (e.g. mass movement from one water body to another). For each bird sighting during the vantage point survey, the following information will be recorded.

- Species name;
- Common name;
- No. of individuals;
- Age/Sex where possible;
- Direction and height of flight;
- Nearest approximate distance from observer;
- Activity of the sighted bird(s) i.e. roosting, foraging, nesting, etc.;
- Geographical coordinates for each sighting; and
- Amount of time the bird was observed.

Vantage points will be located where a 360° view of the surrounding landscape is available so that approach, behaviour and enumeration of birds from all directions can be observed. All vantage points will be located as close to the TL alignment as possible.

Line transects will be located where impacts of construction activities is likely to be most relevant for loss of nesting, roosting and foraging sites, while vantage points will be located where risks of collision and electrocution are likely to be most relevant for soaring birds.

For both line transects and vantage the following binoculars will be used for visual identification.

- Opticorn, Countryman BGA HD WP 10*42
- Viking, Navilux 10*42

Table 3-5 provides the number of transects and vantage points within each TL segment while Figure 3-5 provides location of all vantage points and transects.

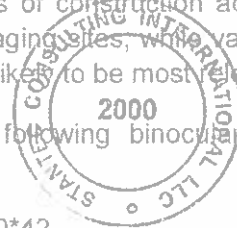
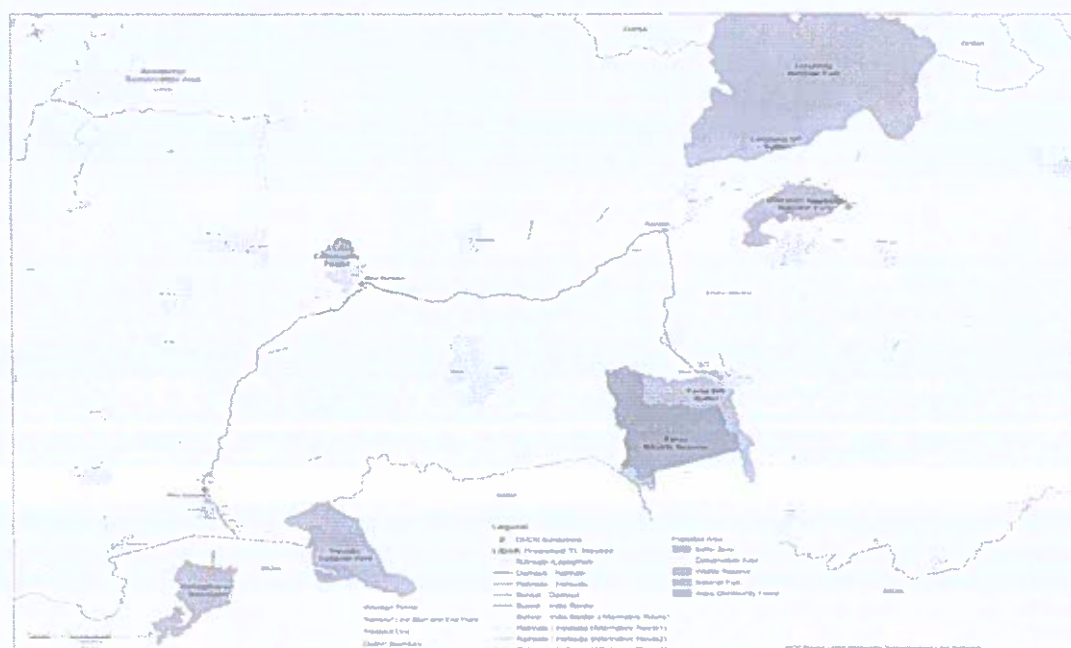


Table 3-5 Number of Line Transects and Vantage Points within TL Segment

TL Segment	Number of Transects	Number of Vantage Points
1. Lapshiphedi to Ratmatae	1	8
2. Ratmate to New Hetauda	2	1
3. Ratmatae to New Damauli	0	1
4. New Damauli to New Butwal	11	8
5. New Butwal to India Border		

Figure 3-5: Location of all Vantage Points and Transects



3.2.3.3 Socio-economic and Cultural Environment

3.2.3.3.1 Data Collection Methods

This project will conduct Household Surveys, Focus Group Discussions (FGDs), Key Informant Interviews (KIIs), public consultations and direct observations to collect primary data. Detail method as follows.

Household Survey

A total of 450 surveys will be conducted along the ETP corridor. Household Surveys will include information on demographics, access to resources, sources of income and expenditure, health and education, access to infrastructure, farming and livestock, non-

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agriculture activities, impact of earthquake, debt, savings and gender roles and trafficking. Household surveys will primarily inform the EIA/ESIA and BIKAS.

Sampling of households will be undertaken prior to survey on field. Using the list of households, survey teams will be provided the selected households for the survey. In case of non-availability of the household or non-response, the next household in the sample, as chosen through the sampling interval will be selected. The process will be followed till the required sample is exhausted.

The following sampling methodology will be used.

Determination of the Sample Size

A sample size is a part of the population, chosen for representation of a study or a phenomenon. It should be large enough to represent the population in the area of study. Sampling is usually done because it is time consuming and/or costly to conduct a population census. Therefore, sampling error has to be considered. Sampling error is measured by confidence level (α) or the margin of error ($1 - \alpha$). It implies that for a given confidence level (α) (10%, 5%, or 1%), if the given sampling method is used, then we can expect the sample to give true representation of the population 99% of the time.

For the purpose of this methodology, we define population size as 66,907 households located within the 95 wards crossed by the transmission line ROW. Based on the population size, there are two methods to derive at the sample size.

Yamane Method: Another method commonly used is the Yamane method which is used to determine the sample size from a given population, if the only information available is the population size.

$$n = N / (1 + Ne^2)$$

Where, n: sample size

N: population under study

e: margin of error

Yamane's (1967) method is useful when the population size is small. Using this method for the proposed household survey, using 95% confidence level, 5% margin of error for a population size of 66,907 households, the sample size will be:

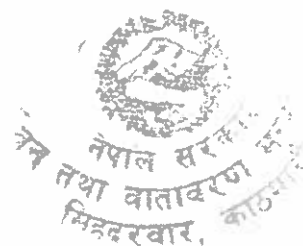
$$n = \frac{66907}{1 + 66907(0.05^2)}$$

= 400 households (approximately)

Considering 10-12% margin for non-response error, 450 HH Survey is recommended for the proposed ETP.

Significance of α

The level of precision (margin of errors) is the range in which the true value of the population is estimated. It implies that, for a given sampling method, if an inference is drawn on the population using the selected sample, it will lie within the range of the margin of error.



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The confidence level (95%) implies that, in repeated sampling, 95 out of 100 times, the sample will represent true attributes of the population under study. Therefore, the risk is reduced if the confidence level is increased to 99%.

Justification of Yamane's Method

If the population size is known, and there is no information on the mean and standard deviation of the variable under observation, the Yamane's method is preferred. Using 95% confidence level, 5% margin of error, and for the given sample size, the estimated sample size is 400. Considering a 10-12% margin for non-response error, 450 is statistically significant sample.

The 450 households (including 10-12% margin for non-response error) will form the sampling frame for the wards within the 46 meter corridor of the transmission line. These households will be selected from the sampling frame of 95 wards, spread across 33 municipalities along the Right of Way (RoW). It should be noted that wards are often large administrative units, and wards that falls within the 46m corridor may include households that are a kilometer or more away from the actual right of way. This sample will thus not be limited within the 46m buffer but within the wards through which the proposed ETP passes.

Determination of the Sampling Methodology

This section provides the sampling method that will be used for deriving the number of samples in the sample frame for the household surveys in the social baseline.

Stratified Sampling Method

This method takes into account certain parameters to segregate the sample into strata in the first step. In the second step, the final sampling units i.e. the households will be selected randomly from the strata on the basis of random sampling, given some a priori information regarding the location and type of settlements in the strata. It should be noted that, the transmission line passes through ten districts, the latest division being of Nawalparasi into Nawalparasi (West of Bardaghat Susta) and Nawalparasi (East of Bardaghat Susta). However, for the purpose of survey design, the data available is at a disaggregated level for nine districts currently. Hence, the survey design methodology detailed below is based on nine districts.

Step 1: The nine districts are assigned scores. These scores are derived from two parameters:

- The percentage of length of transmission line passing through each district;
- The ecological zone of the district- Terai, Hills or Mountains. The ecology of the districts is taken into account in order to accommodate the knowledge off the geographic variation of the region from where the transmission line will pass through.

Based on the above two parameters, the affected districts are assigned a combined score out of ten as shown in Table 3-6.

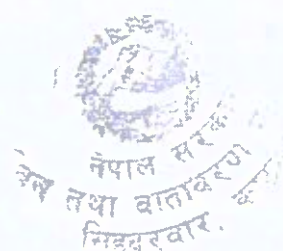


Table 3-6 District Scores Based on TL Length and Ecological Zone

Districts	Transmission line score	Ecological Rank	Ecology Score	Combined Score
Kathmandu	0.163	2	1.176	0.67
Chitwan	0.245	1	0.588	0.42
Sindhupalchowk	0.329	3	1.765	1.05
Palpa	0.814	2	1.176	1
Makawanpur	1.232	2	1.176	1.2
Nawalparasi	1.303	1	0.588	0.95
Dhading	1.807	2	1.176	1.49
Nuwakot	1.809	2	1.176	1.49
Tanahu	2.298	2	1.176	1.74
	10		9.997	10.01

As presented in the table above, the second column is the percentage of TL length on a scale of 10 for each of the districts.

The third column is the rank assigned to each of the districts- 1 for Terai, 2 for Hills and 3 for Mountains. Higher score reflects the difficulty level of accessing natural resources by population and limitations of physical infrastructure and road access. Based on the rank, the districts have been scored out of 10 as (individual rank/ sum of ranks)*10. For example, Kathmandu which is Hill, has been ranked 2. Based on the rank, its score is calculated as (2/17)*10.

The last column is the combined score, an average of both TL score and ecology score, on a scale of 10. These scores give the proportional representation of each district in the baseline survey. The intrinsic assumption in this case is that every district will be represented in the survey, it's proportional weight, given by the number of sample wards for each district, is being determined through this stratification process.

Step 2: Based on the scores above, districts are divided into four clusters- Low (0.00-0.5), Intermediate (0.5-1.00), High (1.00-1.50), Maximum (1.50-2.00) as presented in Table 3-7.

Table 3-7 Ward Level Clusters Based on TL Length and Ecological Zone

Clusters	Number of Districts	Districts	Total Number of wards	Sample wards
0-0.5 (Cluster 1)	1	Chitwan	4	1
0.5-1.00 (Cluster 2)	2	Kathmandu, Nawalparasi	17	3
1.00-1.50 (Cluster 3)	5	Palpa, Sindhupalchowk, Dhading, Nuwakot, Makawanpur	56	18
1.50-2.00 (Cluster 4)	1	Tanahu	18	8



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Step 3: Wards are then sampled from each stratum. In the first stratum, one ward is selected because each of the nine districts has to be represented in the sample. For the remaining stratas, sample sizes are calculated as:

Number of wards in the stratum * mean score value of the stratum * equal weightage for each stratum.

For example in 2nd stratum, the required sample is calculated as $17 * 0.75 * (1/4) = 3$.

We therefore have a total of 30 wards in the sample from the population of 95 wards.

Step 4: Given the required sample of wards for each stratum, a stratum wise sampling interval is used to randomly select wards from the available wards. Based on this approach, district wise selection of wards is proposed as shown in Table 3-8.

Table 3-8 No. of Wards from each District in the Sample

District	Total Number of Wards	Sample Wards	Description
Chitwan	4	1	This is the only district in Cluster 1, thus 1 ward is selected from Chitwan
Kathmandu	3	1	There are two districts in Cluster 2, 1 ward is selected from the total number of wards within Kathmandu district.
Nawalparasi	14	2	Nawalparasi is also in Cluster 2, two wards are selected from Nawalparasi
Palpa	6	2	Using sampling interval of 3, 2 wards are selected from Nawalparasi
Sindhupalchowk	4	1	1 ward is selected from 4 given a sampling interval of 3
Dhading	19	6	6 wards are selected from 19 given a sampling interval of 3
Nuwakot	18	6	6 wards are selected from 18 given a sampling interval of 3
Makwanpur	9	3	3 wards are selected from 9 given a sampling interval of 3
Tanahu	18	8	8 wards are selected from 18 given a sampling interval of 3

Based on the above table, the specific wards selected for the HH sample survey in each district are represented in the table below. The skip between two wards is based on the sampling interval for each district. In selecting a ward from a district, the sampling interval is used to arrive at the selected ward number.

For example, Sampling interval for Sindhupalchok is 3. In other words, the 3rd ward is to be selected. Therefore, starting from first, two wards are skipped and the third ward is selected.

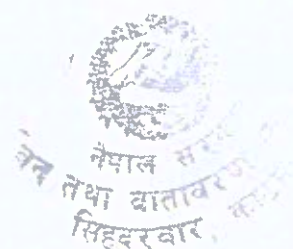
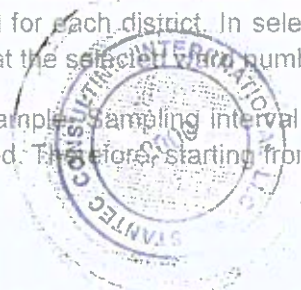


Table 3-9 Selection of 30 Wards from the Strata Based on District Wise Sampling Interval

Districts	Municipalities	Wards	Status
Sindhupalchowk	Melamchi	1	Select
		2	
		3	
		4	
Chitwan	Ichhyakamana	2	
		3	
		5	Select
		6	
Nawalparasi	Bardaghat	2	
		5	
		1	
	Ramgram	2	
		3	
		1	
		8	
		11	Select
		12	
		13	
Sarawal	7		
	Sunawal	11	
		13	
Tanahu	Abukhaireni	4	Select
		5	
		6	Select
	Bandipur	2	
		3	Select
		4	
		6	Select
		4	
		13	Select
		14	
	Ghiring	1	Select
		2	
		3	Select
		5	
Rhishing		1	Select
	6		
	7		
	8		

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Districts	Municipalities	Wards	Status	
Kathmandu	Shankharapur	1		
		2	Select	
		3		
Makwanpur	Hetauda	3	Select	
		11		
		19		
	Raksirang	1	Select	
	Kailash	3		
		4		
5		Select		
Palpa	Thaha	6		
		8		
	Nisdi	5	Select	
Nuwakot	Rampur	6		
		7		
		2		
	Belkotgadhi	3	Select	
		4		
		5	Select	
Dhading	Bidur	7		
		12		
		13	Select	
	Likhu	3		
		5		
		6	Select	
Tarkeshwar	Panchakanya	5		
		2		
		3	Select	
Dhading	Shivapuri	4		
		8		
		2	Select	
	Sindhurbar	Sindhurbar	3	
			4	
			3	Select
4				
Sindhurbar	Sindhurbar	5		
		6	Select	
		8		
		9		
Sindhurbar	Sindhurbar	10	Select	



Districts	Municipalities	Wards	Status
	Gajuri	2	
	Galchi	2	
		3	Select
		5	
		7	
		8	Select
	Nilakhantha	5	
	Siddhalek	6	
		7	Select
	Thakre	1	
		2	
		3	

Step 5: in the final step, the distribution of ultimate sampling units (USU), i.e. the households is determined. This is based on probability proportionate to size approach of determining the sample of number of households in each district. The household population of the wards is taken into account and probability proportional to size (PPS) is used as weighing scheme for the population. In this approach, the combined scores for each district are used to first arrive at district wise proportionate sampling distribution out of 450. This is explained below-

→ Number of HHs in the district sample = (Combined score*450)/sum of all scores

Table 3-10 Sampling Distribution of 450 HHs across Districts

Districts	Combined score	No. of HHs
Kathmandu	0.67	30
Chitawan	0.42	19
Sindhupalchok	1.05	47
Palpa	1	45
Makawanpur	1.2	54
Nawalparasi	0.95	43
Dhading	1.49	67
Nuwakot	1.49	67
Tanahu	1.74	78
Total	10	450

Step 6: In the next step, the sample numbers are distributed across the selected wards according to PPS. The household population is used as weight for each of the selected wards to arrive at ward wise sample count of households. This is given in the table below. The calculation is represented here

No. of sample HHs = (probability of HH being selected)/(sum of sample ward probabilities in the district)* district sample size

Three districts are exception to the above formula-Kathmandu, Sindhupalchok and Chitwan which are represented by only one ward. In that case, the entire district sample of households is to be selected from the selected ward.

Table 3-11 No. of Households in the Selected Wards Based on PPS

Districts	Municipalities	Wards	Status	HH Population	Probability of a HH being selected	No. of sample HHs	
Sindhupalchowk	Melamchi	1					
		2					
		3	Select	576	0.001736111	47	
		4					
Chitwan	Ichhyakamana	2					
		3					
		5	Select	835	0.001197605	19	
		6					
Nawalparasi	Bardaghat	2					
		5					
		1					
	Palhi Nandan	2					
		3					
		1					
		8	Select	384	0.002604167	31	
	Ramgram	11					
		12					
		13					
		17					
		7					
		11					
Sarawal	13	Select	996	0.001004016	12		
	11						
Tanahu	Sunawal	4					
		5	Select	356	0.002808989	18	
		6					
	Bandipur	2	Select	982	0.00101833	7	
		3					
		4	Select	984	0.00101626	7	
		6					
	Bhimad	4	Select	625	0.0016	10	
		13					
	Byas	14	Select	703	0.001422475	9	
1							
Ghiring	2	Select	757	0.001321004	9		
	5	Select	767	0.001303781	9		
	6	Select	710	0.001408451	9		
	8						
	1						
Rhishina	20001						
	6						

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Districts	Municipalities	Wards	Status	HH Population	Probability of a HH being selected	No. of sample HHs	
Kathmandu	Shankharapur	1					
		2	Select	392	0.00255102	30	
		3					
Makwanpur	Hetauda	3					
		11					
		19	Select	1728	0.000578704	8	
	Raksirang	1					
		3					
	Kailash	4	Select	580	0.001724138	24	
		5					
		6					
	Thaha	8	Select	659	0.001517451	21	
Palpa	Nisdi	5					
		6					
		7	Select	576	0.001736111	27	
	Rampur	2					
3							
		4	Select	885	0.001129944	18	
Nuwakot	Belkotgadhi	5					
		7					
		12	Select	519	0.001926782	12	
			13				
	Bidur	3					
		5	Select	781	0.00128041	6	
			6				
	Likhu	3					
		5	Select		0.002544529	16	
		6					
5							
Panchakanya	5						
	2	Select		0.002232143	14		
Shivapuri	3						
	4						
		8	Select	592	0.001689189	10	
Tarkeshwar	2						
	3						
	4	Select	639	0.001564945	10		
Dhading	Benighat	3					
		4					
	Rorang	5	Select	765	0.00130719	10	
		6					
		8					
		9	Select	631	0.001584786	10	

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Districts	Municipalities	Wards	Status	HH Population	Probability of a HH being selected	No. of sample HHs
		10				
	Gajuri	2				
	Galchi	2	Select	706	0.001416431	11
		3				
		5				
		7	Select	688	0.001453488	11
		8				
	Nilakhantha	5				
	Siddhalek	6	Select	629	0.001589825	13
		7				
	Thakre	1				
		2	Select	893	0.001119821	9
		3				

Step 7: In the final step, the settlements and ultimately the households are identified through random sampling method. For the selected wards, the list of settlements is obtained. The list is used to select settlements for the survey randomly by using a sampling interval of 5 i.e. every fifth settlement is selected from the list. The rule of thumb applied here is to select at least one settlement, if the number of settlements in the list is less than ten, and for more than ten settlements, the sampling interval of 5 is applied.

Subsequently, the listing of households is carried out for the selected settlements. The household list contains the name of the head of the household for each of the settlement. Given the required number of households in the sample for a settlement, the households are randomly chosen using a sampling interval unique to each of the settlement.

Sampling Frame

The sampling frame has been taken as all households within 10 districts, 31 municipalities and 95 wards, the administrative units traversed by the proposed ETP. The unit of analysis will be individual households within the affected wards for HH Survey.

Survey Questionnaire

A survey questionnaire has been developed for household survey that includes questions on different aspects of socio-economic situation of households in project area. Annex B includes questionnaire developed for the study.

Focus Group Discussion (FGDs)

FGDs will be conducted with different key stakeholders with the affected wards, municipalities and districts to complement baseline survey work. A total of 76 FGDs is planned for the project. While 25 FGDs will be conducted in the same ward selected for HH sample survey, remaining 51 will be conducted in remaining wards within the affected municipalities traversed by the transmission line.

FGD will be conducted in a location that is accessible to the affected wards, to the extent possible to maximize participation with translation provided in predominant local languages.

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Annex B includes a checklist prepared for FGDs.

Key Informant Interviews (KIIs)

ETP will conduct KIIs with different stakeholder groups in affected districts, municipalities, central level agencies, multi-lateral and bi-lateral organizations and NGOs.

More than 50 KIIs will be conducted with different stakeholders among the affected municipalities and districts, as well as central government. Annex B includes a checklist prepared for key informant interviews. Table 3-12 presents the total number of HH Survey, FGDs and KIIs proposed for the ETP.

Table 3-12 Survey Tools and Proposed Number of Surveys

Survey Tool	Unit	Total Number of Survey/FGDs/KIIs
Household Survey	15 HH Survey in each selected HH survey sampling wards*	450 HH Surveys
FGD with Women's Group	5 in affected and sampled wards and 5 in wards outside the sampling wards but those within the affected wards	10
FGD with Indigenous Community	7 in affected and sampled wards and 5 in wards outside the sampling wards but those within the affected wards	12
FGD with CFUGs	7 in affected and sampled wards and 5 in wards outside the sampling wards but those within the affected wards	12
FGD with Famers	3 in sampled and affected wards and 3 in wards outside the sampling wards but those within the affected wards.	6
FGD with Youth	3 in sampled and affected wards and 2 in wards outside the sampling wards but those within the affected wards.	5
KIIs with Municipality Officials	1 in each affected municipality	31
KIIs with District Officials	1 in each affected district	10
KIIs with central ministries	KIIs with central ministries including minister of federal affairs, ministry of forest and environment, department of land reforms, AEPC	10
KIIs with relevant government departments at local level, autonomous bodies and NGOs	6 KIIs with National Federation of Indigenous Nationalities (NAFIN), 10 KIIs with Federation of Community Forest Users Nepal (FECOFUN), 3 KIIs with District Forest Office (DFO) and 4 KIIs with Trafficking related NGOs	23

*HH Survey sampling wards= wards where we will be conducting household surveys

Public Consultations

Public consultation is another means of primary data collection. Consultation with affected communities and local government representatives will be conducted to discuss preliminary findings of the physical, environmental and social baseline surveys. Such consultations will

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help to validate findings of baseline surveys and also help to collect additional information to further refine baseline results.

3.2.3.3.2 Pilot Testing

All survey tools will be pre-tested prior to survey to further polish the survey, enhance data quality and assess their use under actual field conditions and will be finalized based on the feedback and quality of responses.

During the pilot survey, the team will also identify constraints, if any, of identifying specific households based on the agreed methodology given the terrain and remoteness of the project location. Literature suggests 10% of the total sample size as commonly used for pilot testing.¹ Therefore, a total of 40 pilot surveys will be conducted during pilot testing in locations representative of landscape conditions across the route (i.e., Terai and hills). Following the pilot testing, survey tools will be finalized.

3.2.3.3.3 Training to Surveyors

The Stantec team will conduct a two-day training to the survey team. The team is in the process of identifying experienced surveyors, preferably with sector-specific knowledge, to conduct baseline survey work. The team will make effort to reach out to women surveyors to the extent possible.

A two-day training is planned for the survey team. The training will be provided by the Stantec team who will be assisting with the development of tablet survey. The training will include:

- Health & Safety considerations during the survey;
- Brief introduction of the project;
- Objective of the survey;
- Sampling methodology and selection of households; and
- Use of tablets.

3.2.3.3.4 Data Management

A data management plan has been developed to include (i) local requirements for clearance on protection of human subjects, (ii) clearance by local authorities to conduct the survey, and (iii) privacy laws that inform data management and sharing practices, if applicable iv) establish practices for storage of data files to protect confidentiality of the data.

The structure of the data management plan is given below:

For the Household (HH) Survey data collection, storage, and validation (QC) are performed at three levels: (1) Survey Interviewer (2) Survey agency TMS, and (3) ERM. The table below describes the key activities in HH survey



¹ Connelly, L. M. (2005). Pilot studies. *MedSurg Nursing*, 17(5), 411-2

Table 3-13 Data Management Workflow for HH Survey

Activity	Data Management Resource	Role and Responsibility
Data collection in the field, across the TL alignment, in sample locations	Big Data Survey Mobile Application -	Field surveyors of TMS, using tablets programmed
Data storage	Microsoft Cloud Server	Bonaventure System
Data validation	Tablet	Field surveyors of TMS
	Excel sheets on the server	ERM

For the FGD/KII, data collection, storage and validation (QC) are also performed at two levels: (1) FGD coordinator of ERM, and (2) Team lead (TMS and NESS). The table below describes the key activities involved in FGDs/KIIs.

Table 3-14 Data Management Workflow for KIIs and FGDs

Activity	Data Management Resource	Role and Responsibility
Information collection	KII/FGD checklist	FGD coordinator and Team lead
	Audio recorder	FGD coordinator
Information storage (in field)	Local systems (laptops)	ERM
Information transmission (audio and text)	Local systems (laptops), using ERM email	ERM
Data validation		
	Translated-transcribed audio files FGD notes	ERM
Data storage	After validation, ERM Server	ERM

3.2.3.3.5 QA/QC Process

The data quality assurance framework describes the measures to assure data quality through routine processes. Any kind of data should contain five attributes which ensures that the data can be used for analysis. These are:

- Validity – data must be true representation of the indicator and the indicator must be a valid measure
- Reliability – data is reliable when the methods used to collect and analyze remain constant over time
- Precision – the data contains sufficient details to represent the complete picture of what is observed on ground
- Integrity – a system that protects data from any kind of human manipulation, unauthorized changes, or any kind of bias.
- Timeliness – the data is reported in a real time manner as and when collected from the field which makes management decision making process responsive and dynamic.

The objective of data quality assurance is to ensure that the data collected contains the above five attributes. The strategies outlined for quality assurance of the data collected is aimed to reduce:

- Estimation error and bias
- Measurement error and bias

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- Transcription error and bias
- Data processing error

The QA/QC process to be implemented for the household survey will cover all the above objectives through the process as explained below:

Implementation of approved survey plan: In the event of any changes in the approved survey methodology due to local conditions or limited information of the region, the update in the methodology will be undertaken on a scientific basis, using an approach which is similar in nature to the methodology described above. The same changes will be communicated to MCA regarding any modifications, the corrective measures needed to comply with any updated elements or align data already collected with the new process, and the implications to project schedule resulting from the proposed modification.

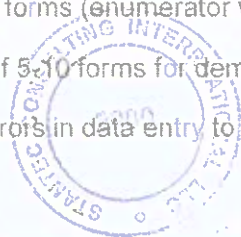
Timeliness of data: A schedule of the surveys will be prepared, by district-ward-municipality showcasing the number of surveys to be covered in a day for a particular region. However, there can be changes in the timeline due to unforeseen uncertainties. ETP will prepare a realistic schedule of survey, keeping in mind the delays that can arise due to all possible reasons. Briefing HH enumerators will be carried out every day for the survey target for the given day. This will cover socio-economic aspects about the area and selected settlements to be surveyed. A catch-up plan will be prepared to compensate for additional delays while not compromising on quality.

Reliability of data (household selection method): The approved method of random selection of households will be adhered to on field for ensuring reliability of data collected from the survey. However, any changes in the method due to non-availability of household list for a particular settlement, or incomplete information regarding the size of the settlement may lead to disruption in following the random sampling method. For such cases, a re-survey will be scheduled basing on random sampling and the data collected prior using any other method will be discarded.

Validity of data (quality of data collection): The survey tool will be pre-tested with survey enumerators and training will be conducted to ensure high standard of data quality of the household survey. On the field, de-briefing sessions will be made a practice, to clarify issues that can be raised by enumerators during field surveys, by HH survey coordinators.

Precision of data (back-end QC): To make sure that the each household survey form contains sufficient details regarding the household, the following QC steps will be taken in the backend, once the data collected has been uploaded to the server.

1. Check for data count in the server and match it with count of physical data collection,
2. Random check of 5-10 forms for necessary fields in the survey questionnaire,
3. Checking survey forms (enumerator wise) for any patterns in data entry error,
4. Random check of 5-10 forms for demographic details,
5. Reporting any errors in data entry to the HH survey coordinator



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Integrity of data: There can be potential risks arising to data from the following scenarios:

- Misplacement of forms
- Loss of data
- Error in data entry
- Loss of data during the point of transmission to the server
- During analysis

In order to counter such scenarios, ETP will ensure strict data controls, through systems established by the technology solution provider for the survey software application along with robust system to ensure physical security of notes and files. The identity of the respondent will be coded, once in the server, and the collection of data electronically ensures that loss of data is minimized and any error can be traced back to the enumerator for back check. During training of the survey enumerators, it will be ensured that data protection and security is explicitly explained. During the survey, the household survey coordinators will monitor the activities of the enumerators and report any incident of data loss immediately for corrective action (either a complete resurvey, or re-check and item wise response will be undertaken with the particular household).

3.3 IMPACT EVALUATION METHODOLOGY

Impacts identified through the above sources will be evaluated using a standard methodology, which is generally consistent with the National Environmental Impact Assessment Guidelines (IUCN 1993), MoFE (2018) and Assessing Significance in Impact Assessment of Projects (International Association for Impact Assessment 2016).

Project impacts on physical, environmental, and social resources will be evaluated using quantitative, semi-quantitative, and qualitative techniques as appropriate, which vary in accordance with the specific resource or receptor affected (e.g., noise modeling).



4 POLICIES, ACTS, RULES AND GUIDELINES/MANUALS TO BE CONSIDERED WHILE PREPARING REPORT

The EIA will be undertaken with reference to the provisions of the following policies, laws, rules, guidelines, manuals, and international conventions and treaties.

4.1 CONSTITUTION

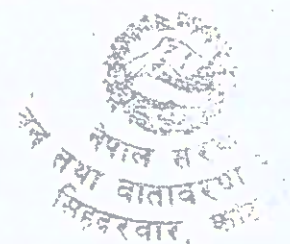
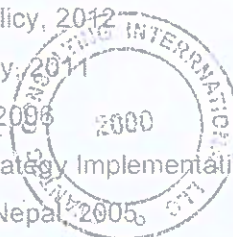
The Constitution of Nepal includes a provision regarding the right of citizens to enjoy a clean and healthy environment (Article 30), and that they shall have the right to obtain compensation, in accordance with the law, for any injury caused by environmental pollution or degradation. This Article, however, shall not be deemed to prevent the making of necessary legal provisions for a proper balance between the environment and development, with regard to the development of the nation.

Article 51 concerning policies of the State relating to national unity and national security, social, and cultural transformation, the economy, industry, and commerce includes in Sub-Article f, policies relating to development, and Sub-Article g, policies relating to the protection, promotion and use of natural resources.

4.2 POLICIES

The following policies are applicable to the Project:

- National Forest Policy 2019
- Fourteenth Three-Year Plan 2016/17 – 2017/18
- Forest Policy, 2015
- Land Acquisition, Resettlement and Rehabilitation Policy for Infrastructure Development Projects, 2015
- National Energy Crisis Resolution and Energy Development Decade Concept Paper, 2015
- Public Private Partnership Policy, 2015
- Land Use Policy, 2015
- Nepal Biodiversity Strategy and Action Plan, 2014 to 2020
- Forest Encroachment Control Strategy, 2012
- Rangeland Policy, 2012
- National Wetlands Policy, 2012
- Climate Change Policy, 2011
- Rural Energy Policy, 2006
- Nepal Biodiversity Strategy Implementation Plan, 2006
- National Water Plan Nepal, 2005
- Water Induced Disaster Management Policy, 2005
- Nepal Biodiversity Strategy, 2002



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- Water Resources Strategy Nepal, 2002
- National Environmental Policy and Action Plan (NEPAP) I and II, 1993 and 1998
- National Conservation Strategy Nepal, 1988

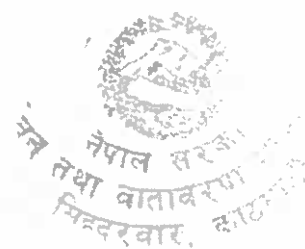
4.3 ACTS

The following acts will be applicable to the Project:

- Muluki Debani Samhita Ain, 2017 (Civil Code)
- Muluki Aparadha Samhita Ain, 2017 (Criminal Code)
- Performance Based Social Security Act, 2017
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITIES) Act, 2016
- Labour Act, 2017
- Local Government Operation Act, 2017
- Solid Waste Management Act, 2011
- Guthi Corporation Act, 1976 as amended in 2010
- Right to Information Act, 2007
- National Foundation for Upliftment of Aadibasi/Janajati Act, 2002
- Water Resources Act, 1992
- Electricity Act, 1992
- Forest Act, 1993 with amendments in 1998 and 2016
- Environment Protection Act, 1997
- Soil and Watershed Conservation Act, 1982
- National Trust for Nature Conservation Act, 1982
- Land Acquisition Act, 1977
- National Parks and Wildlife Conservation Act, 1973
- Wildlife Conservation Act, 1972
- Aquatic Animals Protection Act, 1961
- Land Reform Act, 1964
- Land Act, 1964
- Ancient Monument Preservation Act, 1956

4.4 RULES AND REGULATIONS

- Labour Rules, 2018
- Performance based Social Security Rules, 2017
- Solid Waste Management Rules, 2013
- Ancient Monuments Preservation Rules, 1989 with amendments in 1992, 1996, 1998, and 2001 BS



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- Environment Protection Rules (EPR), 1997
- Conservation Area Management Rules, 1996
- Forest Rules, 1995
- Buffer-zone Management Rules, 1995
- Water Resources Rules, 1993
- Electricity Rules, 1993

4.5 MANUALS AND GUIDELINES

The following manuals and guidelines are applicable to the Project:

- Social Security Methodology, 2018
- Directory of electricity licensing process for electricity, 2018
- Hydropower Environmental Impact Assessment Manual (MoFE), 2018
- President Chure-Terai Madhesh Conservation and Management Master Plan, 2017
- Order of Land Ceiling Relief, 2017
- Forest Product Collection and Sale Guideline, 2017
- Work order of National Forest land Providing to National Pride Project, 2017
- Criteria for Developmental Activities in Chure Regions, 2015
- Community Forest Timber Collection and Sale Guideline, 2015
- Development Programme Guideline, 2015
- NTFP Resource Inventory Guideline, 2013
- Forest Fire and Management Strategy, 2011
- NEA, Operational Manual of Environmental and Social Impact Assessment (EIA/SIA) for Sub-Projects Financed under the Additional Financing of the Power Development Project (Revised April 2009) 2009;
- Guideline for Physical Infrastructure Development and Operation in Protected Areas, 2008
- Nepal Water Quality Guidelines for the Protection of Aquatic Ecosystems, 2008
- Nepal Water Quality Guidelines for Irrigation Water, 2008
- Nepal Water Quality Guidelines for Aquaculture, 2008
- Nepal Water Quality Guidelines for Recreation, 2008
- Community Forestry Development Programme Guidelines, 2008
- Buffer Zone Criteria, 2005
- Community Inventory Guidelines, 2005
- Conditions for Installation and Operation of Industry in Buffer-zone, 2005
- National Health Care and Waste Management Guidelines, 2002
- Department of Electricity Development Manuals, 2001
- Community Forest Guidelines, 2001

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- Conservation Area Management Guideline, 2000
- Forest Products Collection and Sales Distribution Guidelines, 2000
- Environmental Management Guidelines (Road), 1999
- Buffer Zone Management Guideline, 1999
- Forestry Sector EIA Guidelines, 1995
- EIA Guidelines for Water Resource Sector, 1994
- National EIA Guidelines, 1993

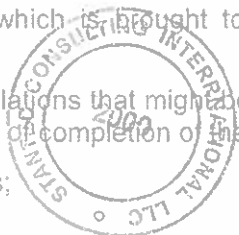
4.6 INTERNATIONAL AGREEMENTS

The following international Agreements are applicable to the Project

- Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973;
- United Nations Declaration on the Rights of Indigenous Peoples, 2007
- United Nations Framework Convention on Climate Change, 1992
- Forest Principles, 1992
- Biodiversity Conventions, 1992
- Convention on Indigenous and Tribal Peoples (No. 169), 1989
- World Heritage Convention, 1975
- Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972
- Ramsar Convention for Wetlands Conservation, 1971

4.7 OTHERS

- Cabinet decision dated 2074/2/3 (replacing the Guidelines on Land Use of Forest Areas for Other Purposes);
- Any other pertinent Act or regulations in existence, but not listed here, that Stantec considers to be relevant, or which is brought to its attention by any of the EIA stakeholders; and
- Any other pertinent Act or regulations that might be gazetted or for which a draft has been published before the date of completion of the EIA.
- MCC Environmental Guidelines;
- MCC Gender Policy, 2011;
- MCC Gender Integration Guidelines;
- MCC Counter-Trafficking in Persons Policy
- IFC Performance Standards on Environmental and Social Sustainability, 2012
- MCC Guidelines for Environment and Social Assessment

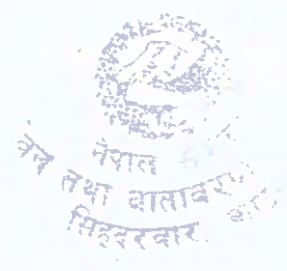


5 TIME, BUDGET AND HUMAN RESOURCES REQUIRED FOR PREPARING THE REPORT

5.1 EIA SCHEDULE

Table 5-1 EIA Schedule

S. No	Activities	Aug 2018	Sept 2018	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	April 2019	May 2019	June 2019	July 2019	August 2019	September 2019	October 2019
1	Scoping Approval Process															
2	Public Scoping Process															
3	Data Collection for Physical Baseline															
4	Data Collection for Social Baseline															
5	Data Collection for Biological Baseline															
6	Data Interpretation and Analysis															
7	EIA Report Preparation															
8	Public EIA Disclosure Process															
9	EIA Approval															



5.2 EIA ESTIMATED BUDGET

The estimated budget for the proposed EIA study is approximately NRs. 23,664,000.

5.3 NECESSARY HUMAN RESOURCES

The EIA team for this Project comprises Nepali and overseas experts, combining in depth knowledge of local conditions and issues with international experience. This will enable the Project to gain the benefit of current international practices on impact assessment, while ensuring that mitigation and enhancement measures are relevant and practicable in the local context. The declaration forms signed by the study team are presented in Annex C.

Table 5-2 lists the experts/specialists who will be involved in the EIA study.

Table 5-2 The EIA Team Members and Their Roles in the EIA Study

S. No.	Name	Role	Role/Expertise
1	David Blaha	International	International EIA Leader
2	Madhukar Khadka	National	Nepal EIA Specialist
3	Steve Laister	International	Physical Environment Lead
4	Toran Sharma	National	Geologist
5	Hari Shrestha	National	Hydrology Specialist
6	Arun Venkataraman	International	Biodiversity Lead
7	Mukesh Chalise	National	Biodiversity and Wildlife Specialist
8	Jyoti Gajurel	National	Flora Specialist
9	Tej Basnet	National	Fauna Specialist
10	Neena Singh	International	International Socio-economic & Resettlement Lead
11	Rabin Dhakal	National	Nepal Socio-economic and Resettlement Lead
12	Rutuja Tendolkar	International	Social Team Lead
13	Srijana Bhattarai	International	Social Team
14	Chandra Tripathee	National	Cultural Heritage
15	Ramu Subedi	National	Benefit Integration through Knowledge-Sharing and Social Acceptance
16	Salil Devkota	National	Environmental Expert/Coordinator
17	Naresh Rimal	National	Climate Change Specialist
18	Jayakrishna Vasam	International	GIS Specialist
19	Pawan Ghimire	National	GIS Specialist
20	Dr. Bhagawat Rimal	National	GIS Expert
21	Bimal Subedi	National	Legal Regulatory Specialist
22	Mangala Karanjit	National	Communication and Stakeholder Engagement Specialist
23	Udeпта Rajbhandri	National	Environmental Expert/Manager

The EIA team will also include three Resettlement District Managers and nine CLOs to be recruited from Districts along the route.

6 ISSUES IDENTIFIED FOR EIA STUDY

This section provides information about issues prioritized for the EIA study.

6.1 ISSUES AND CONCERNS PRIORITIZED FOR THE EIA STUDY

EIA will address all relevant issues and concerns identified by experts and raised by stakeholders during scoping meetings. Priority will be given to the following beneficial and adverse issues and concerns:

6.1.1 Beneficial Issues

Prioritized construction and operations phase beneficial issues are identified below.

6.1.1.1 Construction Phase

- **Employment** – the EIA will identify and estimate construction and other indirect employment opportunities resulting from the project;
- **Government Revenue Opportunities** – the EIA will identify sources of potential government revenues generated during construction by the project.
- **Skill Enhancement Opportunity** - EIA will identify opportunities to enhance skills of local people.
- **Business Development Opportunities**- EIA will examine potential business/industrial development opportunities.

6.1.1.2 Operations Phase

- **Government Revenue Opportunities** – the EIA will identify sources of potential government revenues generated during operations by the project;
- **Improved Local infrastructures Facilities** – the EIA will identify where local infrastructure including rural electrification and other facilities will be improved;
- **Improved Vegetative Cover** – Project related reforestation programs can help stabilize soils and slopes with enhanced vegetative cover; and
- **Improved Livelihoods** – skill training provided by the project can result in improved livelihoods for some project-affected families.

6.1.2 Adverse Issues

Prioritized construction and operations phase adverse issues are identified below.

6.1.2.1 Construction Phase

Physical Environment

- **Chure** - Given the fragile nature of soil in Chure and the importance of this area for groundwater recharge of Terai, the EIA study will give special attention to this area. The President's Chure-Terai Madesh Conservation Development Board has recommended a number of issues to be explored during the EIA.
- **Water Supply** - Communities and local government representatives have put high priority on the conservation of springs and drinking water sources. EIA will identify

such water sources along the transmission line route and ensure that they are not affected adversely by the transmission lines.

- **Slope Stability and Landslide Risk** – Construction of transmission lines across very steep terrain can destabilize soils/slopes and increase landslide risk. The EIA will identify mitigation measures to manage this risk.
- **Pollution due to construction Activities** - EIA will examine effects of construction activities on air, water and noise pollution.
- **Waste Disposal** - EIA team will examine effects of solid and liquid waste including sanitation and excavated materials.

Biological Environment

- **Effects on High Biodiversity Areas** - Consultations with different conservation partners and study team's own observations during scoping have identified several areas with high biodiversity values along the transmission line routes, such as the Chure and Nawalparasi Forest. The EIA will apply the mitigation hierarchy to protect these areas to the extent possible.
- **Protected Species** - EIA will identify key flora and fauna species of high biodiversity value along the transmission line corridor and apply the mitigation hierarchy to protect these species.
- **Forests** – The transmission line will result in the clearance of some forest within the ROW. Forest areas will be avoided to the extent possible, especially community, religious, and leasehold forests. The EIA will examine in detail the nature of these effects and prepare appropriate mitigation plans.

Socioeconomic and Cultural Environment

- **Land Acquisition and Involuntary Resettlement** – the project will require the acquisition of land for substations and towers, and the use of land for ROW. This land acquisition will result in some physical resettlement. The final alignment process is trying to avoid physical resettlement and minimize effects on private land to the extent possible. EIA will examine these issues in detail.
- **Municipal Development Plans** - During the scoping consultations, several rural municipalities/municipalities revealed their plans to develop certain areas as tourist destinations and requested study teams to avoid such spots. The EIA will study municipality plans and identify other potential tourist sites and make sure that they are avoided by the transmission line, or proper mitigation measures are developed, if the adverse effects could not be avoided.
- **Vulnerable and Indigenous People** – The EIA will give special attention on examining the effects of the transmission line on vulnerable indigenous groups such as Chepangs. It will also prioritize effects on other indigenous groups such as Tamans, Rai, Magars, Gurungs, and Tharus that are found along the transmission line corridor. The EIA will study the effects of the project on other vulnerable sections of population such as Dalits, poor households, widow/single women, and differently abled persons.
- **Worker – Community Conflicts** – There is the potential that conflicts could arise between non-local construction workers and local communities. The EIA will evaluate this potential and recommend measures to manage this issue.
- **Cultural Heritage** – Consultation with local municipalities and field studies have identified several temples, caves, gumbas, and other sites of high cultural significance near the proposed transmission line corridor. EIA will examine the effects of the transmission line on such cultural resources and ensure that proper mitigation measures are put in place if the effects cannot be avoided.

6.1.2.2 Operations Phase

Physical Environment

- **Visual Effects** – the transmission line will result in a long-term visual effect to nearby residents and could affect views of importance for religious, scenic, or tourism value. Tower spotting will try to minimize this effect to the extent possible.
- **Electrical and Magnetic Effect (EMF)** - the EIA team will study about EMF effect from transmission line during operation phase.
- **Greenhouse Gas Emission from substation** - the EIA team will study about GHG emissions from substations.

Biological Environment

- **Birds** – Birds are perhaps the most sensitive fauna to transmission lines because of the potential for electrocution and collision. Consultation with the Bird Conservation Nepal (BCN) and biodiversity field studies have identified several critically endangered and endangered bird species along the transmission line corridor. The EIA will evaluate potential issues associated with transmission lines on birds and propose proper avoidance, or mitigation measures.
- **Forest Management and Ecosystem Services** – Vegetation management practices will restrict the re-establishment of forest within much of the ROW and limit access to Non-Timber Forest Products (NTFP) and other ecosystem services provided by project affected forests. EIA will evaluate these issues in detail.
- **Habitat Fragmentation** - habitat fragmentation due to clearance of the transmission line corridor may affect wildlife movement and potentially facilitate illegal hunting and poaching. The EIA will study potential effects on wildlife flora and fauna due to habitat fragmentation.
- **Increase in invasive species** - after forest clearance along the right of way of alignment, species like *Eupatorium* and *Mikania* may invade the disturbed area. Potential for invasive species growth will be studied by EIA team.

Socioeconomic and Cultural Environment

- **Economic Displacement** – The Project may result in some economic displacement, which is expected to be primarily related to loss of agricultural land. A Livelihood Restoration Plan will be developed to assist those families who incur some level of economic displacement.
- **Community Health** - The effect of Electric and Magnetic Field (EMF) on community health was identified as a major concern during scoping. The EIA will study these issues in detail and prepare proper mitigation measures.



7 ENVIRONMENTAL IMPACTS

The information collected from primary field investigations and the secondary sources described above will be evaluated in the context of the Project activities during the construction and operational phases of the Project.

Over the course of the EIA, the Stantec EIA and engineering teams will work closely to further define the ETP construction and operation activities and their interactions with the baseline environmental and social conditions to produce a detailed assessment of impacts as practicable and appropriate for each of the environmental and social issues under consideration. Impacts will be quantified and assessed by applying tools and approaches provided in national guidelines in conjunction with technical tools such as GIS, coupled with the Project team's experience of similar projects within Nepal and internationally.

7.1 CUMULATIVE IMPACTS

To the extent information is publicly available information, the EIA will assess the cumulative impacts of the ETP in combination with projects under construction or projects that have received planning approval within the ETP's Aol. The specific projects included in this assessment will be identified during the course of the EIA to ensure the comparison reflects the most currently available information.

7.2 ENVIRONMENTAL IMPACT RANKING

There are several generally accepted approaches to determining the degree of significance or ranking of environmental impacts, and while they vary in their detail, they are typically based on the magnitude, extent, and duration of the impact under consideration.

The scale of these elements can also be expressed via different ranking categories. The approach adopted in the Nepal Ministry of Forests and Environment Hydropower Environmental Impact Assessment Manual categorizes the magnitude of environmental impact as high, moderate, or minor; the extent of the impact as regional, local, or site specific; and the duration as long, medium, or short term. The allocations of these elements to each impact are then recorded in a matrix or table (see Table 7-1), and combined to provide an overall value for the degree of impact.



Table 7-1 Example Environmental Impact Ranking Table

Proposal Activity	Environmental Impact Direct	Impact Ranking/Rating							Total Numerical Values (s)
		Direct	Indirect	Beneficial	Adverse	Magnitude	Extent	Duration	
Construction Period									
Physical/Chemical Environment									
1									
2									
Biological Environment									
1									
2									
Socio-economic and Cultural Environment									
1									
2									
Operation Period									
Physical/Chemical Environment									
1									
2									
Biological Environment									
1									
2									
Socio-economic and Cultural Environment									
1									
2									

Source: Hydropower Environmental Impact Assessment Manual, MoFE, 2018

(s) The total numerical values of each impact shall be mentioned by calculating the numerical values fixed according to the scale of adverse impacts



8 ALTERNATIVES FOR THE IMPLEMENTATION OF THE PROPOSAL

An alternatives analysis is a critical component of an EIA and is essential in identifying a preferred option for achieving the Project purpose. This is reflected in the Nepal EIA regulations, which require consideration of alternatives. The Manual for Preparing Scoping Report for Environmental Impact Assessment of Hydropower Projects (DoED 2001) identifies several general categories of alternatives that may be considered at the ToR stage of the EIA process, including the following, which are applicable to this Project:

- Location alternatives
- Design alternatives
- Construction alternatives

The process for selecting the proposed ETP, including both the substations and transmission line, is described below.

8.1 LOCATION ALTERNATIVES

Location alternatives are especially important because they offer the greatest potential for avoiding impacts. In Nepal, the traditional approach to siting transmission lines begins with desk studies, followed by an application for a Survey License. This often triggers an environmental assessment, with stakeholder input coming later. MCA-Nepal (then OMCN) adopted a more collaborative approach for selecting the route for the ETP, which engages stakeholders throughout the route selection process. Route selection involved the following two stage process:

- Stage 1: Feasibility Study Process – conducted in 2016 to 2017 by MCA-Nepal (then OMCN) with the support of their consultant Tetra Tech and involved developed of a Feasibility Study Route:
- Stage 2: EIA Process – will be conducted in 2019 by MCA-Nepal with the support of their consultant Stantec and will result in the optimization of the Feasibility Study Route into a Preferred Route to be formally proposed by MCA-Nepal:

Stage 1: Feasibility Study Process

The Feasibility Study started with an Initial Route, which was based on a desktop study performed by NEA and primarily considered engineering criteria. MCA-Nepal used a Multi-Criteria Route Selection methodology for developing a preliminary transmission line route. The methodology considered all available data and incorporated siting criteria developed by technical experts, in collaboration with key stakeholders.

Each of the proposed substation sites was also evaluated to confirm its suitability for use as a substation relative to physical, environmental, and social criteria. NEA and the various development banks had already screened four of the sites and all were found to be acceptable.

The 2015 Transmission Master Plan and the 2016 Integrated Master Plan had both proposed a substation site in the Naubise of Dhading District, but a specific location had not yet been selected. MCA-Nepal evaluated three alternative sites and selected Alternative #1 because it offered more suitable topography and a larger area. Based on subsequent field analysis,

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Alternative #1 (the Initial Location) was found to have a 60-m elevation difference across the site. During the site inspection, an adjacent site with more suitable topography was then identified, although this site (the Selected Location), would still require a 1000-m-long retaining wall around the perimeter of the site and an improved access road.

Upon further consideration during the Feasibility Study, the topographic constraints at the Selected Location for Naubise substation were considered too difficult and expensive to correct. The Naubise area has very hilly terrain, so MCA-Nepal investigated the Ratmate area as an alternative location for the substation. The Ratmate area, located in the Nuwakot District, is about 15 km northwest of Naubise with more level ground near the Trishuli River.

Four sites were identified and evaluated based on physical, environmental, social, and cultural criteria. MCA-Nepal has tentatively selected Site II, concluding that the environmental and social impacts would be local in nature and are not significant (Tetra Tech, Analysis of Network Power Projects – Annexes to Task 2: Environmental and Social Assessment, March 2017). The shift to Naubise substation to Ratmate also led to some changes in transmission line routes mainly in Lapsipedi-Ratmate section.

This revised route is the culmination of the Feasibility Study process and is referred herein as the Feasibility Study Route.

Stage 2: EIA Process

MCA-Nepal contracted with Stantec to finalize the route, advance the Project design, prepare the EIA, and develop the EPC bid package. The Stantec Team has acquired recent high resolution aerial imagery and toured much of the transmission line route. Based on this updated information, MCA-Nepal held an Initial Alignment Workshop, which provided the opportunity for several Nepal agencies and NGOs to provide additional input on the route. MCA-Nepal considered this input and approved several changes to the Feasibility Study Route to further reduce impacts on bird flyways, forest, and local communities. This revised route was the route that was included in the Public Notice and about which public scoping meetings were held in 31 municipalities/rural municipalities and is referred to as the Scoping Route.

MCA-Nepal intends to use this EIA Process to optimize the transmission line route based on an extensive stakeholder engagement program involving affected persons, GoN agencies, NGOs, academics and other experts, and site-specific biological, social, and physical field studies/verification.

During the EIA Process, potential route alternatives will be evaluated. The following areas identified at the Initial Alignment Workshop will require further alternative evaluation:

- New Butwal to New Damauli Segment – further evaluation of alternatives to minimize impacts in the Chure
- Ratmate to New Hetauda Segment – further evaluation of alternatives for the last 10 km of the transmission line to New Hetauda to reduce impacts on the local community; and
- Substations – further evaluation of alternatives for transmission lines entering and exiting the five substations:

Based on additional stakeholder engagement and site-specific field studies, the Scoping Route will be further optimized resulting in a Preferred Route, which will be fully evaluated in the EIA.

8.2 DESIGN ALTERNATIVES

MCA-Nepal has also considered several alternatives relating to the specific design of the substations and transmission lines. Design alternatives will include at least the following:

- Capacity alternatives (220 kV vs 400 kV)
- Air Insulated Substations (AIS) vs Gas Insulated Substations (GIS)
- Transmission line ROW width
- Alternative tower types and heights
- Underground transmission lines in selected locations (e.g., higher density areas)

MCA-Nepal is committed to meeting international good practice standards for the design and construction of the ETP. It has developed a Project-specific Design Manual, which includes engineering criteria and environmental and social standards that will be integrated into the overall Project design.

8.3 CONSTRUCTION ALTERNATIVES

The Design Manual includes measures to minimize and mitigate environmental and social impacts during construction. There are relatively few construction alternatives for the substations as these sites need to be cleared and leveled. There are some alternatives related to transmission line construction, which include:

- Construction access – many of the proposed transmission towers are located some distance from existing roads. There are several alternatives for transporting construction materials to the tower locations, such as construction of access roads, the use of helicopters, and the use of draught animals and porters.
- ROW clearing – it is common practice in many parts of the world to clear the entire ROW of all trees. Tower spotting and adjusting tower heights may allow the transmission line to span over trees while still maintaining required clearances, which would reduce required forest clearing.

8.4 NO FOREST OR LESS FOREST OPTION

The alternatives analysis will include the potential for the Project to avoid affecting forest areas. Where complete avoidance is not possible, the analysis will examine alternatives to minimize the Project footprint within forest land.

8.5 TECHNOLOGY, PROCEDURES OF OPERATION, TIME SCHEDULES AND RAW MATERIALS TO BE USED

Alternatives for technology, operation procedures, time schedules, and raw material requirements associated with both construction and operation of the ETP will be considered, with reference to cost effectiveness, labor intensity, and environmental impact.

8.6 ENVIRONMENT MANAGEMENT SYSTEM

Different potential arrangements and formats for the Project environmental management system will be considered, so as to identify the system most appropriate to the local conditions.

8.7 WHETHER OR NOT THE RISKS RESULTING FROM THE IMPLEMENTATION OF THE PROPOSAL CAN BE ACCEPTED

The various Project alternatives will be evaluated based on the acceptability of risks during Project implementation, to establish the preferred alternative with regard to risk acceptability.

8.8 OTHER MATTERS

Any other matters concerning the implementation of the proposal, other than those identified above, will be discussed in the alternatives assessment.



9 BENEFICIAL AND ADVERSE IMPACTS

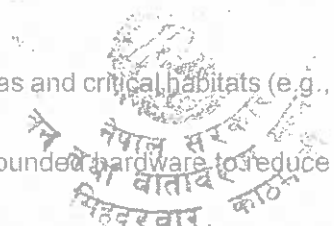
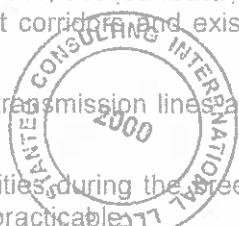
Following the assessment of impacts, measures will be developed to minimize adverse impacts and enhance beneficial effects so far as possible. This process will include consideration of preventative, corrective, and compensatory mitigation measures, by applying the following mitigation hierarchy:

- **Prevent at Source:** avoiding impacts by modifying the design of the Project (e.g., by re-siting or re-routing an activity away from sensitive areas).
- **Reduce on Site:** include measures or modifications within the Project design to reduce impacts (e.g., pollution control equipment, landscaping).
- **Reduce at Receptor:** provide control measures to be implemented off site (e.g., noise barriers to reduce noise impact at a nearby residence or fencing to prevent animals straying onto the site).
- **Repair or Remedy:** address unavoidable impacts damage to a resource (e.g., agricultural land and forestry due to creating temporary access, work camps, or lay down areas) post-construction repair, restoration, or reinstatement measures.
- **Compensate in Kind; Compensate Through Other Means:** where other mitigation approaches are not possible or fully effective, provide compensation for loss, damage, and disturbance (e.g., financial compensation for loss of cultivated land, or provide community facilities for loss of communal land or amenities).

Mitigation and enhancement measures will be developed separately for the construction and operational phases of the ETP, and anticipated cost ranges for the implementation of the measures will be provided.

An overview of the potential mitigation measures to be considered for the construction phase and operational phase of the Project is provided below. While not exhaustive, this list demonstrates the range of typical mitigation measures available to address potential interactions from the Project and highlights impact avoidance or reduction at source as the preferred (and most utilized) mitigation strategy:

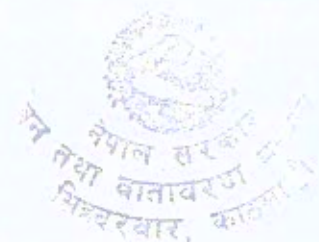
- Transmission and distribution ROW, access roads, lines, towers, and substations to use existing utility and transport corridors and existing roads and tracks for access roads, whenever possible;
- Consideration of installation of transmission lines above existing vegetation to avoid land clearing;
- Avoidance of construction activities during the breeding season and other sensitive seasons or times of day where practicable;
- Revegetation of disturbed areas with native plant species;
- Removal of invasive plant species during routine vegetation maintenance;
- Avoiding working close to watercourses wherever possible;
- Monitoring ROW vegetation according to fire risk;
- Aligning transmission corridors to avoid natural reserve areas and critical habitats (e.g., nesting grounds and migration corridors);
- Maintaining 1.5 m between energized components and grounded hardware to reduce the risk of electrocution of wildlife;



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- Installing visibility enhancement devices on lines;
- Evaluating potential exposure to the public against the reference levels developed by the International Commission on Non-Ionizing Radiation Protection;
- Awareness training on counter TIP and prohibition of sexual exploitation and abuse;
- If EMF levels are predicted to be above the recommended exposure limits, application of engineering techniques to reduce the EMF exposures from power lines and substations, (e.g., shielding with specific metal alloys, increasing height of transmission towers).

The complete list of proposed mitigation and management measures will be included in the EIA and ESMP for the Project.



10 ENVIRONMENTAL MANAGEMENT PLAN

An environmental management plan (EMP) will be prepared for both the construction and the operation phases of the project, to set out the implementation procedure for mitigation and enhancement measures identified for the project. The plan will set out the measures to maximize beneficial impacts and minimize adverse impacts, the agency responsible for their implementation, the implementation timing and the mitigation costs in tabular form as shown in Table 10-1 and 10-2.



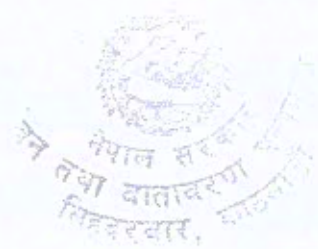
Table 10-1 Environmental Management Plan Beneficial Impacts Maximization Matrix

S.N.	Positive Impact	Positive Impact Maximization Methods	Place of Implementation	Implementation Duration	Tentative Cost	Implementation Agency	Remarks



Table 10-2 Environmental Management Plan Adverse Impacts Minimization Matrix

S.N.	Adverse Impact	Adverse Impact Minimization Methods	Place of Implementation	Implementation Duration	Tentative Cost	Implementation Agency	Remarks



11 ENVIRONMENTAL MONITORING

The environmental management plan will also define the basic management and monitoring measures that are needed to identify whether: a) impacts or their associated Project components remain in conformance with applicable standards; and b) mitigation measures are effectively addressing impacts and compensatory measures are reducing effects to the extent predicted.

The scope of the EMP will cover activities during the construction phase, including the decommissioning of temporary facilities post construction, the Project commissioning and operation phases, and will address baseline, compliance, and impact monitoring.

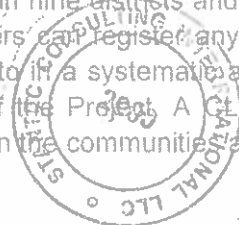
The EMP will clearly set out the parameters to be monitored, the location and frequency of the monitoring, who will be responsible for undertaking and reporting on the monitoring program, identifying and implementing any remedial or supplementary measures, and the anticipated costs involved, as indicated in the example matrix in Table 11-1.

The EMP will establish an effective framework to monitor and manage the environmental and social issues arising from the Project:

- Provide a commitment from MCA-Nepal to the implementation of the EMP;
- Establish an appropriate Environmental Management Organization structure for the Project and the respective roles and responsibilities for Project personnel;
- Propose monitoring programs that will identify whether changes caused by the Project activities are as anticipated or predicted in the EIA, and that mitigation and enhancement measures are functioning as intended; and
- Establish appropriate standards and procedures for environmental and social monitoring and audit programs.

The monitoring and management commitments set-out in the EMP will be incorporated into the contractual agreement between MCA-Nepal and their contractors responsible for site preparation, facilities construction and erection, commissioning, and operation of the ETP.

To assist with the ensuring that the mitigation and enhancement measures are achieving their desired effects, The ETP has set up a PIC in nine districts and has established a grievance mechanism whereby concerned stakeholders can register any grievances. The grievances will be received, recorded, and responded to in a systematic and timely manner during the pre-construction and construction phase of the Project. A CLO has been appointed as a grievance officer who will be liaising between the communities and the ETP.



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Table 11-1 Environmental Monitoring Matrix for use in the EMP

S. N.	Monitoring Parameters	Monitoring Indicators	Methods	Location/Place	Schedule	Estimated Budget/Cost	Monitoring Agency
1	Baseline Monitoring						
2							
1	Compliance Monitoring						
2							
1	Impact Monitoring						
2							



Terms of Reference (ToR)

12 ENVIRONMENTAL AUDIT

An environmental audit will be carried out to assess the effectiveness of the mitigation measures 2 years after the completion of the Project per the EPR requirements. The monitoring plan will include the parameters, indicators, methods, and locations to be covered in the environmental audit. In addition, the plan will also outline the cost of carrying out the audit as well as the manpower resources required.



13 TABLE OF CONTENTS FOR EIA REPORT

Executive Summary in English and Nepali

Table of Contents

Acronyms/Abbreviations

1. Name, address, e-mail, phone, fax of the person/agency preparing report:

1.1 Name, address, e-mail, phone number of Project Proponent

1.2 Name, address, e-mail, phone number of consultant

1.3 Relevancy of EIA

1.4 Objectives of EIA

1.5 Limitation of study

2. Introduction of the proposal

2.1 Background

2.2 Project description

2.3 Project objectives, need, and relevancy

2.4 Location and accessibility

2.5 Type/nature

2.6 Salient features of the Project and Project components (including a map with labels showing locations of substation and transmission lines, and Project support facilities)

2.7 Project activities (during construction, operation, maintenance, and decommissioning stages)

2.8 Construction planning

2.8.1 Land (area, type, requirements, along with permanent or temporary, and ownership in tabular format)

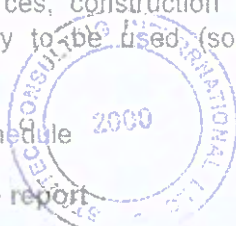
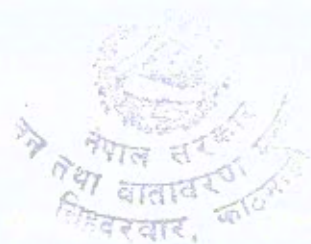
2.8.2 Project's human resources; construction materials, including quantity and source; construction schedule; energy to be used (source and consumption); its applications; associated/ancillary facilities

2.9 Project implementation schedule

3. Methods for preparing the report

4. Baseline Information of the Project

5. Identification of environmental impacts (physical and chemical, biological, socioeconomic, cultural)



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6. Alternative analysis

7. Methods for maximization of beneficial impacts and minimization of adverse impacts

8. Environmental management plan (along with cost)

8.1 Disaster preparedness and management plan

8.2 Resettlement and rehabilitation plan (if requiring involuntary resettlement)

8.3 Benefit sharing plan

8.4 Corporate social responsibility and community support program plan

9. Review of plans, policies, acts, regulations, guidelines, standards, convention

10. Environmental monitoring

11. Environmental audit

12. Conclusions

13. References

14. Annexes



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Annex A: Consent Letters 1-8

S. No.	Consent Letters	Page Number
1	Letter from DoED regarding start working project	1
2	Letter form MoF regarding National Pride Project	2
3	Letter for MoFE regarding necessary help	3
4	Letter from President Chure-Terai Madhesh Conservation Development Committee regarding EIA study consent	4-5
5	Letter for CAAN regarding consent	6-8





समान सरकार
जलशक्ति तथा ऊर्जा मन्त्रालय
विद्युत विभाजन विभाग
(अनुमतिपत्र महाशाखा)

फोन नं. ९७७०१-४४५०१५१
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९७७०१-४४५०१५३
९७७०१-४४५०१५४

संयोजक (९७७-९)-४४५०१५५
फैक्स: संयोजक नं. २४००
सुदामाचौ, सप्तमहाराज
कुण्डमाडौ-नेपाल

मिति: २०७७/०४/३०

पत्र संख्या अनुमतिपत्र/०७७/३

चयनादी नम्बर

३८

विषय:- विद्युत प्रसारण आयोजना कार्यान्वयन गर्ने प्रक्रिया शुरु गरिएको जानकारी प्राप्त भएको बारे।

श्री मिलेनियम च्यालेन्ज नेपालको कार्यालय
श्री वि.सि. परिसर, नयाँ बानेश्वर, काठमाडौं।
सम्पर्क नं. +९७७-९८२४०९९९३८
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प्रस्तुत विषयमा नेपाल सरकार र अमेरिकी सरकारी निर्यात मिनियम ज्यालेन्ज कर्पोरेशन MCE बीच September 14, 2017 मा भएको अनुदान सहायता सम्झौता अन्तर्गत तपशील यमात्रिका प्रसारण आयोजनाहरूको कार्यान्वयन गर्ने प्रक्रिया शुरु गरिएको जानकारी यस विभागलाई मिति २०७७/०३/२३ को पत्र माफत प्राप्त भएको व्यहोरा निर्देशानुसार अनुरोध छ।

तपशील

- ५। लप्तीफेदी - सतामाटे ४०० के.भी. डबल सर्किट प्रसारण लाइन - करिब ४६ कि.मी.
- ६। सतामाटे - नयाँ बटौडा ४०० के.भी. डबल सर्किट प्रसारण लाइन - करिब ४९ कि.मी.
- ७। सतामाटे - नयाँ बमौली ४०० के.भी. डबल सर्किट प्रसारण लाइन - करिब १२ कि.मी.
- ८। नयाँ बमौली - नयाँ बुटवल ४०० के.भी. डबल सर्किट प्रसारण लाइन - करिब २४ कि.मी.
- ९। नयाँ बुटवल - नेपाल न्यासन विमाता ४०० के.भी. डबल सर्किट प्रसारण लाइन - करिब ०३ कि.मी.
- १०। सतामाटे, नयाँ बमौली र नयाँ बुटवल ४०० के.भी. सबस्टेशन।

तिरोज थापा, वृजल
संन्तनिय

बोधार्थ

श्री उता, जलशक्ति तथा विद्युत मन्त्रालय, सिंहदरवार।





नेपाल सरकार
अर्थ मन्त्रालय

(अन्तराष्ट्रिय आर्थिक साहायता समन्वय महाशाखा)

IECCD/MoF/OMCN/150/2075/076

पत्र संख्या:-

च. नं.:- 150

सिंहदरवार, काठमाडौं
नेपाल।

मिति: २०७५.१०.१५

विषय : राष्ट्रिय गौरवको आयोजना सम्बन्धमा।

श्री Office of the Millennium Challenge Nepal(OMCN)

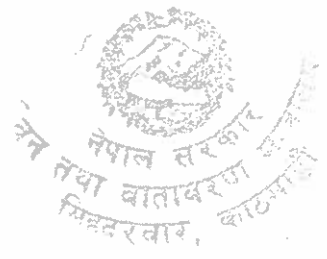
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उपर्युक्त सम्बन्धमा Millennium Challenge Compact धन्दगतको विद्युत प्रसारण आयोजनालाई नेपाल सरकारमन्त्रिपरिषद को मिति २०७५.१०.१५ को निर्णयानुसार राष्ट्रिय गौरवको आयोजनाको रूपमा मान्यता दिइएकोले तहाँको जानकारीको लागि पठाइएको ब्यहोरा आदेशानुसार अनुरोध छ।

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शाखा अधिकृत



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आ.वि.वि.स. ४२११०२६, अनुगमन तथा मू.नं. ४२००४१८, फा.नं. तथा प.नं. ४२११०३३, वि.सं.नं. ४२११०७०
क्याम्पस नं. ४२१११५५, ४२१११५८ (एम्पेट नं.), ४२१११५५, (अ.आ.स.स.नं.)
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OFFICE OF THE MILLENNIUM CHALLENGE NEPAL
(A Joint Initiative of the Government of Nepal and the Millennium Challenge Corporation, USA)
Kathmandu, Nepal

ध. नं. ०१ - २०७२/०९

मिति : २०७५/०४/०९

विषय : विद्युत प्रसारण आयोजनाको तयारी कार्यहरूको लागि आवश्यक सहयोग सम्बन्धमा ।

श्रीमान सचिवाय,
वन तथा वातावरण मन्त्रालय
सिंहदरवार, काठमाडौं ।

प्रस्तुत विषयमा यस निर्लेखन ब्यालेउज नेपालको कार्यालयले नेपाल सरकार, अर्थ मन्त्रालय र अमेरिकी सरकारी निर्यात निर्लेखन ब्यालेउज कर्पोरेशन (IACC) दिव September 14, 2017 मा भएको अनुदान सहायता सम्झौता (Compact Agreement) बमोजिम विद्युत प्रसारण आयोजनाका कार्यान्वयन गर्ने प्रक्रिया शुरू गरेको छ ।

उक्त आयोजना अन्तर्गत तपस्विरामा उल्लेखित ४०० के.भी क्षमताको करीब ३०० कि.मी लामो प्रसारण लाइन र ४०० के.भी क्षमताको ३ वटा Sub-station निर्माण हुनेछन् । प्रसारण लाइनको प्रारम्भिक रूपमा प्रस्तावित स्टाको नक्सा यसै पत्र साथ राखिएको छ । यस कार्यालयले उक्त आयोजनाको वातावरणीय प्रभाव मूल्यांकन (EIA), Resettlement Action Plan (RAP) को तयारी, Tower Location जस्ता तयारीका कार्यहरू शुरू गर्ने प्रक्रियामा छ । यी दुर्ग सरकारी आयोजना नपुग्दाले यसको लागि Survey License आवश्यक नपार्ने जानकारी गताउन चाहन्छु । उक्तर्थ यस आयोजनाको तयारी समर्पण हुन गर्न आवश्यक सहयोग पुऱ्याइदिनुहुन अनुरोध गर्दछु ।

नभजित

- क. लुम्बिनीको रातागाटे : ४०० के.भी डबल सर्किट प्रसारण लाइन - करीब ५५ कि.मी.
- ख. रातागाटे - नयाँ देवीकोट : ४०० के.भी डबल सर्किट प्रसारण लाइन - करीब ५६ कि.मी.
- ग. रातागाटे - नयाँ दगाँली : ४०० के.भी डबल सर्किट प्रसारण लाइन - करीब २८ कि.मी.
- घ. नयाँ दगाँली - नयाँ बुटवल : ४०० के.भी डबल सर्किट प्रसारण लाइन - करीब ८४ कि.मी.
- ङ. नयाँ बुटवल - नेपाल भारत सिमाना : ४०० के.भी डबल सर्किट प्रसारण लाइन - करीब २३ कि.मी.
- च. रातागाटे, नयाँ दगाँली र नयाँ बुटवल : ४०० के.भी सब स्टेशन

(सुलेखित प्रसाध सिटीका)
सहाय्य सचिव

संलग्न :

- १) उपरोक्त प्रसारण लाइनको प्रारम्भिक तयारी प्रस्तावित स्टा. लहिसको नक्सा - १ (एक) धान ।

ध्यान :

श्री अन्तर्राष्ट्रिय आर्थिक सहयोग समन्वय महासभा, अर्थ मन्त्रालय, सिंहदरवार ।



०१८





नेपाल सरकार

राष्ट्रपति चुरे-तराई मधेश संरक्षण विकास समिति



धुमनाटार, नन्दितापुर

प.स.:

मिति :

च.नं.:

- १) पर भेकबाट बाटन सक्ने Massive Sediment Load लाई आसन्न तार्की Structural Design गरी गराउने
- २) भूकम्पित प्रभाव (Seismic Zone, Main Frontal Thrust & Main Bountriv Thrust MBT) ले गर्दा हुने क्षतिपूर्ति प्रदान गर्नुपर्ने।
- ३) Tower सट्टो खेतको क्षतिपूर्ति निर्माण गिनाउनु गरी नरना Cutoffli गर्ने कारणले सरक्षणपत्रक जमाउन गिनाउनु नपारण्य हुनेगर्नु पर्ने।
- ४) निर्माण क्रममा प्रयोग हुने निर्माण सामग्री नदीको किनारमा कुम्भामिटरको मापमा उपलब्ध हुने गरी उपलब्ध हुने भएमा केवल मापमा प्रहाबाट उपलब्ध हुनेगर्नु पर्ने हो सो स्थान समेतको परिधान गरी EIA प्रतिवेदनमा सो स्थानको विस्तृत विवरण उल्लेख गर्नुपर्ने। निर्माण सामग्री संकलन, उपलब्ध गरी खेत/उप क्षेत्री भागको क्षतिबाट मापमा उपलब्ध हुनेगर्नुपर्ने।
- ५) EIA प्रतिवेदन प्रतिवेदन सकारण हुने क्रममा उक्त प्रतिवेदन यस समितिसमा उपलब्ध गराउनु पर्ने र यस प्रतिवेदनबाट विद्यार्थी सुनाउनुको समय उपलब्ध गरी अन्तिम प्रतिवेदन तयार गर्नु पर्ने।

(Signature)
 राष्ट्रपति चुरे-तराई मधेश संरक्षण विकास समिति

बीछार्ने
 श्री एन एन पाण्डेको अध्यक्षतामा
 आसन्नको तर्फा त्रिकोणीय समितिमा
 निवेदनको अन्तर्गतमा - जमाउनुपर्ने गरी अनुमति: छ।





Government of Nepal
Ministry of Finance
OFFICE OF THE MILLENNIUM CHALLENGE NEPAL
A Joint Initiative of the Government of Nepal and the Millennium Challenge Corporation, U.S.A.

स.न. सं.स. : २०७४/०७५



मिति : २०७५/०७/०७

श्री नेपाल नागरिक सञ्चयन प्राधिकरण,
बभरमहल, काठमाडौं ।

विषय : विद्युत प्रसारण लाइनको सतमति सम्बन्धमा ।


प्रस्तुत विषयमा यस मिलेनियम च्यालेञ्ज नेपालको कार्यालयले नेपाल सरकार, अर्थ मन्त्रालय र अमेरिकी सरकारी निकाय मिलेनियम च्यालेञ्ज कर्पोरेशन (MCC) विच September 14, 2017 मा भएको अनुदान सहायता सम्झौता (Compact Agreement) बमोजिम विद्युत प्रसारण आयोजना कार्यान्वयन गर्न प्रक्रिया शुरु गरेको छ । नेपाल सरकारले यस आयोजनालाई शक्ति गौरवको आयोजनाको मान्यता प्रदान गरेको छ ।

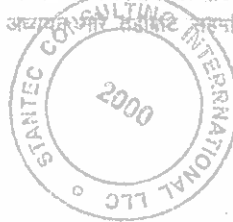
उक्त आयोजना अन्तर्गत तपशिलमा उल्लेखित ४०० के. मी. क्षमताको करीब ३०० कि. मी. लामो प्रसारण लाइन र ४०० के. मी. क्षमताको ३ वटा Sub-station निर्माण हुनेछन् । प्रसारण लाइनको प्रारम्भिक रूपमा प्रस्तावित रुटको नक्सा यस्तै पत्र संभव सलमन छ । यस कार्यालयले उक्त आयोजनाको सातावरणीय प्रभाव मुल्यांकन (EIA), Resettlement Action Plan (RAP) को तयारी, Tower Location जस्ता तयारीका कार्यहरू शुरु गर्ने प्रक्रियामा छ ।

उपशिल

- क. लम्बीफेदी - रातामाटे : ४०० के. मी. डबल सर्किट प्रसारण लाइन - करीब ५७ कि. मी.
- ख. रातामाटे - नयाँ हेटौँडा : ४०० के. मी. डबल सर्किट प्रसारण लाइन - करीब ५६ कि. मी.
- ग. रातामाटे - नयाँ दमौली : ४०० के. मी. डबल सर्किट प्रसारण लाइन - करीब ८८ कि. मी.
- घ. नयाँ दमौली - नयाँ बुटवल : ४०० के. मी. डबल सर्किट प्रसारण लाइन - करीब ८४ कि. मी.
- ङ. नयाँ बुटवल - नेपाल भारत सिमाना : ४०० के. मी. डबल सर्किट प्रसारण लाइन - करीब २३ कि. मी.
- च. रातामाटे, नयाँ दमौली र नयाँ बुटवल : ४०० के. मी. सब स्टेशन

प्रस्तावित विद्युत प्रसारण लाइनको रुट निर्धारण गर्दा सकेसम्म विभावस्थलबाट टाढा पर्ने गरि लगिएको छ र पनि यसले नेपालको हवाईमार्गलाई अन्तर गर्ने वा नगर्ने बारे अध्ययन र प्रभावित सम्पति प्रदान गरिदिनुहुन अनुरोध छ ।


(श्याम कृष्ण उपाध्याय)
नि. राष्ट्रिय संयोजक





सलमन :

१) उपरोक्त प्रसारण लाइनको प्रारम्भिक रूपमा प्रस्तावित रुट सहितको नक्सा - १ (एक) थान ।

संकेत :

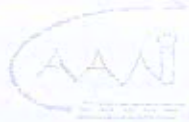
श्री. आन्तरिक आर्थिक सहायता समन्वय महासंस्था, अर्थ मन्त्रालय, सिंहदरवार ।



Yoti Hotel Complex | Dharbar Marg | Kathmandu | Nepal | Telephone No.: +977-1-4238353, 4238392

"समुदिका लागि अर्बौंको मुक्ति"

फोन नं : ८२५२२२५, ८२५२२२५, ८२५२२५१, ८२५२२५२
 FSSD : ८९९९९५८, ८९९९९५९, ८९९९९६३
 पञ्चाङ्ग : ८२५-९-८२५२२२५, ८९९९९५८
 EMail : mca@mca.gov.np
 वेबसाईट : AATMVR
 AFIM : VMCYAYV



नेपाल नागरिक उड्डयन प्राधिकरण

प्रधान कार्यालय, काठमाडौं, नेपाल ।



सं.सं.सं.

ATM विभाग, ०३२/३८
 सं.नं. १६४

दिनांक - २०७३/१०/२२

श्री Office of The Millennium Challenge Nepal
 याङ एण्ड यर्ती कन्सल्टेन्स, दरबारमार्ग, काठमाडौं ।

विषय: सहमति पठाइएको सम्बन्धमा ।

सम्बन्धित सन्दर्भमा तल्लोकाट पोपल चन २९ मि.मि. २०७३/३०/३० को पहिलो उन्तीखिन प्रस्तावित १०० के. मि. प्रसारण लाइन सम्बन्धि Data Analysis गरी गएको Pylon-१२९ देखि Pylon-१३२ बाहेकको हकमा यस प्राधिकरणको मिति २०७३/१०/२२ को निर्णय अनुसार तिम्रो उन्तीखिन हुनु नगरेको बाबत प्रसारण लाइन निर्माण हुनु सहमति पत्रात गोरगोरी व्यहोरा अनुज्ञाप छ ।

तपश्चिल

- अ) Pylon ९ देखि १४ मेश्रुवा विमानस्थलको उत्तर दक्षिण भएर जाने भएकाले प्रसारण लाइनको मार्गदर्शक Cable मा alternate red and white (or alternate orange and white) marker balls राख्नु पर्ने ।
- ब) साथै प्रसारण लाइनको Pylon हरको उचाई १० मीटर भन्दा बढी हुनु नहुने ।
- ग) सम्बन्धित मापनमा एक डाडाको दूरावको अर्को डाडाको दूरावसम्म सोझै तार लगाउन परेको डाडाको दूरावबाट एक कोटिमा ल्याइ अर्को मापन अर्को डाडाको दूरावमा तार लाग्नु पर्ने । एक डाडाको दूरावको अर्को डाडाको दूरावसम्म सोझै तार लगाएर प्रसारण लाइनको मार्गदर्शक Cable मा alternate red and white (or alternate orange and white) marker balls राख्नु पर्ने ।
- घ) साथै भविष्यमा बाध्यतात संचालनमा अग्रगण्य देखिएमा अग्रगण्य देखिएमा अग्रगण्य गर्ने Pylon सम्बन्धि निर्णयले प्रसारण लाइन निर्माण गर्ने स्थानान्तरण गर्नु पर्ने ।

साथै लागूभएको प्रशासनिक कार्यको जोन पर्ने Pylon १२९ देखि १३२ को सम्बन्धमा तल्लो काठमाडौंबाट re-alignment पत्रात माग गर्नुपर्ने निर्णय भएको हुना यस संधात नागरिक उड्डयन प्राधिकरणमा यथासम्भव चाडो re-alignment प्रस्ताव पेश गर्न अनुज्ञाप गरिन्छ ।

o/c

बोधार्थ :

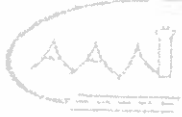
श्रीमान उपमहानिरीक्षक, ANS निदेशनालय, ने.मा.उ.पा., प्रधान कार्यालय ।



(Signature)
 राजेन्द्र सिंह नायक
 प्रबन्धक
 ATM Department



फोन नं ४२६२२२६, ४२६२४१६, ४२६२५५६, ४२६२५६६
 FSSD : ४९९९९९९, ४९९९०००, ४९९९०००
 फ्याक्स : ४२६-९-४२६२५५६, ४२६९९९९
 ईमेल : consatm@mos.com.np
 वेबसाइट : AIRCIVIL
 AFTN : VNKTAYX



नेपाल नागरिक उड्डयन प्राधिकरण

प्रधान कार्यालय, नयाँ बजार, काठमाडौं, नेपाल।

पत्र संख्या - ATM विभाग, ०७५/१७६

च. नं. २५०

मिति - २०७५/१२/२५



श्री Millennium Challenge Account Nepal (MCA-Nepal)

याफ एण्ड यन्त्रि होटेल, दरबार मार्ग,
काठमाडौं, नेपाल।

विषय: राय पठाईएको सम्बन्धमा।

प्रस्तुत सन्दर्भमा तहको विभागबाट प्रेषित प.सं. ०७५/१७६, च.नं. १७६ मिति २०७५/१२/०८ को प्रस्तावित श्री लक्ष्मीफेदी-सन्ताभटे-नयाँ-हेटौंडा-नया-दमौली-नया-बुटवल-नेपाल र भारतको सिमानामा ४०० से. मि. जलविद्युत आयोजनाको प्रसारण लाईन सम्बन्धि पत्रमा उल्लेख भएका Data Analysis गर्दा यस प्राधिकरणको मिति २०७५/१२/१९ को निर्णयानुसार निम्न बमोजिम हुने गरी सात्र प्रसारण लाईन निर्माण गर्नु हुन अनुमति छ।

तपशिल

- (१) प्रसारण लाईनका Pylon हरको उचाई सन्मव भएसम्म २० मिटर भन्दा बढी हुन नहुने।
- (२) प्रसारण लाईनको तार तान्दा एक ड्यान्डको तार सोको अर्को ड्यान्डमा नतानि ड्यान्डको टुप्पोबाट फेदसम्म ल्याई अर्को ड्यान्डमा लिन। एक ड्यान्डको तार अर्को ड्यान्डमा तार लाग्नु पर्ने भएमा नवै भन्दा माथिल्लो क्वेचुलमा Red Marker Ball हर राख्नु पर्ने।
- (३) भविष्यमा वायुयान संचालनका लागि सुरक्षित खोला देखिएमा सम्बन्धित निकायले नै आफ्नै खर्चमा Pylon स्थानान्तरण गर्नु पर्ने।



सादर अवगतार्थः

श्रीमान् उपमहानिर्देशकज्यू, ANS निर्देशनालय, ने.ना.उ.प्रा., प्रधान कार्यालय।

2075
 २०७५/१२/२५

(राजेन्द्र सिंह नायक)
 प्रबन्धक
 ATM Department

Annex B: Survey Tools

9-66

S. No.	Consent Letters	Page Number
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2	Community Forests User Group (FGD)	26-32
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Household Questionnaire

EIA/ESIA/BIKAS-Household Survey Form: MCA-N

HH-CODE

District Code		Municipality Code		Ward Number	Household Number Code (As per Range given to team)		

Date- dd/mm /yyyy..... Initials of Surveyor_____

1. Respondent Details

1.1. First Name		1.2. Surname	
1.3. Waypoint No.	1.4. Gaunpalika/Nagarpalika		1.5. District
1.6. Settlement/Village Name			
1.7. The Household head is the respondent of the survey <input type="checkbox"/> 1-Yes <input type="checkbox"/> 2-No		1.8. Gender	
If no, name of the respondent		<input type="checkbox"/> 1-Male	
Relationship to the head of household		<input type="checkbox"/> 2-Female	
		<input type="checkbox"/> 3-Other	
1.9. Phone No.		(Other Gender)	
1.10. Marital Status of Respondent <input type="checkbox"/> 1-Unmarried <input type="checkbox"/> 2-Married <input type="checkbox"/> 3-Widower/Widow <input type="checkbox"/> 4-Separated/Divorced <input type="checkbox"/> 5-Other (please specify)		1.11. Caste/Ethnicity <input type="checkbox"/> Brahmin/Chettri <input type="checkbox"/> Magar <input type="checkbox"/> Tamang <input type="checkbox"/> Chepang <input type="checkbox"/> Gurung <input type="checkbox"/> Newar <input type="checkbox"/> Tharu <input type="checkbox"/> Dalit <input type="checkbox"/> Other	
1.12. Residence <input type="checkbox"/> 1-Permanent <input type="checkbox"/> 2-Temporary		1.14 Religion	
1.13. If temporary- specify the place of permanent residence		<input type="checkbox"/> Hindu	<input type="checkbox"/> Muslim
		<input type="checkbox"/> Buddhists	<input type="checkbox"/> Christians

Terms of Reference (ToR) for ETP
Annexes

1.15. Since when have you been living in this village?.....years	<input type="checkbox"/> Tribal	<input type="checkbox"/> Other
1.16. Was your citizenship issued from this district?	<input type="checkbox"/> Yes	<input type="checkbox"/> No

1.17. If migrant, what was the reason for moving? If not, proceed to Q.1.19	
<input type="checkbox"/> 1-Jobs	<input type="checkbox"/> 2-Civil War
<input type="checkbox"/> 3- Earthquake	<input type="checkbox"/> 4- Floods
<input type="checkbox"/> 5- Land Slides	<input type="checkbox"/> 6 - Other (please specify)
1.18. If Migrant, location of origin.....	1.19. Year of Arrival.....
1.20. What is the main occupation of the head of the household? Indicate in order (A for Primary occupation, B for Secondary occupation)	
<input type="checkbox"/> 1-Farming	<input type="checkbox"/> 7-Retail trade
<input type="checkbox"/> 2-Fishing	<input type="checkbox"/> 8- Foreign employment
<input type="checkbox"/> 3-Wage Labour	<input type="checkbox"/> 9- skilled labour
<input type="checkbox"/> 4- Regular Salary job	<input type="checkbox"/> 10- Unskilled labour
<input type="checkbox"/> 5-Livestock rearing	<input type="checkbox"/> 11- Government job
<input type="checkbox"/> 6-Forest-based activities	<input type="checkbox"/> 12-Unemployed
1.21. What is the main occupation of female head of household? Indicate in order (A for Primary occupation, B for Secondary occupation)	
<input type="checkbox"/> 1-Farming	<input type="checkbox"/> 7-Retail trade
<input type="checkbox"/> 2-Fishing	<input type="checkbox"/> 8- Foreign employment
<input type="checkbox"/> 3-Wage Labour	<input type="checkbox"/> 9- skilled labour
<input type="checkbox"/> 4- Regular Salary job	<input type="checkbox"/> 10- Unskilled labour
<input type="checkbox"/> 5-Livestock rearing	<input type="checkbox"/> 11- Government job
<input type="checkbox"/> 6-Forest-based activities	<input type="checkbox"/> 12-Unemployed



2. Demography of Household

#	First Name	Last Name	Relation with head of Household	Gender	Age	Education	Marital Status	Language		Disability	Residence Status	Occupation
								Read & Write	Speak			



Codes

Relationship with HoH-- 1-Myself 2-Father 3-Mother 4-Sibling 5-Spouse 6- Grandparents 7-Others

Gender 1-Male 2-Female

Education – 1- Illiterate, 2- Literate, 3- Primary, 4- Lower Secondary, 5- Secondary, 6- Higher Secondary, 7- Graduate, 8- Post Graduate, 9- Other

Marital Status- 1-Single, 2- Married, 3- Separated, 4-Divorced, 5- Widow(er)

Language- 1-Nepali, 2- Newari, 3- Maithili, 4- Bhojpuri, 5- Tamang, 6- Tharu, 7- Magar, 8- Awadhi, 9-Gurung, 10- Rai

Disability- 1-Yes 2- No 3- Eye Sight 4- Mobility 5- Speech

Residence Status- 1-Within Settlement, 2-Outside Settlement but within municipality, 4- Outside Palika, 5- Outside District, 6-Outside Province but within Nepal, Kathmandu, 7- Overseas

Terms of Reference (ToR) for ETP Annexes

Occupation -- 1-Farming 2-Fishing 3-Livestock 4-Wage Labour 5-Remittance 6-Salary 7-Pension 9-Business/Trade 10- Informal Trade 11-Rent 12-Forest-based activities 13-Unemployed 14- Others (please specify)

3. Land Tenure

Location of agricultural/other land parcels (village and others) - for each plot of land, note: the origin, the gender of the user, the kind of land and its quality.

Total number of units

Use one unit- Ropani-Aana-Paisa-Daam

3.1: Total Land under ownership	3.2: Total Land (ha) on lease or rent (used by others)		3.3: Total Land (ha) on lease or rent (used by you)		3.4: Type of User Arrangement	3.5: Total land that is cultivated by the household (ha)	3.6: Irrigation		3.7: Cropping Intensity	3.8: Women ownership of land (Yes/No)	3.9: If yes, specify land (ha) owned by women
	Within the district (ha)	Outside district (ha)	Lease (ha)	Rent (ha)			Irrigated land (ha)	Non-irrigated land (ha)			

Codes:

Type of User Arrangement- 1- Freely Lend; 2- Rent; 3-Tenant Farming; 4- Paid with part of the crop; 5- Other agreement (specify)

Irrigation Source- 1- Rain; 2- Well; 3- Bore well; 4- Khola; 5 -Muhan; 6-River; 7-Other (specify)

Cropping Intensity 1- Twice a year, 2-Once a year, 3- Once in 2 years, 4- 2-4 Years, 5- 5 Years Other: (specify)

Terms of Reference (ToR) for ETP Annexes

3.10 What are the main natural resources that you use in your village? (Mark all that applies)	
<input type="checkbox"/> 1-Forest products	<input type="checkbox"/> 5-Fish from river
<input type="checkbox"/> 2-Water	<input type="checkbox"/> 6-NTFP
<input type="checkbox"/> 3-Aggregates from river	<input type="checkbox"/> 7- Use river for religious purposes
<input type="checkbox"/> 4- Animal grazing	<input type="checkbox"/> 8- Others (please specify)
3.11 What are the major sources for the following natural resources?	
<input type="checkbox"/> Irrigation..... <input type="checkbox"/> Drinking Water..... <input type="checkbox"/> Forest products..... <input type="checkbox"/> Others.....	



4. Income Generation

4.1 What are the main sources of income of the household? (Mark all that applies)

Farm Income	Non-Farm Income
Cereal crops	Salary
Vegetable cultivation	Non-farm wage woks
Livestock	Social security allowance (pension, old age allowance, etc.)
Other cash crop	Remittances
Farm labor	Retail trade
Other	Other

4.2 Harvest and sold quantities during the last agriculture cycle: use one unit.

Muri-Quintal-Pathi-Doka-Bhari

Past agriculture cycle refers to March 2017 to February 2018

Crop Cultivated	Annual Productivity		% self-consumed	% sold	Sales Last Cycle		Total (in NPR)
	Local unit	In Kg			Local Unit	In Kg	

4.3 Where do you sell your harvested crops?

<input type="checkbox"/> 1-Don't sell, only used for self-consumption	<input type="checkbox"/> 4-Trader directly from field
<input type="checkbox"/> 2-Village Market/Haat Bazaar	<input type="checkbox"/> 5-In the village to travelling buyers
<input type="checkbox"/> 3-Nearest town/city Market	<input type="checkbox"/> 6-Other, please specify

4.4 Production and Revenue from Livestock in the last 12 months

Terms of Reference (ToR) for ETP
Annexes

Type of livestock	No. of units currently?	How many units sold during the last 12 month?	Price per unit? (in NPR)	Total sales in quantity	Total Income
Bullock					
Cow					
Cow Milk					
Buffalo					
Buffalo Milk					
Chicken, Fowl					
Eggs					
Goat					
Pig					
Sheep					
Duck, Goose					
Other					
Other					

4.5 Activities and Revenue from Forest/River in the last 12 months

#	Type of Product	Quantity collected currently	% consumed	% Sold	Revenue generated per sell (in NPR)	Frequency of Selling in the last 12 months	Annual income (in NPR)
1	Fuelwood						
2	Timber						
3	Resin						
4	Herbs & Medicines						
5	Fruits & Berries						
6	Fodder						
7	Litter Collection (Leaves)						
8	Roofing Material						
9	Fishing						
10	Aggregates from River						
11	Others						



Terms of Reference (ToR) for ETP
Annexes

Total						
-------	--	--	--	--	--	--

4.6 Revenue from non-agricultural sources during the last 12 months

#	Source	Annual total (in NPR)
1	Skilled work	
2	Unskilled work	
3	Agricultural labour	
4	Old-age Pension	
5	Private service	
6	Civil servant (Govt.) service	
7	Remittance from abroad	
8	Monetary contribution from members living in the city	
9	Income from Rent (house, land, etc.)	
10	Business	
11	Other:	

5. Household Expenditure, Assets and Debt

5.1 Expenditure in last 12 months

	Item of Expense	Per Month	Per Year
1	Food		
	Cereals		
	Pulses		
	Vegetables		
	Meat, fish and poultry		
	Fruits		
	Other		
2	Non-Food Expenses		
	Clothing		
	Education		
	Health care		

Terms of Reference (ToR) for ETP
Annexes

	Transport		
	Electricity bill		
	Cooking fuel (firewood, LPG, Kerosene)		
	Social function (marriage, funeral, religious activities)		
	Agricultural Inputs		
	Telephone bill		
	Other (Please specify)		
3	Total		

5.2 Household Assets

What are the various assets owned by the household (choose all that apply)

Household appliances (if either of fridge, television, radio, water heater, washing machine is present)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Kitchen appliances (if either of mixer-grinder, ovens, toaster, grill, etc is present)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Agricultural equipments (if either of tractor, cultivator, plows, harrow, axe, sickle, sprayers, sprinklers is present)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Means of transport (if either of cycle, motored two wheeler, four wheeler, animal pulled cart, farm truck, etc is present)	<input type="checkbox"/> Yes	<input type="checkbox"/> No

5.3 Household Debt

5.3.1 Have you taken any debt in the last 12 months? Yes No

5.3.2 Outstanding debt _____ NPR

5.3.3 Sources of Credit

1 <input type="checkbox"/> Relatives	5 <input type="checkbox"/> Mutual/Cooperative
2 <input type="checkbox"/> Friends	6 <input type="checkbox"/> Bank
3 <input type="checkbox"/> Trader, Shopkeeper	7 <input type="checkbox"/> Local Moneylender
4 <input type="checkbox"/> Spouse's Family	8 <input type="checkbox"/> Group-based Microfinance Source

Terms of Reference (ToR) for ETP
Annexes

5.3.4 Reasons for taking credit

1 <input type="checkbox"/> Food	7 <input type="checkbox"/> Business
2 <input type="checkbox"/> Foreign employment	8 <input type="checkbox"/> Social activities
3 <input type="checkbox"/> Farming Input	9 <input type="checkbox"/> Health
4 <input type="checkbox"/> Purchase of land	10 <input type="checkbox"/> House construction/renovation
5 <input type="checkbox"/> Purchase of livestock	11 <input type="checkbox"/> Purchase of vehicle(s)
6 <input type="checkbox"/> School	12 <input type="checkbox"/> Other

5.3.5 Interest Rate- _____ % per annum

5.3.6 How much has been repaid? _____ NPR

5.3.7 Have you mortgaged any property to get the loan? Yes No

If yes, please specify the plot number _____

5.3.8 Is anyone in your family part of any association/cooperative society/club?

1 Farmer Association

2 Fisherman Association

3 CFUG

4 Ama Samuha

5 Local NGO

6 Cooperative Society

7 Self Help Group

8 Youth Club

9 Others (Specify)

5.3.9 Do you have a bank account?

Yes _____ No _____

5.3.10 Do women in the household have a bank account?

Yes _____ No _____

5.3.11 What is your primary saving source? (Choose one)



Terms of Reference (ToR) for ETP
Annexes

Private Bank account	Cooperative bank account	Self-Help Group savings account	Informal saving sources	No savings
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6 Quality of housing

6.1 <input type="checkbox"/> No. of Floors		6.2 <input type="checkbox"/> No. of Rooms		6.3 <input type="checkbox"/> Owned		6.4 <input type="checkbox"/> Rented	
6.6 Roof	1 <input type="checkbox"/> Metal plates(sheets)	2 <input type="checkbox"/> Straw	3 <input type="checkbox"/> Cement/concrete/	4 <input type="checkbox"/> temporary roof (plastic sheet)			
6.7 Walls	1 <input type="checkbox"/> Dry mud	3 <input type="checkbox"/> Mud bricks	5 <input type="checkbox"/> Fired bricks	7 <input type="checkbox"/> Semi-permanent (mud+ cement)			
	2 <input type="checkbox"/> Straw/raffia/bamboo	4 <input type="checkbox"/> Metal plates (sheets)	6 <input type="checkbox"/> Wood boards	8 <input type="checkbox"/> Permanent			
6.8 Floor	1 <input type="checkbox"/> Earthen floor	2 <input type="checkbox"/> Partially cemented	3 <input type="checkbox"/> Cemented	4 <input type="checkbox"/> Floor tiles	5 <input type="checkbox"/> Bamboo/wood		

7 Energy Access

7.1 What sources of energy does your household for heating and lighting use?	1. National grid	Select all that apply
	2. Local mini-grid/micro-hydro grid	
	3. Off-grid solar	
	4. Biogas plant	
	5. Rechargeable batteries	
	6. Non-rechargeable batteries	
	7. Kerosene	
	8. Charcoal	
	9. Wood	
	10. Other	



Terms of Reference (ToR) for ETP
Annexes

7.2 What do you use electricity for?	1. Lighting	Select all that apply	
	2. Cell phone charging		
	3. TV		
	4. Refrigerator		
	5. Room heater		
	6. Air conditioner		
	7. Fan		
	8. Electric Stove		
	9. Radio		
	10. Flashlight/torch (rechargeable)		
	11. Computer/laptop		
	12. Rice Cooker		
	13. Boiling Water		
	14. Irrigation Pump		
	15. Pumping drinking water		
7.3 How reliable is the grid electricity that you use?	1. Reliable- No disruption		
	2. Not Reliable- Frequent disruption (At least three times a week)		
	3. Unreliable- More than three times a week		
7.4 Is there sufficient energy for productive uses and/or appliances you would like to use?	1. Yes		
	2. No		
	3. If No, please specify		
7.5 What's your monthly energy expense (including expense on cooking and heating)?	1. Firewood _____ Nrs		
	2. Charcoal..... Nrs		
	3. Dung/residues..... Nrs		
	4. Briquettes..... Nrs		
	5. Biogas..... Nrs		
	6. Kerosene..... Nrs		
	7. Ethanol..... Nrs		
	8. LPG..... Nrs		
	9. Electricity..... Nrs		
	10. Other (Please specify)..... Nrs		
7.6 What type of fuel do you use for cooking?	1. Firewood	Select all that apply	
	2. Charcoal		
	3. Dung/residues		
	4. Biogas		
	5. Kerosene		
	6. Ethanol		
	7. LPG		
	8. Electricity		
	9. Other		
7.7 Do you use energy source for business?	1. Yes	2. No	
7.8 What type of energy source do you use for your business?	1. National grid	Select all that apply	
	2. Local mini-grid/micro-hydro grid		
	3. Off-grid solar		
	4. Biogas plant		
	5. Rechargeable batteries		

Terms of Reference (ToR) for ETP
Annexes

	6. Non-rechargeable batteries	
	7. Kerosene	
	8. Charcoal	
	9. Wood	
	10. Other	
	11. Kerosene	
	12. Petrol	
7.9 What kind of business do you operate from the energy source?	
7.10 If you had a reliable source of electricity, what types of income generating activities would you undertake?	

8. Access to Health

8.1	Which among these facilities are available in your village? (choose all that apply)	1. Private Clinic			
		2. District/ Ward Hospital			
		3. Government Health Post			
		4. Nearest City or Town			
		5. Traditional			
8.2	Which among the above is your preferred facility	a.	8.3	Time taken to travel to the preferred facility (in hrs)	
8.4	Illness in the household in the last one year				
	a. Disease	b. Month of occurrence	c. Treatment Cost	d. Treated at (codes are given below)	
	i.				
	ii.				
	iii.				
	iv.				
Codes for 8.4 (a)			Codes for 8.4 (d)		
1. Diarrhea		2. Malaria/		1. None	2. Home Remedy
3. Skin rash/itches		4. Respiratory tract infection(cold,cough)			
5. Typhoid		6. Cholera		3. Traditional healer/ herbalist नेपाल	4. Private Clinic नेपाल
7. Tuberculosis		8. Sexually transmitted infection			
9. HIV/AIDS		10. High blood pressure			
11. Common Fever		12. Other (specify).....		5. तथा वा Government Clinic	6. Private Hospital Clinic

Terms of Reference (ToR) for EIP
Annexes

		7. Government Hospital	8. Village Health Post
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Access to Education

8.5	Education Facilities available within the ward.	1. Primary School				
		2. Secondary School				
		3. Higher Secondary				
		4. College/University				
		5. Vocational/Technical Institute				
8.6	How many members of your household are of school going age	No. of boys-		No. of girls-		
8.7	How many members of your household attend school	No. of boys		No. of girls-		
8.9	Does your family member attend school outside of the village?	<input type="checkbox"/> Yes		<input type="checkbox"/> No		
8.9	If yes, what are the reasons for sending them away?	<input type="checkbox"/> Unavailability of education facilities		<input type="checkbox"/> Cost		
		<input type="checkbox"/> Lack of Quality education		<input type="checkbox"/> Others (Specify)		
8.10	Do girls in your household attend school?	<input type="checkbox"/> Yes				
		<input type="checkbox"/> No				
		If No, please specify reasons.....				
8.11	If Yes in 8.11	S. No	Age of the girl	Class enrolled	Currently studying (Y/N)	Reason for drop out

9 Access to Infrastructure

9.1 Toilet facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	9.5 Source of water
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Terms of Reference (ToR) for ETP Annexes

9.2 Location of facility	<input type="checkbox"/> Inside house	<input type="checkbox"/> Outside house	<input type="checkbox"/> Piped water in house	<input type="checkbox"/> Stream
			<input type="checkbox"/> Well	<input type="checkbox"/> Public Tap
9.3 Type of facility	Cemented with closed pit	Kuccha with open pit	<input type="checkbox"/> Spring	<input type="checkbox"/> Other, specify
9.4 Accessible to both genders	<input type="checkbox"/> Yes	<input type="checkbox"/> No	9.6 Distance to water source (in kms)-	

10 Adequacy of services (s) in the Municipality

10.1	Services	Adequacy	Services	Adequacy	
a.	Education services/facilities		b.	Drinking Water	1-Good-service is available at all times and at economical cost or free of cost
c.	Medical services/facilities		d.	Sanitation(toilets)	
e.	Roads/transport		f.	Solid waste disposal	
g.	Electricity		h.	Law and order/security	
i.	Telecommunications		j.	Employment	
					2-Satisfactory-service is available 50%

11 Priority development initiative (s) in the community

11.1	Services	Priority	Services	Priority	
a.	Education services/facilities		b.	Drinking Water	1 = first priority 2 = Second priority 3 = Third Priority Not required
c.	Medical services/facilities		d.	Sanitation(toilets)	
e.	Roads/transport		f.	Solid waste disposal	
g.	Electricity		h.	Law and order/security	
i.	Telecommunications		j.	Employment	

12 Knowledge about the project



Terms of Reference (ToR) for ETP
Annexes

12.1	Have you any knowledge regarding the transmission line project?	Yes (all aspects)	Yes (some information)	Nothing at all
12.2	a. If Yes, from where did you hear about the Project?	Government Department		Community Leaders
		Community Liaison Officers		Direct Contact from the company
		Newspapers/		Radio
		Neighbors/ friends		Any other
	b. If No, how would you like to be communicated about the project in future?.....			
	c. If you have knowledge, please explain what you know?			
12.3	a. Do you anticipate the Project to generate any negative impacts for you and your and livelihood?			
12.4	Do you think this project is important for the community?	1. Yes 2. No		
12.5	Do you know that there may be outside people coming to work on the project?	1. Yes 2. No	12.6 If so, would you have any concerns? 1. Yes 2. No	
12.7	If yes, what are the anticipated impacts on the community?	1. Impact on cultural heritage 2. Impact on social cohesion 3. Impact on existing resources 4. Concerns about safety and trafficking 5. Others.....		
12.8	Has your household been impacted by any other land acquisition in the past?	1. Yes 2. No		
12.9	If yes, total land impacted in hectares			
12.10	If yes, how long ago was it?years		
12.11	Amount of compensation received NPR		
12.12	Use of compensation	1. Land 2. House 3. Ceremonies 4. Other.....		

13 Trafficking in Persons

13.1	Do you know anyone migrated from your village unwillingly?	1. Yes 2. No
------	------------------------------------------------------------	-----------------

Terms of Reference (ToR) for ETP
Annexes

13.2	Is there a middleman who is responsible for transporting persons for reasons of work/labour?	1. Yes 2. No
13.3	Have you heard about trafficking?	1. Yes 2. No.....
13.4	If Yes, what form of trafficking do you know of?	1. Sex trafficking 2. Labour trafficking 3. Others
13.5	Do you know of persons who have been trafficked by middlemen in false pretext?	1. Yes 2. No

14. Vulnerability

14.1 Income based (to be automatically calculated as per the response to income questions and BPL threshold for Nepal)	14.2 Dependency Ratio (to be calculated as number of working population/dependents)	14.3 Women headed household Yes No
14.4 Landlessness (to be calculated at household level)	14.5 Trafficking (if the household includes a member who has been victim of trafficking)	14.6 Disaster based vulnerability (if the household has migrated as a result of natural disasters such as flood, earthquakes, landslides)

Name of Enumerator

Date of Questionnaire

_____/201



COMMUNITY FOREST USERS GROUP (FGD)

Respondent Details:		
Names	Contact Phone Numbers-	Signatures-
Date: (DD/MM/YY)		
Name of the CFUG		
Total number of members in the CFUG		
Location Details		
Village:	Ward:	
District:	Ecological zone:	
Province:	Coordinates:	



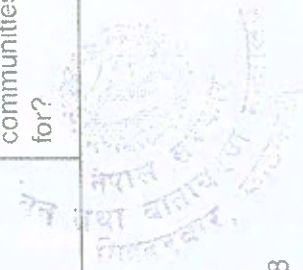
Terms of Reference (ToR) for ETP
Annexes

A. Details of the CFUG:	
1.	When was the CFUG formed? (and years of operation)
2.	What is the area under the CFUG?
3.	How many women members are in the CFUG?
4.	What are the main responsibilities of the CFUG?
5.	Are roles assigned to the women members? If Yes, what are their specific responsibilities? If No, what activities are undertaken by them?
6.	How are the villages in the area dependent on the CFUG? (Elaborate on economic and resource dependence)
7.	What is the process of identification of members

Terms of Reference (ToR) for ETP
Annexes

8.	How many households are there in your CFUG?	
9.	Does your CFUG include households headed by women? If yes, how many such households?	
10.	Does your CFUG include households from economical vulnerable sections? If yes, how many such households?	

B. Forest Resources	
1.	What are the main types of forest produce? (focus on firewood, medicinal herbs, timber, fodderetc.)
2.	What are the main uses of the forest products mentioned above?
3.	Are there any specific groups that are more dependent on the forest for livelihood than others? (focus on indigenous people, marginal communities); what do those groups use forest for?



Terms of Reference (ToR) for ETP Annexes

4.	Is your CFUG aware of the relevant acts (Forest Act, Forest Rules) and guidelines for forest use?	
5.	Do you think there will be an impact on the manner of forest use due to the transmission line project? What can be those impacts?	
6.	How do think those impacts can be mitigated or be reduced?	

C. Details on Grazing/Livestock Farming

1.	Does your CFUG also manage cattle/livestockbreeding/grazing in the forest area? (elaborate on count of livestock and milch animals)	
2.	What are the various livestock products? Are they sold or used for self-consumption? Elaborate on use of the products and their economic value	
3.	What are the main sources of fodder in the forest?	
4.	Do you think there will be impact on livestock (their numbers, their grazing pattern, etc) due to the transmission line project? What can be those impacts?	
5.	How do you think those impacts can be mitigated or reduced?	

D. Other Natural Resources within the Forest Area	
1.	Are there any other natural resources in the forest area? (Medicinal herbs, fodder, sacred forest etc)? Are they seasonal in nature
2.	What are the main wild animals and birds in the forest area? Do you feel that their ecology will be impacted by the transmission line project?
3.	Are their cultural/religious sites within these forest areas? How long have they been in use? What kind of activity are undertaken at these sites?
4.	Do you think there will be any impact on such sites due to the transmission line projects? What can be those impacts?
5.	How do you think those impacts can be mitigated or reduced?
6.	Are there degraded areas within CFUGs where reforestation could be done?
7.	What are the potential and interest for NTFP plantation in your community?
8.	What is the Interest of CFUG members in RoW maintenance?

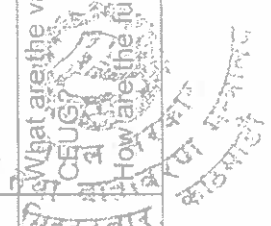


Terms of Reference (ToR) for ETP
Annexes


9.	What kind of access to energy programs can CFUGs benefit from?	
10.	What are the expected benefits from the proposed ETP?	

E. Funding and Operations of CFUG

1.	Explain the main forest products of the CFUG- their sale in the market and revenue earned through the sale. How strong are the market linkages?	
2.	How is the revenue earned from sale of produce shared among the members? Are there any differences in revenue sharing among men and women members?	
3.	Briefly explain the income generating activities of the CFUG in a given year. What is the average revenue earned in a given year?	
4.	What are the various sources of funding of the CFUG? How are the funding utilized?	



Terms of Reference (ToR) for ETP
Annexes

5.	Briefly talk about the developmental activities of the CFUG? What share of resources are dedicated to such activities?	
6.	Does the group have any plans to expand its income and revenue? If so, in what way can it be achieved?	
7	What are urgent needs of the local community that need to be addressed?	
8	Do you think periodic consultations are needed for developing a benefit program under the TLP? If so, who all should be a part of the meetings?	

F. Interviewer Details:

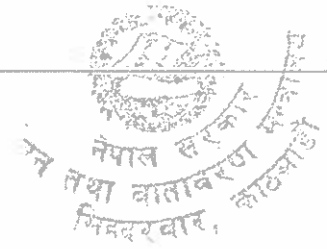
Name of the interviewer	
Date	
Local Administrative Unit	
Ward	



INDIGENOUS PEOPLE GROUP (FGD)

Respondent Details:			
Names	Contact Phone Numbers-	Caste/Ethnic group/language	Signatures:
Date: (DD/MM/Y Y)			
Location Details			
Hamlet:		Village:	
Ward:		District:	
Province:		Coordinates:	


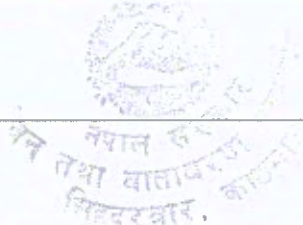
A. Basic Details	
1.	How many households comprising of Adivasi/Janjati are there in the village?
2.	Could you briefly talk about the different ethnic groups in the village? (discuss on- various ethnic and tribal groups based on language, culture, religion, etc)
3.	Could you briefly talk about the ethnic groups in the village? (discuss on- their mode of life, kind of interaction with other social groups, economic activity, etc)
4.	Could you briefly talk about the Adivasi/Janajati (indigenous people) in your village? (discuss on- - their mode of life, kind of interaction with other social groups, economic activity, etc)
5.	Are there differences in occupation according to tribes/ ethnic groups? Briefly talk on the reasons of segregation by occupation



Terms of Reference (ToR) for ETP
Annexes

6.	Which /ethnic group is in minority in your village? What kind of occupation/livelihood/economic activity is undertaken by the minority groups?	
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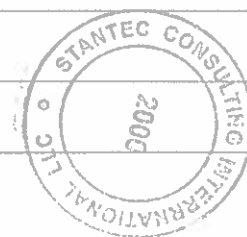
B. Ownership of Assets		
1	Does your community own any physical assets? (land, livestock, housing, etc) If yes, then what are those?	
2	Do you feel that ownership of assets is impacted due to your identity (social/caste/gender)	
3.	Do you feel that your community needs special reservation in ownership of assets? Briefly describe the kind of reservation you would like.	

C. Access to resources		
1	Do all the caste/ethnic group and Adivasi Janjati have equal access to natural resources? What are the challenges faced by Adivasi groups/minority groups in accessing natural resources?	
2	Do you feel that access to resources (health, education, financial, natural) is impacted due to your identity (social/caste/gender)	
3.	Are you engaged in agricultural activity (farming on own land, farm labourer, rearing of livestock, horticulture, fishing, etc)	
4.	Did you face any difficulty in accessing inputs, raw materials for your activity, due to your caste/group identity?	
5.	What do you feel about the transmission line project? Do you think it will benefit you/your family?	

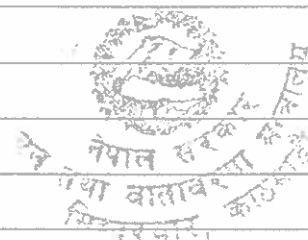
Terms of Reference (ToR) for ETP
Annexes

6.	Do you feel that you/your family needs special representation/reservation in the mitigation strategy of this project, as compared to other groups? If yes, In what form would you require that reservation?	
7.	Are you familiar with any trafficking related issues in your community?	
8.	Are there any traditional businesses in your community that might benefit from access to energy or more reliable energy source?	

D. Project related impacts		
1	What do you know about the proposed project?	
2	Do you anticipate any positive impacts from the project? Please elaborate.	
3.	Do you anticipate any negative impacts from the project? Please elaborate.	
4.	Do you have any ideas for mitigation/ enhancement measures for the issues described above (project impacts/ benefits), especially in relation to women?	
5.	Do you think that there will be any impact on your life owing to the following?	
	a) availability of natural resources (positive/negative)	
	b) current livelihood and income (will increase/ loss of opportunity)	
	c) current living/dwelling location (displacement/relocation)	
	d) migration (for work, child labour, sex trafficking)	
	e) Agricultural land and related food insecurity	



E. Interviewer Details:	
Name of the interviewer	
Date	
Local Administrative Unit	
Ward	



WOMEN'S GROUP (FGD)

Respondent Details:			
Names	Contact Phone Numbers-	Signatures-	
Date: (DD/MM/YY)			
Location Details			
Hamlet:		Village:	
Ward:		District:	
Province:		Coordinates:	

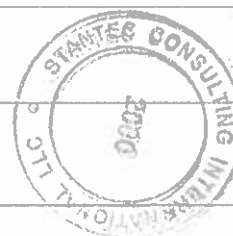
A. General	
1.	Briefly describe the condition of women in the village? Are there women headed households? What responsibilities are assigned to women in the households?
2.	Do women in the village own any assets? Do women inherit assets from their husbands/in-laws? Do women have land/property rights?
3.	-what role do women play in the family with regards to <ul style="list-style-type: none"> - economic matters, -social matters, -cultural matters, -children education and health
4.	What role do women play in: <ul style="list-style-type: none"> - the community? - Local leadership/politics?



5.	Do women also work outside the household for income? What kind of jobs are undertaken? Do women have access to banking system? Do women have control over finances?	
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B. Ownership		
1.	What are the ownership patterns in the village? What are the typical assets owned in	
2.	Are the ownership rights for girlchild defined?	

C. Social Status		
1.	Do you think men and women are given equal opportunities?	
2.	What are the main problems faced by women/girls in general? What do you	
3.	How would you rate your quality of life (good, average, bad)? What would you like to change about your current life?	
4.	What wishes and hopes do you have for your daughters and their lives?	
5.	Are there any women's associations/groups? What do they do?	



D. Access to Services		
Health services		
1.	What are the main health problems faced by women in the community? As the group to priorities the top three.	
2.	Where do you access your healthcare? What type of facility is it? (Private, government) How far is it from the village (miles)? Indicate distance and	
3.	Are you satisfied with the levels of healthcare available to you and your family? What are the main problems if any? (e.g. distance, long queues, opening hours, condition of	

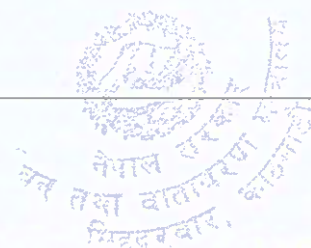


Terms of Reference (ToR) for ETP
Annexes

4.	Do you have to pay for healthcare? Which type of care do you pay for? Can you tell us the price that you have to pay for the diseases or treatment which	
Financial services		
6.	What are different kinds of finance available in the village? Can you access them? Describe about the challenges, if any, in accessing finance	
7.	Whom do you commonly approach for loans, advances? Are you a part of any cooperatives which promotes savings?	
8.	What challenges do you face while accessing financial services, if any, in your village? Do you feel the challenges faced are gender specific?	

Education services		
9.	What are the different kinds of education institutions in the village? Do women have fair access to schools and colleges in the area? Describe the challenges faced in the education of women	
10.	Do women have to drop out of education? If so, what are the reasons behind dropping out of school/college? Do you feel there are gender specific biases in learning?	
11.	How does education help women? Describe some ways in which education can bring equality?	

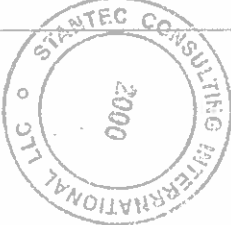
Energy		
12.	What are traditional energy sources used by women in the village? What are the problems faced in using traditional energy sources?	
13.	How much time is spent in gathering wood/making dung cakes/ getting coal? Is energy gathering activity reserved for women in the household?	



Terms of Reference (ToR) for ETP
Annexes

14.	What are the alternative energy source available in the village? Do women have access to such sources? What are the challenges?	
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E. Livelihood & Income		
1.	What are the income generating sources for women in the community? Which are the main economic activities?	Please describe the special roles of women.
2.	Are there households where men or other family members who migrate seasonally or annually for work? How	
3.	What significant changes have taken place in women's role since previous generations? Why? Will	
4.	What is the main problem faced by working women, especially informal employment or informal employment?	

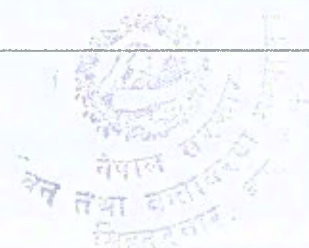
F. Trafficking in persons		
1.	When I say the term 'trafficking in persons', what comes to your mind? Have you heard of the term before? If yes, do you know of anyone from your village who has been a victim?	
2.	According to you, trafficking can involve- (let them speak regarding their understanding - which is the most vulnerable target	
3.	Most trafficked persons are in the age group of- -15-20 -21-26 -27-32 Over 32 years What are the destination zones for trafficking from your area- -India	



Terms of Reference (ToR) for ETP
Annexes

4.	<p>What do you think are the main reasons girls/women enter into trafficking? (if girls and women are the main target group)</p> <ul style="list-style-type: none"> -earning livelihood -escape social conditions -promise of new life -political turmoil at source any other reasons 	
5.	<p>What do you think needs to be done to prevent women and girls being trafficked?</p> <p>Describe some preventive measures and some corrective measures to stop trafficking</p>	

G. Project Related Impacts- Perceptions on Industry, Expectations and Concerns		
1.	What do you know about the proposed project	
2.	Do you anticipate any positive impacts from the project? Describe	
3.	Do you anticipate any negative impacts from the project? Describe	
4.	Do you have any ideas for mitigation/enhancement measures for the issues described above (project impacts/benefits), especially in relation to women?	
5.	Do you think that there will be any impact on your life owing to the following?	
	a) availability of natural resources (positive/negative)	
	b) current livelihood and income (will increase/loss of opportunity)	
	c) current living/dwelling location (displacement/relocation)	
	d) migration (for work, child labour, sex trafficking)	



Terms of Reference (ToR) for ETP
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	e) agricultural land and related food insecurity	
6.	What issues do you think there may be concerning differences for men and women if the project runs through your village? What benefits/costs do you think men and women can have differently?	
7.	Are there any access to energy related programs that women groups can benefit from?	
8.	What kinds of programs will women benefit from in your community?	
9.	Are there any traditional businesses in your community that might benefit from access to energy or more reliable energy source?	





MUNICIPALITIES/RURAL MUNICIPALITIES (KEY INFORMANT INTERVIEW)

Respondent Details:			
Name:		Public Office:	
Contact Number:		Duration in public office:	
Official Designation:		Involved in the project (Y/N):	
Date: (DD/MM/YY)			
Location Details			
Hamlet:		Village:	
Ward:		District:	
Province:		Coordinates:	

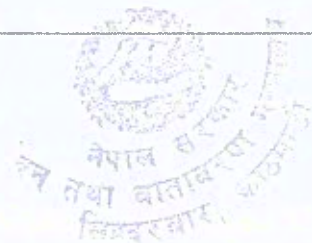
About the ETP project
1. What do you know about the project?
2. How did you come to know about the project?
3. How is your ward getting affected by the project?
4. What is your role in this project?
5. According to you, what will be the impact of the project in your area?
(If it is a positive/negative impact), then please explain how?
(If the respondent foresees a negative impact), then could you explain why do you think the project will have such kind of impact?
6. How do you plan to contribute to the project in your current capacity?



<p>7. According to you, what should be the mitigation strategies to reduce the negative impact of the project? Kindly list out a few strategies to mitigate/reduce the negative impact?</p>
<p>8. What benefits is anticipated from the proposed ETP?</p>
<p>9. According to you, who all (communities) in your ward should be given special focus?</p>
<p>10. What is your general perception of such large scale projects? Have you witnessed any such projects in the past?</p> 
<p>11. What are the development initiatives planned underway for your ward? Can you share with us plans of proposed projects?</p> 

Terms of Reference (ToR) for ETP
Annexes

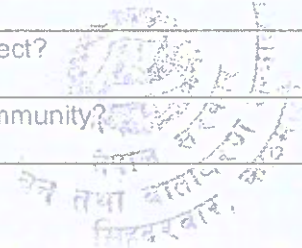
12. Do you have any programs (planned and underway) related to access and/or productive use of energy in your municipality?
13. What are the main NGO/INGO working in your municipality?
14. What are the major concerns and challenges for women in your community?
15. Are there any women focused programs undertaken by your municipality?
16. What provisions is effective to ensure women's participation in project planning's purposes?



<p>17. What are the major women organizations (formal and informal) present in municipality?</p>
<p>18. What are the main trafficking issues/concerns (e.g., sex, labor, child labor) in your ward? Is the specific age group that is most vulnerable to forced migration?</p>
<p>19. What is being done to combat trafficking??</p>
<p>20. Do you foresee any concerns about trafficking due to influx of labor in your community?</p>
<p>21. What do you think is the best approach to combat trafficking?</p>



22. Are there child labor issues in your community?
23. Which are the main indigenous groups in your municipality?
24. What are major problems faced by indigenous people?
25. What are major sources of livelihood for indigenous people?
26. What are the major cultural, religious and historical sites of significance in your community?
27. Share your thoughts/comments/suggestions to make the project more inclusive
28. Are all wards and municipalities connected to the national grid in your community?
29. What are the different sources of energy in your municipality/ward?
30. How is alternative sources of energy (including solar, micro-grid and others) viewed in your community?
31. What are the major challenges in a Transmission Line Project?
32. What benefits do you think the project will bring to your community?



Terms of Reference (ToR) for ETP
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33. Do you have any current or planned projects related to access to energy in your municipality?
34. Could hospitals, schools and other similar public infrastructure benefit from access to energy or with more reliable source of energy?
35. What benefits could this project bring to the municipality?
36. What are the perceived benefits from the affected community?
37. Given the challenges in a transmission line project, what do you think is the best way to minimize and mitigate those challenges?
38. Are there expectations of benefits from communities outside of the affected area?
39. What is the most pressing development challenge for your municipality?
40. Do you have any suggestions for the project for smooth implementation?



1-Types of Land FALLING under Transmission Line Corridor

LINE COMPONENTS.	Particulars	LAND TYPE (In hectare)												Total area (In ha.)	Remarks		
		Forest			Cultivated		Barren		River & Flood Plain		Built up/Residential						
		Gvt.	CF	LHF	Rel.	Pvt.	Govt. (कर्मचारी)	Pvt.	Gvt.	Pvt.	Gvt.	Public	Pvt.				
Under T/L conductor	TP1 to TP2																
	TP1, to TP3																
	... to ...																
	TP. to TP.																
	Sub-Total																
Tower Pads	Total number of Tower Pads/area*																
Substations**	Near Substations																
	Near delivery point																Only if needed. Clearly state if not required
	Total Area																

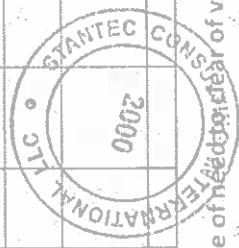
Note:

1. The area shall include all the land irrespective of need to clear of vegetation and others, including tower foundations.
2. * - Number of Tower Pads and area required are to be given as - no./ha.
3. ** - If there are more than one substations, all have to be included identifying locations
4. LAND REQUIREMENT FROM NATIONAL PARK, RESERVE FOREST, BUFFER ZONE, AND CONSERVATION AREA SHALL BE ACCOUNTED USING SIMILAR TABLES SUITABLE BY DIFFERENT FIELD/COLUMN NAMES.



2 Types of Land to be ACQUIRED under Transmission Line Corridor

LINE COMPONENTS.	Particulars	LAND TYPE (in hectare)												Total area (in ha.)	Remarks			
		Forest			Cultivated			Barren		River & Flood Plain		Built up/ Residential						
		Gvt.	CF	LHF	Rel.	Pvt.	Govt. (देशी)	Gvt.	Pvt.	Gvt.	Pvt.	Public	Pvt.					
Under T/L conduct or ...	TP1 to TP2 TP1 to TP3 ... to ... TP.. to TP..																	
Tower Pads	Sub-Total Total number of Tower Pads/area*																	
Substations	Near Substations Near delivery point																	Only if needed. Clearly state if not required
	Total Area																	



Note:

- a) The area shall include all the land irrespective of need or use of vegetation and others, including tower foundations.
- b) * - Number of Tower Pads and area required are to be given as - no./ha.
- c) ** - If there are more than one substations, all have to be included identifying locations
- d) LAND REQUIREMENT FROM NATIONAL PARK, RESERVE FOREST, BUFFER ZONE, AND CONSERVATION AREA SHALL BE ACCOUNTED USING SIMILAR TABLES ADJUSTED BY FIELD/COLUMN NAMES.



Types of Permanent/Temporary Land required for the Project

S. N.	PROJECT COMPONENTS *	LAND TYPE (in hectare)											Total area (in ha.)	Remarks			
		Forest			Cultivated		Barren		River & Flood Plain		Built up/ Residential						
		Gvt.	CF	LHF	Rel.	Pvt.	Govt. (खेती)	Pvt.	Gvt.	Pvt.	Gvt.	Pvt.			Public	Pvt.	
1	Towers																
2	Substations																
3	Campsites																
4	Storage Facilities																
..	Access Roads																
..	...																
	Total Area																



Note:

- 1) * - Other components can be added as appropriate/required based on the project layout. The table shall account all the land required by the project
- 2) Give separate tables for Permanent and Temporary land requirements. However, it is advised to use temporary land for these facilities.
- 3) LAND REQUIREMENT FROM NATIONAL PARK, RESERVE FOREST, BUFFER ZONE, AND CONSERVATION AREA SHALL BE ACCOUNTED USING SIMILAR TABLES SUITABLY ADJUSTED BY DIFFERENT FIELD/COLUMN NAMES.



FOR 220 KV AND ABOVE

1-Distribution of Settlements/Infrastructures/etc. within 100 m and up to 300 m from TOWER POINT

Tower Point (1)	Geographic Coordinate	Location (GP/NP, Ward) (2a)	Land Types under tower pad and its ownership (3)	Settlements/Infrastructure s/ houses/school s/temples/Hat -Bazars/etc. within 100 m (4a)	Distance from the edge of Tower Point (m) (4b)	Number of populations within 100 m from tower point			Settlements/major infrastructures/ within a distance greater than 100 m (up to 300 m) (5a)	Distance from the edge of Tower point (m) (5b)	Remarks (6)
						Persons (> 15 years)	children (< 5 Years)	Children (5-16 Years)			
TP											

Note:

- 1) For each houses within 100 m from tower pad, give number of persons (with distinction of age groups –below 5 years, 5 to 15 years, and > 16 Years) residing
- 2) For each schools within 100 m from the tower pad, give number of persons (with distinction of age groups –below 5 years, 5 to 15 years, and > 16 Years) in schools
- 3) For each health posts/hospitals, and places of public congregation give number of persons residing permanently and persons attending in a day



2-Distribution of Settlements/infrastructures/etc.. within 100 m and up to 300 m from the Transmission LINE CONDUCTOR

Transmission line section (from TP to TP) (1)	GP/NPs/ Ward No (2)	Settlements/ infrastructures//houses/ schools/temples/Hat-Bazar/ within 100 m from T/L conductor (3a)	Distance from the Conductor (3b)	Number of populations within 100 m from conductor			Settlements/Major structures within a distance greater than 100 m (up to 300 m) from T/L Conductor (4a)	Distance from the Conductor (4b)	Remarks (5)
				Persons (> 15 years)	children (< 5 Years)	Children (5-16 Years)			

Note:

- 1) For each houses within 100 m from tower pad, give number of adults and children (with distinction of age groups –below 5 years and 5 to 16 years) residing
- 2) For each schools within 100 m from the conductor, give number adults and children (with distinction of age groups –below 5 years and 5 to 16 years) in schools
- 3) For each health posts/hospitals, and places of public congregation, give number of persons residing permanently and persons attending in a day



3-Distribution of Settlements/Infrastructures/etc. within 100 m substation

Substation	Location (GP/NPs, Ward)	Settlements/ houses/schools/temples/Hat- Bazars/etc. within 100 m	Distance from the edge of perimeter (m)	Number of populations			Remarks
				Persons (> 15 years)	children (< 5 Years)	Children (5 16 Years)	
Near Power house							
Near Delivery point							

Note:

- For each houses within 100 m from tower pad, give number of adults and children (with distinction of age groups –below 5 years and 5 to 15 years) residing.
- For each schools within 100 m from the tower pad, give number adults and children (with distinction of age groups –below 5 years and 5 to 16 years) in schools.
- For each health posts/hospitals, and places of public congregation, give number of persons residing permanently and persons attending in a day.



1(A)-Loss of Land of Project Affected Families and Households

S.N.	Owner's Name and Family size	GP/NP/ Ward No.	Project Component	Loss of Land in the project area (m ²)				Total land loss	Value of lost land (Rs.)	Total Land owned	% of land loss	Remarks
				Khet	Bari	Pakho/Parti/Ghar Bari#	Forest					
	Name/family size								Ropani and ha.			
			Total									

Note:

-- Mention the category loss for each family

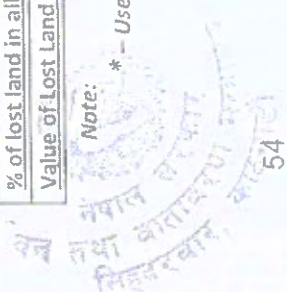
* -- Use separate row for each project component for the family as required

1(B)-Total Loss of Land of Project Affected Families and Households

S.N.	Local Administrative Unit	Project Component	Loss of Land in the project area (Ropani/ha.)				Remarks
			Khet	Bari	Pakho/Parti	Ghar Bari Others	
	GP/NP1						
	GP/NP2						
						
		Total					
	Total land available in all GP/NPs						
	% of lost land in all GP/NPs						
	Value of Lost Land (Rs.)						

Note:

* -- Use separate row for each project component



2(A)-Loss of Cereal Crops Production of Project Affected Families and Households

S. N.	Owner's Name and Family size	GP/N Ps/Ward No.	Project Component*	Loss of Cereal Crops due to land Acquisition (Mt)				Crops Production of the family/Percentage of loss (Mt)/%#				Remarks		
				Paddy	Wheat	Maize	Millet	Others##	Paddy	Wheat	Maize		Millet	Others##
1.														
			Total											

Note:

* Use separate row for each project component for the family as required

Give values as -Mt/%

Use additional columns as required for other cereal crops

2(B)-Loss of Cash Crops Production of Project Affected Families and Households

S. N.	Owner's Name and Family size	GP/N Ps/Ward No.	Project Component*	Loss of Cash Crops due to land Acquisition (Mt)				Total Cash Crops Production of the family/Percentage of loss (Mt)/%#				Remarks	
				Potato	Vegetables	Others##	Potato	Vegetables	Others##				
1.													
			Total										

Note:

* Use separate row for each project component for the family as required

Give values as -Mt/%

Use additional columns as required for other cereal crops



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2(C)-Value of Total Loss of Agricultural Production Due to Land Acquisition

Crops	Total Area (ha.)	Yield (Mt/ha.)	Production (Mlt)	Local Market Value (Rs./Mlt)	Amount (Rs.)	Remarks
						
1. Cereal Crops						
Paddy						
Wheat						
Maize						
Millet						
.....						
<i>Total-1</i>						
2. Cash Crops						
Potato						
Vegetables						
.....						
<i>Total-2</i>						
Grand Total						

3(A)-Loss of Houses and other properties of Project Affected Families and Households

S.N.	Owner's Name and Family size	GP/NPs/ Ward No.	Project Component/	Loss houses		Loss of trees			Remarks
				Res. House*	Cow shed*	Others	Fruit (no.)	Fodder (no.)	
	Name/family size								
			<u>Total</u>						

Note:
* Mention -Number of houses lost (houses owned) -i.e.2 lost(3 owned)
#Use separate row for each project component for the family as required



3(B)-Value of Lost of Houses and other properties of Project Affected Families and Households

S.N.	Owner's Name and Family size	GP/NPs/ Ward No.	Project Component#	Value of Lost houses			Value of Lost of trees			Remarks
				Res. House*	Cow shed*	Others	Fruit (no.)**	Fodder (no.)**	Other (no.)**	
	Name/family size									
			Total							

Note:

* Mention –Number of houses lost /Value of lost houses (Rs.)

** Mention–Number of trees lost/Value of lost trees (Rs.).

Use separate row for each project component for the family as required



1. Forest loss at different Project Components

S.N	PROJECT COMPONENT*	TYPE OF FOREST (as per forest Act)	FOREST AREA (ha.)	LOSS OF VEGETATION		CROWN COVER (%)	BASAL AREA (%)	VEGETATION TYPE (Sal, Pine, strubs, barren etc.)
				Seedling per ha.	Saplings per ha. No. of trees >10 cm DBH			
1	Headworks	Gvt. managed Community Leasehold Religious Private						
2	Water Conveyance: Tunnel/Canal /penstock						
3	Power House						
4	TL / Access Road/ ROW						
5	Substation/ Switchyard						
6	Total						Sum	

Note: Other components can be added as appropriate/required as per the project layout.

2. Total loss in terms of plant species

BOTANICAL NAME	LOCAL NAME	AVG. DBH/RANGE* (for >= 10 cm DBH)	LOSS OF VEGETATION**				STANDING WOOD VOLUME		BIOMASS FOR STANDING TREE (kg.) (Wet) (Dry)	BIOMASS USAGES***
			LOSS OF REGENERATION		LOSS OF TREE (number)		Timber (cft.)	Fuel wood (chatta)		
			Seedlings per ha.	Saplings per ha.	Pole class	Tree class				
1.										
2.										
...										
Total					Sum	Sum	Sum	Sum	Sum	

Note: * Avg. DBH and Range of DBH to be given for Pole and Tree Class

** Seedling 0-4 cm DBH; Sapling 4-10 cm DBH; Pole Class 10-30 cm DBH; Tree Class >30 cm DBH

*** Possible usages are – fire wood, fodder, etc.

3. Total Forest Loss

TYPE OF FOREST	AREA (ha.)	LOSS OF VEGETATION				CROWN COVER (%)	STANDING WOOD VOLUME		BIOMASS FOR STANDING TREE AND GROUND VEGETATION (kg.) (Wet) (Dry)	BIOMASS USAGES*
		LOSS OF REGENERATION		LOSS OF TREE (number)			Timber (cft.)	Fuel wood (chatta)		
		Seedlings per ha.	Saplings per ha.	Pole class	Tree class					
1. Govt.										
2. Community										
3. Religious										
4. Leasehold										
5. Private										
Total		Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	



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Note: * Seedling 0-4 cm DBH; Sapling 4-10 cm DBH; Pole Class 10-30 cm DBH; Tree Class >30 cm DBH

*** Possible usages are – fire wood, fodder, etc.

4. Loss of Non-Timber Forest Product (NTFP)

COMMERCIALLY IMPORTANT SPECIES (NTFP)	Government Managed		Community Managed		Religious		Leasehold	
	Seedlings per ha. (no./ha.)	Saplings per ha. (no./ha.)	Seedlings per ha. (no./ha.)	Saplings per ha. (no./ha.)	Seedlings per ha. (no./ha.)	Saplings per ha. (no./ha.)	Seedlings per ha. (no./ha.)	Saplings per ha. (no./ha.)
1.								
2.								
...								

Note:

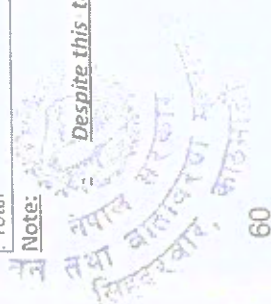
- = Seedling 0-4 cm DBH; Sapling 4-10 cm DBH;
- = Use Govt. approved methodologies, if available; if not, other methodologies can be used.

5. Land Requirement

LAND TYPE	LAND REQUIREMENT (ha.)		PROJECT COMPONENT
	Temporary	Permanent	
1. Agricultural.			[TL Row, Water Conveyance (specify the conveyance system), Power House, Settling Basin, Campsite, Spoil deposit, Road, Reservoir, etc.]
2. National forest			
3. Community forest			
4. Leasehold forest			
5. Religious forest			
Total	Sum	Sum	Sum

Note:

Despite this table is developed for accounting loss of forest area, please do fill up the land requirement for "Agriculture Land" and "Private Forest"



6. Valuation of Forest Product Loss

6.1. Valuation in terms of plant species

BOTANICAL NAME	LOCAL NAME	VLAUE OF TIMBER LOSS Pole Class Tree Class Nrs.	VLAUE OF FUEL WOOD LOSS Nrs.	VLAUE OF FODDER LOSS Nrs	TOTAL
1.					Sum
2.					Sum
...					Sum
Total		Sum	Sum	Sum	SUM

Note:

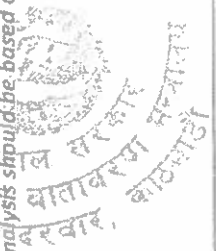
Values shall be calculated at prevailing market rate.

6.2 Total annual income foregone from the loss of

Non - Timber Forest Product (NTFP)

COMMERCIALY IMPORTANT SPECIES (other than trees) NTFP	Government Managed (NRs.)	Community Managed (NRs.)	Religious (NRs.)	Leasehold (NRs.)	Total of all types of forests (NRs.)	NPV* of income foregone (NRs.)
1.						
2.						
...						
कुल	Sum	Sum	Sum	Sum	Sum	Sum

* NPV should be based on 35 years of economic life at prevailing Nepal Rastra Bank discount rate.
Analysis should be based on the existing annual income from the products.



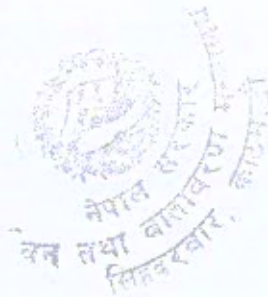
6.3 Value of Total Forest Loss

TYPE OF FOREST	NPV OF INCOME FOREGONE FROM NTFP*	VLAUE OF TIMBER LOSS**		VLAUE OF FUEL WOOD LOSS** Nrs.	VLAUE OF FODDER LOSS** Nrs
		Pole Class Nrs.	Tree Class Nrs		
1. Govt.					
2. Community					
3. Religious					
4. Leasehold					
5. Private.					
Total	Sum	Sum	Sum	Sum	Sum

Note:

*- Value form table-6.2

** - Value form table-6.1.



Terms of Reference (ToR) for ETP Annexes

1(A)-Loss of Land of Project Affected Families and Households

S.N.	Owner's Name and Family size	GP/NPs/ Ward No.	Project Component*	Loss of Land in the project area (m ²)						Total land loss (Ropani and ha.)	Value of lost land (Rs.)	% of land loss	Remarks
				Khet	Bari	Pakho/Parti/Ghar Bari#	Forest	Others					
	Name/family size												
			Total										

Note:

-- Mention the category loss for each family

* -- Use separate row for each project component for the family as required

1(B)-Total Loss of Land of Project Affected Families and Households

S.N.	Local Administrative Unit	Project Component*	Loss of Land in the project area (Ropani/ ha.)					Remarks
			Khet	Bari	Pakho/Parti	Ghar Bari	Others	
	GP/NP 1							
	GP/NP 2							
							
		Total						
	Total land available in all GP/NPs							
	% of lost land in all GP/NPs							
	Value of lost Land (Rs.)							



Note: * Use separate row for each project component
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2(A)-Loss of Cereal Crops Production of Project Affected Families and Households

S. N.	Owner's Name and Family size	GP/N Ps/Ward No.	Project Component*	Loss of Cereal Crops due to land Acquisition (Mt)				Total Cereal Crops Production of the family/Percentage of loss(Mt)/%#				Remarks		
				Paddy	Wheat	Maize	Millet	Others##	Paddy	Wheat	Maize		Millet	Others##
1.	Name/family size													
			Total											

Note:

- * Use separate row for each project component for the family as required
- # Give values as -Mt/%
- ## Use additional columns as required for other cereal crops

2(B)-Loss of Cash Crops Production of Project Affected Families and Households

S. N.	Owner's Name and Family size	GP/N ps/Ward No.	Project Component*	Loss of Cash Crops due to land Acquisition (Mt)				Total Cash Crops Production of the family/Percentage of loss (Mt)/%#				Remarks	
				Potato	Vegetables	Others##	Potato	Vegetables	Others##				
1.	Name/family size												
			Total										

Note:

- * Use separate row for each project component for the family as required
- # Give values as -Mt/%
- ## Use additional columns as required for other cereal crops

2(C)-Value of Total Loss of Agricultural Production Due to Land Acquisition

Crops	Total Area (ha.)	Yield (Mt/ha.)	Production (Mt)	Local Market Value (Rs./Mt)	Amount (Rs.)	Remarks
3. Cereal Crops						
Paddy						
Wheat						
Maize						
Millet						
.....						
Total-1						
4. Cash Crops						
Potato						
Vegetables						
.....						
Total-2						
Grand Total						

3(A)-Loss of Houses and other properties of Project Affected Families and Households

S.N.	Owner's Name and Family size	GP/NPs/ Ward No.	Project Component#	Loss houses			Loss of trees			Remarks
				Res. House*	Cow shed*	Others	Fruit (no.)	Fodder (no.)	Other (no.)	
	Name/family size									
			Total							

Note:

* Mention-Number of houses lost (houses owned) -i.e.2 lost(3 owned)

#Use separate row for each project component for the family as required



3(B)-Value of Lost of Houses and other properties of Project Affected Families and Households

S.N.	Owner's Name and Family size	GP/NPs/ Ward No.	Project Component#	Value of Lost houses			Value of Lost of trees			Remarks
				Res. House*	Cow shed*	Others	Fruit (no.)**	Fodder (no.)**	Other (no.)**	
	Name/family size									
			Total							

Note:

* Mention –Number of houses lost /Value of lost houses (Rs.)

** Mention–Number of trees lost/Value of lost trees (Rs.)

Use separate row for each project component for the family as required



Annex C: Details of EIA Team Members

1. Declaration Form

2. CV of Experts

3. Certificate of Experts

67-278



Annex C: Declaration Form of EIA Team Members

Terms of Reference (ToR) for ETP Annexes

DECLARATION FROM PROJECT PROPONENT

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal, Ministry of Finance; Millennium Challenge Account- Nepal; Yak and Yeli Hotel Complex, Kathmandu

I declare the following:

- (i) I have provided correct and relevant information to the EIA Study Team;
- (ii) I have allowed the EIA Study Team to conduct the Scoping/EIA study professionally and independently;
- (iii) I have read and understood the content of the Scoping/EIA Report;
- (iv) I agree to implement all enhancement/mitigation measures may also be imposed by the Ministry of Environment should the original mitigation measures proposed in this EIA report are found not to be adequate to comply with the relevant legal requirements.

Signature: 

Official stamp



Name: Shyam Upadhyaya
Environmental and Social Performance Specialist

Date: January 01, 2019

* Applicable only for EIA report





1. David Blaha

DECLARATION FORM EIA STUDY TEAM LEADER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal; Ministry of Finance; Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following:

- (i) I have read and checked the content of this prepared Scoping/ToR/EIA report;
- (ii) My study team members have conducted this 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) The proposed mitigation measures are reliable, practical and adequate to comply with the relevant legal requirements; and
- (v) Myself and my team shall be accountable for any misleading information in any part of this report.

Signature:

Official stamp:

Name: David Blaha

Date: 05-02-2019

Position: International EIA Leader



David Blaha

Principal Partner
Power Sector

David Blaha is a principal partner with ERM based in Bangkok, Thailand, after having spent most of his career in Washington D.C. He has extensive experience in applying international good practice (e.g., IFC Performance Standards and Equator Principles) for Environmental and Social Impact Assessments (ESIA), Management Plans (ESMP), and Management Systems (ESMS). He specializes in assisting clients in securing project financing, obtaining host country regulatory approvals, building the social license to operate, and integrating sustainability into project design. He specializes in managing environmental and social risks for large (>\$1 billion CAPEX), complex, and often controversial projects. He has worked in over 45 countries throughout Asia, Africa, Eastern Europe, Latin America, Caribbean, and North America.



Experience: 37 years of experience with managing environmental and social risks of power projects, especially hydropower. He is experienced with all types of dams, project operations, locations, sizes (up to 1800 MW), and issues (e.g., fish passage and movement, critical habitat, environmental flows, water quality, sediment transport, physical resettlement, economic displacement and effects on livelihoods and downstream water uses, FPIC).

Email: david.blaha@erm.com

LinkedIn: <https://www.linkedin.com/in/david-blaha-2a24224/>

Education

- Master of Environmental Management, Duke University, NC, 1981
- Bachelor of Arts, Biology, Gettysburg College, PA, 1978

Professional Affiliations and Registrations

- American Institute of Certified Planners, 1988
- International Association of Impact Assessment
- American Planning Association
- International Hydropower Association
- National Association of Env. Professionals

Languages

- English – native speaker
- Spanish - basic

Fields of Competence

- Environmental and social impact assessment applying the IFC Performance Standards, World Bank Safeguards, and Equator Principles
- Water resources, including water supply planning and water quality management. Analysis of sources, quantities, types, transport, and fate of pollutants.
- Wetland ecology, including wetland delineation, functional assessments, mitigation design, permitting, and protection planning.

Key Industry Sectors

- Power
- Oil & Gas
- Mining
- Infrastructure and Land Use

Training

- Hydropower Sustainability Assessment Protocol, by the International Hydropower Association, July 2007.

Publications and Presentations

- *International Best Practice for Hydropower Development* - chair for thematic session at International Association of Impact Assessment (IAIA) Conference in South Africa, May 2018.
- *Cumulative Impacts of Hydropower Projects* – invited speaker regarding river basin CIA and determining significance of cumulative impacts at IFC-sponsored workshop, Kathmandu, Nepal, January 2018.

The business of sustainability



David Blaha

Key Projects - International

Trishuli River Basin Cumulative Impact Assessment, Nepal. Co-Project Director for conducting a CIA of the Trishuli River Basin for the IFC. Evaluating effects of potentially over 30 hydropower projects within the basin, in combination with other proposed infrastructure projects and climate risks. Will provide support in developing a Trishuli Basin Co-Management Platform to foster basin-wide, long-term collaboration between the private sector and the government in managing E&S impacts.

Upper Trishuli Hydropower Project, Nepal
Co-Project Director for preparing a summary, non-technical ESIA for the 216 MW Upper Trishuli-1 HEP, including updating the project descriptions and project impacts to reflect the effects of the 2015 Nepal earthquake, including an updated social baseline, ESMS, and ESMP, on behalf of the IFC, WB, ADB, AIB, and other lenders.

Upper Karnali Hydropower Project, Nepal
Senior Project Advisor and technical lead for cumulative impact assessment supporting the completion of a Supplementary Environmental and Social Impact Assessment (ESIA) and associated Management Plans to bring the 900 MW hydropower project into compliance with IFC Performance Standards on behalf of the Project Sponsor (GMR) in coordination with the IFC.

Poko Hydropower Project, Indonesia
Team Lead for preparing an ESIA for a proposed 126 MW HEP on the Mamasa River in Indonesia on behalf of the World Bank. Key issues include cumulative impacts (especially associated with the Bakaru I and II HEP which are planned immediately downstream), and effects on fish and livelihoods.

Alto Maipo Hydropower Project Environmental and Social Due Diligence, Chile. Project Director for preparing an Environmental and Social Due Diligence (ESDD) for the IDB, IFC, and OPIC for a proposed 531 MW run-of-river development near Santiago, involving substantial tunneling and 17 km of transmission lines. Subsequently hired to provide construction phase monitoring support and evaluation of Project effects on recreational boating in the Rio Maipo on behalf of the lenders.

Tanintharyi River Basin Screening Analysis, Myanmar. Senior Technical Advisor screening the environmental and social risks for seven potential hydropower projects in southeastern Myanmar for a confidential client.

SIEPAC Construction Phase Monitoring, Central America. Project Director for construction phase environmental and social monitoring on behalf of the IDB for the SIEPAC transmission line project in Panama, El Salvador, and Guatemala.

Geothermal Power Project ESIA, St. Vincent
Project Director for a 15 MW geothermal power plant ESIA in St. Vincent for the Inter-American Development Bank and the Caribbean Development Bank. Key issues were effects on the St. Vincent Parrot, an IUCN-listed endangered species and adequacy of water supply.

Laguna Colorada Geothermal Project, Bolivia
Project Director for environmental review of a proposed geothermal Project in a protected area in Bolivia for the IDB.

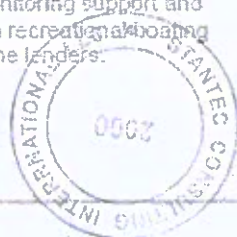
Proyecto Ciclo Combinado Punta del Tigre B, Uruguay. Project Director for ESS for combined cycle gas-fired power plant in Uruguay.

Boca Chica Power Plant ESDD, Dominican Republic. Project Director for an ESDD of a proposed 76 MW combined cycle gas-fired power plant proposed by LS Energia Dominicana near Boca Chica, DR. ERM specifically evaluated air emissions, noise, and potential site contamination associated with the power plant for the IFC.

Cochrane Coal-fired Power Plant ESDD, Chile
Prepared Environmental and Social Due Diligence (ESDD) on behalf of lenders (KEXIM, JICA) for an AES proposed \$1.4B, 236 MW net coal fired power plant using pulverized coal boiler technology, along with port and transmission line improvements, in Mejillones, Chile.

Sanga River Watershed Management TOR, Cameroon. Project Director for preparing a Terms of Reference for a Sanga River Watershed Management Study on behalf of the IFC to support the 420 MW Nachtigal Hydropower Project.

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Sounda Gorge Hydropower Alternatives Terms of Reference, Republic of the Congo. Project Director for preparing a Terms of Reference on behalf of the IFC for an innovative program to evaluate potential alternatives to a proposed hydropower project in Sounda Gorge, which poses a variety of biodiversity and indigenous peoples issues.

Kenie Hydropower Project Expert Review, Mali. Project Director for an expert assessment of the proposed environmental flow and fish passage design for the 42 MW Kenie HEP on the Niger River for the IFC.

IFC InfraVentures Support. Project Director for preparing a standard Terms of Reference for IFC InfraVentures to provide guidance for Project Sponsors and their consultants in preparing aquatic and riparian baseline studies to comply with the IFC Performance Standards.

Canbalam Hydropower Project, Guatemala. Project Director for an ESDD review per EP and IFC PS for the lenders (CIFI) of a 5 MW run-of-river hydropower project located in traditional lands of indigenous people. ERM was complimented on the quality of our deliverable, which facilitated lender decision making.

Xacbal Hydroelectric Project, Guatemala. Project Director for environmental and social due diligence review of a 94 MW hydropower and 125 km transmission line project on the Xacbal River in northern Guatemala for the Inter-American Investment Corporation (IIC). Key issues focused on ecological base flows, compensation for land acquisition, community investment program, and overall project sustainability.

Pando – Monte Virio Hydropower Project, Panama. Project Director for construction and operation phase monitoring of an 83 MW hydropower project with a 19-km transmission line to ensure project complies with lender requirements, IFC performance standards, Panamanian regulations, and the project's E&S Management Plan and E&S Action Plan on behalf of the lenders, which include the IDB, IFC, and GED.

Porce IV Hydropower Project, Colombia. Project Director for preparing an Environmental and Social Strategy (ESS – precursor to full ESDD) for the IDB for a controversial 405 MW hydropower project on the Porce River. Key issues include the cumulative effects of four hydropower projects in series along the Porce River, potential for impacts to critical habitat, and the potential resettlement of over 5,000 artisanal miners.

Chaglla Hydropower Project, Peru. Project Director for development of an Environmental and Social Strategy document for a 406 MW hydropower project with a 137-km transmission line. This documentation is required by the IDB as part of project financing.

Chacayes Hydroelectric Project, Chile. Project Director for conducting an Environmental and Social Due Diligence (ESDD) in accordance with the EP on behalf of the lenders (Credit Agricole) for a 80 MW hydropower project in Chile. Also hired to conduct construction monitoring.

Batang Toru Hydropower Project, Indonesia. Served as Senior Advisor and Reviewer for the 500 MW Batang Toru HPP/22-km, 275 kV transmission line ESIA, with a focus on biodiversity issues and the environmental flow analysis.

Bajo Frio Hydropower Project, Panama. Project Director for conducting an ESDD review per IFC PS, EP, and World Commission on Dams Guidelines for a 58 MW hydropower project on the Chiriqui River in Panama on behalf of the lenders (FMO, DEG, DnB NOR Bank ASA).

Hydropower Sustainability Assessment Protocol. America's leader for an assessment of opportunities to expand the use of the HSAP for the International Hydropower Association.

Nicaragua Grand Canal ESIA, Nicaragua. Project Director for the world's largest civil works project, of the proposed 270 km long canal linking the Pacific and Atlantic oceans designed to accommodate the world's largest ships at a cost of >\$50B. Responsible for overseeing route selection, coordination with engineering team, supporting stakeholder engagement, maintaining

David Blais

project schedule, and producing an ESIA consistent with international standards.

Watershed Management in El Salvador. Invited by the U.S. State Department as the principal speaker for an Earth Day conference on integrated watershed management and sustainable development in El Salvador. Participants in the conference included federal ministry representatives, NGO leaders, academics, and the media.

Special Consultant to Chile. Invited by the U.S. Embassy in Chile to assist the Chilean government in implementing new national environmental impact assessment regulations. Reviewed the NEPA process in the U.S. with CONOMA (Chilean equivalent of EPA), business leaders, academics, and environmental interest groups. Much of the discussion focused on assessing the environmental effects of hydropower projects such as the Panque Project on the Rio Bio Bio.

East Iceland Sustainability Initiative, Iceland Project Director for project assessing the sustainability of a controversial 600 MW hydropower and aluminum smelter project in a rural area of Iceland. Assisting Alcoa in the development of an overall corporate sustainability framework, as well as specific environmental, social, and economic indicators and metrics, and an Environmental Monitoring Plan.

Nam Sane 3 Hydroelectric Project, Lao PDR. Technical Advisor for an Initial Environmental Examination of a proposed 85 MW hydropower project in rural northeast Lao PDR. Key issues included resettlement of approximately 2,000 people and effects on downstream fisheries and villages.

Kallivac Hydroelectric Project, Albania Senior technical advisor for an ESIA for a proposed 100 MW store and release hydropower project with a concrete face rockfill dam on the River Vjose in southern Albania. This will be the first dam on the river so key issues included effects on downstream fish passage, environmental benefits, sediment transport, resettlement, and downstream water users.

Aluminum Smelter/Hydropower Project EIA, Greenland Project Director for development of ESHIA for an integrated hydropower (2 developments totaling 650 MW), transmission line, aluminum smelter, and port complex in southwest Greenland. Coordinating with Greenland Home Rule Government on a Strategic Environmental Assessment, overseeing baseline environmental and social studies, managing stakeholder engagement program, and integrating a sustainability initiative into the ESHIA process.

Santa Rita Hydropower Project, Guatemala. Project Director for a social due diligence review of the 20 MW run-of-river hydropower project on the Icholey River on behalf of Actis.

Renace II Hydropower Project, Guatemala. Project Director for development of an Environmental and Social Due Diligence for a 114 MW run-of-river hydropower project along the Rio Cahabon on behalf of CIFI.

Mt. Coffee Hydropower Project, Liberia. Project Director for providing multi-year support to the U.S. Millennium Challenge Corporation for the rehabilitation of the 38 MW Mount Coffee Hydropower Project.

Nkula Hydropower Project, Malawi. Project Director for providing multi-year support to MCC for the rehabilitation of the Nkula hydropower project and transmission/distribution upgrades.

Key Projects – United States

St. Lawrence-FDR Project EIS, USA Deputy project manager for third party EIS with FERC, NYSDEC, and NYPA for relicensing of one of the largest (312 MW) hydroelectric projects in the east. Coordinating innovative Cooperative Consultation Process involving all major stakeholders. Key issues include: native-american concerns, water level fluctuations, return of surplus lands, payment-in-lieu-of-taxes, passage of American eel, and cumulative impacts. Close coordination with the international Joint Commission.

David Sarna

Clackamas River EIS, OR, USA.
Project Coordinator for third party EIS contract for the 187 MW Clackamas project for Portland General Electric using the FERC collaborative process option. Key issues are endangered salmonids and U.S. Forest Service 4 (e) authority.

Buckeye Wind Project EIS, Ohio. Senior Technical Advisor and author of the cumulative effects assessment for a 3rd Party EIS for a 250 MW windfarm in Ohio on behalf of the USFWS. The EIS was triggered by the need for an Incidental Take Permit (ITP) for impacts to the Indiana bat, a federally listed endangered species. If issued, this ITP would be the first issued for Indiana bats for a windpower project in the US.

Santee Cooper Property Management Master Plan, USA
Project Director for development of a comprehensive land use master plan, shoreline management plan, and property management strategy for approximately 32,000 acres of land surrounding two hydropower reservoirs.

Upper Penobscot River EIS, Millinocket, ME. Coordinated engineering, economic and planning elements of EIS for the relicensing of 2 hydroelectric projects totaling 93 MW on the Penobscot River for FERC. Major issues included shoreline management for aesthetics and recreation, and whitewater boating.

Lake Gaston EIS, NC, USA.
Prepared an EIS for a proposed 60 mgd interbasin transfer of water from the Roanoke River to meet the city of Virginia Beach's potable water demands. Used HEC-5 to evaluate potential impacts on downstream flow, water quality, fisheries, and economic development. Evaluated impacts on shortnosed sturgeon, an endangered species.

Yadkin Rule-Curve, NC, USA.
Project manager for study evaluations proposed modifications to the operation rule curve at the Yadkin Project to enhance recreation. Evaluated hydropower costs and recreational benefits of proposed changes. Conducted meeting with licensee and community association to resolve issues.

Hoosic River Project EA, NY, USA.
Project manager for relicensing of 2 hydroelectric developments totaling 19 MW. Key issues included fish for bucks, minimum flows and whitewater boating in the Schaghticoke bypass reach, provision of upstream passage for American eels.

Felts Mills Hydroelectric Project EIS, Watertown, NY, USA.
Project manager for licensing evaluation and EIS of original license application to FERC. Key issues involved potential effects on walleye, whitewater recreation, wetlands, and the need for the project. Also addressed cumulative impacts of multiple hydropower projects in the Black River Basin on fisheries and the intrinsic value of free-flowing river. Addresses Department of Army's Section 4(e) recommendations.

Black River Multiple Project EA, Watertown, NY, USA.
Project manager for EA evaluating the relicensing of 6 hydroelectric developments on the Black River for FERC. Key issues included fish passage, entrainment mortality, recreational enhancements, and minimum flows.

Oswego Falls EA, Fulton, NY, USA.
Project manager for EA for original hydropower license from FERC of an existing project. Key issues involved reservoir fluctuations, fish entrainment, wetlands, and minimum bypass flows.

Sebago Lake EIS, Portland, ME, USA.
Project manager for EIS evaluating alternative water level management regimes for the largest recreational lake in the State of Maine. Key issues included effects on recreational boating, shoreline erosion, water quality, wetlands, and aquatic weeds.

School Street Project EA, NY, USA.
Project Manager for a new license for the 39 MW Schoharie Project. Evaluated the following key issues: impacts to run-of-river operations, minimum flows in bypass reach, downstream fish passage, and aesthetic flows over the 65-foot Cohoes Falls.



www.etc.com

David Barta

Stanley Canyon EA, Colorado Springs, CO, USA. Project manager for EA of proposed hydroelectric capacity expansion in the Pike National Forest and adjacent to the U.S. Air Force Academy with the US Forest Service as a cooperating agency for FERC. Key issues included potential impacts to three threatened and endangered species, aesthetic impacts, and effects on the National Forest.

Hudson River Multiple Project Technical Support, Glens Falls, NY, USA. Project coordinator for EIS evaluating FERC relicensing applications for several hydroelectric projects on the Upper Hudson River. Key issues include water level fluctuations in E. J. West impoundment, water quality, recreation, and cumulative impact issues. Provided on-going technical support regarding watershed modeling for settlement discussions.

Rocky Reach EIS, Wenatchee, WA, USA. Assisted in preparation of EIS evaluating a proposal to raise the Rocky Reach impoundment water level. Focused on impacts to salmon, recreation, wetlands, and land use.

Kerr Hydroelectric Project EIS, Flathead Lake, MT, USA. Assisted in preparing an EIS evaluating effects of alternative hydropower operations on shoreline erosion, fisheries, and water quality.

Condit Hydroelectric Project EIS, White Salmon, WA, USA. Assisted in preparing EIS evaluating the relicensing of the Federal Regulatory Commission of the Condit Hydroelectric Project. Major issues included fisheries and recreation impacts.

Yadkin Hydroelectric Project Studies, NC, USA. Project Manager for detailed recreation use study for 4 reservoirs totaling approximately 23,000 acres. Used IMPLAN model to assess regional economic effects of recreational spending at reservoirs. Conducted study of effects of project, facilities and operations on aesthetics, including use of Visual Preference Surveys and the U.S. Forest Service's Scenery Management System.

New York State Dam EA, Albany, NY, USA. Project manager for EA evaluating the need for downstream passage of outmigrating adult blueback herring on the Mohawk River for FERC.

Churchman's Marsh EIS, DE, USA. Coordinated with federal and state agencies for development of a proposed 60 MGD drinking water reservoir impacting the largest tidal freshwater marsh in Delaware.

Falls/Jordan Reservoir Watershed Management Plan, Research Triangle Area, NC, USA. Developed comprehensive strategy for protecting water quality of two regional water supply reservoirs including recommendations on the location, type and intensity of new development; performance standards; and sewer extension policies. Authored Watershed Management Guide, a report focusing on the role of local governments in protecting water quality.

Chemung River Basin Restoration Plan, NY, USA. Project manager for 2,000 square mile watershed restoration project for Baltimore Corps. Targeted subwatersheds for restoration activities based on aerial photographs and previous studies. Conducted field investigation to identify specific restoration sites, which included wetland creation, stream restoration, riparian buffer reestablishment and streambank stabilization. Developed Planning Guide for use by local and state resource agencies.

York County Energy Partners Water Resources Study, Spring Grove, Pennsylvania, USA. Prepared a watershed study using HEC-3 to assess the potential effects of a 2.8 mgd consumptive water use associated with a 250 mgd coal fired cogeneration facility as part of an EIV for DOE in the Susquehanna River Basin.

Middle Cuyahoga River Flow Study, Ohio, USA. Analyzed effects of 42 MGD water diversion by the City of Akron for water supply purposes on downstream water quality, assimilative capacity, aquatic community, recreation, and aesthetics. Calculated natural 7Q10 flow using flow data from a surrogate watershed. Testified as an expert at a trial in state court.

www.dps.com



Duquesne University

The Faculty and Trustees in recognition of the successful completion of the course of study required by the

School of Forestry and Environmental Studies

have conferred on

David M. Blaha

the degree of

Master of Environmental Management

Given at Durham in the State of North Carolina this tenth day of May, one thousand nine hundred and eighty-one.

John Lewis Spalden
President of Board of Trustees

Raymond A. Ryan
Dean



Templeford
President of the Board of Trustees

Raymond A. Ryan
Secretary of the Board of Trustees



2. Madhukar Khadka

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal; Ministry of Finance; Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following:

- (i) I have conducted this study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature:

Official stamp:

Name: Madhukar Khadka

Date: 05-02-2019

Position: National EIA Specialist



Curriculum Vitae: Madhukar Khadka, January 2019

Madhukar Khadka (Mr.)

Date of Birth: February 03, 1982 (AD)
 Marital Status: Married
 Address: Gathghar, Bhaktapur (Temporary Address)
 Likhu-6 Rural Municipality, Ramechhap (Permanent Address)
 Father Name: Khechar Bahadur Khadka
 Phone No.: 9851145320
 E-mail: madhukarkhadka1@gmail.com

1. Educational Qualifications:

- 2009 Master of Science (M. Sc.) in Environmental Science (with special emphasis on Water Resource Management and Planning; Air, Water and Land Pollution; Wetland) Tribhuvan University, Kirtipur.
- 2003 Bachelor's in Science and Technology (B. Sc.) in Environmental Science (with emphasis on Environmental Pollution & control, Earth Hazard Control, Resource Conservation & Management, Research Methodology, Statistics) Tri-Chandra Multiple Campus, Kathmandu.
- 2000 Intermediate in Science and Technology (I. Sc.) in Biology Group, Jiri Higher Secondary School Jiri, Dolakha.
- 1997 School Leaving Certificate (SLC) Shree Tamakoshi Jana Jagriti, Secondary School, Khimu, Ramechhap.

2. Professional Involvements

August 2018 - Continue

National EIA Specialist for Electricity Transmission Project (400kV) funded by Millennium Challenges Corporation.

Key Responsibilities: As an EIA specialist major task includes - overall coordination of National and international team members and coordinate with concern institutions. Build relation between organizations and local stakeholders, coordination with data collection institutions; regular site visit; EIA, ESIA report preparation, help to Resettlement Action Plan (RAP) and BIKASH plan preparation (this plan has prepared by following MCC Guidelines & IFC Safeguard Policy); socio-economic survey of different purposes; Operation of Help Desk regarding local relation development & information dissemination; establish and monitoring Public Information Centre (PIC) etc.

Key Achievements:

- Scoping Document and ToR submitted to DoED and is in approval process.

Curriculum Vitae, Madhukar Khadka, January 2019

- ii. Establish Public Information Centre (PIC) and now it is running in 9 districts.
- iii. Establish Grievance Redress process through PIC
- iv. Prepare draft stakeholder's engagement plan for further activities.
- v. Project running within time frame.

July 2017 - July 2018

Social and Environmental Consultant of Upper Karnali HE Project (900 MW)

E&S related report editing & Land Acquisition

Key Responsibilities: As a consultant major task includes - overall coordination of National and local level; coordination with data collection institutions; regular site visit; Resettlement Action Plan (RAP) implementation (this plan has prepared by following IFC Safeguard Policy); socio-economic survey of different purposes; Operation of Help Desk regarding local relation development & information dissemination; negotiation meeting with project affected families; Land Acquisition, monitoring and editing IEE of transmission line (400 KV) from Baldae Achham to Nepal India border Kailali etc.

Key Achievements:

- i) Implement prepared RAP Report by following IFC Safeguard Policy.
- ii) Review updated Environmental Management Plan and submitted to MoFE.
- iii) Land Acquisition Started from September 2017 without any obstacles.
- iv) Built better public relationship in project site and district level (may be compare before and after E&S consultant appoint in project)
- v) IEE of transmission line (400 KV) under progress.

Sept 2016 - January 2017 (Part-time)

Coordinator of Rupaligad (downstream of Pancheshwor HEP) HEP (240 MW)

Key Responsibilities: As a coordinator major task includes - overall coordination of National and local level; coordination with different data collection institutions, regular site visit; collection of data and coordination with data collectors, experts and local bodies for the preparation of EIA Report. Built relation with locals for the data collection related to terrestrial, aquatic and social survey in the field.

Key Achievements:

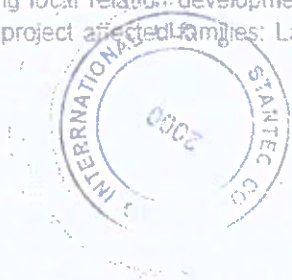
One season Data Collection completed and submitted required report to the concern authorities in time.

July 2015 - July 2017

Social and Environmental Consultant of Arun-3 Hydropower Project (900 MW)

E&S related report preparation, PR & Land Acquisition

Key Responsibilities: As a consultant major task includes - overall coordination of National and local level; coordination with different data collection institutions; regular site visit, RAP Report preparation by following ADB Safeguard Policy, Disclosure and approved by IBN, socio-economic survey of different purposes; Operation of Help Desk regarding local relation development & information dissemination; negotiation meeting with project affected families; Land Acquisition; review of transmission line



Page 2 of 10

Curriculum Vitae: Madhukar Khadka, January 2019

IEE (400 KV) from Arun-3 powerhouse to Nepal-India border Dhanusha; preparation of IEE from Tirtare to Arun-3 Dam and Powerhouse site (33 KV) (this is construction power transmission line) etc.

Key Achievements:

- i. Prepared RAP report by following ADB Safeguard Policy and approved report from IBN.
- ii. Preparation of SEIA Report and Submitted it to ministry (Already approved).
- iii. Acquired 49 ha of private land for Arun-3 HEP without any obstacles.
- iv. Built better public relationship in project site and district level (may be compare before and after E&S consultant appoint in project)
- v. Prepare preliminary draft report of Employment and Skill Development Plan & Local Benefit Sharing Plan for Arun-3 Project.
- vi. Approved Transmission Line IEE (400 KV)
- vii. Approved construction power transmission line IEE (33 KV)
- viii. Approved Arun-3 EIA in 2015 (all necessary work including data collection, public consultation, public hearing, report preparation, coordination etc were conducted before this work)
- ix. Now Arun-3 HEP is in construction phase.

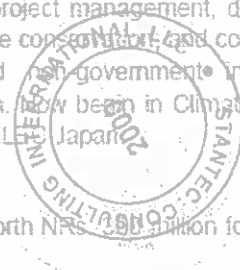
August, 2009 - July 2015

Program officer in National Lake Conservation Development Committee (NLCDC), Ministry of Culture, Tourism and Civil Aviation

Key Responsibilities: As wetlands expert, major tasks include – work as focal point for national and international lake (wetlands) governing institution for the sustainable conservation of lakes and wetlands in Nepal; environmental management focusing on water resource, lake shore management, lake and wetland conservation through community participation, coordinate the development of national strategic framework of lake conservation; liaise with the Ramsar secretariat; technical supervision for research to post graduate students; coordination in the national implementation of lakes and wetlands programs; undertaking national inventory of lakes of Nepal; designation of new Ramsar sites in Nepal; program development; production of reports and lake briefs; facilitation to NGOs; project management, development of communication materials like audiovisual on lake conservation and coordination with different stakeholders like government and non-government institution; and representation of NLCDC in international forum. Now began in Climate Change and Himalayan Lake degradation collaborating with ILEP, Japan.

Key Achievements:

- i) Key 20 lakes or more support provided worth NRs 1000 million for conservation and livelihoods annually,
- ii) Review of lake conservation programs,
- iii) Lake inventory (completed 54 districts of Nepal) and strategic plan development process progress (process of approval),
- iv) Secured fund for lake conservation demo in Pokhara from UNDP.



Curriculum Vitae, Madhubar Khadka, January 2019

- v) Effective and functional linkage established with International Lake Environment Committee, Japan,
- vi) Successfully conducted Ramsar Bureau, Switzerland funding project,
- vii) Conduct research on Climate Change and Himalayan Lake Degradation.

April 30, 2008 - April 30, 2009

Research Assistance in National Lake Conservation Development Committee (NLCDC), Ministry of Culture, Tourism and Civil Aviation

Key Responsibilities: As a research assistant major task includes - Library setup, Map based inventory of lakes of Nepal, Conduct Appreciative Enquiry, Report preparation, Data entry, Conduct Seminars and meeting, coordination with national institutions relating to lake focus activities.

Key Achievements:

- i) National Lake Strategic Plan,
- ii) Appreciative enquiry report,
- iii) A Map based Lake Inventory (5358 lakes of Nepal),
- iv) Seminar Report
- v) Started field-based Lake Inventory.

May 2010 - July 2015

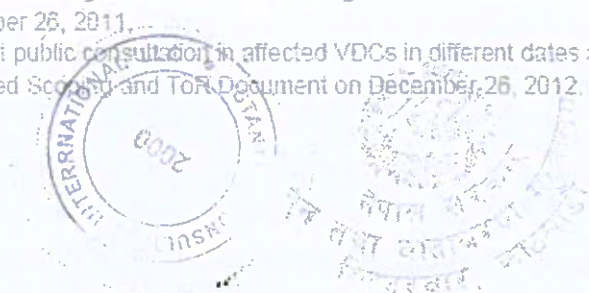
Intermittent Environmental Expert of Arun-3 Hydropower Project

Environmental Impact Assessment (EIA Study)

Key Responsibilities: As an environmentalist major task includes - overall coordinator of National and local level, coordination with different data collection institutions, local level, contact office of SJVN (Residential office Kathmandu and Site office Khandhari), conduct Reconnaissance Survey for EIA study, notice preparation and publication, public consultation for Scoping and ToR Document, primary data collection in different headings like socio-economic survey, terrestrial environment (flora and fauna), aquatic environment (benthos and fish), water and soil sampling and analysis, Preparing, revising and finalizing Scoping and ToR document, Conduct periodic public consultation for dissemination of progress of EIA, conduct Detail EIA Study, preparing EIA draft report, conduct Public Hearing in 10 places of all impact VDCs including District Headquarter, preparing EIA draft report, revising the report and coordination with Ministry of Science, Technology and Environment (MoSTE) for approval process.

Key Achievements:

- vi) Baseline Data collection and preparing Scoping and ToR documents
- vii) Conduct meeting and present current project status to Chief District Officer and other Chief officials on November 10, 2011 in Khandhari,
- viii) Conduct meeting with Buffer zone management committee concern members on December 26, 2011.
- ix) Conduct public consultation in affected VDCs in different dates and time.
- x) Approved Scoping and ToR Document on December, 26, 2012.



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Curriculum Vitae Madhukar Khadka, January 2019

- xi) Notice preparing and publication (Re-scoping notice, public hearing notice, public feedback notice)
- xii) Preparing EIA Draft report,
- xiii) Conduct public hearings in 10 different places including district headquarters,
- xiv) Preparing EIA final draft report including public concerns,
- xv) Submitted EIA Report to MoSTE on June 30, 2013,
- xvi) Submit Final EIA Report for Expert Group Meeting on June 18, 2014,
- xvii) Expert Group Meeting on November 14, 2014
- xviii) Revising the report and preparing final EIA Report for approval (under progress)

Resettlement Action Plan (RAP Study)

Key Responsibilities: As an environmentalist major task includes - coordinator of RAP study, coordination with different local stakeholders, impact houses, conduct Key Informant Interview (KII), Market Survey, Participatory Rural Appraisal (PRA), conduct detail socio-economic study of impact households, monitoring enumerators activity, sampled survey and discussion in different public places of impact VDCs, preparing and submitting draft RAP Report consultation with socio-economist, finalize report according to comments.

Key Achievements:

- i. Conduct census survey of impact households (monitoring)
- ii. Conduct Key Informant Interview (KII), Market Survey and Participatory Rural Appraisal (PRA) (involvement and monitoring)
- iii. Discussion with impact households' members to identify their concern
- iv. Final RAP Report

February 2005 - April 2008

Environmentalist in Road and Industry Sector (Self-employed and freelancer Consultant)

Initial Environmental Examination (IEE Study)

Key Responsibilities: As an environmentalist major task includes - overall coordinator of Study team, related institutions, required data collections (biological environment, physical environment, chemical, and socio-economic condition of project sites), notice preparation and publishing, Draft report preparation, submission, presentation and finalization of report.

Other responsibilities in different consulting institutions include - proposal preparation, study design, coordination, human resource mobilization, conducting educational and scientific research, field work etc.

Key Achievements: Listed IEE report prepared and approved

- Pre-Fab Pvt. Ltd. Daraechowk, Chitwan (Pre-Fab Pvt. Ltd.)
- Taplejung - Suketar Link Road (11.04 km) (ERMC)
- Janakpur - Jajahi Road (14 km) (ERMC)
- Janakpur - Yadukuwa Road (18 km) (ERMC)
- MRM (Birendra Bazar) - Yadukuwa - Mahinathpur Road (42 km) (ERMC)



Page 5 of 10

- Ilam –Nayabazar Road (20 km) (RRRSDP)
- Ilam – Jyang Road (20 km) (RRRSDP)
- Mangalbarae – Dhuseni – Gajumukini Road (20 km) (RRRSDP)
- Hile – Uiterpani – Chhinteng Road (20 km) (RRRSDP)
- Rajarani – 6 no. Budhbare Road (27 km) (RRRSDP)
- Trisuli – Hatikharka – Murtidhunga – Jitpur Road (20 km) (ERMC)

January 2003 - February 2005

Science and Mathematics Teacher

Key Responsibilities: As a science and Mathematics Teacher in Secondary level, conduct different sports activities, knowledge enhancement programs, clean campaign, and motivational class to other schools.

Key Achievements: Good Result in School Leaving Certificate (SLC).

3. Expertise on Environment Sector

- involved in different field work including Vegetation analysis, water quality, landslide hazard mapping, landslide damming flood, buffer zone, river channel shifting etc. In addition, some IEE field work and their report preparation at Janakpur, Ilam, Dhankuta and Gulmi District.
- Work as an Environmentalist in Total Management Service (TMS Pvt. Ltd.), Kamalpokhan, Kathmandu
- Work as a Environmentalist in Environment Resource and Management Consultancy (ERMC Pvt. Ltd.), Baneshor, Kathmandu
- District Consultative meeting at Ramechhap District for the Preparation of Strategic plan of lake organized by Nepal Academy of Science and Technology (NAST) Khumaltar, Lalitpur. (2009)
- Volunteer services on "The Fifth National Conference on Science and Technology" organized by Nepal Academy of Science and Technology (NAST) Khumaltar, Lalitpur. (2008)
- One Month Community Field Work Conducted at Khimti, Ward No. 1 in June 2008.

4. Training

- Two days Scientific Writing and Publishing Training in Kathmandu organized by PSD Nepal November 3-4, 2014.
- Three days training on Economic Valuation of Wetlands in Kathmandu organized by CSUWN 2013.
- A week Training Course on Remote Sensing (RS) held between, December 11-19 (2007) organized by Central Department of Geography Kirtipur, Kathmandu, Nepal



- Advanced training on Environmental Impact Assessment, Jointly Organized by Central Department of Environmental Science, TU and School of Environmental Management and Sustainable Development (SchEMS), Pokhara University, Nepal
- Computer Training including office Package and Graphics designing
- Advance training course in Radio Journalism/FM and Radio Program Productions by Nepal's Anchor's Association (2003)

5. Participation

- Participation on "ILBM Indian National Workshop and ILEB Heartware Export Group Meeting" February 5-9, 2013 India
- Participation on "ILBM for the Sustainability of Himalayan Lakes" A National Seminar March 26-29, 2010
- Participated and Paper presented in ILBM-IG meeting Japan Nov. 2-7, 2010 Japan
- One day National seminar on wetlands, organized by Hindu Kush Himalayan Benthological Society (HKH BENSOCI) (2008)
- Participation on "The Fifth National Conference on Science and Technology" organized by Nepal Academy of Science and Technology (NAST) Kathmandu, Lalitpur (November 10-12, 2003)
- Member of the Organizing committee of "National Conference on Environment" Jointly Organized by Central Department of Environmental Science (CDES) and Ministry of Environment, Science, and Technology (MoEST), Kathmandu, 2007
- Participation on "Renewable Energy Technology for Rural Development (RETRUD 06)" Jointly Organized by AEPC, CES and NSES, 2006

6. Research Completed

1. Economic Valuation of Janukhadi Lake, A Wetland of Jhapa District, Eastern Nepal 2014
2. Role of Vegetation on Water Quality – A Case from Jhimila Tal in Nepal (2009) (M.Sc Dissertation)
3. Effect on Water Quality by Sewage discharge of Bagmati River at Jorpati (2006)
4. Brick Kiln Industry and its Impact on Air Quality in Kathmandu Valley (2008)
5. Waste Paper as a Resource by the Process of Recycling (2008)
6. Water Quality of the Nakhu River in Different Seasons (2006)
7. Status of Pesticide and Chemical Fertilizers Used in Nepal (2008)
8. Comparative Study of Communicable Diseases like ARI and Tuberculosis in Different Regions (2008)
9. A Study on Pollution Control Act (Review Paper) (2003)
10. The Possible Methods of Composting of Manure in Case of Nepal (2008)



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 नेपाल सरकार
 जन तथा वातावरण
 मन्त्रालय

11. Study on the Environmental condition of Begnas watershed, Pokhara, Nepal organized by Tribhuvan University, Kirtipur, Nepal, 2006 and more than 14 case studies related to environment
12. Environmental study of Phewa Lake and its watershed, Pokhara, Nepal organized by Tribhuvan University, Kirtipur, Nepal, 2007
13. Geo-Environmental Study of The Shainju-Bungmatii Landslide: a case study Kathmandu, Nepal, 2007

7. Publication

- Pokharel Shailendra, Khadka M. 2014. "An Inventory of Himalayan Lakes of the Eastern Nepal" Published by National Lake Conservation Development Committee. (press)
- Khadka Madhukar, Neupane M. P. 2011. "National lake Strategic Plan and its Implementation Challenges: A case from Nepal" Proceeding World Lake Conference, Texas, USA.
- Neupane, Pawan, Khadka M., Adhakari R., Shuju DR. 2010 "Lake Water Quality and Surrounding Vegetation in Dry Churiya Hills, Far-Western Nepal" *Nepal Journal of Science and Technology* 11 (2010) 181-188
- Khadka Madhukar 2010. *Lakes and their Importance - A Case from Himalayan Lakes of Nepal*, Published by National Lake Conservation Development Committee.
- Pokharel Shailendra, Khadka M. 2010. "ILBM for the Sustainability of Himalayan Lakes" A National Seminar Proceeding.
- Khadka Madhukar, Pandit R. 2010. "ILBM Implementation for the sustainability of Himalayan Lakes" Paper presented in ILBM-G meeting Japan Nov. 2-7, 2010.
- Khadka Madhukar. 2010 "Study of Himalayan Lakes in Nepal" Paper presented in ILBM-G meeting Japan Nov. 2-7 2010
- Khadka Madhukar 2010. "Abstract on Diverse Environmental issues". Abstract collection from the CDES/TU (Compilation)
- Ukesh R Shuju, Khadka M., Neupane P., Adhakari R. 2009. *A Map Based Inventory of Lakes in Nepal*, *Nepal Journal of Science and Technology* 11 (2010) 173-180
- Ukesh R Shuju, Khadka M., Neupane P., Adhakari R. 2009. *Lakes of Nepal: 5358 - A Map Based Inventory* National Lakes Strategic Plan Preparation
- Ukesh R Shuju, Selbass N., Shuju D R., Jnawali SJ, Khadka M., Neupane P. and Adhakari R. 2009. National Lake Strategic Plan Preparation "ISSUES AND SUGGESTIONS PAPER" (Excerpts of Appreciative Inquiry, Experts Consultation and Field Consultation and Observation) (Report)
- Different articles in "Sampada Nepal" related to lake in Nepali language
- Different articles in "Bigyan Lekhmal" and radio program from NAST

8. References

- Dr. Dinesh Shuju, Nepal Academy of Science, and Technology, Khumaltar, Lalitpur, Tel. 5547717, 5547714, Email: DineshBhuj@gmail.com



Curriculum Vitae Madhukar Khadka, January 2019

- Yetish K. Singh, Environmental Officer, SJVN Arun-3 Power Development Company (SAPDC), Khandbari Nepal, cell phone 9852058286, email: yatishksingh@gmail.com
- K.K. Sharma, Construction Head, GMR Upper Karnali Hydropower Limited (GUKHL), Chakupat Lalitpur, cell phone 9858051150, email: Kulmeet.Sharma@gmrgroup.in
- Srijana Bhattarai, Coordinator of MCC Project, ERM Bangkok, Srijana.Bhattarai@erm.com





Tribhuvan University

Office of the Controller of Examinations

Kathmandu, Nepal

Academic Transcript



Student's Name : NADHIKAR KHADKA Regd. # : 5-2-37-463-2006

Campus : University Campus, Kirtipur Institute/Faculty : Science and Technology

Examination : Master's Degree in Environmental Science Course Duration : 2 Academic Years

Subjects appeared in the First Year Examination					Subjects appeared in the Second Year Examination				
Full Marks	Pass Marks	Marks Obtained	Remarks	Full Marks	Pass Marks	Marks Obtained	Remarks		
20	08	19		ENV621:Environmental Mgmt. & Conservation(Ass)20	08	12			
30	12	25		ENV621:Environmental Mgmt. & Conservation	30	32	56		
20	08	19		ENV622:Env. Impact & Mitigation Technique(Ass)20	08	19			
30	12	26		ENV622:Env. Impact & Mitigation Technique	30	32	58		
20	08	19		ENV625:Water Resources Develo. & Plann.(Ass) 20	08	19			
30	12	24		ENV625:Water Resources Development & Plann.	30	32	66		
20	08	19		ENV628:Practical Paper	75	70	68		
30	12	27		ENV629:Field Work	25	10	23		
				ENV630:Dissertation Work	100	40	90		
Total				Total					
500	200	430		500	200	417			

S.D. 2066-5-18
V.D. 2066-5-30

GRAND TOTAL 1000 400 847

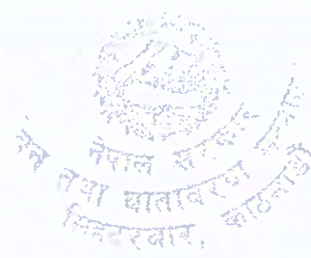
Programme starting year : 2005 Ending year : 2007

First Year		Second Year	
Year	Roll Number	Year	Roll Number
2006	357	2007	822

Percentage : 84.70

Passed Division: Distinction

Passed Year : 2007



Date of issue 26/10/2007

Prepared by [Signature] Checked by [Signature] for Chief of Records Div. [Signature] Controller of Examinations [Signature]



TRIBHUVAN UNIVERSITY
INSTITUTE OF SCIENCE AND TECHNOLOGY
CENTRAL DEPARTMENT OF ENVIRONMENTAL SCIENCE
KIRTIPUR, KATHMANDU, NEPAL

Serial No 5013

CHARACTER CERTIFICATE



This is to certify that Mr. / Mrs. / Miss MADHUKAR KHADKA
son / daughter of Mr. KHECHUR BAHADUR KHADKA was a student of this
Department from 2062 B.S. (2005 A.D.) to 2061 B.S. (2007 A.D.) He / She passed
the Master's Degree Level Examination of Tribhuvan University in Environmental Science field
in 2061 B.S. (2007 A.D.) with specialization in WATER RESOURCE DEVELOPMENT & PLANNING and
secured DISTINCTION Division.

His / Her T.U. Registration Number is 5-2-37-463-2000

He / She bears a good moral character. I wish him / her success in his / her life.

Date 2065/7/16

Prepared by: 25/74

Head

Central Department of Environmental Science
Kirtipur, Kathmandu, Nepal
Head of the Department



3. Steve Laister

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal; Ministry of Finance, Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following:

- (i) I have conducted this study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature

Official stamp



Name: Steve Laister

Date: 05-02-2019

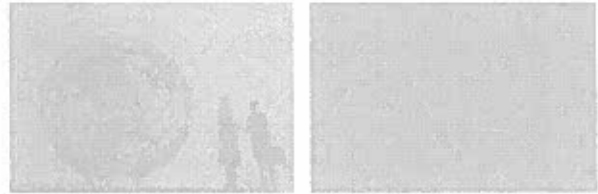
Position: International Physical Environment Lead



Steve Laister

Partner - Impact Assessment and Planning

Kuala Lumpur



Steve Laister is an ERM Partner with over thirty years experience in Environmental Impact Assessment (EIA) for Major Capital Projects, twenty of which have been gained in Asia, including fifteen years managing and directing ESHIAs to international standards such as the IFC, World Bank, and Equator Principles standards and to Ex-Im bank standards for clients such as JBIC, DEG, HSBC and Standard Chartered.

His linear infrastructure experience includes the ESHIA for the 4000km West to East gas pipeline from Shanghai to the Taim Basin in western China, traversing 6 nature reserves and twelve crossings of the Great Wall; an EIA for a major hydro scheme and associated 110km transmission line through primary rainforest in the Gulf Province of Papua New Guinea and the EIS for the B3 Gladstone LNG facility and its extensive feeder pipeline network, which included consideration of impacts to species and habitats protected at Australian Federal level.

Professional Affiliations and Registrations

- Founding Fellow of the Hong Kong Institute of EIA

Fields of Competence

- Environmental impact assessments / statements
- Regulatory and resource agency negotiations
- Site selection studies
- Public liaison and consultation
- Environmental management plans

Key Industry Sectors

- Energy
- Transportation

Education

- BSc (Hons) Geography and Geology, London UK, 1981

Languages

- English



Delivering sustainable solutions in a more competitive world



Example Projects

ESHIA for 2500MW hydro power project and 110km transmission line. Gulf Province PNG, Confidential Client

Partner in Charge for ESHIA of proposed 2800 MW hydro power development and associated 110km transmission line through primary rain forest in Gulf Province, undertaken to IFC and International Hydropower Association standards. Key issues included remote location logistics and H&S arrangements, affected communities, biodiversity/ecosystem services, downstream sedimentation and flow regulation effects. The SIA was undertaken to International Hydropower Association and IFC guidelines. Free, Prior and Informed Consent (FPIC) formed the basis for on-going assessment of consultation and informed participation. Engagement activities included culturally appropriate consultations with affected people, interested people, local and regional governments, community leaders and civil society organizations, including national and international NGOs, and household surveys of 13 villages in the project area.

EIA and acquisition services for Mossy Point and Moruya transmission lines and substations. Country Energy NSW Australia

Project Director for EIA studies covering initial and detailed transmission line route selection and assessment, site selection for Country Energy installations, and subsequently obtaining agreement for land easements.

Transmission Line Route and Switching Station Location Selection for 330kV Line from Woilarr to Wellington, for Transgrid, NSW Australia.

Project Manager for the route and site selection studies to enable Transgrid to develop a final alignment for a 1150m major cross country transmission line in Central and Western New South Wales.

Environmental Impact Assessment (EIA) Study for 132 kV Submarine Cable Transmission Link from Lau Fau Shan to Shekou, China Light & Power Co Ltd.

Project Director for assessment of the installation of a submarine cable link across the environmentally sensitive Deep Bay. Key issues involved the classification of marine mud deposits over the study area, disposal options for dredged material, and water quality impact on sensitive ecological and mariculture receivers.

West to East Pipeline EIA. Xinjiang -Shanghai, for Shell China Exploration and Production Company. Project Manager for an international standard EIA report for this 4000km pipeline, based upon enhancements and compilation of eight, province-specific, EIA's produced to national PRC standards. Principal issues were preservation and management of ecological and cultural heritage resources (including 12 crossings of the Great Wall of China and 6 nature reserves), control of desertification pressures, and the compensation and resettlement of the communities affected. A key output was the production of generic, issue and site specific management plans providing pragmatic and easy to follow guidance to the construction contractors, to maximise the effectiveness of the recommended mitigation measures in the field.

Adequacy Review of the Environmental Impact Assessment for the Esso Highlands Ltd PNG Gas Project, Papua New Guinea, for the Japan Bank for International Cooperation (JBIC).

Project Manager for this review of the EIA for proposed natural gas extraction and gathering facilities in the PNG highlands, processing facilities, transfer pipelines and sales gas pipeline from Kutubu, to the Omari River Delta and traversing the Gulf of Papua to Papua New Guinea's international border with Australia in the Torres Strait. The adequacy review was undertaken against the JBIC Guidelines for Confirmation of Environmental and Social Considerations, and IFC Performance Standards and Guidelines.

Environmental and Social Due Diligence for the expansion of a methionine production plant, Terengganu, Malaysia, for H5BC.

Partner in Charge for a review on behalf of the Export Credit Agency (ECA) financing facility as well as arranger and lender for the expansion of the plant. The assessment was undertaken with reference to the Equator Principles, International Finance Corporation (IFC) Performance Standards and relevant EHS Guidelines, OECD Council's Recommendation of the Council on Common Approaches for Officially Supported Export Credits and Environmental and Social Due Diligence 2016 (the Common Approaches) and local Malaysian requirements.

Environmental and Social Monitoring Assessment of Aluminium smelter Expansion Sarawak, Malaysia for Standard Chartered.

Partner in Charge for the environmental and social monitoring of the Environmental and Social Action Plan (ESAP) for the proposed expansion of an aluminium smelting plant. The monitoring assessment included applicable Malaysian laws, legislation and regulations.

June 2018



SINELABH

the IFC Performance Standards, the IFC Environmental Health and Safety (EHS) General Guidelines, the IFC EHS Guidelines for Base Metal Smelting and Refining and the financial institution's Position Statement on Mining and Metals.

Independent Environmental and Social Review (ESR) of 3,300MW Coal Fired Power Plant, Maharashtra, India, for Standard Chartered Bank.

ERM undertook an (ESR) of the Tiruda Thermal Power Plant against IFC Performance Standards (2012) and applicable regulatory requirements for Standard Chartered Bank. Steve provided senior technical review against PS 3 (Resource Efficiency and Pollution Prevention), PS 6 (Biodiversity Conservation and Sustainable Management of Living Natural Resources), and the World Bank Group Environmental, Health and Safety Guidelines

EIS/ERMP for Wheatstone LNG Project, Western Australia, for Chevron Australia.

Gap analysis and technical author for EPBC EIS and WA EPA Environmental Review and Management Program for offshore wells/platform, subsea pipeline, onshore 25 MTPA LNG production and export facility, with an associated Domestic Gas plant and delivery pipeline. Key issues included potential effects of facilities on near and coastal environments, and of large scale capital dredging program to provide shipping access to the site.

EIS for Prelude Gas Field Development and Floating LNG Facility, Browse Basin, NW Australia, for Shell Developments Australia.

Technical author and editor/reviewer of EIS produced under Australian Commonwealth (Environment Protection and Biodiversity Conservation Act) legislation and Shell Global Standards for 8 subsea wells and the first proposed FLNG facility in Australian waters. Key issues included potential impacts to migratory whales, turtles and birds, and effects of potential LPG and condensate spills.

Water Delivery Alliance Pipeline, Sydney, Australia, for Sydney Water. Environment and Air Quality
 Manager for this alliance project to design, install and commission a 1600mm diameter 20km delivery pipeline connecting Sydney Water's desalination plant in Kurnell to the distribution main in the centre of Sydney. The route includes a submarine crossing of Botany Bay, tunnelling under residential streets, trenching through recreation areas and industrial premises and works within Sydney airport's Obstacle Limiting Height areas. Key issues include the protection of sea grasses within Botany Bay, noise and vibration, night works, acid sulphate soil and contamination management.

1010 2RS

EIA for LNG Receiving Terminal and Associated Pipeline, Hong Kong, for CLP ExxonMobil

Technical reviewer and brokering editor for the EIA of the Hong Kong's first LNG receiving facility, which considered two sites within the SAR and recommended a preferred site. The terminal includes jetty facilities to handle LNG carriers of up to 215,000m³ capacity, storage for up to 340,000m³ of LNG and a 40km submarine delivery pipeline. Responsibilities included review of documentation for regulatory compliance and technical consistency, and final drafting in consultation with client party global LNG representatives and legal counsel. Key issues included terrestrial and marine ecology, cultural heritage and consideration of alternative locations and facilities for the project.

EIA and Risk Assessment for Tuen Mui Port Development, for HK Govt. Project Manager for the EIA of this 300ha coastal development scheme, including a 160 ha tank farm and associated berthing facilities and feeder pipelines. Key issues included risk and hazard, industrial effluent/ spill management and water quality issues. The high public profile of the scheme and protest by nearby villages required extensive liaison and consultation efforts with Government Departments, special interest groups and village representatives.

ESHIA for natural gas field development Tarim Basin, Xinjiang Uighur Autonomous Region, Western China for Shell China.

Project Manager for an international standard ESHIA of a 16 well field, collection pipeline system, central processing facility and 180km 40 inch delivery pipeline to the west to east pipeline head station at Lun'an. Key issues included erosion control, river crossings, maintenance of irrigation systems and potential impacts to endangered local Bactrian camel population.

ESIA for Queensland Curtis LNG Project, for Queensland Gas Corporation/BG, Queensland Australia. ERM Team Leader for the ESIA and State and Federal approval process for this project to extract Coal Seam Gas from the Surat and Bowen Basins, pipeline collection network and transmission pipeline to Gladstone on the central north Queensland coast and convert it to LNG for export. Key issues included the location of the LNG facility within the Great Barrier Reef World Heritage Area, potential impacts to Commonwealth protected terrestrial and marine species and communities, the management of produced water and salts, and the establishment of appropriate levels of ecological mitigation offsets.

EIA for 700MW gas fired station upgrade to World Bank, OPIC and EX-IM Bank standard, for InterGen/HI-Power Consortium, Chonburi, Thailand. Project adviser on upgrading of locally produced EIA; provided 'in country' support and review, and assisted in discussions with client re project coverage, key issues, depth of investigation and procedural options.

Site Selection for 1800MW Thermal Power Plant, for the HongKong Electric Company. Project Director for the Site Selection Studies for HEC's future 1800MW of thermal generating capacity in the Territory. The studies used constraint mapping techniques to identify all possible sites, and comparative assessment methods to rank sites and identify the preferred location for the facility under coal and natural gas firing scenarios. Key issues included security of supply, engineering feasibility, and maritime issues in addition to environmental aspects such as water quality, solid by products and air quality. The study also included an environmental comparison of fuels, and consideration of CO₂ emissions in relation to HK's FCCC obligations.

Environmental Impact Assessment of 6000MW Thermal Power Station for China Light & Power, Hong Kong. Project Manager for an EIA covering both coal and gas fired scenarios. The study involved the preparation of Initial and Final Assessment Reports, Key Issue Studies on Stack Emissions, Effluent Discharges and Solid By-product Management and Executive Summary Papers. On behalf of the client, presented the findings of these studies to the HK Legislative Council Environment Panel, the Advisory Council on the Environment, District Boards, and NGOs.



7/30/2018



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Council for National Academic Awards

STEVEN MURRAY LAISTER

OF CITY OF LONDON POLYTECHNIC

has been awarded the degree of
BACHELOR OF SCIENCE
with Second Class Honours (1st Division)
having completed a modular course

27 July 1981



Michael Edwards

Provost
City of London Polytechnic

Jim Runkle

Chairman

Edwin Kerr

Chief Officer



COUNCIL FOR NATIONAL ACADEMIC AWARDS

4. Toran Sharma

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal, Ministry of Finance; Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following:

- (i) I have conducted this study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study

Signature:

Official stamp:

Name: Dr. Toran Sharma

Date: 05-02-2019

Position: Geologist



CURRICULUM VITAE/CV FOR PROPOSED OFFICIAL PERSONNEL

1. Proposed Position : Geologist
2. Name of Firm : Nepal Environmental and Scientific Services (NESS) P. Ltd
3. Name of person/ : Toran Sharma, Ph. D.
4. Date of Birth : 5th Sept 1952
5. Nationality : Nepali
6. Education :
- Post Doctorate (Physical Environment), College of Sciences, University of Ryukyus, Okinawa, Japan, 1984-85.
 - Ph.D. (Environmental Geology), Maharaja Sayaji Rao University of Baroda, Gujrat, India, 1979.
 - M.Sc. Maharaja Syaji Rao University of Baroda, Gujrat, India, 1975.
7. Membership of Professional Associations:
- Founder Member (Life Member), Nepal Geological Society.
 - Associate Member Nepal Forum of Environmental Journalist
8. Other Trainings :
- Short Term training on Cleaner Production, Organized by UNIDO and Ministry of Industry, Nepal, 1996.
 - One year on-the-Job Training in Environmental Management Studies in Yagai-Kagaku Co., Ltd., Sapporo, Japan, 1991-1992
 - Two months Training on Structural Geology and Geomorphology, 1978, M.S. University of Baroda
9. Countries of Work Experience: Nepal, Japan, India, Uganda
10. Languages:
- | | <u>Reading</u> | <u>Writing</u> | <u>Speaking</u> |
|----------|----------------|----------------|-----------------|
| Nepali | Excellent | Excellent | Excellent |
| English | Excellent | Excellent | Excellent |
| Hindi | Excellent | Fair | Excellent |
| Urdu | Good | Good | Good |
| Japanese | Good | Good | Good |
11. Employment Record:
- From June 2007 : Till Date
Employer : Nepal Environmental and Scientific Services (NESS) P. Ltd
Position Held : Technical Director/Geologist/Environmental Expert
- From Sept., 1992 : May 2007
Employer : Nepal Environmental and Scientific Services (NESS) P. Ltd
Position Held : Managing Director/Geologist/Environmental Expert
- From Feb., 1992 : Sept., 1992
Employer : Yagai - Kagaku Co., Ltd., Sapporo, Japan
Position Held : Environmental Engineer
- From Aug., 1978 : Jan., 1992
Employer : Department of Mines & Geology, Nepal
Position Held : Geologist
- From 1978 : 1979

Employer : Department of Geology, M.S. University of Baroda, India
 Position Held : Assistant Lecturer

12. Detailed Tasks Assigned:

- Assess the geological condition and fault zone of the project alignment location, assess and develop down wasting and landslides mechanism for the project.

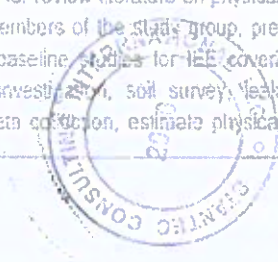
13. Relevant Project Experience:

Name of Assignment or Project: Environmental Impact Assessment (EIA) Study for Eastern Canal System of Sikta Irrigation Project; Year: January 2017 -Till date; Location: Banke District; Client: Sikta Irrigation Project; Main Project Features: Environmental Impact Assessment (EIA) Study; Position Held: Team Leader/Geologist; Activities Performed: Responsible for physical environmental baseline studies for EIA covering geology, land use, erosion, investigations such as topographical surveys, geo-technical investigation, soil survey, leak detection survey, ground water investigation i.e. hydro-geological investigations, rainfall data collection, estimate physical environmental losses and predict impact on physical environmental aspects by the project, design mitigation actions and estimate costs required, prepare monitoring plan on physical aspects and give input for the environmental management plan related to physical aspect.

Name of assignment of project: Environmental and Social Management Plan, Underground Electricity/Power Cable Sub Project, Coastal; Year: Oct, 2015-Feb, 2016; Location: Tamil Nadu, India; Client: Cuddalore, Nagapattinam and Velankanni Coastal Towns of Tamil Nadu, (CDRRP Project), India; Main project features: Study of Environmental and Social Management Plan; Position held: Environment Specialist; Activities Performed: To Carryout required survey, environment & social impact assessment and preparation of DPR bidding document, environmental and social impact management plan for conversion of existing overhead line into underground cables in Cuddalore, Nagapattinam and Velankanni Coastal Towns of Tamil Nadu, (CDRRP Project), India

Name of assignment of project: Environmental Impact Assessment Study of Budhigandaki Hydroelectric Project (BGHEP); Year: Nov. 2014- Oct 2015; Location: Dhading and Gorkha Districts; Client: Budhi Gandaki Hydroelectric Development Committee (BGHEPDC); Main project features: High dam storage project with an installed capacity of 1200MW generating 3383 GWh of annual energy. The key project structures are: i) Double curvature arch dam of height 263m from the foundation level, ii) reservoir area occupying nearly 63km² of land along Budhi Gandaki and Anku Khola across 13 VDCs of Gorkha District and 14 VDCs of Dhading District, iii) surface powerhouse at the toe of the Dam at the left bank and iv) short headrace tunnel and penstock tunnels linking powerhouse with the intake in the reservoir; Position held: Team Leader/EIA Expert; Activities Performed: Responsible for the preparation of project plan and schedule with quality of deliverables in consultation with the national/international policy control and institutional consultant and other team members overall study arrangements and quality control in general and review literature inclusive of Nepal and assess the existing air, water and noise standards in use; study the review the international best practices on physical environment of the area for the preparation of Scoping Document and TOR in particular, conduct scoping meeting, Complete scoping document and TOR Provide guideline for EIA study to other members of the study group, preparation of physical environment study plan for detailed EIA, carryout physical environmental baseline studies for EIA covering geology, land use, erosion, estimate physical environmental losses and predict impact on physical environmental aspects by the project, design mitigation actions and estimate costs required, prepare monitoring plan on physical aspects and give input for the environmental management plan related to physical aspect.

Name of assignment or project: Initial Environmental Examination (IEE) Study of Ghorahi-Dui Khali Rolpa Road (Sahid Lok Marg), Dang and Rolpa Districts; Year: Oct 2011-Nov. 2013; Location: Dang and Rolpa Districts; Client: Government of Nepal Ministry of Physical Planning and Works, Department of Roads, Planning and Design Branch, Geo-Environment & Social Unit, Babarmahal, Kathmandu; Main project features: IEE Study.; Positions held: Team Leader /Geologist ; Activities Performed: Responsible for review literature on physical environment of the area for the preparation of TOR, Provide guideline for IEE study to other members of the study group, preparation of physical environment study plan for detailed IEE, carryout physical environmental baseline studies for IEE covering geology, land use, erosion, investigations such as topographical surveys, geo-technical investigation, soil survey, leak detection survey, ground water investigation i.e. hydro-geological investigations, rainfall data collection, estimate physical environmental losses and predict impact on physical environmental



नेपाल सरकार
 भू तथा वातावरण विभाग
 फिचर बाटो
 काठमाडौं
 Page 2 of 5

aspects by the project, design mitigation actions and estimate costs required, prepare monitoring plan on physical aspects and give input for the environmental management plan related to physical aspect

Name of assignment or project: Environmental Impact Assessment of 600 MW Upper Marsyangdi II Hydroelectric Project; Year: (2010-2011); Location: Manange and Lamjung Districts; Client: Himal Hydropower Company (P.) Ltd.; Main project features: Run of the river scheme with a peaking reservoir, tunnel, surge tank, and underground powerhouse with support facilities such as construction camps, spoil disposal, internal access roads etc.; Positions held: Team Leader /Geologist; Activities Performed: Responsible for review literature on physical environment of the area for the preparation of Scoping Document and TOR, Provide guideline for EIA study to other members of the study group, preparation of physical environment study plan for detailed EIA, carryout physical environmental baseline studies for EIA covering geology, land use, erosion, investigations such as topographical surveys, geo-technical investigation, soil survey, leak detection survey, ground water investigation i.e. hydro-geological investigations, rainfall data collection, estimate physical environmental losses and predict impact on physical environmental aspects by the project, design mitigation actions and estimate costs required, prepare monitoring plan on physical aspects and give input for the environmental management plan related to physical aspect

Name of assignment or project: Environmental Impact Assessment Study of Special Economic Zone Project (SEZP), Simara, Bara; Year: June 2009-May 2010; Location: Bara; Client: SEZ/MOICS; Main project features: The proposed SEZP is planned for development in an area of 564.16 hectares (832 Bigha). This land was used by the Birgunj Sugar Factory for sugarcane farming since 1964 (2021 B.S). For the last fifteen years or so, the land has remained as unutilized government land after the seizure of the sugarcane farming by the Birgunj Sugar Factory. The proposed land for SEZP development in Simara, Bara is not a continuous block. There are five discrete blocks of various sizes; Positions held: Team Leader / Physical Environmental Expert; Activities Performed: Responsible for overall study arrangements and quality control in general and review literature on physical environment of the area for the preparation of Scoping Document and TOR in particular, conduct scoping meeting, Compile scoping document and TOR, Involved in land area identification, preparation of livelihood restoration plan of project affected person

Provide guideline for EIA study to other members of the study group, preparation of physical environment study plan for detailed EIA, carryout physical environmental baseline studies for EIA covering geology, land use, erosion, estimate physical environmental losses and predict impact on physical environmental aspects by the project, design mitigation actions and estimate costs required, prepare monitoring plan on physical aspects and give input for the environmental management plan related to physical aspect. Compile the EIA report from the study documents of the other EIA study group, conduct public hearing meetings, and present the EIA report to the review committee.

Name of assignment or project: Environmental Monitoring, Tender Design Stage, Stage -2, 70 MW Middle Marsyangdi Hydroelectric Project; Year: (2001 to 2009); Location: Nepal; Client: KfW (German)/ NEA; Main project features: Run of the river scheme with a diversion dam, tunnel, underground desander, surge tank, and powerhouse with support facilities such as construction camps, spoil disposal, internal access roads etc.; Positions held: Team Leader /Environment Safeguard Specialist (Without the Supervision or International Consultant); Activities Performed:

- i) Maintain cordial relationship with the local project area people
- ii) Skill transfer to the proponent staff, and contractor staff for the monitoring of safeguard issues as per the plan and policies
- iii) Preparation of site supervision formats for daily, weekly, and monthly monitoring. Overall monitoring of the project construction activities as per the Environmental Management Plan of the project. Monitoring included monitoring of air, water, noise, fish, community health, occupational health, spoil management, waste disposal and management, erosion, and sedimentation.
- iv) Preparation of bi-monthly monitoring report for corrective actions.
- v) Preparation of the construction phase environmental audit report at the end of the project construction

Name of assignment or project: Environmental Impact Assessment Study Dang Cement Project, including 22 km long access road; Year: June 2004 - Feb., 2005; Location: Dang and Salyan; Client: Dang Cement Industries Pvt. Ltd. (DCIPL), Kuponole, Lalipur; Main project features: Environmental Impact Assessment Study Cement factory; Positions

held: Team Leader, Activities Performed: Responsible for overall study arrangements and quality control in general and review literature on physical environment of the area for the preparation of Scoping Document and TOR in particular, conduct scoping meeting, Compile scoping document and TOR. Provide guideline for EIA study to other members of the study group, preparation of physical environment study plan for detailed EIA, carryout physical environmental baseline studies for EIA covering geology, land use, erosion, estimate physical environmental losses and predict impact on physical environmental aspects by the project, design mitigation actions and estimate costs required, prepare monitoring plan on physical aspects and give input for the environmental management plan related to physical aspect. Complete the EIA report from the study documents of the other EIA study group, conduct public hearing meetings, present the EIA report to the review committee.

Name of assignment or project: Environmental survey for Upgrading Feasibility Study on Upper Seti (Damauli) Storage Hydroelectric Project in the Kingdom of Nepal, including IEE of Damauli - Bharatpur 220 kV Transmission Line and 11 km access road; Year: May,2003-Dec,2006; Location: Tanahu and Chitwan Districts, Client: JICA Study Team/NEA; Main project features: High Dam Storage Project, with about 25 km long reservoir with support facilities for construction, spoil disposal, and internal access roads. And the 220 kV transmission line evacuating power from the project to the nearest national grid; Positions held: Project Coordinator/Physical Environmental Expert; Activities Performed:

- i) Overall coordination of the EIA study and supervision and guidance to the involved study members for the baseline surveys, impact identification and prediction, preparation of respective environmental management plan, resettlement and rehabilitation plan
- ii) Reviewing of physical environmental status of the project area.
- iii) Generalizing physical environmental issues related to geology, landslides and erosion, drainage and soil.
- iv) Conducting baseline survey of the project affected areas on physical environmental aspects.
- v) Identifying impacts on the physical environment by the project.
- vi) Preparing mitigation actions required for the minimization of the project impacts along with cost.
- vii) Preparing monitoring plan for the physical environmental issues. Assist Team leader for stakeholder meeting and on the integration of the upgrading EIA report

Name of assignment or project: Environment Impact Assessment of LMHEP - MMHEP 132 KV Transmission Line, Middle Marsyangdi Hydroelectric Project; Year: 2001-2004; Location: Nepal; Client: German Bank KfW/NEA; Main project features: Approximately 40 km 132 double circuit transmission project. Positions held: Team Leader (Environmental Specialist (Without the Supervision of International Consultant); Activities Performed:

- i) Overall study arrangements and quality control in general and reviewing literature on physical biological, and socio-economic environment of the area for the preparation of Scoping Document and TOR in particular, conducting scoping meeting, Compiling scoping document and TOR
- ii) Providing guideline for EIA study to other members of the study group, preparation of study plan for detailed EIA, carrying out and supervision of physical (water and air quality), biological (floral and faunal survey including fishery survey) and socio-economic environmental baseline studies for EIA, coordinate team members for the identification and prediction of environmental impacts and designing of mitigation measures, preparation of environmental management plan. Estimation of the mitigation and management plan costs. Prepare resettlement action plan and cost estimates for livelihood restoration.
- iii) Conduct public hearing meetings, present the EIA report to the review committee for EIA approval.

Name of assignment or project: Environmental Impact Assessment Bhirkuti Pulp and Paper Industries for the Collection of Biomass from Forest Areas of Various District; Year: June 2003 – Dec., 2004; Location: Bera, Kapiltastu, Argechachi and Banke; Client: Bhirkuti Pulp and Paper Industries; Main project features: Environmental Impact Assessment study of Pulp and Paper Industries; Positions held: Team Leader; Activities Performed: Responsible for overall study arrangements and quality control in general and review literature on physical environment of the area for the preparation of Scoping Document and TOR in particular, conduct scoping meeting, Compile scoping document and TOR. Provide guideline for EIA study to other members of the study group, preparation of physical environment study plan for detailed EIA, carryout physical environmental baseline studies for EIA covering geology, land use, erosion, estimate physical environmental losses and predict impact on physical environmental aspects by the project, design mitigation actions and estimate costs required, prepare monitoring plan on physical aspects and give input for the environmental management plan

related to physical aspect. Compile the EIA report from the study documents of the other EIA study group, conduct public hearing meetings, present the EIA report to the review committee.

Name of assignment or project: Environmental Impact Assessment (EIA) of Drainage, Sewerage and Wastewater Treatment Plant; **Year:** January, 2001- March, 2002; **Location:** Hetauda, Makawanpur; **Client:** Hetauda Industrial District, Hetauda; **Main project features:** Environmental Impact Assessment (EIA) of Drainage, Sewerage and Wastewater Treatment Plant; **Positions held:** Coordinator, **Activities Performed:** Responsible for the overall coordination of the project study activities. Review of physical environmental status of the project area. Generate physical environmental issues related to geology, landslides and erosion, drainage and soil. Conduct baseline survey of the project affected areas on physical environmental aspects. Identify impacts on the physical environment by the project. Prepare mitigation actions required for the minimization of the project impacts along with cost. Prepare monitoring plan for the physical environmental issues. Assist Team leader for stakeholder meeting and on the integration of the upgrading EIA report.

Name of assignment or project: Supplementary Environmental Impact Assessment Survey of Upgrading Feasibility Study on the Development of Kulekhani III Hydropower Project; **Year:** Feb. 2000-Nov. 2002, **Location:** Nepal; **Client:** JICA Study Team; **Main project features:** A 42 MW cascade project of Kulekhani with a diversion weir, tunnel, small reservoir, and powerhouse; **Positions held:** Team Leader; **Activities Performed:**

- i) Overall study arrangements and quality control in general and reviewing literature on physical biological, and socio-economic environment of the area
- ii) Providing guideline for EIA study to other members of the study group, preparation of study plan for detailed EIA, carrying out and supervision of physical (water and air quality), biological (floral and faunal survey including fishery survey) and socio-economic environmental baseline studies for EIA, coordinate team members for the identification and prediction of environmental impacts and designing of mitigation measures, preparation of environmental management plan. Estimation of the mitigation and management plan costs. Prepare resettlement action plan and cost estimates for livelihood restoration.
- iii) Conduct public hearing meetings.

Name of assignment or project: Environmental Impact Assessment, Tender Design Stage, Stage -1, 70 MW Middle Marsyangdi Hydroelectric Project, including access road power transmission; **Year:** Aug. 1992-March, 2001; **Location:** Lamjung district; **Client:** KfW (German), NEA; **Main project features:** Run of the River cum storage project with construction camp facilities, spoil disposal facilities, and internal access road; **Positions held:** Team Leader (Without the Supervision of International Consultant); **Activities Performed:**

- i) Overall study arrangements and quality control in general and reviewing literature on physical biological, and socio-economic environment of the area for the preparation of Scoping Document and TOR in particular, conducting scoping meeting, Compiling scoping document and TOR.
- ii) Providing guideline for EIA study to other members of the study group, preparation of study plan for detailed EIA, carrying out and supervision of physical (water and air quality), biological (floral and faunal survey including fishery survey) and socio-economic environmental baseline studies for EIA, coordinate team members for the identification and prediction of environmental impacts and designing of mitigation measures, preparation of environmental management plan. Estimation of the mitigation and management plan costs. Prepare resettlement action plan and cost estimates for livelihood restoration.
- iii) Conduct public hearing meetings, present the EIA report to the review committee for EIA approval



The
**Maharaja Sayajirao
 University of Baroda**

Whereas Shri Goran Sharma
 of the Faculty of Science has pursued a
 course of study prescribed by the University
 and passed the requisite Examination

Now Therefore this is to certify that
 he has this day been duly admitted by
 the Senate to the Degree of

Doctor of Philosophy
 (Geology)

Given under my hand this twenty-third
 day of March one thousand nine
 hundred and eighty.

M. C.
 Vice-Chancellor





5. Hari Krishna Shrestha

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal, Ministry of Finance, Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following:

- (i) I have conducted this study professionally using acceptable and standard methodologies
- (ii) The study findings are correct to the best of my knowledge, and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature:

Official stamp:

Name: Hari Krishna Shrestha

Date: 05-02-2019

Position: National Hydrology Specialist



Prof. Dr. Hari Krishna Shrestha (C Eng)
Chartered Engineer

Residential Address: Jhamsikhel, Lalitpur 3, Nepal
Phone: 977-1-5543755 (residential), 977-9851006010; 9840511395 (mobile)
Work Address: Nepal Engineering College
Changunarayan, Bhaktapur
Phone: 5090744, Fax: 5090681, PAN No.: 100173154
Hydro Knowledge System, Lalitpur Metropolitan City-3
Email: shrestha_hk@hotmail.com, hary@nec.edu.np

Education:

2003-2006	Ehime University, Matsuyama, Japan www.ehime-u.ac.jp Doctor of Engineering (Civil)
1990-1993	New Mexico Institute of Mining and Technology, Socorro, New Mexico, USA www.cmi.edu M. S. Hydrology
1987-1990	Tarleton State University (A part of Texas A&M University System), Texas, USA www.tarleton.edu B. S. in engineering Hydrology (Summa cum Laude)
1979	Institute of Engineering, Tribhuvan University, Nepal Certificate in Civil Engineering
1976	Shree Chandee Vidyashram, Nakabahi, Lalitpur, Nepal School Leaving Certificate

Training/Seminar:

- Training on hydrological analysis and application of hydraulic models of hydropower projects for the DoED engineers, through ERMIC, October 4-7, 2018
- Training on 30 hour Professional ArcGIS 10.5, Nepal Engineering College, 4-12 July 2017
- Training on Higher Education Curriculum Development Process, June 6-8, 2017, Nepal Engineering College
- Training on Hydrological Analysis and Review of Hydropower Projects, for DoED engineers, through Synergy Engineering and Consultants, May 21-June 4, 2017 (as resource person)
- Workshop on Opportunities and challenges of micro/mid hydro project promotion in off-grid ungrid model, Org. by Nepal Micro Hydro Development Association, 13 Jan, 2017
- National workshop on Small Hydropower Projects – its Role, issues and Prospects in the Changing Energy and Environmental Landscapes, Thiruvananthapuram, Kerala, Paper Presentation on Models of SHP Implementation in Nepal, Jan 5-6, 2017
- Water Resources Modelling Training, CSIRO, ICE WaRM, and NDRI, December 18-20, 2016
- Int'l Conference on Mountains in the Changing World, Kathmandu Institute of Applied Science, Paper presentation on Climate Refugees of Dry in Upper Mustang, October 1-2, 2016
- Design and Operation of Fish Passages International Good Practices, Advancing Sustainable Hydropower Technical Workshop Series, Trishuli, Nepal, USAID and IFC, Sept 9-11, 2016
- Training on Building Capacity in Disaster Risk Management in the face of Climate Change, Training topic: Flood vulnerability and risk assessment and risk reduction: approaches and practices, (resource person), Nature's Conservation, May 10-13, 2016
- Training on Flood Hazard Mapping using HEC-GeoRAS Models for Disaster Mitigation and Preparedness Planning, Nature's Conservation, August 10-12, 2015
- Training on Vulnerability Assessment and Adaptation Planning in Climate Change, ADB-Pokhara University, August 7-9, 2015
- Training on Disaster Recovery and Resilience in Climate Change Context, Consideration of Land Sensitivity in Disaster Recovery Plan, Resource Person, Nature's Conservation, July 8-10, 2015
- Training on Bridge Design - Hydrological Aspects, Resource Person, Local Roads Bridge Support Unit, DoLIDAR, February 3-20, 2015 (as resource person)
- Training on Bridge Design - Hydrological Aspects, Resource Person, Local Roads Bridge Support Unit, DoLIDAR, September 10-26, 2014 (as resource person)
- Sphere and Humanitarian Standards: Humanitarian Accountability Partnership (HAP) and People in Aid, Kathmandu, 15 June 2014
- Standardization of Hydrological Analysis Procedure and Scour Depth in Gravel Bed Rivers, Local Roads Bridge Support Unit, ITECO-Switzerland, April 26-30, 2013
- Governance and Management of Educational Institutions, Org. House of Rajkarnikar, KU, BELMAS (UK), PABSON and HESSAN, Oct 28-30, 2010



- Training of Trainers on Integrated Water Resources Management, Kandy, Sri Lanka, Org. by SasiWATERs, India, September 15-24, 2010
- Staff Training on Climate Change and Water, Dhaka, Bangladesh, Org. by SasiWATERs, Hyderabad, India, August 2-8, 2009
- Staff Training on Gender, Water and Equity, Dona Paula, Goa, India, Org. by SasiWATERs, Hyderabad, India, October 19-25, 2008
- Staff Training on Water and Ecology, Kathmandu, Org. by SasiWATERs, Hyderabad, India, November 26-December 2, 2007
- Rural Electrification through Small Hydropower Development in Rural Hilly Areas in Nepal, ITECO Nepal, Kathmandu, Nepal February 17, 2003
- Micro-hydro Feasibility Study Training for Consulting Firms, Alternate Energy Promotion Center, ESAP, DANIDA, Institute of Environmental Management, Kathmandu, February 27-28, 2001
- Hydrological Modeling for Water Resources Assessment and Management, AICTE-ISTE, Karnataka Regional Engineering College, India, January 8-20, 2001
- Resource Person, Seminar on Evaluation System in Pokhara University, Nepal Administrative Staff College, Lalitpur, Nepal, April 24, 2000.
- Participant, International Course on Small Hydro Power Development (Org. by WECS- AEP- ITECO Nepal-AHEC), Kathmandu, Nepal April 17-23, 2000.
- Participant, Seminar on Industry-Education-Interaction, Blue Star Hotel, Indian Society for Technical Education and Nepal Engineering College, April 2, 2000.
- Participant, Interaction Program on The Echo of Nagas, Annapurna Hotel, Kathmandu Metropolitan and Consolidated Management Services, March 29, 2000.
- Participant and Group Presenter, International Seminar on Farmer Managed Irrigation System (FMIS), Annapurna Hotel, FMIS Promotion Trust, March 28-29, 2000.
- Participant, Workshop on Labour Based Technology, Azada Bhawan, Organized by Institute of Engineering Tribhuvan University, and ILO, October 1999.
- Participant, International Symposium on Engineering Geology, Hydrogeology, and Natural Disaster, Kathmandu, Organized by Nepal Geological Society, September 1999
- Paper Presenter, SAARC Level Conference on Challenges to Architectures and Civil Engineers in the 21st Century, Hotel Blue Star, April 1999.
- Participant, Seminar on Society and Technology, Nepal Administrative Staff College, Water Nepal, June 28, 1997
- Participant, Technical Seminar on Environmental Solutions for Geotechnical and Erosion Control, Macarfen-Gabon, Hotel Mallia, Kathmandu, Jan. 17, 1997
- Participant and Conductor, First National Seminar on Earthquake Engineering, Hotel Blue Star, Kathmandu, December 1996
- Participant and Reporter, General Engineering Seminar, Nepal Engineering College, Kathmandu, Nepal, February 2, 1996.
- Instructor, Workshop on Application of Surfer in Engineering, ITECO Nepal, Kathmandu, January 18-19, 1996.
- Participant, 1-day seminar on Application of S-curve on construction projects, Blue Star Hotel, Kathmandu, Nepal, December 1, 1995.
- Paper Presenter, Rocky Mountain Groundwater Conference, Albuquerque, New Mexico, October 27-29, 1993.
- Participant, Solute Transport in the Vadose Zone, Univ. of Arizona, USA, April 1991.
- Participant, Water transport from dairy farms, Texas Institute of Applied Environmental Research, Tarleton State University, Texas, USA, July 1990.

Academic Experience

- 14 Jan. 2009 - Professor, Nepal Engineering College, Changuinara, Bhatkpur www.nec.edu.np
- presenter: Teach engineering hydrology, hydrological sciences, water induced disaster and risk management, and numerical methods to undergraduate and graduate students, thesis guide Supervised graduate study of Social Sustainability of Newa Khola A Hydroelectric Project, Wageningen University, The Netherlands (Anne Groot Kormelink, January 2018)
- Oct. 5, 2018 - Member, Subject Committee, Water Resources Management, Pokhara University
- Present - Present, VC Office, duration: 2 years)
- Oct-4-7, 2018 Chief Instructor, Training on Hydrological Analysis and Modeling, DoED Engineers, SR-6 Project, PLMC
- Sept. 2018 Supervisor: Christa Johanna Dijkstra van Oorschot, Wageningen University. (RN: 980808-623-088)



- Feb-April 2018 External Supervisory Advisor, (Gregory Underwood and Ben Wilkins) Department of Geography, University of Otago, New Zealand. Ref. Letter: April 20, 2018
- October 2017 Member, Agricultural Engineering Subject Committee, Faculty of Agriculture, Agriculture and Forestry University, Rampur, (2074-7-13 to 2077-7-12), Ref. No. 37, dated: 2074-7-13
- May 2 – June 2, 2017 Coordinator, Curriculum development of graduate and undergraduate engineering programs, Mid-Western University, Ref. 210, 2074/1/19
- May 4-5, 2017 External Examiner, MSc. Engineering Geology, Tribhuvan University
- March 2017- Present Co-supervisor, MSc Program, International Land and Water Management, Wageningen University and Research, Ref. 1706468, March 28, 2017, CoC No. 09215846
- Dec 2016 – January 2017 Member, Scholarship Selection Committee, IST Sakura Science Plan at Ehime University, Japan, Central Dept. of Geology, Tribhuvan University, Ref. 231/073/74, 2073-3-10
- Sept 2016 – present Professor, MSc. Engineering Geology Program, Central Department of Geology, Institute of Science and Technology, Tribhuvan University, Kirtipur
- July 2016 – Present Chairman, Subject Committee, Water Resources Management, Pokhara University (Ref. 31/072-073, 2073-3-22, VC Office, duration: 2 years)
- Feb. 2015 – present Member, Subject Committee, Engineering Geology, Tribhuvan University (Ref. 618/69/70, 2069-11-16)
- March 2008 Preparation, evaluation & approval of detailed curriculum of MSc. Engineering Geology
- July 2016 Member, Engineering Subject Committee, Pokhara University
- April 2007 – 2015 Evaluation and approval of detailed curriculum, academic policies and programs
- 2015 Visiting Professor, Ehime University, Matsuyama, Ehime Prefecture, Japan
- Jan. –July 2015 Examiner, Doctoral thesis on water resources management, Ammanalai University, Tamilnadu, India
- Feb. 2002 Associate Professor, Nepal Engineering College, Changunarayan, Bhaktapur
- Jan. 2009 Taught engineering hydrology, hydrological sciences and numerical methods to undergraduate and graduate students, thesis guide
- Oct. 1994 – Jan. 2002 Assistant Professor, Nepal Engineering College, Changunarayan, Bhaktapur
- 1998 – present Taught technical writing, hydrology, hydraulics, fluid mechanics, and numerical methods. Guided the students on plotting 2D and 3D maps using SURFER and GRAPHER
- 1998 – present Project Advisor, Advised final project works of undergraduate and graduate students, Nepal Engineering College
- Forecasting model of Manohara River flood levels using neural network, 2012
 - Study of effectiveness of water-induced disaster risk reduction initiatives, 2011
 - Evaluation of Chabakhel landslide site using 3D numerical modeling, 2007
 - Project selection criteria evaluation of water induced disaster rehabilitation, 2007
 - Critical revision of various headwork design of Chilime Hydropower Project, 2001
 - Groundwater evaluation and pumping-well design, 1998
- August 1999 Chief Instructor, Training on Project Management through Computer Application to Senior Engineers of BFD Feeder Road: Project, UNDP; Instructed senior and executive level engineers, consultants and contractors on project management
- July 1998 Chief Instructor, Training on Computer Application to System Engineers of Bardibas-Jaleshor Janakpur-Dhanushadham Feeder Road: Project, UNDP; Instructed system engineers, consultants and contractors on various aspects of computer applications in professional engineering practice
- August 1992 Instructor, Groundwater Flow and Contaminant Transport Modeling Short-Course, GCL, Albuquerque, New Mexico, USA
- 1992 – 1992 Instructed on parameters governing flow of water and solute in subsurface environment; help on hand-on experience on constructing 3D computer models of groundwater flow
- Jan 1992 – May 1992 Graduate Teaching Assistant, New Mexico Tech, New Mexico, USA
- 1992 – 1992 Taught graduate and undergraduate students theoretical aspect and practical implications of different parameters relative to surface water hydrology
- Jan 1988 – May 1990 Student Tutor, Terleton State University, Stephenville, Texas, USA
- 1990 – 1990 Taught algebra, trigonometry and calculus to undergraduate students
- Environmental and Engineering Experience:**
- 2007 – present Freelance Hydrologist
- Hydrologist, Detailed design of Mechi-Mahakali Railway, Package 2 & 4, FSDI in JV with PEC-DMEC-SILT in association with TSE & ERM (Oct 2017-present)
- Hydrologist, Integrated Management of Sardu-Seru Watershed, Dharan Municipality, for DSCWM, May – September 2017

- Hydrologist, Tambochu V HEP, 95 MW, Laymahyer Germany and TMS, May 2017-present
- Hydrologist, Aayu Mahu HEP, 4.21MW, Purna Khola Hydropower Company, May-September 2017
- Hydrologist, Feasibility and Environmental Study of Sen River-6 Storage Project (276.36 MW, Dam height: 120 m), in Achham and Doti, for DoED, through ERMIC (Nepal) and Shanghai Investigation Design and Research Institute (SIDRI), China, June 2017- present
- Hydrologist, Sun Kochi-2 HPP (1110 MW, Dam height: 165 m) and Sun Kochi-3 HPP (536 MW, Dam height: 140 m) for DoED, through ERMIC (Nepal) and SIDRI (China), Ramschhap, May 2017-present
- Hydrologist, Support Melamchi Municipality through technical support in providing location specific setbacks along the banks of the river within the jurisdiction of the municipality, UNDP-CDRMP, April-May 2017
- Engineering Hydrologist/River Engineer, Professional review of Master Plan of Jure Landslide for Mitigation (Ref: WIDP 7/PSC/01/2072-073), Department of Water Induced Disaster Management, Office No. 7, Chankot Dolakha, January-July 2017
- Watershed Expert, Development of Watershed Classification Software, as an independent contractor, for Dept. of Soil Conservation and Watershed Management, through CDRMP of UNDP, Contract No. UNDP/IC/199/2016, Sept. 15, 2016 - January 30, 2017
- Hydrologist - Feasibility study, detailed engineering survey, design and preparation of DPR, E/SIA of double lane Rama Highway and Siddhartha Highway, for DoR, Contract ID No- FC3/02/072-73, through Hifab International AB (Sweden), JV with BCI Associates (Bangladesh), and Full Bright, SILT Consultants and ERMIC (July 2016 - August 2017)
- Hydrologist - Expert review of a book chapter on current understanding of environmental flows in Kochi River Basin, a publication of Bird Conservation Nepal, CSIRO (Australia), and ICIMOD (April-May 2016), Ref: April 18, 2016
- Hydrologist-Design, Road Improvement Project (RIP III-05), Detailed engineering survey design and preparation of DPR for Chandinuta-Krishna Nagar Road (20 km), Gularia-MRNA Road (21 km), Gandak Canal Road (50 km), Terai urban roads in Nepalganj (20 km), Site-Material Test-IV, for the Department of Roads, GoN (January- August 2016)
- Hydrologist- Feasibility Study, Detailed Engineering Survey, Soil Investigation, Hydrological Study and Detailed Design of 9 bridges in Nawalparasi and Tanahu district (BB-159-DSD-071/72-79), for DoR, through JV of SILT Consultants (P) Ltd. and Rajdevi Engineering Consultants (P) Ltd. (May - December 2016)
- Hydrologist, Assessment of Hydropower Potential of Nepal, for WECS, through Silt Consultants Pvt. Ltd., (August 2015 - on going)
- Hydrologist, Detailed assessment for establishment of community based early warning system for the communities of Sor Khola sub-watershed, Sukher, for UNDP, through Sunka Nepal, August-December 2015
- Hydrologist, DPR of Liping Khola Small Hydropower Project, for Him River Power Co Pvt. Ltd., through Design Pro-Link Pvt. Ltd., March 2015 - April 2016
- Hydrologist (River Engineer), Design and supervision of sewerage project (interception along Hanumante and Manohara rivers) of the Project Implementation Directorate, KUKL, Dohwa (South Korea) in association with ERMIC-BDA, (April-December 2015)
- Conduct hydrological and sedimentation analysis for detailed engineering design & preparation of bidding documents of Rolwaling diversion scheme of Upper Tamakoshi Hydropower Project (456 MW), (UTKHEP/DD/01-2070/71), Lahmeyer International GmbH, Total Management Services and HECO Nepal, (March 2015 - September 2016)
- Principal Investigator, Climate Change Impact and Adaptation Measures in Upper Mustang (CAMUAM) research project, ADB IA-7984 NEP funded NAST administered project (Project No. CCRGF-010), awarded through open competition (Feb. 2015-Aug 2016)
- Hydrological Expert, Development of Guideline on Hydrological Investigation Methodology for bridge design, (April-July, 2014), Swiss Agency for Development and Cooperation, Local Roads Bridge Support Unit, Contract No.: LRBP-179/2014
- Senior Researcher, International collaborative research on Hydropower development in the context of climate change: exploring conflict and fostering cooperation across scales and boundaries in the Eastern Himalayas, NWO-CMCC, Project No.: W-07-68-2012-413, Netherlands Organization for Scientific Research, (Jan 2014 - June 2018)
- Team Leader, Sanika Hydrologist, Developing a Climate Smart Resettlement Plan for Tharphaling, Upper Mustang, Nepal, WWF (Agreement No. WSS2), USAID Project



- (Oct. 2013 – Apr. 2014)
Water Resources Expert, Mainstreaming Climate Change Risk Management in Development, icem (Australia) and METCON, ADB TA-7984 NEP through Strategic Climate Fund, Pilot Project on Climate Resilience, Focus Sector: Sedimentation and River bed sand mining (Oct 2012-December 2017)
- Deputy Team Leader, Strengthening Higher Engineering Education Project, PINZ-TM5-METCON, Asian Development Bank, TA-7973 NEP (April-September, 2012)
- Technical Director, Dibyajyoti Hydropower Company Pvt. Ltd., Maryangdi Besi HEP (50 MW), (Jan 2012 – on going)
- Project Manager, Chyangdi Khola HEP (5 MW), Lamjung, BPS Hydropower Co. Pvt. Ltd. (Apr. 2011 – on going)
- Hydrological investigation of 180 river crossings in Khidkijyala-Manama section and 525 river crossings in Manma-Junla section of Karnali Highway, Road Sector Development Project, ITECO Nepal, Sept 2010-Feb. 2011
- Project Manager, Istul Khola HEP (1.5 MW), Gorkha, Amar Jyoti Hydropower Co. Pvt. Ltd. (Oct. 2009 – on going)
- Hydrologist, Hydrological Investigation of Mahesh Khola HEP (1.95 MW), Dhading, (Oct. 2009)
- Hydrologist, Hydrological Investigation of Upper Maryangdi HEP (150 MW), Clean Energy Consultant-DEC-Akara IV, (May-July, 2009)
- Hydrologist, Hydrological Investigation of Manang Maryangdi HEP (100 MW), Clean Energy Consultant-DEC-Akara IV, (May-July, 2009)
- Hydrologist, Hydrological Investigation of Chamelia Chhetigad HEP (85 MW), Hydro Vision, Co. Pvt. Ltd., (March-May, 2009)
- Hydrologist, Hydrological Investigation of Balephi HEP (130 MW), Green Venues Nepal- Bhulwara Energy Limited-India, (Dec 08-March, 2009)
- Chief Investigator, A research study on Vulnerability Assessment and Formulation of Climate Change Adaptation Strategies for Langtang National Park and Buffer Zone, SAFE Concern, for WWF Nepal (April-August, 2008)
- Hydrologist, Hydrological Investigation of Likhu IV HEP (120 MW), ITECO Nepal, (March-July, 2008)
- Hydrologist, Investigation of 253 rivers crossing proposed alignment of North-South Fast Track Road, ADB project, ITECO Nepal & Oriental Consultant (Japan), (Jan-May, 2008)
- Hydrologist, Investigation of 18 rivers at the headworks of Sikta Irrigation Project, Consolidated Management Services, (Jan-Apr. 2008)
- Hydrologist, Hydrological Investigation of Likhu Bridge at Leti, ITECO Nepal, (Dec 07 - Jan '08)
- 2006 – 2012 Director, Center for Disaster Risk Studies
- Geoinfo Database of Kathmandu Valley, 2009
 - Community based landslide risk reduction, Kabilas VDC, Chitawan, March, 2008
 - National Essay Competition on Schools and Disaster, November 2007
 - Public Awareness Enhancement works at Kathmandu (2009), Hathiya, Baglung (Sept. 2007), Honor International School, Kullu (October, 2007), Syuzhatz (Oct. 2006)
 - Landslide hazard assessment along Likhu Highway (Mar-May, 2007)
 - Earthquake risk assessment of urban area, Kathmandu (Nov-Dec, 2006)
- 2005 – 2006 Expert, Ehime University
- Investigation of Chromium-6 contamination in Matsuyama, Ehime, Japan (February-March, 2006)
 - Investigation of partial temporal drying of Shisuzobu River at Matsuyama, Ehime, Japan (March 2005)
- April 2000- Chief Researcher, Research Project on Effect of Non-point Pollution in Manohara River,
Sept. 2003 University Grant Commission, Nepal
- 1997 – 2004 Freelance Hydrologist
- Consultant Hydrologist, ITECO-Switzerland www.iteco.ch
Hydrological Investigation of flood disaster in East Rapti River at Bhainse, Tribhuvan Highway (February 2003)
- Hydrologist, ITECO Nepal, Kathmandu www.iteco.com.np
Hydrological investigation of several potential sites for rural hydropower development in Nepal, JICA funded project, (August -December, 2002)

- Consultant Hydrologist, ITECO-Nepal
Dissemination and promotion of HydiA Nepal software specifically developed by the Centre for Ecology and Hydrology (UK), Department of Hydrology and Meteorology (DHM/HMG/N) and International Center for Integrated Mountain Development (ICIMOD) for Nepal to rapidly estimate hydropower potential of small hydropower projects in Nepal. The two year dissemination project was funded by the Department for International Development (DFID), UK. (April 2001 - March 2003)
- Consultant Hydrologist, World Distribution Nepal, Siddhi Shivan, Kathmandu
www.wdistrib.com.np
Development of Hydrological and Meteorological Information System (HIS) for Department of Hydrology and Meteorology, HMG/N, (July 2001 - August 2002)
- Hydrologist, Housing Services Company, Lalitpur
Conducted hydrological and geological studies for detailed design of Haku Khola Small Hydropower Project, Lullu, Sagarmatha Zone (March 2001)
- Hydrologist, SILT Consultants Pvt. Ltd., Old Baneshor, Kathmandu
Conducted hydrological and geological studies for feasibility study of Maitung Khola Hydropower Project, Haku VDC, Rasuwa. Installed sectional staff gauge and sediment sampling station (August 2000)
- Expert, ITECO Nepal, New Baneshor, Kathmandu
Conducted hydrological and climatological studies for feasibility study of a New International Airport at Rudrapur, Lumbini, Nepal (March 2000)
- Hydrologist, ITECO Nepal, New Baneshor, Kathmandu
Conducted hydrological study for detailed design of a bridge over Kalanga Gad, Khodpe-Bajhang Highway, Bajhang, Seti (May 1999)
- Hydrologist, IC GS, New Baneshor, Kathmandu
Conducted hydrological and meteorological study for reconstruction of a bridge over Tukucha Khola at Triniteshor, Kathmandu (April 1999)
- Hydrologist, Housing Services Company, Lalitpur
Conducted hydro-meteorological and geological studies of pre-feasibility study of National Power Project at Pawa Khola, Ilam District, Mechi (December 1998)
- Hydrologist, ITECO Nepal, New Baneshor, Kathmandu
Hydro-meteorological studies of five bridges in Kathmandu and one bridge in Arundi village. Bidding for detailed design of bridge rehabilitation works (May 1998)
- Hydrologist, ITECO Nepal, New Baneshor, Kathmandu
Professional review of hydrological and meteorological part of the feasibility report of Indrawan III Hydropower Project (July 1997)
- June 1992-
August 1994
Staff Hydrologist, Geosciences Company Limited, Albuquerque, New Mexico, USA
Task Leader in designing, processing, and reporting sensitivity analysis of Regional Groundwater Model at NASA-WSTF, Las Cruces, New Mexico, USA
- 3D Modeling of a major aquifer in the South Valley of Albuquerque area, in support of litigation proceedings
 - Data analysis for the construction of a three dimensional plume delineation of several VOC plumes in Irvine, California
 - Developed an analytical lumped parameter model to predict an organic plume transport at Santa Fe landfill area
 - Successfully used a particle tracking and a solute transport model, to predict contaminant transport in a wide variety of aquifers
 - Analyzed organic chemical data from different wells by using HC-GRAM, which verified hydraulic connections of different wells
 - Optimized a pump and treat scheme of uniform aquifer in Ontario, Canada, by evaluating several scenarios with semi-analytical codes RESSQ and DREAM
- August 1990-
Graduate Research Assistant, New Mexico Tech, USA
- Dec. 1991
Designed and performed research work on preferential flow phenomena of water and solute in the vadose zone
- May-Aug
1990
Internship, Texas Institute of Applied Environmental Research, Stephenville, Texas, USA
- Performed research on the effect of cow manure on the permeability of lining materials for holding ponds in dairy farms
 - Determined the optimum moisture content for various soil types to meet the Texas Water Commission standard for lining materials
- 1979 - 1986
Civil Overseer, Department of Hydrology and Meteorology, Govt. of Nepal



- Materials and cost analysis, and supervision of construction works
- Established hydrological stations for collection of hydrological data (Khandi Kheola at Khudi Bazar, Lamjung, Kali Gandaki River at Seri Beni, and Arun River at Uwa Gaun, Hedangra VDC, Sankhuwarajaha)
- Measured and collected stream discharge data from remote mountain streams
- Performed data analysis (preparation of unit hydrographs and rating curves)
- Designed and constructed cable cars and drilling wells

Management Experience

8 May 2018	Principal, Nepal Engineering College, Bhaktapur (Ref. 075-432, 2075-1-25)
Present	Overall management of all aspects of Nepal Engineering College (students over 2100)
June 2014	Proprietary, Hydro Knowledge System, Regd. No. 1061/STA (6/6/2014), Lalpur Sub-metropolitan City
January 2014	Research Coordination: Conflict and Cooperation in the Management of Climate Change - Integrated Project NWO-WOTRO, DFID, jointly with Wageningen University (The Netherlands), The University of East Anglia (UK), International Rivers (USA), ACWADAM (India). (Jan 2014- Dec 2017)
October 2013	Chairperson, 11 th International Symposium on Mitigation of Geo-disasters in Asia (MGDA-1 Himalayan Landslide Society and International Consortium on Geo-disaster Reduction (Japa 22-28 October 2013)
November 2013	Executive Member, International Conference on International Conference on Climate Change Water Resources and Disasters in Mountainous Regions: Building Resilience to Changing Climate, 27-29 November 2013
Oct. 2012 - Oct. 2013	Education Quality Implementation and Assurance Coordinator, Nepal Engineering College Developed detailed policies, programs, terms of references, criteria and formats for quality assurance; organized One-day Workshop on Quality Engineering Education under Pokhara University, July 5, 2013
August 2011 - present	President, Himalayan Landslide Society (HLS), www.hls.org.np
January 2010 -	Member, Advisory Committee
May 2011	Development of National Strategy on Early Warning System for Natural Disasters, a joint effort of DDM, DEPECHO/Practical Action, and Mercy Corps in association with Ministry of Home Affairs and Ministry of Environment, Government of Nepal
Feb-Apr, 2013	Member, Organizing Committee, 13 th National Convention on Culminating Engineers' Vision and Wisdom for Connecting Transition to Prosperous Future, Nepal Engineers' Association
2009 - 2011	Member, Advisor, Engineering Education Development Committee, Nepal Engineers' Association
Feb-Oct 2010	Member, Conference Advisory Committee, Int'l Conference on Interdisciplinary in Water Education in South Asia: Challenges, Perspectives and Policy Implications, Oct 3-6, 2010
Nov 2009	Organizing Secretary, International Seminar on Hazard Management for Sustainable Development, DWIDP, Nepal Engineering College, Etime University, Nov. 29-30, 2009, Kathmandu
November -	Superintendent, Pokhara University
December 2008	Conduction of final semester end examination
October 2009	Chairperson, SAWA Fellow Selection Committee, Pokhara University
9 Sept. 2009	Principal, Nepal Engineering College, Bhaktapur (Ref. 13-069, 2069--14)
18 July 2012	Overall management of all aspects of Nepal Engineering College (students over 2100)
May 2009	Convener, Fourth South Asia Conference on Water Resources Research, Interfacing Poverty, Livelihood and Climate Change, Nepal Engineering College, SocWATERS, part of an activity of Crossing Boundaries Project, funded by the government of Netherlands
2009 - 2013	Member, Editorial Board, Journal of Hydrology and Meteorology, Society of Hydrologists and Meteorologists (SOHAM Nepal)
2009 - 2011	Member, Scholarship Committee, Pokhara University
December 2007 - May 2009	Project Manager, Development of appropriate Method for Safe Drinking for Shum Dwellers and Squatters of Nepal, DELPHI Project, DAD, Nepal Engineering College, in partnership with Imperial College London and Preston University, Pakistan
Dec. 2007 -	Vice Principal, Nepal Engineering College, Changunarayan, Bhaktapur
Aug. 2009	Overall management of all aspects of Nepal Engineering College
Nov. 2008	Co-Convener, International Conference on Disaster and Development Bridging the gap between theory and practice, DWIDP, Nepal Engineering College, Etime University, Nov.

- 23-24, 2008, Kathmandu
- Sept. 2008 Coordinator, SAWA Fellow Selection Committee, Pokhara University
- Apr. 2008 Convener, International Seminar on Management and Mitigation of Water Induced Disasters April 22-23, 2008, Kathmandu
- March 2008 – 2016 Member, Engineering Subject Committee, Pokhara University
- April 2007 – 2012 Director, Ehime University Satellite Office, Kispondole, Lalitpur
Conduct research, public awareness programs on disaster, activities related to better relation of Ehime University with academic and research institutions of Nepal
- May 2007 Convener, One-day Workshop on Environmental Protection of World Heritage Sites: Focus on Changunarayan, May 9, 2008, Kathmandu
- Sept. 2007 Convener, International Seminar on the Prospect of Fast Track Road Building in Nepal, Sept. 18, 2007, Kathmandu
- Nov. 2006 Convener, International Symposium on Geo-disasters, Infrastructure Management and Protection of World Heritage Sites, Nov. 25-26, 2006, Kathmandu
- May 2006- August 2013 Director, Center for Disaster Risk Study
- July 2007 Deputy Superintendent, Pokhara University, Conduction of Final Semester Examination
- April 2002 Coordinator, Nepal Engineering College
Coordinate preparation works for obtaining accreditation from National Board of Accreditation, All India Council for Technical Education, New Delhi, India
- Nov. 2001 Organizing Secretary, International Seminar on Geotechnical and Environmental Challenges in Mountainous Terrain, Kathmandu
The event resulted in a boost to the image to Nepal Engineering College and a net saving of 15% of the total budget. The success of the program resulted in conduction of similar programs annually from 2005 to 2013.
- March 2001 Coordinator, Pokhara University
Coordinate Teachers' Orientation Seminar (23-24 March) at Nepal Engineering College
- April 2000 Technical Expert, Feasibility Study Committee, Pokhara University
Feasibility study of a new technical college at Dhangadhi, Kailali, Nepal
- January 2000 Deputy Superintendent, Pokhara University, Conduction of Final Semester Examination
- October 1994 Chief of Examination Division, Nepal Engineering College
- February 2000 Tribhuvan University, Changunarayan, Bhaktapur
Established the Examination Division of the college, responsible for overall management and conduction of all internal student evaluation system, coordinate with the Examination Control Division of Tribhuvan University and Pokhara University
- July 1999 Expert, Pokhara University, Publication of Final Semester Examination results
- June 1999 Deputy Superintendent, Pokhara University, Conduction of Final Semester Examination
- July 1998 Coordinator, Computer Training to System Engineers, BIRD, UNDP
The efficient management of this program resulted in a net profit of 20% of the total budget for Nepal Engineering College. Due to the effectiveness of the program the client requested to conduct similar program
- July 1997 Coordinator, Computer Training to Bank Officers, Nepal Rastri Bank
The efficient management of this program resulted in a net profit of Rs. 1 Lakh (25% of the total budget) for Nepal Engineering College. Based on the recommendation of the participants, the program was repeated for a different batch of participants.
- 1995-2000 Coordinator, Entrance Examination Conduction, Nepal Engineering College
Conduction of five entrance examinations (1995 to 2000, except 1996) and student admission
- January 1998 Warden, Nepal Engineering College
- Aug. 2002 Overall management of the boys' and girls' hostels of Nepal Engineering College at Changunarayan, Bhaktapur

Engineering Publications

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Other Publications

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- Bhagal, K., Shrestha, H. K. and Gautam, R. C., 1995, Course Manual on Applied Mechanics (Statics), Nepal Engineering College.

Scholarships and Fellowships

- * Kyoritsu International Scholarship, Japan (2004-2006)
- * Graduate Research Assistantship, Ehime University, Japan (2003-2006)
- * Research Grant Award, University Grants Commission, Nepal (2000)
- * Graduate Teaching Assistantship, New Mexico Tech, USA (1992)
- * Graduate Research Assistantship, New Mexico Tech, USA (1990-1991)
- * C. J. Red Davidson Memorial Scholarship, Tarleton State University, USA (1988-1990)
- * Dick Smith Scholarship, Tarleton State University, USA (1988)
- * World Meteorological Organization Fellow, Sunderland, UK (1987-1990)
- * Merit Scholarship, Institute of Human Geography, Tribhuvan University, 1981-82
- * Merit Students' Scholarship, Institute of Engineering, Tribhuvan University, 1978-79



Language Skills:

Language	Speaking	Writing	Listening	Reading
English	Excellent	Excellent	Excellent	Excellent
Nepali	Excellent	Excellent	Excellent	Excellent
Newari	Excellent	Excellent	Excellent	Excellent
Japanese	Limited	Limited	Limited	Limited

Computer Skills:

Spreadsheets: Microsoft Excel; Word Processing: MS Word, Norton, CSE, DBase Management: Rbase, Graphical Programs: Surfer, Grapher, Vector, Modanis, MODEL CAD™; Languages: FORTRAN 77, C++, Vadsor, Zone codes: UNSAT and CNYFIT; Saturated Zone Codes (3D): GMS, MODFLOW, ZONEBUDGET, Path3D, MT3D, MODPATH; Saturated Zone Codes (2D): RESSQ, DREAM; Pump Test Analysis: AQTESOLV; Hydrogeochemistry: HC-GRAM; Surface Water Codes: HEC-1 and 2; GIS 10.5

Memberships:

- * Himalayan Landslide Society (FM 001)
- * Nepal Engineers' Association (M-5546)
- * Nepal Engineering Council (R-1969, Civil, A)
- * Society of Hydrologists and Meteorologists - Nepal (LM 0254)
- * Indian Society for Technical Education (Life Member: LM 28005)
- * The Institute of Engineers (India) Chartered Engineer (M-1562554)
- * Alpha Chi (Honor Students' Society, USA, Life Member)

Date of Birth: December 11, 1960

I certify that all the information in this bio-data are correct.

Signature

Hari K. Shrestha

Date: October 11, 2018





No. 1209

Certificate of Doctoral Degree

EHIME UNIVERSITY
Matsuyama, Japan

*The president of Ehime University
and the Dean of the Graduate School of Science and Engineering
in the presence of the Faculty have conferred the degree of*

Doctor of Engineering
ON
Hari Krishna Shrestha

Date of Birth : 31 December, 1960

*for fulfilling the requirements of Ehime University
and has awarded him the degree of Doctor of Engineering in the degree
of Engineering (Ph.D.) in the field of ... on the 12th Nov. 2000*



*Professor ...
President of the University
...
Dean of the Graduate School of Science and Engineering*



6. Arun Venkataraman

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal Ministry of Finance, Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following:

- (i) I have conducted this study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge, and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements, and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study

Signature:

Official stamp

Name: Arun Venkataraman

Date: 05-02-2019

Position: International Biodiversity Lead



Arun Venkataraman PhD.

Technical Director

Arun is a Technical Director with at ERM. He has a Doctorate of Philosophy in Ecological Sciences. He has almost 30 years' experience working for academic and conservation organizations.

At ERM Arun leads and advises biodiversity initiatives with emphasis on assessing, mitigating and managing impacts on threatened, endemic, restricted range and migratory/congregatory species, protected areas and other Key Biodiversity Areas. Biodiversity assessments and mitigation has been strongly guided by IFC Performance Standard (PS) 6, ADP SPS, EBRD Habitat Directive, ICMM, BBOP, relevant IUCN guidelines and various company standards. Prior to ERM, Arun was formerly Vice President for Sustainability at Olam International and Conservation Director of WWF Malaysia.

**Experience:**

- 5 years of experience in Renewable Energy (wind, solar and hydropower)
- 5 years of experience in Non-renewable Energy (thermal and gas)
- 5 years of experience in Linear Infrastructure (roads, transmission lines)
- 5 years of experience in Mining and Metals
- 28 years' experience in ecology and biodiversity conservation

Email: arun.venkataraman@erm.com

LinkedIn: <https://www.linkedin.com/in/arun-venkataraman-a86a6375/>

Education

- Doctorate of Philosophy, Ecological Sciences, Indian Institute of Science, Bangalore, India
- Masters of Science (Hons.) Biological Sciences, Birla Institute of Technology and Sciences, Pilani, Rajasthan, India

Professional Affiliations and Registration

- Species Survival Commission Member, IUCN, Gland

- EIA Mentor: National Accreditation Board for Education and Training, Quality Council of India (QCI)

Languages

- English, Native Speaker
- Hindi, Native Speaker
- French, Basic

Publications

Nearly 40 scientifically peer reviewed papers, several chapters in books and popular articles covering behavioural ecology, ecology, conservation and sustainability planning



The business of sustainability

Anur Verkaratnam, PhD

Fields of Competence

- Biodiversity Assessments and Management Planning
- High Conservation Value Landscape Design for Habitat Suitability and Connectivity
- Environmental and Social Impact Assessments
- Corporate Sustainability Framework Development
- Assessment for ecologically sound environmental flows for hydroelectric projects.
- Education
- Doctorate of Philosophy, Ecological Sciences, Indian Institute of Science, Bangalore, 1991
- M.Sc. Biological Sciences, Birla Institute of Technology and Science, Pilani, Rajasthan, 1984

Key Industry Sectors

- Renewable Energy (wind, solar and hydropower)
- Non-renewable Energy (thermal and gas)
- Mining and Metals
- Linear Infrastructure (roads and transmission lines).

Key Projects

Cumulative Impact Assessment and Management in the Trishuli River Basin, Nepal

Technical Advisor-Biodiversity

The Trishuli River watershed area in Central Nepal, has experienced large hydropower plant development, and many more are proposed and planned for the future. To ensure that there is collaboration and coordination in environment and social impact monitoring, risk management, data sharing and impact management within the project developers, World Bank appointed ERM to undertake a Cumulative Impact Assessment for the Trishuli River basin and the development of a Co-Management platform, consisting of IFC, private sector HPP developers, Government officials and other stakeholders. A key component of the CIA was the assessment of flow dependent impacts, using the DRIFT model on aquatic Valued Environmental Components (VECs) that included several fish species of conservation significance, aquatic ecosystems and aquatic dependent livelihoods.

Updating Prior Environment and Social Assessments to Develop a Non-Technical Summary for the Upper Trishuli-1 (UT-1) hydropower project, Nepal

Technical Advisor-Biodiversity

IFC requested ERM to develop a non-technical summary comprising an update on the environmental and social assessment undertaken previously. The main task involved updating the contents and requirements in the National EIA and Supplementary ESIA based on the existing, post-earthquake conditions of the location in terms of environmental impacts and mitigation measures and impacts related to flow transitions. The non-technical summary included brief descriptions of the project, regulatory framework, current E&S baseline conditions, and impact assessment and mitigation measures.

Technical Support for Implementing and Monitoring Environmental Management Plans for the 184 MW Shuakhevi hydro project and associated 35 KV transmission line in Republic of Adjara, Georgia.

Technical Advisor-Biodiversity

The support involved advising the client on the requirements of international financial institutions (IFC, EBRD and ADB) and the Georgian legislation are adhered to, delivering commitments made in the project documents such as management and actions plans including implementation and monitoring of a low flow management plan, reviewing monitoring plans provided by local experts and based on these, assessing the efficacy of the mitigation plans, implementing environmental management systems, assessing non-compliance with respect to management systems, effecting due corrective action, advising staff in addressing grievances from Affected communities, reviewing training program outputs for consistency to the objectives of the ESMS and communicating with lenders on the progress of the ESMS.

Biodiversity Action Plan for the Operational Phase of the 197 MW Shuakhevi, Hydropower project, Georgia.

Technical Director-Biodiversity

Located in the biodiverse Caucasian ecoregion, the project involved developing an Operational Phase BAP (end of Construction onward) which focuses on requirements for operational phase for achieving no net loss in compliance to IFC PS6 and the ADB SPS. It also involved developing an internal implementation and monitoring program for ongoing mitigation measures as relevant for the construction monitoring phase which

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included implementation and monitoring of a low flow management strategy.

Biodiversity Baseline and Impact Assessment for the Upper Kamali Hydro-electric Project, Nepal

Technical Advisor-Biodiversity

This project involved terrestrial and aquatic fauna biodiversity assessments to contribute towards the development of a biodiversity action plan and a possible offset strategy for natural habitats impacted by the construction of the 900 MW hydro-electric dam. The assessment and management plan was in compliance to the IFC PS6 and ADB SPS. A key requirement was to carry out a Critical Habitat Assessment for threatened and migratory terrestrial and aquatic species and integrate an e-flow management plan guided by DRIFT modelling to address impacts of diverted and peaking flows included within the project's operational regime

Biodiversity Due Diligence of the Lower Likhu Khola Hydropower Project in Nepal

Technical Advisor-Biodiversity

ERM India Private Limited (ERM) was commissioned by a financial institution to conduct an Environmental and Social Due Diligence (ESDD) of the Lower Likhu Khola Hydropower Project located in the Ramechhap and Okhaldhunga districts of Nepal. The LLKHPP is being developed as a 28.1 megawatt (MW) run of the river project. A key feature of the ESDD was a gap assessment against IFC PS6 with a focus on determining if impacts of the project on aquatic biodiversity through flow transitions, were adequate addressed.

Critical Habitat Assessment (CHA) and Indigenous Peoples Assessment (IPA) Screening in 10 proposed Highway Widening Projects in Gujarat, Rajasthan and Madhya Pradesh

Technical Director- Biodiversity

The project involved determining whether any of the highways within the proposed project cluster have potential to trigger critical habitats as per applicable reference standards such as IFC PS6; This assessment involved screening of potential critical habitat candidates using data from IBAT and other secondary sources and carrying out an assessment using critical habitat quantitative thresholds guided by field assessments and

consultation with stake-holders and experts.

Critical Habitat Assessment (CHA) and Indigenous Peoples Assessment (IPA) Screening in 10 proposed Highway Widening Projects in Gujarat, Andhra Pradesh and Odisha, India

Technical Director- Biodiversity

The project involved determining whether any of the highways within the proposed project cluster have potential to trigger critical habitats as per applicable reference standards such as IFC PS6; This assessment involved screening of potential critical habitat candidates using data from IBAT and other secondary sources and carrying out an assessment using critical habitat quantitative thresholds guided by field assessments and consultation with stake-holders and experts.

Critical Habitat Assessment of NH7 passing through a forest stretch adjacent to the Pench Tiger Reserve in Maharashtra, India.

Technical Director-Biodiversity

Given the likelihood to impacts to a tiger corridor and significant tiger habitats, based on IFC advice, the client requested ERM to carry out a critical habitat assessment of the project area aligned to IFC PS6. As the project area was assessed critical habitat, the recommendations made in this assessment were incorporated into a Biodiversity Action Plan that has an objective of achieving net gains in biodiversity values.

Critical Habitat Assessment (CHA) for a ~100 Km stretch of National Highway in West Bengal, India.

The client requested ERM to carry out a critical habitat assessment to establish whether any habitat along project road has the potential to trigger critical habitat with reference to IFC Performance Standard 6. The assessment involved surveys along the road and detailed consultations with experts who had carried out aquatic bird surveys along wetlands in the vicinity of the project as these provide important habitat to several migratory species. Furthermore there are 2 Important Bird and Biodiversity Areas (IBBAs) in the project's vicinity.

Critical Habitat Assessment (CHA) for a 3.0 MTPA Cement Plant and Mines Located in Devapur in Mancherial District of Telangana, India.

Annex C: Declaration form of EIA team Members

The client requested ERM to assess biodiversity values within natural and modified habitats for the proposed expansion of the mine, assess critical habitat candidate species as per the quantitative thresholds for critical habitat criteria in IFC PS6, quantify the impacts of project activities, suggest high level mitigation actions to reduce adverse impacts and develop a high level biodiversity offset strategy, if it was found that either natural habitats or critical habitats are degraded or converted

Critical Habitat Assessment for NH-47 (6-laning) of Vadakanchery- Trissur Section of NH-47, Kerala, India

Technical Director- Biodiversity

The client requested ERM to assess ecological risks, especially presence of Critical Habitats, with reference to IFC Performance Standard 6, quantify the impacts of project activities taking into consideration the occurrence of the target species and provide recommendations for the mitigation of adverse impacts by the provision of requisite avoidance, minimisation and compensation measures.

Biodiversity Assessment and Mitigation Aligned to IFC PS6 for Upgradation of the Gopalpur Port, Odisha, India

Technical Director- Biodiversity

The project involved the delineation of the extent of modified, natural habitat and/or critical habitat as per IFC PS6, determination of the presence of key biodiversity values related critical habitat with emphasis on the nearby Olive Ridley Turtle mass nesting sites and reproductive patches, identification of specific impacts and recommendations for mitigation, management and monitoring measures required for compliance with IFC PS6 requirements. A broad level offset strategy was included to address residual impacts to onshore nesting and offshore reproducing turtles.

Gap assessment of EIA against IFC PS6 of the Bangladesh-India Friendship Power Company's 1320 MW Super-thermal Plant at Khulna, Bangladesh

Located near the Sunderbans World Heritage Site, the construction of this power plant has attracted widespread attention on potential impacts on biodiversity resources within the World Heritage Site. ERM has been called to carry out a gap analysis of the EIA's carried out

so far to assess gaps with respect to compliance with IFC PS6 and other financial institutions standards. The assignment involved review of relevant document, stakeholder consultations and rapid field assessments to carry out the assessments and recommend future steps to address these gaps. Among other issues, the gap assessment focussed on IUCN threatened and nationally protected species, priority ecosystem services and designated areas of national and international biodiversity significance

Impact Assessment of Fisheries and Marine Biodiversity and Evaluation of Decommissioning Options in an Oil and Gas Field in the Gulf of Kutch, Gujarat, India

Technical Director- Biodiversity

A client proposing to decommission a gas production facility, comprising of rigs, processing platforms and pipelines requested that an assessment be carried out to propose the least impacting options keeping in mind fisheries, threatened species and coastal, pelagic and benthic habitats. It was anticipated that these options would promote thriving marine ecosystems and fisheries post-decommissioning.

Key Projects Prior to Joining ERM

ESIA's in 30,000 ha of Olam International Palm Concessions in Gabon.

The ESIA's have involved social and socio-economic mapping, biodiversity and carbon stock assessments, analysis of LIDAR data, hydrological, agronomic, biodiversity and soil assessments and legal reviews. The ESIA's were carried out in accordance to RSPO and IFC PS6 specifications, and called for the design and implementation of High Conservation Areas in accordance to the guidance of the High Conservation Value Resource Group. The identified plantation lands comprised of habitats with high biodiversity and contained several globally threatened and endemic species.

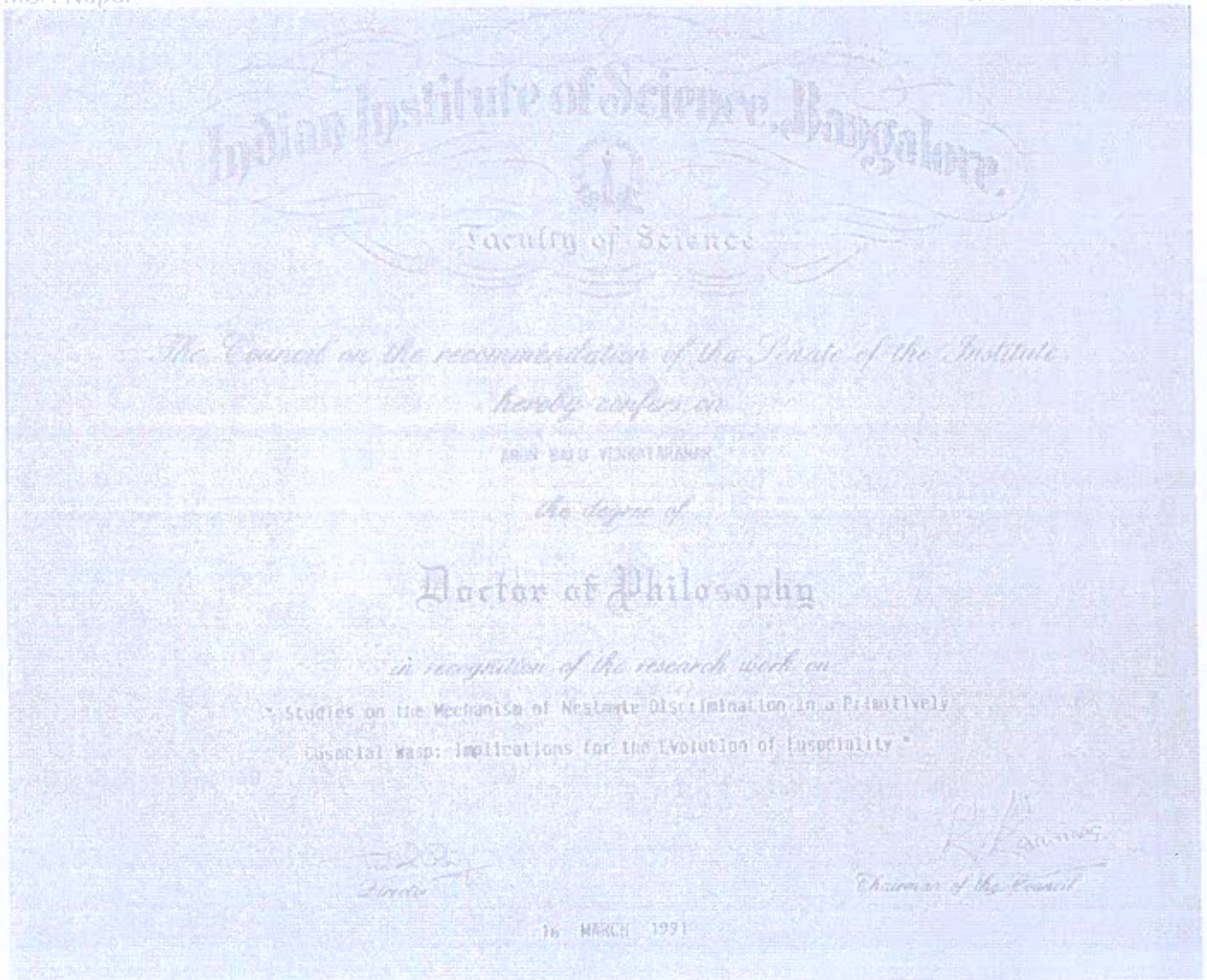
Implementation of Conservation Strategies in the Heart of Borneo and Coral Triangle, Malaysia

The above following eco-regions were identified as targets for WWF International's priority global initiatives. Responsibilities included developing and implementing national conservation strategies in alignment with global strategies focussed on mitigating threats from unsustainable resource utilisation such as those from

Arun Venkataraman PhD.

forestry, oil palm development, artisanal and commercial fisheries and hydro-dam construction. All strategies called for active stakeholder involvement and rigorous monitoring and evaluation.







7. Mukesh Chalise

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal; Ministry of Finance; Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following

- (i) I have conducted this study professionally using acceptable and standard methodologies,
- (ii) The study findings are correct to the best of my knowledge, and have not been altered in any manner
- (iii) The mitigating measures proposed to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements, and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature:

Official stamp

Name: Dr. Mukesh Kumar Chalise

Date: 05-02-2019

Position: Domestic Biodiversity and Wildlife Specialist



CURRICULUM VITAE (CV) FOR PROPOSED

CNA

N L

1. Proposed Position : Domestic Biodiversity and Wildlife Specialist
2. Name of Firm : Nepal Environmental and Scientific Services (NESS) P. Ltd
3. Name of personnel : Mukesh Kumar Chalise
4. Date of Birth :
5. Nationality : Nepali
6. Education :
 - Ph. D. Tribhuvan University Nepal. 1992-95
 - M. Sc. in Zoology, One year course of Ecology as major subject in Central Department of Zoology, Tribhuvan University (TU). Other Subjects: Vertebrate and Invertebrate Zoology, Physiology, Taxonomy and ecology of wild animals. M. Sc. Thesis on "Mammalian Fauna of Barun Valley with Particular Reference to their Habitat" in Arun River Basin. 1983-86
 - Diploma Level (B. Sc.) and Certificate Level (I. Sc.) in Biological sciences from Tri-Chandra Campus Kathmandu, Nepal. Main Subjects: Zoology, Botany, Bio-Statistics, Chemistry, Physics, 1973-78
7. Membership of Professional Associations:
 - Member, Monkey Conservation Sub-Committee, Pashupati Area Development Trust, Kathmandu, 2005-07
 - Executive Member, Tribhuvan University Teachers' Association, University Campus Unit, Kirtipur and Editor of the Journal of the University campus, Perspectives on Higher Education- Vols 2, 3, & 4., 2004-06
 - Secretary, Fulbright Alumni Association of Nepal, FAAN, American Center Gyaneswor Kathmandu, 2004-2006.
 - Member, University Unit, Kirtipur TU, Tribhuvan University Professor's Association, Nepal, 2003-06
 - Secretary, SAFE Concern, devoted to socio-economic, agro-forestry & Env. Concern of local people, 2003-06
 - President and Founder member of the Nepal Biodiversity Research Society (NEBORS), Nepal, 2003
 - Regional Secretary for Asia, International Primatological Society, IPS, USA, 2001-4
 - Task Force Member for Rhino Census-2000 in Royal Chitwan National Park. Organized by DNPWC/ GoN, and funded by WWF Nepal and UNDP/GEF/RTCPA, 2000
 - Member, Executive member (2003-04), Nepal Forum for Environment Journalists, Thapathali Kathmandu, 2000
 - Task Force Member for Rhino Translocation from Royal Chitwan National Park to Babai Valley of Royal Bardia National Park, Bardia. Organized by DNPWC/GoN and funded by WWF Nepal, 2000
 - Member, International Society of Behavioral Ecology, UK, 1998-01
 - Diploma Level (B. Sc.) and Certificate Level (I. Sc.) in Biological sciences from Tri-Chandra Campus Kathmandu, Nepal. Main Subjects: Zoology, Botany, Bio-Statistics, Chemistry, Physics, 1973-78
8. Countries of Work Experience: Nepal, Japan
9. Languages:

	<u>Reading</u>	<u>Writing</u>	<u>Speaking</u>
Nepali	Mother Tongue		
English	Excellent	Excellent	Excellent
Hindi	Good	Good	Good
10. Detailed Tasks Assigned:

Design and execute biodiversity assessment and impact study, assess the impact and risks to biodiversity, consult with the stockholders, development of mitigating measures (Environmental and Social Management Plan including biodiversity action plans), report writing on biodiversity section.
11. Relevant Project Experience:

Position held &

Description of the Duties : Biodiversity Expert, Preparation of Scoping Document and Terms of Reference for Environmental Impact Assessment of Jamti-Bardagaha-Noulapur System and Extension of Western Main Canal, Baboi Irrigation Project, Bardiya district. Responsible for field survey works in the project area on wildlife (terrestrial and aquatic fauna) relating to types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; Interaction with the local people on the wildlife types and sighting and migratory, feeding, nesting and breeding characteristics of the area wildlife including illegal poaching and trade; Identification of impacts the project on the wildlife, particularly on the habitat, migratory behaviors, nesting, feeding and breeding characteristics. Impacts on the wildlife diversity, species of conservation significance etc.; Preparation of mitigation measures for the identified impacts along with required costs and responsibilities; and Preparation of monitoring plan and environmental management plan for the project related to wildlife monitoring and management.

From Nov., 2014 : To Feb. 2016

Employer : Nepal Environmental Scientific Services [NESS] (P) Ltd.

Position held &

Description of the Duties : Biodiversity Expert, Environmental and Social Impact Assessment of Budhi Gandaki Hydroelectric Project (Storage Type 1200 MW), Budhi Gandaki HEI Development Committee, Gorkha and Dhading Districts. Responsible for review of secondary literature of the proposal area on the wildlife (terrestrial/aquatic) relating to types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; Field survey works in the project area on wildlife (terrestrial and aquatic fauna) relating to types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; Interaction with the local people on the wildlife types and sighting and migratory, feeding, nesting and breeding characteristics of the area wildlife including illegal poaching and trade; Identification of impacts the project on the wildlife, particularly on the habitat, migratory behaviors, nesting, feeding and breeding characteristics. Impacts on the wildlife diversity, species of conservation significance etc.; Preparation of mitigation measures for the identified impacts along with required costs and responsibilities; and Preparation of monitoring plan and environmental management plan for the project related to wildlife monitoring and management.

From Jan., 2012 : To Sept., 2012

Employer : Nepal Environmental Scientific Services [NESS] (P) Ltd.

Position held &

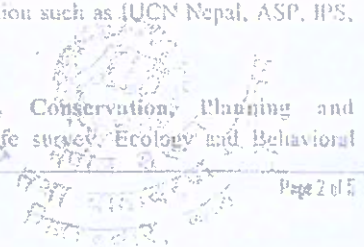
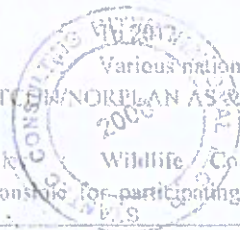
Description of the Duties : Biodiversity Expert, Environmental Impact Assessment of 600 MW Upper Marsyangdi II Hydroelectric Project, Himtal Hydropower Company (P.) Ltd., Manung and Lamjung Districts. Responsible for review of secondary literature of the proposal area on the wildlife (terrestrial/aquatic) relating to types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; Field survey works in the project area on wildlife (terrestrial and aquatic fauna) relating to types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; Interaction with the local people on the wildlife types and sighting and migratory, feeding, nesting and breeding characteristics of the area wildlife including illegal poaching and trade; Identification of impacts the project on the wildlife, particularly on the habitat, migratory behaviors, nesting, feeding and breeding characteristics. Impacts on the wildlife diversity, species of conservation significance etc.; Preparation of mitigation measures for the identified impacts along with required costs and responsibilities; and Preparation of monitoring plan and environmental management plan for the project related to wildlife monitoring and management.

From 1997

Employer : Various national and international organization such as IUCN Nepal, ASP, IPS, WTLCP(UNDP), METEOR/NORPLAN AS & others agencies various

Position held &

Description of the Duties : Wildlife Consultant, Wildlife Study, Conservation, Planning and Management, Responsible for participating on Habitat analysis, Wildlife survey, Ecology and Behavioral



analysis of wild animals, park-people conflicts, Conservation education and awareness program around protected areas, buffer zone and schools. PRA and RRA activities, Conflict resolution in conservation areas. Capacity building of rural people for active participation in natural resources management and their sustainable use, Planning for conservation areas, Action plan, management plan and implementation scheme, etc.

Worked for research and management of species in following areas

1. Mammals (Red Panda, Musk Deer and Himalayan Thar) in Api-Nampa Conservation Area, Darchula, Nepal, 2011-12
2. Chitwan National Park and its Buffer Zone, 2005-2012
3. Jagadishpur Reservoir (Ramsar site), Kapilbastu, Nepal, 2010-2012
4. Langtang National Park and its Buffer Zone, 2001-2012
5. Shivapuri National Park and its buffer zone, Kathmandu, Nepal, 2004-2012
6. Baghmara Community Forest area, Chitwan, 2010-2012
7. Suklaphanta Wildlife Reserve and its Buffer zone, Far-western Nepal, 1999, 2007, 2011
8. Musk Deer Captive Breeding Project in Manang (Humde, Manang and Khangsar forest) of ACAP/NTNC Nepal, 2009
9. Red Panda monitoring and habitat analysis in community forests of Ilam, East Nepal, 2008
10. Musk deer and Red Panda Conservation area, LNP Central Nepal, 2005-2007
11. Bardia National Park and its Buffer Zone and Black buck conservation area Khaitapur, Bardia, 1999-2000; 2006-2007
12. Beesh Hazari Tal (Ramsar site), Chitwan, 2005
13. TAL (WWF program) and WFLCP (UNDP) area : Kailali-Kanchanpur, Nepal, 2004
14. Snow leopard study in Langtang since 2003
15. Tunjura-Milke-Jajale Area (Rhododendron Conservation Area, IUCN Nepal), East Nepal, 2001
16. Makalu-Barun National Park and its Buffer Zone, East Nepal, 1997-2001
17. Sagarmatha National Park and its buffer zone, East Nepal, 2000
18. Chulachuli Range, Churiya (Mechi and Koshi zone), Nepal 1998-1999
19. Ghoda Ghodi Tal (Ramsar site), Kailali, Nepal, 1998

From Dec, 2009

To May 2010

Employer

Nepal Environmental Scientific Services (NESS) (P) Ltd.

Position held &

Description of the Duties : Biodiversity Expert, Environmental Impact Assessment (EIA) Study of Kaligandaki Upper Hydropower Project (KGUHP), Trade Link Global Pvt. Ltd.; Responsible for review of secondary literature of the proposal area on the wildlife (terrestrial/aquatic) relating to types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; Field survey works in the project area on wildlife (terrestrial and aquatic fauna) relating to types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; Interaction with the local people on the wildlife types and sighting and migratory, feeding, nesting and breeding characteristics of the area wildlife including illegal poaching and trade; Identification of impacts the project on the wildlife, particularly on the habitat, migratory behaviors, nesting, feeding and breeding characteristics; Impact on the wildlife diversity, species of conservation significance etc.; Preparation of mitigation measures for the identified impacts along with required costs and responsibilities; and Preparation of monitoring plan and environmental management plan for the project related to wildlife monitoring and management.

From August 2009

To December 2009

Employer

Nepal Environmental & Scientific Services (NESS) (P) Ltd.

Position held &

Description of the Duties: Biodiversity Expert, Initial Environmental Examination (IEE) Study of Balephi HEP (50 MW), Client: Green Ventures (P) Ltd, Responsible for collection of secondary data on biodiversity status of the project affected areas, and preparation of TOR document. Provided input in physical environment

and coordinated the overall team provided guideline for study team members of the study group, preparation of biological environment study including identification of issues and mitigation measures, plan for detailed IEE, carryout biological environmental baseline studies for IEE covering wildlife (terrestrial/aquatic) relating to types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; Field survey works in the project area on wildlife (terrestrial and aquatic fauna) relating to types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; assess and predict impact on biological environmental aspects by the project, design mitigation actions and estimate costs required, prepare monitoring plan on biological aspects and give input for the environmental management plan related to physical aspect.

From May, 2007 : To June 2008

Employer : Nepal Environmental Scientific Services [NESS] (P) Ltd.

Position held &

Description of the Duties : Biodiversity Expert, Environmental Impact Assessment (EIA) Study for Mahakali Irrigation Project, Stage III, Mahakali Irrigation Project, Department of Irrigation, Responsible for review of secondary literature of the proposal area on the wildlife (terrestrial/aquatic) relating to types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; Field survey works in the project area on wildlife (terrestrial and aquatic fauna) relating to types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; Interaction with the local people on the wildlife types and sighting and migratory, feeding, nesting and breeding characteristics of the area wildlife including illegal poaching and trade; Identification of impacts the project on the wildlife, particularly on the habitat, migratory behaviours, nesting, feeding and breeding characteristics, impacts on the wildlife diversity, species of conservation significance etc.; Preparation of mitigation measures for the identified impacts along with required costs and responsibilities, and Preparation of monitoring plan and environmental management plan for the project related to wildlife monitoring and management.

From May, 2006 : To December 2006

Employer : Nepal Environmental Scientific Services [NESS] (P) Ltd.

Position held &

Description of the Duties : Biodiversity Expert, Environmental survey for Upgrading Feasibility Study on Upper Seti (Damanli) Storage Hydroelectric Project in the Kingdom of Nepal, including IEE of Damanli – Bharatpur 220 kV Transmission Line, MCA Study Team/NEA, Responsible for review of secondary literature of the proposal area on the wildlife (terrestrial/aquatic) relating to types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; Field survey works in the project area on wildlife (terrestrial and aquatic fauna) relating to types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; Interaction with the local people on the wildlife types and sighting and migratory, feeding, nesting and breeding characteristics of the area wildlife including illegal poaching and trade; Identification of impacts the project on the wildlife, particularly on the habitat, migratory behaviours, nesting, feeding and breeding characteristics, impacts on the wildlife diversity, species of conservation significance etc.; Preparation of mitigation measures for the identified impacts along with required costs and responsibilities; and Preparation of monitoring plan and environmental management plan for the project related to wildlife monitoring and management.

From June, 2004 : To Feb., 2005

Employer : Nepal Environmental Scientific Services [NESS] (P) Ltd.

Position held &

Description of the Duties : Zoologist / Wildlife Specialist, EIA Study Dang Cement Project, Responsible for review of secondary literature of the proposal area on the wildlife (terrestrial/aquatic) relating to types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; Field survey works in the project area on wildlife (terrestrial and aquatic fauna) relating to

types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; Interaction with the local people on the wildlife types and sighting and migratory, feeding, nesting and breeding characteristics of the area wildlife including illegal poaching and trade; Identification of impacts the project on the wildlife, particularly on the habitat, migratory behaviors, nesting, feeding and breeding characteristics. Impacts on the wildlife diversity, species of conservation significance etc.; Preparation of mitigation measures for the identified impacts along with required costs and responsibilities; and Preparation of monitoring plan and environmental management plan for the project related to wildlife monitoring and management.

From June, 2003 : To Dec., 2004
Employer : Nepal Environmental Scientific Services [NESS] (P) Ltd.
Position held &

Description of the Duties : Biodiversity Expert, EIA of Collection of Sabai grass for Bhrikuti paper and Pulp Industries, Nawalparasi, Responsible for review of secondary literature of the proposal area on the wildlife (terrestrial/aquatic) relating to types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; Field survey works in the project area on wildlife (terrestrial and aquatic fauna) relating to types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; interaction with the local people on the wildlife types and sighting and migratory, feeding, nesting and breeding characteristics of the area wildlife including illegal poaching and trade; Identification of impacts the project on the wildlife, particularly on the habitat, migratory behaviors, nesting, feeding and breeding characteristics. Impacts on the wildlife diversity, species of conservation significance etc.; Preparation of mitigation measures for the identified impacts along with required costs and responsibilities; and Preparation of monitoring plan and environmental management plan for the project related to wildlife monitoring and management.

From May, 2000 : To December, 2000
Employer : Nepal Environmental & Scientific Services [NESS] (P) Ltd.
Position held &




Description of the Duties : Zoologist / Wildlife Specialist, Environmental Impact Assessment (EIA) of Melamchi Diversion Scheme (MDS) -Based on Stand Alone Water Supply and EIA of Yangri and Larke valley, METCON/ NORPLAN AS, Responsible for review of secondary literature of the proposal area on the wildlife (terrestrial/aquatic) relating to types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; Field survey works in the project area on wildlife (terrestrial and aquatic fauna) relating to types, status, conservation significance, migratory behavior, feeding, nesting and breeding characteristics and overall habitat types and conditions; interaction with the local people on the wildlife types and sighting and migratory, feeding, nesting and breeding characteristics of the area wildlife including illegal poaching and trade; Identification of impacts the project on the wildlife, particularly on the habitat, migratory behaviors, nesting, feeding and breeding characteristics. Impacts on the wildlife diversity, species of conservation significance etc.; Preparation of mitigation measures for the identified impacts along with required costs and responsibilities; and Preparation of monitoring plan and environmental management plan for the project related to wildlife monitoring and management.



Registered Number

त्रिभुवन विश्वविद्यालय

Tribhuvan University

विद्यावारिधि उपाधि

परीक्षण गर्दा सुयोग्य ठहरिएका मुकेश कुमार चालिसे लाई
 जन्तु शास्त्र विषयमा २०५३ सालमा
 विज्ञान तथा प्रविधि अध्ययन संस्थान अन्तर्गत विद्यावारिधि उपाधि
 प्रदान गरिएको स्महोरा प्रमाणित गरिन्छ ।

Doctor of Philosophy (Ph. D)

This is to certify that Mukesh Kumar Chalise
 having been examined and found qualified has been awarded
 the degree of Doctor of Philosophy in Zoology
 under the Institute of Science and Technology in 1997.

Kathmandu dated the 29th NOV 1997

Kamal K. Joshi
Vice-Chancellor



8. Jyoti Gajurel

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal; Ministry of Finance, Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following:

- (i) I have conducted this study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature:

Official stamp

Name: Dr. Jyoti Prasad Gajurel

Date: 05-02-2019

Position: Botanist



CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL STAFF

Proposed Position : Biologist
 Name of the Consultant : Nepal Rural and Advancement Committee (P) Ltd.
 Name of the Professional : Jyoti Prasad Gajurel, Ph. D.
 Profession : Biodiversity, Ecology/Conservation Biology
 Date of Birth : December 22, 1982
 Nationality : Nepali
 Years with Consultant / Entity : 4 Years
 Address of Expert/Professional : GPO Box 7301, Thapathali, Kathmandu

Key Qualifications:

Dr. Jyoti Prasad Gajurel has obtained Ph. D., in a joint Project from SWISS FEDERAL INSTITUTE (WSL) and Central Department of Botany, Tribhuvan University. He has more than 12 years of experience in teaching, research and training in the field of Biodiversity, Plant Systematics and Environmental Science. He has accomplished a number of projects as a Team Leader/Biodiversity expert/Biologist or Assistant Expert and also a study member in a multi-disciplinary team of experts. Some of the recent key assignments undertaken by Dr. Gajurel as Team Leader/Biologist / Biodiversity are: EIA Study of Sharada Babai HEP (93 MW)-Assisting Expert, Dang and Salyan Districts; EIA Study of Nupche Likhu HEP (57.5 MW)-Team Leader, Ramechhap District, October 2017-Ongoing; EIA Study of Seti Nadi HEP (30 MW)-Team Leader, Kaski District, September 2017-Ongoing; IEE of Lungri HPP (4.4 MW)-Team Leader September 2017-Ongoing, IEE of New Naupheri Irrigation Project in Jajarkot (2017 September completed) - Team Leader, IEE of New Ghodamasan Irrigation Project in Parsa (2017 September completed) - Team Leader, IEE of New Irrigation Project in Panchthar (2017 September completed) - Team Leader, IEE of Sustainable collection/extraction of River Bed Material from Jhapa/Ilam (2017 September completed); Naumure Multipurpose Project-Pyuthan, Dang, Argakanchi- Assisting Team Leader (January, 2016 ongoing).

Education

- PhD in Botany: WSL Switzerland and Central Department of Botany, Tribhuvan University, Kirtipur Kathmandu, Nepal (May, 2016).
- M. Sc. in Botany: Central Department of Botany, Tribhuvan University, Kirtipur Kathmandu, Nepal Plant Systematics. 2007.
- B. Sc. in Plant Science: Department of Botany, Trichandra Multiple Campus, Tribhuvan University, Nepal. 2003.
- 10+2 Biology: Bagmati Modern College, Nepal. 2002.
- SLC: Bagmati H. S. School, Nepal. 1999.

RECENT EMPLOYMENT RECORD

From April 2014: Till date; Employer: Nepal Rural & Advancement Committee (NRAC) (P) Ltd.; Position Held and Description of the Duties: Biologist as well as Managing Director.

IEE Study of Quarry Sites, Banke (for Sikta Irrigation Project-January 2018): To help in the construction of the Sikta Irrigation Project, five IEE has been prepared on behalf of Sikta Irrigation Project and NESS, The ToRs have been prepared and while detailed IEE will soon progress.

EIA Study of Nupche Likhu HEP (57.5 MW)-Ramchhap District- Team Leader for EIA studies; prepared Scoping and ToR and in stage of presentation to DOED in association with NESS.

EIA Study of Setinadi HEP (30 MW)- Kaski District- Team Leader for EIA studies; prepared Scoping and ToR and in stage of presentation to DOED in association with ERS.

IEE Study of Lungri Khola HPP (4.4MW), Rolpa (for ERMC-September 2017); Led as Team leader and submitted the ToR, it is approved and in stage of Detailed IEE from February 2018).

Biologist, Environmental Impact Assessment (EIA) Study of Kalgandaki Fed Industries, Syngia. Responsible for review literature on biological environment of the area for the preparation of Scoping Document and TOR in particular, conduct scoping meeting, Compile scoping document and TOR.

EIA Study of Sharada Babai HEP (93 MW), Dang and Salyan Districts, Department of Electricity Development, Responsible for review literature on biological environment of the area for the preparation of Scoping Document and TOR in particular, conduct scoping meeting, Compile scoping document and TOR. Provide guideline for EIA study to other members of the study group, Compile the EIA report from the study documents of the other EIA study group, conduct public hearing meetings, and present the EIA report to the review committee.

Assisting Expert, EIA of Sikta Irrigation Project, Banke district, Responsible for Partial Study of EIA, biodiversity and forestry baseline study.

Some other Projects

- Naumure Multipurpose Project-Pyuthan, Dang, Argakanthi- Assisting Team Leader (January, 2018 ongoing)
- IEE of New Ghodamasan Irrigation Project in Parsa (2017 September completed) - Team Leader
- IEE of New Irrigation Project in Panchthar (2017 September completed) - Team Leader
- IEE of Sustainable collection/extraction of River Bed Material from Jhapa/llam (2017 September completed)

Trainings/Workshop/Conference

- Award (2017): Nepal Bidhyabhusan "KA". Gold medal for PhD
- Award (June, 2010): 'Krishna Chandra Regmi Award' for best Thesis of year 2007/2008 among post graduate level from Tribhuvan University, Nepal.
- Statistical Training: Tribhuvan University, CDB (2013, 2014) short courses. *Training Focus:* Fundamentals of SPSS, 'R' Statistics.
- PhD Scholarship from project(2011): 'Biodiversity and livelihood development in land-use gradients in an era of climate change' of Prof. Dr. Christoph Scheidegger (Biodiversity and Conservation Unit, Swiss Federal Research Institute WSL).
- Research Scholar (May, 2010) Missouri Botanical Garden, Saint Louis. *Training Focus:* Study of Asian Commelinaceae, Curatorial and molecular techniques.
- Smithsonian Fellowship (June, 2010): Smithsonian Institution (US National Herbarium), Washington DC. *Training Focus:* Study of Asian Commelinaceae, Curatorial, anatomical and cytological and basic molecular techniques.

Additional Skills and Knowledge

- Advanced computer and internet skills: Microsoft office and Page-maker
- Statistical packages: ArcGIS and SPSS)
- DIVA-GIS Basic and GIS

S. No: 83381/51

Ministry of Foreign Affairs
 Ministry of Foreign Affairs
 Department of Consular Services, Kathmandu, Nepal
 Date: 07 AUG 2017

त्रिभुवन विश्वविद्यालय

Tribhuvan University

Raghubar Shrestha
 For Chair of Services Division
 Secretary, Ministry of Education



विद्यावारिधि

परीक्षण गर्दा सुयोग्य ठहरिएका ज्योति प्रसाद गजुरेल लाई
 वनस्पतीशास्त्र विषयमा
 बिक्रम संवत् २०७३ मा विद्यावारिधिद्वारा विभूषित गरिएको व्यहोरा प्रमाणित गरिन्छ ।

Doctor of Philosophy (Ph.D.)

This is to certify that *Jyoti Prasad Gajurel* having
 been examined and found qualified has been awarded the degree of
 Doctor of Philosophy in Botany
 in the year 2016



Jyoti Prasad Gajurel
 Section Officer
 Vice-Chancellor

Kathmandu, Nepal.
 Date: 29 December 2016



9. Tej Basnet

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal; Ministry of Finance; Millennium Challenge Account- Nepal; Yak and Yeli Hotel Complex, Kathmandu

I declare the following:

- (i) I have conducted this study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge, and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature:

Official stamp:

Name: Tej Basnet

Date: 05-02-2019

Position: Fauna Specialist



CURRICULUM VITAE (CV) FOR PROFESSIONAL PERSON

1. Proposed Position : Fauna Specialist
2. Name of Firm : Nepal Environmental and Scientific Services (NESS) P. Ltd
3. Name of personnel : Tej Bahadur Basnet
4. Date of Birth : 28th April, 1971
5. Nationality : Nepali
6. Education :
 - * Masters degree in Zoology, Tribhuvan University, Central Department of Zoology, Kathmandu, Nepal, 2003.
 - * Bachelors Degree in Biology, Tribhuvan University, Kathmandu, Nepal, 1994.
7. Membership of Professional Associations:
 - * Member – The Ecological Society of America (ESA)
 - * Member – Ecological and Environmental Change Research Group, IIB, Norway.
 - * Founder Member – Friends of Birds, Nepal (Fob)
 - * Member – Bird Conservation Nepal (BCN), Kathmandu
8. Other Trainings :
 - * Bio-statistical programme: Multivariate analysis in 'CANOCO 4.5', R, SPSS
 - * Endnote library
 - * Computer: MS-Word, Excel, Access, Power Point, Adobe and Omni page.
 - * GIS- ESRI ArcView 3.2, Nov. 13 -17, 2006
9. Countries of Work Experience: Nepal
10. Languages:

	<u>Reading</u>	<u>Writing</u>	<u>Speaking</u>
Nepali	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent
Hindi	Excellent	Fair	Excellent
11. Employment Record:
 - From Feb 2015 : May 2016
Employer : Nepal Environmental and Scientific Services
Position held : Zoologist.
 - From Dec. 2013 : To Feb. 2015
Employer : Forest Resource Assessment (FRA), Nepal Project
Position held : Forest Ecosystem Expert,
 - From July, 2002 : To Nov. 2013
Employer : Freelance consultant
Position held : Biodiversity Expert
 - From Dec, 2009 :
Employer : Nepal Environmental Scientific Services (NESS) (P) Ltd.
Position held : Zoologist/Aquatic Life Expert science, technology and environment.
 - From January 2008 : To May. 2010
Employer : Nepal Environmental & Scientific Services (P) Ltd.



Position held	:	Zoologist/Aquatic Life Expert.
From Jan. 2007	:	To Feb. 2008
Employer	:	Bird Conservation Nepal (BCN)/Social Welfare Association of Nepal (SWAN)
Position held	:	Wildlife biologist
From May, 2007	:	To Sept. 2007
Employer	:	Environmental Technology and Economic Development/WWF/ DNPWC
Position held	:	Team Member (Wildlife Expert)
From Dec., 2006	:	To July 2007
Employer	:	Socio-economic Development Academy (SEDA) Birnaha, Nepalgunj/ GoN
Position held	:	Coordinator
From Jan. 2004	:	To Dec. 2006
Employer	:	Nepal Nature dot Com
Position held	:	Team member (Wildlife biologist)
From June, 2004	:	To Feb., 2005
Employer	:	Nepal Environmental Scientific Services (NESS) (P) Ltd.
Position held	:	Team Member (Wild life expert)
From June, 2003	:	To Dec. 2004
Employer	:	Nepal Environmental Scientific Services (NESS) (P) Ltd.
Position held	:	Team Member (Wild life expert)
From May, 2000	:	To December, 2000
Employer	:	Nepal Environmental & Scientific Services (NESS) (P) Ltd
Position held	:	Team Member (Wild life expert)

12. Detailed Tasks Assigned:

- Design and implement focal study related to fauna, consult with the stockholders, development of mitigating measures.

13. Relevant Project Experience:

Name of assignment or project: Initial Environmental Examination (IEE) for the 400 KV D/C Transmission Line System from 900 MW Upper Karnali HEP Power House Substation to Nepal India Border

Year: August 2015- December 2015

Location: Achham, Surkhet, Kailali Districts

Client: Karnali Transmission Line Company P. Ltd through consultant: Nepal Environmental and Scientific Services (NESS) P Ltd

Position held: Fauna Expert/ Zoologist

Main project features: Initial Environmental Examination (IEE) Study

Activities Performed: Responsible for review of the literature on biological environment particularly fauna of the area for the preparation of Scoping Document and ToR in particular, review of land acquisition in Transmission Line (TL) corridor (permanent for tower and lands under RoW) from biodiversity perspective, conduct scoping meeting, compile scoping document, provide guideline for EIA study to other members of the study group on faunal assessment, assist in preparing resettlement and rehabilitation matrix from wildlife perspective, drafting public consultation and disclosure planning, prepared all the proceeding and recording a systematic fashion in IEE report.

Name of assignment or project: Environmental Impact Assessment Study of Budhigandaki Hydroelectric Project (BGHEP) 1200 MW

Year: Nov. 2014 - Oct 2016

Location: Dhading and Gorkha Districts

Client: Budhi Gandaki Hydroelectric Development Committee (BGHEPDC) through NESS

Main project features: Storage project with an installed capacity of 1200MW generating 3 383 GWh of annual energy. The key project structures are: i) Double curvature arch dam of height 263m from the foundation level, ii) reservoir area occupying nearly 63km² of land along Budhi Gandaki and Anku Khola across 13 VDCs of Gorkha District and 14 VDCs of Dhading District, iii) surface powerhouse at the toe of the Dam at the left bank and iv) short headrace tunnel and penstock tunnels linking powerhouse with the intake in the reservoir

Position held: Zoologist/Wild life expert

Activities Performed: review literature on biological environment of the area for the preparation of Scoping Document and ToR in particular, conduct scoping meeting, conduct field visit and survey, provide guideline to other study members on biodiversity (fauna) assessment, data analysis and prepare EIA report (Biodiversity/fauna part), facilitate public hearing meetings and present the report to the review committee.

Name of assignment of project: 1. Environmental Impact Assessment Study of Sanjen Khola Hydroelectric Project 70 MW, 2. Feasibility study of 132 kV transmission line study from P/H of SKHEP to Chiyamdon

Year: Nov. 2012- May 2013

Location: Rasuwa District

Client: Salasungi Power Limited through Nepal Environmental and Scientific Services (NESS) P Ltd

Main project features: Run of the river scheme with a peaking reservoir, tunnel, underground desander, surge tank, and surface powerhouse with support facilities such as construction camps, spoil disposal, internal access roads, transmission lines etc.

Position held: Wildlife Expert/ Zoologist

Activities Performed: review literature on biological environment of the area for the preparation of Scoping Document and ToR in particular, conduct scoping meeting, conduct field visit and survey, provide guideline to other study members on wildlife assessment, data analysis and prepare EIA report (Biodiversity part) and facilitate public hearing meetings

Name of assignment or project: Environmental Impact Assessment of 900 MW Upper Karnali Hydroelectric Project

Year: March 2012- September 2012

Location: Nepal

Client: Upper Karnali Hydropower Company (P.) Ltd.

Main project features: Run of the river scheme with a peaking reservoir, tunnel, underground desander, surge tank, and surface powerhouse with support facilities such as construction camps, spoil disposal, internal access roads etc.

Positions held: Wildlife/Fauna Expert

Activities Performed: Responsible for the review literature on biological environment of the area for the preparation of Scoping Document and ToR in particular, conduct scoping meeting, compile scoping document and ToR. Provide guideline for EIA study to other members of the study group on biodiversity assessment (wildlife), prepare EIA report (wildlife part) and present the report to the review committee.

Name of assignment or project: Environmental Impact Assessment of 600 MW Upper Marsyangdi II Hydroelectric Project

Year: 2011-2012;

Location: Nepal

Client: Hirtal Hydropower Company (P.) Ltd.

Main project features: Run of the river scheme with a peaking reservoir, tunnel, surge tank, and underground powerhouse with support facilities such as construction camps, spoil disposal, internal access roads etc.

Positions held: Wildlife Expert/ Zoologist

Activities Performed: Responsible for the review literature on biological environment of the area for the preparation of Scoping Document and ToR in particular, conduct scoping meeting, conduct field visit and survey, provide guideline to other study members on wildlife assessment, data analysis and prepare EIA report (Biodiversity part - fauna).

Name of assignment of project: Environmental Impact Assessment Study of Bheri-Babai Diversion Multipurpose Project (48 MW)

Year: May 2011-Aug. 2012

Location: Surkhet, Barke and Bardia Districts

Client: Bheri-Babai Diversion Multipurpose Project, Department of Irrigation, Jawalakhel, Lalitpur

Main project features: Run of the river scheme with a diversion dam, tunnel, surge tank, and powerhouse with support facilities such as construction camps, spoil disposal, internal access roads

Position held: Wildlife Expert/ Zoologist

Activities Performed: Responsible for the review literature on biological environment of the area for the preparation of Scoping Document and ToR in particular, conduct scoping meeting, conduct field visit and survey, provide guideline to other

study members on wildlife assessment, data analysis and prepare EIA report (Biodiversity part), facilitate public hearing meetings and present the report to the review committee.

Name of assignment or project: Kabeli Corridor 132KV Transmission Line Project, Transmission Line & substation Construction

Year: August, 2011 – October, 2011

Location: Nepal

Client: Nepal Electricity Authority through NESS

Main project features: Preparation of Resettlement Action Plan, Social Action Plan and VCDP for Kabeli Corridor TL Project

Position held: Fauna Expert/Zoologist

Activities performed: Review of project documents, provided training to the NESS study team on fauna/biodiversity assessment, assist to prepare entitlement matrix for project affected households, developed modality for compensation payment for landings, crops, fruits, vegetables which needs to be acquired which are along the TL alignment, assist to prepare RAP, SAP and VCDP from biodiversity perspective and advisory services to the NEA engineering team on wildlife issues.

Name of assignment of project: Environmental Impact Assessment Study of Kaligandaki Upper Hydropower Project (KGUHP)

Year: December 2009-April 2010

Location: Myagdi and Mustang Districts

Client: Trade Link Globe Pvt. Ltd

Main project features: Run of the river scheme with a diversion dam, tunnel, surge tank, and powerhouse with support facilities such as construction camps, spoil disposal, internal access roads

Position held: Zoologist/Biodiversity expert

Activities Performed: Responsible for the review literature on biological environment of the area for the preparation of Scoping Document and ToR in particular, conduct scoping meeting, conduct field visit and survey, provide guideline to other study members on wildlife assessment, data analysis and prepare EIA report (Biodiversity part), facilitate public hearing meetings and present the report to the review committee.

Name of assignment of project: Environmental Impact Assessment of Waste Resource Management center, Birainagar Dharan Corridor

Year: Feb., 2004 – Feb., 2005

Location: Hetauda, Makawanpur District

Client: Waste Resource Management center, Birainagar

Main project features: Environmental Impact Assessment Study of Waste Resource Management center, Birainagar Dharan Corridor

Position held: Wildlife expert

Activities Performed: Responsible for the review literature on biological environment of the area for the preparation of Scoping Document and ToR in particular, conduct consultation, conduct field visit and survey, data analysis and prepare EIA report (Biodiversity part - fauna).

Name of assignment or project: Supplementary Environmental Impact Assessment Survey of Upgrading Feasibility Study on the Development of Kulekhani III Hydropower Project

Year: Feb 2000-Nov, 2002

Location: Nepal

Client: JICA Study Team

Main project features: A 42 MW cascade project of Kulekhani with a diversion weir, tunnel, small reservoir, and powerhouse

Positions held: Wildlife expert

Activities Performed: Responsible for the review literature on biological environment of the area, conduct consultation meeting, conduct field visit and survey, data analysis and prepare SEIA report (Biodiversity part - fauna).





10. Neena Singh

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal, Ministry of Finance; Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following:

- (i) I have conducted this study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature:

Official stamp:



Name: Neena Singh

Date: 05-02-2019

Position: International Socio-economic & Resettlement Lead



Neena Singh

Partner



Neena Singh has more than 25 years of experience in the field of social development and is presently a Partner with ERM India in the Impact Assessment Planning Practice. As the Partner in Charge for the practice she is responsible for business development as well as co-ordination of all the projects that are undertaken by the Group. She is also a key member of ERM's global social consulting team and is the Social Practice leader for the Asia Pacific region.

She has extensive experience in carrying out social assessments, reviews, assurance audits, Social Impact Assessment and Resettlement and Rehabilitation studies and preparation of Rehabilitation Action Plans (RAP), in diverse sectors such as mining, oil and gas, infrastructure such as roads and power, manufacturing, agriculture, forestry and water and sanitation. She has also worked with local governments, both urban and rural, in the areas of utility and sector reforms, governance and capacity building/training in environmental and social management. Prior to joining ERM she was associated with Centre for Science & Environment, an international environmental NGO, as a Policy Analyst and Programme Associate for Forestry and Conservation and Livelihood programmes. In that capacity she extensively researched and wrote on policy issues as well as on grass-root issues in CSE publications like Down to Earth.

She has led a number of renewable energy project in wind, solar, small and large hydro as well as biomass, where she has been the Partner in charge as well as the social expert.

She has worked in Asia and Africa including India, Bangladesh, Sri Lanka, Laos, Vietnam, Indonesia, and Angola, Kenya, Egypt, Liberia, Guinea and Malawi in different capacities as a social, IP and E&R expert. Ms. Singh has worked with local, state and central government, and a large number of donor agencies like the World Bank, IFC, ADB, EBRD, DfID, DEG, FMO, Proparco, OeB, Svedfund, ICFE, WSP-SA and UNICEF. Her key private sector clients include Rio Tinto, BHP Billiton, Holcim, Lafarge, Chevron, BP,

Shell, Vedanta Resources and Cairn Energy amongst others. Some of her private banks/financial institutions clients include Citigroup, HSBC, Wachovia, Barclay, Standard Chartered, HSBK, Aix Bank, ICICI etc. In doing this she has been regularly using, and is very familiar with institutional policies corporate policies, guidance manuals and global commitments to social and environmental goals of such companies.

Fields of Competence

- Social Impact Assessments
- Strategic Socio-economic studies
- Resettlement & Rehabilitation
- Indigenous Peoples Development Plan or Tribal Development Plan
- Social audits, Independent reviews and Assurance
- Monitoring and Evaluation
- Community relations and stakeholder engagement
- Poverty analysis, social analysis and livelihoods studies
- Training and Capacity Building
- Sector reforms and policy studies

Education

- M Phil in Geography (Thesis on Rural Development) from Delhi School of Economics, University of Delhi.
- M A (Geography) from Delhi School of Economics (Specialised in Regional Planning) 1991.
- Bachelor of Arts (Honours) in Geography, from Kiroji Mal College in Delhi University, 1989.

Languages

- English
- Hindi

Key Sectors

- Oil and Gas and energy
- Mining
- Power
- Renewable Energy

Delivering sustainable solutions in a more competitive world

- Infrastructure
- Local Government and sector reforms
- Natural Resource Management
- Agriculture and Rural Development

CERTIFICATION

Neena is trained as a Lead Auditor for SA 8000.

OTHER EXPERIENCE

- South Asian Focal Point for the GEF-NGO Network between 1996 and 1998.
- NGO Coordinator at the first Global Environment Facility (GEF) Assembly, held in New Delhi in 1998, where representatives of nearly 150 governments participated

EMPLOYMENT RECORD

- July 06 to present: Partner at ERM
- March 03 to July 06: Technical Director with the Social Development and Natural Resources Group at ERM India
- Nov ' 2002 to March 2003: Principal Consultant at ERM India
- May 2001 to November 2002: Senior Consultant with at ERM India
- Sept '98 to May 2001: Consultant at ERM India
- July '95 to Aug '98: Policy Analyst and Programme Associate, Centre for Science and Environment, New Delhi.
- Aug '94 to June '95: Research Associate, Indian Institute of Public Administration, New Delhi
- Sept '93 to July '94: Research Associate in the Centre for Micro Planning and Regional Studies in the Lal Bahadur Shastri National Academy of Administration, Mussoorie.
- Mar '93 to Sept '93: Research Associate in the Centre for Education Management and Development, a Delhi based NGO

Socio-economic impact Assessment, Social Analysis and Resettlement Action Plans

Neena has led the Social Consulting team to undertake detailed baseline surveys, social impact assessment and develop Social Management Plans, Resettlement Action Plans as well as specific plans to address livelihood restoration and community development issues

Social Impact Assessment (SIA), Resettlement Action Plan (RAP) and Livelihood Restoration Plan (LRP)

for 900 MW Hydro Power Project in Upper Karnali, Nepal

Client: Confidential

ERM has been commissioned to undertake an SIA, RAP and LRP for a 900 MW HPP in Nepal. The work involves survey of more than 500 households and assessing the level of impacts on the local community, community forests and fishing areas. The project involves household surveys, land & asset inventories, measuring of land of PAFs and devising an RAP for the physically displaced families. In addition, an LRP for economically displaced will also be prepared.

Neena is the Partner in Charge and the Social Expert for the project.

Environmental and Social Impact Assessment (ESIA) of proposed 50 MW solar power project: Mynensingh District, Bangladesh. May- August, 2017

Client: Sunenergy Holdings Pte. Ltd and DEG

The project is the second largest PV power plant among approved plants in Bangladesh. Neena was the Project director and Social QA/QC on this assignment.

Preparation of a Livelihood Restoration Plan for a 216 MW Greenfield runoff-river hydropower project in Trishuli watershed, Kathmandu, Nepal
Client: Nepal Water and Energy Development Company (NVEDC)

Environmental Resources Management, India (ERMI) was commissioned by Nepal Water and Energy Development Company (NVEDC) to undertake an Assessment of the Land Acquisition and Resettlement and Development of a Livelihood Restoration Plan for the Upper Trishuli-1 (UT-1) Hydropower project in Nepal. The project involved household surveys, land & asset inventories. ERM undertook this study in association with a Kathmandu based firm Nepal Environmental & Scientific Services (NESS) (P) Ltd.

Neena is the Partner in charge and the Social Lead for this project.

Development of Resettlement Plans for mine, deep sea port and 700 km railway line for a mining project in Guinea
Client: Rio Tinto

The project is one of the largest iron ore project in the world which proposes to develop large scale

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infrastructure for the project, including 700 km railway line across the country. The railway will go through inaccessible and remote areas without clear definition of land ownership in many parts of the project. ERM's resettlement studies including household surveys, asset inventories, ownership identification, need assessment and preparation of RAPs and LRFs.

Neena was the Technical Partner leading the resettlement studies.

Preparation of Resettlement Framework for a iron ore mine, 70 km road and a port in Liberia
Client: Western Charters Limited (Verdanta Resources)

ERM has recently concluded the environmental and social impact assessment (ESIA) for regulatory approval and to meet IFC standards. A Resettlement Framework was developed to provide the overarching principles, entitlement framework and project commitments on resettlement and compensation. The Framework has been since approved and will inform and guide the resettlement action plans.

Neena was the Partner in Charge for the project

Development of Resettlement Action Plan and Livelihood Restoration plan for an LNG project in Philippines
Client: and Oil and gas major.

The LNG project will impact fishing routes and fishing livelihoods through establishment of exclusion zones. ERM is conducting surveys of the fishing community to understand the extent of impacts and will develop mitigation measures and a RAP/LRP.

Social Impact Assessment and Resettlement Framework for the Lulri Hydel Power project in Himachal Pradesh.

Client: Sudiy Viday Nigan Limited (SJVN)

ERM is undertaking a detailed social impact assessment and preparing a resettlement framework for the 775 MW Lulri Run of the River (ROR) project. The SIA covers 68 potentially impacted villages and includes extensive consultations, household and village impact assessment and drafting a Resettlement framework for the project. The project is being funded by the World Bank.

Neena is the Partner-in-Charge and lead Social Specialist for the assignment.

ESDD of NTPC's proposed 750 MW solar power

project within future Pavagada Solar Park
Karnataka, India, April-September 2016

ERM was commissioned by KfW Development Bank to undertake ESDD of a proposed 750 MW solar power project by NTPC within future Pavagada Solar Park located in Karnataka, India. The Pavagada solar park (total approximately 2000 MW spread across 20,000 acres) is being developed by Karnataka Solar Power Development Corporation Limited.

Neena was the Partner in Charge and Social lead for the assignment. She was involved in identifying and assessing the potential issues related to labour, work force, livelihood etc.

Resettlement Action Plan for a Sugar Plantation Project, Kenya, KISCOL, 2011-2012. ERM developed a resettlement action plan for a major sugarcane plantation and factory on the East coast of Kenya. ERM prepared a detailed Action Plan as a recommendation for the client.

Neena was the Technical Partner and resettlement Lead for the project.

Independent Performance Standards Review of a Sugar Plantation Project in Kenya
Client: Confidential

The client is planning to revive a major sugarcane plantation and factory in the East coast of Kenya and is proposing to seek international funding. ERM was asked to conduct a detailed independent review of the environmental and social/resettlement performance of the project and suggest measures to close the gaps and develop compliance to the standards. ERM prepared a detailed Action Plan as a recommendation for the client.

Neena was the Social and Resettlement expert in the three-member team.

ESDD of Solar Power Projects (4 sites) in Maharashtra, Karnataka, Uttar Pradesh and Rajasthan, July-September 2016

Client: GE Capital

Neena was involved as Partner in Charge and social lead for carrying out the ESDD of 50 MW proposed project in Allahabad Solar Park and 40 MW proposed project in Nagpur and 2 MW operational Solar power project near Nagpur for an independent power producer company Rattan India Solar Limited.

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Environmental and Social Impact Assessment and Resettlement Action Plan for a slum development project in India with investment from ADB
 Client: *Kumar Builders, Pune*

ADB was seeking to invest in the project to resettlement and rehabilitate a slum in Pune in western India. ERM prepared an environmental and social impact assessment for the project to meet ADB requirements and also a resettlement Action Plan to guide the resettlement of the slum dwellers. The RAP subsequently underwent public disclosure.

Neena was the Partner In Charge and the lead social specialist for the assignment.

Land Acquisition and Resettlement Advisory Support for integrated cement plant in Darlaghat, Himachal Pradesh, India.
 Client: *Ambuja Cements Limited, Holcim group of companies*

The assignment involves dealing with and supporting ACL on issues of resettlement, land acquisition strategies and community engagement practices. Preparation of RAP/SIA and implementation of these are some of the crucial aspects of this complex project involving large scale land acquisition and resultant displacement. Neena is the project director and overall in charge of this year long assignment.

ESIA and Resettlement Framework for of the Nam Xane 3 Hydropower Project in Lao PDR
 Client: *Rohas Euro Industries Berhad, 2007.*
 Nam Xane 3 Hydroelectric Power (HP) Project, located in Ngan subdistrict of Khouang District, Xiang Khouang Province has been identified as one of the potential sites for hydropower generation in Lao PDR. The proposed Nam Xane 3 hydro power project is being funded and developed by Rohas- Euro Industries (REI) Berhad. As about 500 families are expected to get displaced because of the project, a resettlement framework is also being developed to inform decision for the feasibility stage.

Neena was the lead social specialist for the project which includes a social impact assessment and resettlement planning for the proposed hydro power project in a remote and impoverished mountainous region of Laos.

ESIA of a 126 MW wind farm project in Pratapgarh District in the state of Rajasthan.
 Client: *Welspun Energy Rajasthan Pvt. Ltd.*

The role includes carrying out an Environmental and

Social Impact Assessment for proposed wind farm project site based on IFC Performance Standards, ADB Safeguard Policy Statement and General and specific EHS Guidelines. The study involved Environmental Baseline Assessment, including the understanding of the scope for bird/bat monitoring of the entire project, identification of the impacts, evaluating the impacts, prepare the Impact Assessment and Mitigation Plan. The study also involved prediction of noise and shadow flicker assessment on neighboring households within 500 m from the wind turbine generators.

Neena was the Partner in Charge and Social lead of the project. She oversaw the identification and assessment of potential social impacts which may arise as a result of project development.

Development of RAP and associated risk management for a voluntary resettlement project in Kazakhstan. Client: *Tengizchevroil (TCO)*
 ERM was asked by a consortium of oil companies to assess the impacts of voluntary resettlement of 179 families to an urban settlement in Kazakhstan. ERM analysed the household survey to assess impacts, developed an entitlement framework and a detailed RAP for the project affected families, following the international best practices. The RAP included an implementation plan, institutional arrangements, and a public consultation and disclosure plan. Neena was a part of an international team working on the project.

Social Assessment and development of Resettlement Action Plan for the Guangdong LNG Project in Guangzhou, Guangdong province in China. Client: *Guangdong LNG Project*
 The GD LNG Project is an equity joint venture (JV) partnership of CNOOC, BP and a number of Sponsor Companies. GD LNG sponsors are committed to socially responsible development of the project and have therefore requested that a Social Impact Assessment be conducted and a Resettlement Plan be developed for the project.

The purpose of the SIA was to identify, at an early stage, potential health and social impacts resulting from the construction and operation of this project and provide management measures to reduce potential impacts and maximise the positive effects as far as practicable. Engagement with project affected people and the wider community was recognized as being crucial to the timely and successful implementation of such projects in China. Neena was the Resettlement Specialist in the project and was involved in preparation of the Public Consultation and Disclosure Plan and RAP.

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Social Impact Assessment and Developing an RAP for Impacts on fishing for an LNG Terminal Project in Angola, Africa. Client: Cabinda Gulf Oil Company Limited

ERM was involved in conducting an Environmental and Social Impact Assessment for a proposed LNG project around the Kwanda Base. Fishing was an important livelihood activity in the project area, and ERM assessed the impacts of the project on fisheries and fishing livelihoods, and eventually preparing an RAP outlining the entitlement framework to compensate and mitigate the impacts on the local community. Neena was a part of a two-member RAP team who prepared the RAP and disclosed it to the local community.

Social Assessment and preparation of RAP for the Allain Duhangan Hydel Power Project and Transmission Line in Himachal Pradesh
Client: Rajasthan Spinning and Weaving Mills Pvt Ltd/IFC

RSWML is seeking partial financing from the International Finance Corporation (IFC) for the project. To fulfill the requirements of IFC's Environmental and Social Review of the project, ERM India was invited to prepare a detailed information on environmental and social impact assessment of the project, along with seven specialized studies and a reconnaissance survey for the proposed transmission line corridor, prior to IFC's approval on financing the project. ERM prepared a detailed RAP for the project, recommended institutional and monitoring mechanisms and developed a detailed Public Consultation and Disclosure Plan for the entire project period.

Neena was the lead social specialist for the project and in addition to undertaking the tasks listed above, was also responsible for the public consultations, public hearings and dialogue with villagers, IFC and the NGOs as a part of the public disclosure programme.

Social Assessment, Preparation of the Public Consultation and Disclosure Plan, Resettlement and Rehabilitation Action Plan and the Indigenous Peoples' Development Plan for the proposed limestone mining project in Nongtrai village, Meghalaya

Client: Lafarge Union Mining Private Limited (LUMPL)/IFC

ERM India had conducted the social impact assessment and done R&R planning for the limestone mining project proposed by LUMPL in Shella and

Nongtrai Duhar in Meghalaya. ERM is currently updating the SLA and also developing an R&R plan for the individuals/groups affected by the project. The assignment involves census survey of all the project affected households in the mine and the 10 kms long over land belt conveyor area. Neena is the project director for the assignment.

ESIA of a 54 MW wind farm project in Anantapur District in the state of Andhra Pradesh, October 2013 - January 2014

Client: Energon Power Resources Pvt. Ltd

The role includes carrying out an Environmental Impact Assessment for proposed wind farm project site based on IFC Performance Standards and General and specific EHS Guidelines. The study involved Environmental Baseline Assessment, including the understanding of the scope for bird/bat monitoring of the entire project, identification of the impacts, evaluating the impacts, prepare the Impact Assessment and Mitigation Plan.

Neena was the social lead and partner in charge for the assignment.

Social Assessment and preparation of the RAP for Ashram Chowk Flyover Project

Client: Noida Toll Bridge Company Limited

NTBCL proposed to construct a flyover with two clover leaves at the intersection of the Mathura Road and the Ring Road at Ashram Chowk in Delhi. The project is supported by the World Bank. The implementation of the project was likely to result in displacement of about 50 hutments (families) and a partial/total elimination of commercial enterprises in the project affected area. ERM was commissioned to undertake the socio-economic baseline survey of the affected people, identify the project affected persons, evaluate the extent of their loss, develop a compensation package, locate a resettlement site and develop a R&R Action Plan. Neena as a project manager in this assignment was involved in household survey, RAP and specifically overlooked livelihood reparation strategies for all PAFs.

ESIA of a 50 MW wind farm project in Jaisalmer District in the state of Rajasthan.

Client: Ostro Renewables

Location of the Project: Jaisalmer District, Rajasthan, India

Duration: June 2014 - September 2014

Key words: Renewable, Power, Wind

The role includes carrying out an Environmental and Social Impact Assessment for proposed wind farm project site based on IFC Performance Standards and

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General and specific EHS Guidelines. The study involved Environmental Baseline Assessment, including the understanding of the scope for bird/bat monitoring of the entire project, identification of the impacts, evaluating the impacts; prepare the Impact Assessment and Mitigation Plan. The study will also involve prediction of noise and shadow flicker assessment on neighboring households within 500 m from the wind turbine generators.

Neena is the Environmental Expert for Project and responsible for noise and shadow flicker assessment, review of environmental impact assessment and development of environmental management plan.

Social Assessment and preparation of RAP for the Allain Duhangan Hydel Power Project in Himachal Pradesh

Client: Rajasthan Spinning and Weaving Mills Pvt Ltd/IFC

RSWML is seeking partial financing from the International Finance Corporation (IFC) for the project. To fulfill the requirements of IFC's Environmental and Social Review of the project, ERM India was invited to prepare a detailed information on environmental and social impact assessment of the project, along with seven specialized studies and a reconnaissance survey for the proposed transmission line corridor, prior to IFC's approval on financing the project. ERM prepared a detailed RAP for the project, recommended institutional and monitoring mechanisms and developed a detailed Public Consultation and Disclosure Plan for the entire project period.

Neena was the lead social specialist for the project and in addition to undertaking the tasks listed above, was also responsible for the public consultations, public hearings and dialogue with villagers, IFC and the NGOs as a part of the public disclosure programme.

ESIA and Resettlement Framework for of the Nam Xane 3 Hydropower Project in Lao PDR

Client: Rehas Euco Industries Berhad, 2007.

Nam Sane 3 Hydroelectric Power (HE) Project, located in Ngan subdistrict of Khoum District, Xeang Khouang Province has been identified as one of the potential sites for hydropower generation in Lao PDR. The proposed Nam Sane 3 hydro power project is being funded and developed by Rehas Euco Industries (REI) Berhad. As about 1000 people are expected to get displaced because of the project, a resettlement framework is also being developed to inform decision for the feasibility study.

Neena was the lead social specialist for the project which includes a social impact assessment and resettlement planning for the proposed hydro power project in a remote and impoverished mountainous region of Laos.

Social Assessment and Risk Assessment of three Hydropower Projects in Himachal Pradesh and Uttarakhand

Client: Confidential

ERM undertook a Social assessment of three hydropower project in terms of Social impacts, labour and human resource, and land acquisition in order to identify potential EHS risks and liability for the client. The work involved due diligence and review of social aspects and performance of the three HPPs which had a cumulative generation capacity of 1500 MW located in the mountainous districts of Himachal Pradesh and Uttarakhand in India.

Neena was the Partner in charge and the Social lead for the project

Social Assessment and Livelihood Mitigation strategy for a midstream pipeline project

Client: Cairn India

Cairn Energy India Limited, in joint venture with ONGC, is developing oil fields in the Rajasthan state. There is a proposal to lay an on-shore crude oil evacuation pipeline and related facilities located about 35 Km North-East of Barmer in State of Rajasthan, up to a new terminal at Janunagar-Salya in State of Gujarat via Sanchole and Virangam.

It has been tentatively estimated that the overall pipeline route length for transportation of crude oil would be 600 km. The pipeline will traverse through the state of Rajasthan for approx 150 km and the rest in the state of Gujarat. The pipeline will cross the districts of Barmer, Jalore and Sanchole in Rajasthan and Banaskantha, Ahmedabad, Patan, Rajkot, Surendranagar and Janunagar in Gujarat

To meet its internal corporate requirements as well as IFC Performance Standard requirements, Cairn asked ERM to undertake a socio-economic baseline and impact assessment and develop a management plan to address lay impacts. Neena was the Project Director for the assignment and responsible for all reporting and deliverables as well as client interaction.

ESIA of a 50 MW wind farm project in Jaisalmer

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District in the state of Rajasthan*Client: Ostro Renewables*

The role includes carrying out an Environmental and Social Impact Assessment for proposed wind farm project site based on IFC Performance Standards and General and specific EHS Guidelines. The study involved Environmental Baseline Assessment, including the understanding of the scope for bird/bat monitoring of the entire project, identification of the impacts, evaluating the impacts; prepare the Impact Assessment and Mitigation Plan. The study will also involve prediction of noise and shadow flicker assessment on neighboring households within 500 m from the wind turbine generators.

Social Impact Assessment and preparation of impact mitigation plans for China Light and Power in Jhajjar, Haryana.*Client: China Light and Power/ADP/IFL*

The assignment involved preparation of a SIA and undertaking census survey of more than 1800 project affected households and developing impact mitigation strategies (like the Livelihood Restoration and Community Development plan) for these families. Neena is the project director and overall in charge of this assignment.

ESIA Studies and Resettlement Plan Framework (RPF) for the Western Cluster Iron Ore Project, Liberia*Client: Western Cluster Limited*

ERM has been commissioned to undertake Environmental and Social Impact Assessment (ESIA) and associated studies including preparation of RPF for the development, operation and closure/handover of the Western Cluster iron ore assets in Liberia including the railroad corridor(s) connecting the port and mining developments, road for transportation in initial years.

ERM through the ESIA has been asked to inform the Project's management of environmental and social risks and impacts; meet expectations of good international industry practice (GIIIP) and Vedanta's internal corporate standards; and fulfil Liberian regulatory EIA requirements before commencing with the project.

ERM India is playing an important role in the Project design too through environmental and social consideration identified in course of the baseline studies. ERM is also preparing the Resettlement Plan Framework (RPF) for the client which is quite crucial

in wake of the complex land issues in Liberia and the regulations which apart from being complex are still in the nascent stages, primarily due to civil war which spanned almost 20 years.

IEE Update of 50 MW Wind Energy Project in Sindh Province of Pakistan*Client: Gul Ahmed Wind Power Limited*

Gul Ahmed Wind Power Limited (hereinafter referred to as "GAWPL") is developing a 50 MW Wind Energy Project at Jampur area, Taluka and District Thatta in Sindh Province of Pakistan. The sponsors of the Project are Gul Ahmed Energy Limited and InfraCo Asia Indus Wind Pte Ltd.

The Project involves gap assessment of Initial Environmental Examination (IEE) report and other project documents of the project with respect to IFC Performance Standard and EHS Guidelines and to update the IEE report in order to meet IFC Sustainability Framework 2012.

Neena was the Project lead for the assignment and was also involved in project discussions with the IFC during the project financing.

Comprehensive Environment, Social and Health Impact Assessment Client: Hazira Port Private Limited (Shell Hazira Group)

ERM was commissioned by HFPL, a part of Shell India, to undertake a CESHIA for all their project components (multi-cargo port, terminal, pipeline and infrastructure corridor) in Hazira and prepare an implementable impact management action plan. The CESHIA was developed not only under the requirement of MoEF but also as a corporate requirement of the Royal Dutch/Shell Group. The assignment involved extensive field analysis covering 6 villages in and around Hazira and a series of workshops with Shell personnel to develop a practical and mutually acceptable management action plan. Neena is the project director and overall in charge of this year long assignment.

Socio-Economic Baseline Studies and impact assessment of mine closure in Madhya Pradesh*Client: Rio Tinto*

Rio Tinto commissioned ERM to do a project, which entailed the development of detailed social baseline for the project, which was at the prospecting stage. The project involved an assessment of local community

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dependence on forest resources, which may be impacted by the project and issues to enhance the ongoing community relations interventions by the client.

ERM was asked to conduct village appraisals, detailed stakeholder analysis and local institutional assessment to enable the project proponent to make informed decisions for the subsequent stages, including scoping for the impact assessment. Village appraisals were conducted through participatory methods and involved the villagers in the process of developing community maps, resource maps as well as interaction patterns with different receptors. Stakeholder mapping and analysis was done for individual villages as well as for the project as a whole. Neena was the project director and overall in charge of the study.

Socio-economic Baseline Study for a proposed iron ore mine in Orissa
Client: Rio Tinto

The study involved preparation of the socio-economic and political profile of the area and provide strategic input into their project planning. The study took a broad brush approach drawing on existing data and literature with the multiple purpose of providing the company with background socio-economic, demographic and political information coupled with interpretative assessment. The study brought out a preliminary risk assessment as well as a stakeholder mapping and indicate broad level mitigation strategies.

Socio-Economic baseline study for proposed facility in Vadodara and Halol (India):
Client: Alcoa Asia Limited

ERM India was commissioned by Alcoa Asia Limited to conduct a social screening and social risk profiling for its proposed Foil manufacturing facilities in western India. The outcome of the assessment was to compare the risks and opportunities in two possible site options for the client. Neena was the Project Director for the assignment and responsible for all reporting and deliverables as well as client interaction.

Social and Environmental Analysis for the Second Maharashtra Rural Water Supply and Sanitation project.

Client: Department of Water Supply and Sanitation, Government of Maharashtra

ERM conducted a social and environmental analysis, which a part of the project preparation study of the World Bank supported water and sanitation project. The objective of the study is to assist the GOI in

designing the project taking into account the socio-economic characteristics of the target population and the environmental issues, so that the project / program delivers sustainable water and sanitation services to rural communities at large and poor and vulnerable groups (such as women, scheduled castes and scheduled tribes), in particular. The analysis was conducted in 20 villages spread over 3 districts covering different geographical locations in the state and more than 600 households. A separate Indigenous Peoples Development Plan (IPDP) was also prepared with extensive consultations and participatory PRA and planning activities with tribal communities in Gram Panchayats (local village representative bodies) in seven districts with high tribal concentration. Neena was the project manager and lead social expert for the assignment.

Resettlement Action Plan (RAP) and Livelihood Restoration Plan (LRP) of fishing communities for an off-shore Jetty and FSRU in Philippines
Client: Confidential (Oil & Gas)

A confidential Client is planning to construct an off-shore jetty and an FSRU in Batangas Bay, Philippines and ERM has been assigned to undertake social research based studies in order to devise a RAP and LRP for the potentially impacted families which include fishing communities. Devanhu was the social specialist in the project and undertook data collection, comprising of socio-economic baseline, GPS tracking of fishing boats, fishing gear survey, focused group discussions and community consultations. Later on a comprehensive LRP for the client was formulated.

Neena was the Social Lead and Partner for the project.

IEE of proposed geophysical surveys (3D seismic surveys) in offshore block located in Ayeyarwady, Myanmar

Client: Esarlaga Myanmar Pte. Ltd

The project involved carrying out an Initial Environmental Examination for the proposed offshore seismic exploration activities in the block located in the water south of the Ayeyarwady River Delta.

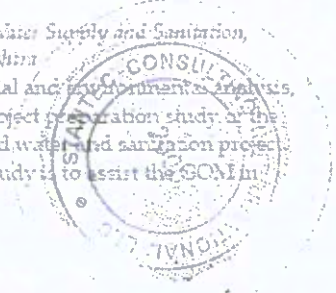
Neena is the social lead for the project

IEE of proposed geophysical surveys (3D seismic surveys) in offshore block located in Ayeyarwady, Myanmar

Client: Statoil Myanmar Ltd (Singapore)

The project involved carrying out an Initial Environmental Examination for the proposed offshore seismic exploration activities in the block located in the

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Rakhine Basin offshore Myanmar at a distance of about 200 km from the coast, covering an area of 9000 sq. km.

Neena is the social lead for the project

IEE of proposed geophysical surveys (3D seismic surveys) in offshore block located in Rakhine, Myanmar

Client: Chevron Group

The project involved carrying out an Initial Environmental Examination for the proposed offshore seismic exploration activities in the block located in the waters of the inner continental shelf adjacent to a portion of the Rakhine State coast and next to Ayeyarwady Region, as well as beyond the shelf break across the continental slope into deep ocean waters of the abyssal plains (>2000 m depth).

Neena is the social lead for the project

EIA-EMP for Oil and Gas Development in Existing Ravva Offshore Field, PKGM-1 Block, located off Surasniyanam (S. Yanam) in the Bay of Bengal, East Godavari District, Andhra Pradesh (AP).

Client: Cairn India Limited

This project involved the identification of significant environmental and social impacts associated with the proposed activities and preparation of environmental management plan for minimising the adverse impacts, putting forth an implementation schedule and preparation of post project monitoring plan.

Neena was the social lead and Partner for this project.

EIA-EMP of proposed geophysical surveys (2D & 3D seismic and geomagnetic surveys) in offshore block located in the Mumbai Basin, West Coast of India.

Client: British Gas Exploration British Gas Exploration and Production India Limited

The work involves carrying out a desk-based EIA studies for the proposed offshore seismic exploration activities in the six blocks. Neena was the social lead and Partner for this project.

EIA of proposed geophysical surveys (3D seismic and geomagnetic surveys) in six blocks (MB-DWN-2005-2/3/4/5/7/9) located in the Mumbai Basin, West Coast of India.

Client: Confidential

The work involved carrying out a desk-based EIA studies for the proposed offshore seismic exploration activities in the six blocks. Neena was the social lead and Partner for this project.

EIA of proposed geophysical surveys (3D seismic and geomagnetic surveys) in KK-DWN-2005-1 block located in the Kerala Konkan Basin, West Coast of India.

Client: Confidential

The work involved carrying out a desk-based EIA study for the proposed offshore seismic exploration activities in the block. Neena was the social lead and Partner for this project.

EIA of proposed Exploratory drilling operations in offshore block AN-DWN-2003/2 in the union territory of Andaman and Nicobar Islands,

Client: Confidential

The work involved carrying out a desk-based EIA study for the proposed offshore exploration drilling activities in the block. Neena was the social lead and Partner for this project.

Decommissioning, Restoration and After Care Environmental Management Plan (EMP),

Client: Niro Resources Limited, India

The project involved undertaking a scoping study to inform the development of an EMP for the decommissioning of onshore and offshore oil and gas assets in the Hazira Field, Gujarat, India.

Neena was the social lead and Partner for this project.

ESIA of proposed geophysical surveys (3D seismic surveys) in onshore block located in Ayeyarwady, Myanmar

Client: CAOG Pte. Ltd

The project involved carrying out an Environmental and Social Impact Assessment for the proposed onshore seismic exploration activities in the Ayeyarwady Region.

Neena is the social lead for the project

ESIA of proposed geophysical surveys (2D and 3D seismic surveys) in onshore block located in Ayeyarwady, Myanmar

Client: MPR E&P (M) Ltd (MPRI E&P)

The project involved carrying out an Environmental and Social Impact Assessment for the proposed onshore seismic exploration activities in the Ayeyarwady Region.

Neena is the social lead for the project

ESIA of proposed geophysical surveys (2D and 3D seismic surveys) in onshore block located in Bago, Myanmar

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Client: MPRL E&P Pte Ltd (MPRL E&P)

The project involved carrying out an Environmental and Social Impact Assessment for the proposed onshore seismic exploration activities in the Bago Region.

Neena is the social lead for the project

Environmental and Social Assessment for a 250 MW combined cycle gas power plant, in Mandalay Region, Myanmar

Client: Ministry of Electric Power (MOEP) and International Finance Corporation (IFC)

The International Finance Corporation (IFC) is advising the Ministry of Electric Power (MOEP) of the Government of Myanmar (GOM) on the competitive selection of a private sector independent power producer (IPP). The selected IPP will develop a 250 MW combined cycle gas power plant (CCPP) on a Build, Own, Operate and Transfer (BOOT) basis in the Myingyan Township in the Mandalay region thereafter referred as the 'Project'.

IFC, in their role in providing MOEP with technical, legal, environmental and financial due diligence advisory services, had commissioned Environmental Resources Management (ERM) to provide environmental and social (E&S) consultancy services to the Project.

Neena was the social lead for this project

IEE of proposed geophysical surveys (3D seismic surveys) in onshore block located in Bago Region, Myanmar

Client: Pacific Hunt Energy

The project involved carrying out an Initial Environmental Examination for the proposed onshore seismic exploration activities in the block located in the Bago Region.

Neena is the social lead for the project

IEE of proposed geophysical surveys (3D seismic surveys) in onshore block located in Sagaing Region, Myanmar

Client: Pacific Hunt Energy

The project involved carrying out an Initial Environmental Examination for the proposed onshore seismic exploration activities in the block located in the Sagaing Region.

Neena is the social lead for the project

Environmental and Social Impact Assessment (ESIA) and Regulatory Environmental Impact Assessment

(EIA) for Proposed Pet Coke Gasification Acetic Acid Plant, Koyali, Vadodara, Gujarat

Client: Indian Oil Corporation Limited and BP Chemical

ERM has been commissioned by IOCL-BP to carry out an ESIA and regulatory EIA study for a proposed Pet Coke Gasification Acetic Acid Plant in the village Koyali, Vadodara District, Gujarat.

The project, being undertaken as a joint venture between M/s Indian Oil Corporation Limited (IOCL) and BP Chemicals, UK (BP), with a capacity of 1000 MT/A of acetic acid over an area of 202 acres.

The ESIA for the proposed project is to be in line with the requirements of the local and national legislations as well as the international standards such as the IFC Performance Standards, General EHS guidelines and the sector specific EH Guidelines for large volume petroleum based organic chemicals manufacturing and the equator principles.

Neena was the social lead and partner for this project

Regulatory Environmental Impact Assessment (EIA) for Cairn Energy Limited in Anulapuram, Andhra Pradesh

Client: Cairn Energy Limited

ERM was commissioned to undertake a regulatory Environmental Impact Assessment (EIA) for an off shore oil facility of Cairn Energy Limited in the district Anulapuram in Andhra Pradesh.

Neena was the social lead and partner for this project

Social Impact Assessment & formulation of Social Management Plan (SMP) in Bangladesh

Client: Unocal's (Chevron) Oil & Gas operations

ERM assessed the range of impacts that the 30 year project will have in the host area, tracing the project social footprints and formulating a management plan to mitigate the negative impacts and maximize the positive benefits. The assignment involves close coordination with the corporate group and in depth capacity building and handholding for the Unocal/Chevron business unit in Bangladesh to actually implement a Social Management Plan. A series of workshops and trainings have been organized to enable the organization for such activities. Neena was the Senior Reviewer and Quality Assurance Partner for the project.

Updating an Environment and Social Impact Assessment Report to meet EP requirements for a

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petroleum refinery project in Gujarat, India
Client: Essar Oil Limited

ERM is in the process of updating an ESIA report for a petroleum refinery expansion project in Jamnagar, Gujarat. EOL is seeking funds from financial institutions for the purpose. The report needed to meet the requirements of Equator Principles Financial Institutions (EPFIs). Neena was the social specialist in the team.

Social Baseline studies and stakeholder analysis
Client: Cairn Energy India Pvt. Ltd.

The assignment included preparation of social baseline, strategic impact assessment of Cairn's operations in the block as well as formulation of stakeholder management strategy based on consultations with various categories of stakeholders. Neena was responsible for regular interaction with the client, developing the methodology and reviewing the reports. Neena was the Project Director for the assignment with overall responsibility of the project, client interface and quality assurance of the deliverables.

Environment and Social Impact Assessment, Nepal
Client: Cairn Energy Plc.

Cairn Energy has signed an agreement with the Government of Nepal to explore oil and gas in 5 block in primarily the Terai regions of Nepal. The initial work would include geological field work, airborne geophysics and seismic surveys in each block. ERM was asked to conduct a desk-based environmental and social screening together with a stakeholder assessment, identification of impacts and development of generic mitigation measures. The aim of the early ESIA was to aid planning and design of the seismic operations, and to provide relevant information for Cairn's Nepalese permitting requirements.

The work was jointly undertaken by ERM India and ERM UK team. Neena was the Social Development Specialist in the project.

Social, Environmental and Political Risk Assessment for a Coal Bed Methane Project

Client: British Petroleum

The client has been awarded a Coal Bed Methane exploration concession in West Bengal. The client is looking for an initial project screening based on desk-top research as well as a reconnaissance visit to understand the major risks to the viability of the project from an environmental and social perspective, and scope out the requirement of a detailed ESIA. Neena is the Project Director for the assignment.

Environmental and Social Impact Assessment for Coal Bed Methane Project.

Client: British Petroleum

The operator of Coal Bed Methane (CBM) exploration and production license issued by Government of India for the Birbhum Block located in the State of West Bengal, India.

ERM was commissioned to undertake the Environment and Social Impact Assessment study for the project. The ESIA was done to not only meet the requirements of the regulatory framework but also to the standards of BP. Neena was the Partner in Charge and Project Director for the assignment.

Review and Assurance

Neena has been involved in a number of independent reviews, due diligence assessments as well as provided external assurance to firms and large projects against international standards like the IFC Performance Standards, the various Operational Policies of the World Bank and sister organizations as well as several Equator Banks. These reviews have been instrumental in identifying gaps and providing guidance to the organizations on measures for gap closure and strengthening their Environment and Social Management Systems.

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Resettlement Completion Audit

Client: Lafarge Shima Cement Limited, Bangladesh

Lafarge has undertaken construction of a cement plant about 250 km from Dhaka with funds from the International Finance Corporation (IFC). The company has acquired 178 acres for the different project components like the cement plant, long belt conveyor (LBC), colony, road and community area. A

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Resettlement Action Plan (RAP) was prepared for the above mentioned project and has been implemented since 1991. ERM was commissioned to undertake a resettlement completion audit with the objective of assessing resettlement in the context of the objectives of OD 4.30 (Involuntary Resettlement), and determine whether the Resettlement Action Plan (RAP) was implemented in such a way that affected people were not made worse off and, preferably, benefited by the resettlement. Neena was the Project Director and responsible for interaction with the Client and overall project execution.

Independent review of Environmental and Social Impact Assessment Report/Statement of the 1000MW Hydroelectric Project in Himachal Pradesh
Client: An International Financial Bank (Confidential)

The proposed HEP envisages construction of a dam on Sadhy river. ERM was asked to carry out a review of the ESIA report of the above project to identify environmental and social issues, which would directly or indirectly have financial or legal implications for the project proponent during commissioning, operation and decommissioning. An assessment of the potential for an adverse reaction on environmental and social grounds on a local, national and international scale was also required. Neena was one of the social and resettlement specialists involved in the review, along with team members from India and UK.

Social Assessment and Risk Assessment of three Hydropower Projects in Himachal Pradesh and Uttarakhand
Client: Confidential

ERM undertook a Social assessment of three hydropower project in terms of social impacts, labour and human resource, and land acquisition in order to identify potential EHS risks and liability for the client. The work involved due diligence and review of social aspects and performance of the three HPPs which had a cumulative generation capacity of 1500 MW located in the mountainous districts of Himachal Pradesh and Uttarakhand in India.

Neena was the Partner in charge and the Social lead for the project

IFC Performance Standard Review of the Sasan Ultra Mega Power Plant
Client: US Exim Bank

R-Power is undertaking the development of an ultra mega power plant in the Singrauli district of Madhya Pradesh. ERM undertook an environmental and social

diligence for the same to develop an action plan for key environmental and social commitments for US Exim Bank. Neena was the lead social specialist for the assignment.

Independent Equator Principle Review of a Coal reject based Thermal Power Plant in Chhattisgarh.
Client: Confidential

The client, an American bank, financed a 2135 MW coal reject-based thermal power plant in Korba in Chhattisgarh India. Being an Equator Principle signatory bank, the client required an independent environment and social review of the Environmental Impact Assessment and Environment Management Plan of the project to assess any significant gaps with respect to Equator Principles and the relevant IFC Performance Standards. Neena was the project director, senior reviewer and Partner-in-Charge of the project.

IFC Performance Standard Review of the Sasan Ultra Mega Power Plant
Client: US Exim Bank

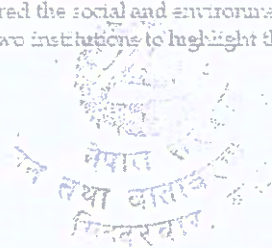
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Independent Review of community engagement and CSR programme for an integrated cement plant in Himachal Pradesh

Client: Ambuja Cement/ Hindim
 ERM India was engaged to review the community engagement and CSR programme of Ambuja's integrated cement plant in Himachal Pradesh. The objective of the review is to provide a third party and unbiased assessment of the approach to community relations and engagement till date, identify the issues of concern and key challenges and provide a broad strategy for the project expansion planned in the near future based on lesson learnt till date. Findings of the review were discussed in a workshop. Neena was the project director and overall in charge of the assignment.

Independent Review and Comparison of World Bank Group Guidelines on Environmental and Social Issues with Indian Regulations

Client: International Finance Corporation
 As a part of this exercise Neena comprehensively compared the social and environmental policies of these two institutions to highlight the coherence and



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divergence both at the policy levels as well as operational levels. The study was a part of an initiative by the two institutions to streamline their safeguard policies

Independent Desk top assessment of a proposed acquisition of coal mines in Indonesia

Client: An International Bank

ERM was asked to undertake a desk top review of the ESIA and related information for a proposed acquisition of coal mines in Indonesia by an Indian multinational company to identify key gaps with respect to Equator Principles and IFC/World Bank requirements. ERM was asked to provide broad recommendations to be included in the covenants between the bank and the client company. Neena was the project director and overall in charge of assignment

RAP External Monitoring & Assurance

Client: Siskindo Energy Investment Company (SEIC)

As a part of its Resettlement Action Plan commitments, SEIC is committed, in addition to internal monitoring, a regular *Third Party Monitoring* and assurance that is to be conducted by independent experts. Neena has been appointed as the external RAP Monitor and is conducting monitoring twice a year till such time that the expert believes that the RAP commitments have been met. The objective of the monitoring is to highlight progress in RAP implementation, identify gaps or deviations from the RAP and recommend measures to close those gaps and improve overall social performance of the company.

Independent Third Party Resettlement Audit for the West Africa Gas Pipeline Project Resettlement Action Plans

Client: West Africa Gas Pipeline Company Limited

The West Africa Gas Pipeline (WAGP) Project involved the development of a pipeline to transport gas produced in the Western Niger Delta of Nigeria to three neighboring countries – Benin, Togo and Ghana. A separate RAP has been prepared for each country. ERM has been invited to conduct a third party independent audit for the 4 RAP as well as the Community Development Plans in each country, and assess whether the RAP objectives have been met, the adequacy of the compensation measures and transparency and effectiveness of the grievance redressal mechanisms.

Neena was the overall Project Director for the Audit, which involved an international team.

Independent environmental and social review of the

Colombo-Kutanayake Expressway Project, Sri Lanka
Client: Confidential

The Expressway is being proposed to link Colombo with the international airport. The client, an international financial institution, required an independent review of the EIAs and EMPs of the project to assess any significant gaps with respect to WB/IFC/Equator Principles (the 'Applicable Standards'), before deciding to fund the project. Neena was the lead social expert for the assignment and partner-in-Charge for the project

Environmental and social due diligence for the Lenders Group to the Tangguh project

Client: Lenders Group

ERM was appointed by the Lenders Group to BP Berau to undertake an environmental and social due-diligence of the Tangguh LNG project in West Papua, Indonesia. ERM was required to review relevant national and international policies and guidelines and appraise the compliance of the ESIA (locally called AMDAL) document that was approved by the Indonesian Government. In doing so ERM advised the Lenders group on risks and way forward. Neena was a part of the due diligence process as a resettlement and indigenous community specialist

Post Resettlement Audit in Uralsk and Aksai (Kazakhstan)

Client: KPO

ERM undertook a mid term and end term assessment of the resettlement and rehabilitation of 179 families that were resettled by KPO, a consortium of oil companies. The assignment assessed whether the objectives of the RAP are being met, and processes in place sustainable. The assessment also identified issues that need to be taken up for action and remediation if required. Neena is a part of a 3 member international team as a resettlement specialist

Review of Land Acquisition and Resettlement and advisory services to the proposed Petrochemical and Port Development Project in Vietnam

Client: Confidential

ERM is advising a Thailand based company interested in setting up a petrochemical plant in Vietnam on a range of issues including Environment and Social Impact Assessment and resettlement. The assignment included a rapid assessment of land acquisition and resettlement, providing a gap assessment against international standards, and determining the actions to be taken to align with them. ERM also conducted a workshop with government and other stakeholders on international standards as a part of the advisory

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service.

Neena was the lead Resettlement Specialist for the assignment.

Independent Review of a Cement Plant expansion project in Assam, India

Client: DEC

ERM was contracted by Calcem Cement Private Limited to independently review and prepare and action plan for its expansion and development project in the state of Assam, against national environmental, health and safety and labour requirements, ILO convention commitments as well as IFC Performance Standards. Neena was the senior social reviewer for the project.

Independent Environmental and Social Review of the India Tollroad Expansion Project

Client: Citigroup

Citigroup was proposing to finance a toll road project in Gujarat and Rajasthan in India, which it had categorized as Category A project, according to the Equator Principles and Citigroup's internal Environmental and Social Risk Management Policy (ESRMP). Citigroup requested ERM (the Independent Environmental and Social Consultant-IEC) to perform an Environmental and Social Due Diligence (ESDD) of the project to confirm compliance with the Equator Principles, ESRMP, IFC Performance Standards, IFC EHS and World Bank PPAH Guidelines. Neena was the Project Director and Social and Resettlement Specialist in the team.

Independent Social Review of the SIA, RAP and IPDP of the Rural Transport Improvement Project in Bangladesh.

Client: Local Government Engineering Department, Bangladesh.

LGED invited ERM India to conduct an independent social and environmental review of the social and environment impact assessment reports and Resettlement Framework of the RTEP to ensure that the reports met the guidelines and basic requirements of the World Bank, which is funding the project. The assignment included assessing the adequacy of data and baseline information, methodology, Project impacts and remedial measures, policy framework, assessment, appropriateness of institutional arrangements, implementation mechanisms and monitoring and evaluation. The scope of the social review also included rewriting and finalizing the Social Assessment and Resettlement Framework report. Neena was the Project Director and responsible for interaction with the Client and overall project

execution

Independent Review and finalizing of Resettlement Action Plan for Public Disclosure (Sakhalin, Russian Federation)

Client: Sakhalin Energy Investment Company (SEIC.)

SEIC has been asked by prospective Lenders (EBRD) to prepare and RAP and disclose it for public review. ERM has been asked to independently review the RAP prepared by SEIC as well as the comments provided by the Lenders, identify and close gaps, and highlight potential risks to SEIC. As the Team Leader, Neena worked closely with the SEIC Social Performance Team, the Legal team and the Land Approvals team in Sakhalin to review and finalise the RAP.

Monitoring and Evaluation of the R&R of Vadodara Halol Road project.

Client: Gujarat Toll Road Company Limited.

The Government of Gujarat and IL&FS are promoting the widening of the existing state highway (SH-87) between Vadodara and Halol to increase traffic flow capacity in this vital economic zone of Gujarat. The acquisition of land for constructing the bridge has resulted in the loss of agricultural land and livelihood for some people who would be resettled and rehabilitated.

The monitoring work assigned to ERM involved the assessment of the progress of the resettlement programme to provide the project proponents with an independent evaluation of the situation, identification of difficulties, ascertaining problem areas, providing signals of caution and thereby drawing attention to the mitigation measures required. Neena was the project director and overall in charge of the assignment.

Monitoring and Evaluation of the R&R Programme of the Delhi- Noida Project

Client: Noida Toll Bridge Company Limited

NTBCL has financed the construction of the Noida Toll Bridge over the River Yamuna connecting Delhi and Noida in UP. The acquisition of land for constructing the bridge has resulted in the loss of agricultural land and livelihood for 300 people who had to be resettled and rehabilitated. ERM was appointed to facilitate negotiations, ensure appropriate compensatory arrangements, and to undertake an independent monitoring and evaluation of the implementation of the rehabilitation program.

Monitoring & Evaluation of the Resettlement and Rehabilitation Action Plan for the proposed Steel Plant in Gopalpur, Orissa

Client: Tata Iron & Steel Company (TISCO).

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TISCO had acquired large tracts of land in Gopalpur, Orissa, for setting up a 10MW integrated steel plant. The land acquisition resulted in the displacement of over 10,000 people in the area. TISCO has undertaken a Resettlement and Rehabilitation (R&R) Action Plan (RAP) for the displaced people.

ERM was commissioned by TISCO to monitor and evaluate the implementation of the RAP. Apart from the monitoring and evaluation of the RAP, TISCO had also requested ERM to work in close association with the implementing agency and suggest various income generating activities which could be introduced in the rehabilitation site to ensure a regular and sustainable source of income for the resettled people to restore or improve their standard of living compared to the pre-settlement period.

Monitoring and Evaluation of R & R activities in the Grand Trunk Road Improvement Project.

Client: National Highways Authority of India
The National Highways Authority of India (NHAI) has been given the mandate for implementation of the National Highways Development programme (NHDP) that includes nearly 421 km of the 900 km long Agra-Dhanbad section of the National Highway-2 (NH-2), which is being strengthened under the Grand Trunk Road Improvement project (GTRIP) funded by a credit from the International Bank for Reconstruction and Development (IBRD).

The project proponents intended to have an independent assessment of the implementation of the R&R Action Plan and its compliance to the World Bank guidelines to enhance its effectiveness and hence reduce the adverse impact on the resettled community. ERM India has been asked by NHAI to conduct monthly and quarterly monitoring of R and R activities as also annual, mid term and end term evaluation.

Developing Policy and Systems for Environmental and Social Management and Monitoring and Evaluation

An increasing focus in preparing action plans to meet international standards has been to ensure that these actions get embedded in robust environmental and social management systems of the organization that improve performance over a period of time, and the process and outcomes can be monitored and reported. In some cases these assignments involve monitoring and advisory services, and in others developing policies and systems, and capacity building and training.

Independent monitoring and advisory support to Calcom Cements

Client: DEG and FMO

DEG and FMO have together invested in Calcom Cements in Assam. An earlier social and environmental due-diligence against IFC Performance Standards, also conducted by ERM, brought out several gaps, based on which a detailed Environmental and Social Action Plan (ESAP) was prepared. In this assignment ERM has been asked by DEG and FMO to provide independent monitoring services for the ESAP implementation as well as provide expert advice to Calcom on technical studies. ERM conducts quarterly monitoring and currently a 3-year monitoring is proposed. Neena is the project director for the assignment.

Independent Monitoring of the Environmental and Social Action Plan implementation of a slum rehabilitation and development project in Mumbai

Client: Akshiti City Limited

ERM has been asked by ACL and their financiers to independently review on a six-monthly basis, the implementation of an ESAP that came out as recommendation from a review and gap assessment of the project by ERM. ERM will undertake a detailed monitoring of the various commitments made on environmental, health and safety and social parameters in the ESAP.

Preparing and Operational Manual and training on IFC Performance Standards for Infrastructure Development Finance Company (IDFC)

Client: International Finance Corporation

Environmental Resources Management (ERM), was in collaboration with Econ Pöyry assigned by the International Finance Corporation (IFC) to carry out environmental capacity building in IDFC. The main objectives of the assignment were to align IDFC internal processes and management systems for Environmental and Social Due Diligence (ESDD) with the IFC's Performance Standards (IFC PS) and the Equator Principles (EPs); and to build the capacity within IDFC to undertake ESDD according to the updated processes and management systems.

Neena was the team lead from India and as one of the two lead trainers.

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Environmental Capacity Building Phase II*Client: IFC*

The IFC Advisory Services supports the development of the formal banking sector with a view to increasing access to finance for businesses and consumers in India and elsewhere. IFC Advisory Services implements its mandate through tailored, enterprise and organization-specific capacity building programs, training, and research and policy interventions.

IFC, as a part of the Environmental Capacity Building Project, Phase II, asked ERM to develop a Generic Operational Manual (the Manual) that would be downloadable from the IFC website. The intent of the Manual was to provide more clear guidance on why and how to implement the IFC PSCs. Once an organization is interested in applying the PSCs, the Manual could be used to transform that interest to action.

EHSS Protocol and Systems for Mine Life Cycle for a proposed Nickel mine in North Vietnam.

The project involved the development of operational protocols and systems and provision of ongoing support for environment, health, safety and social aspects during construction, operations and closure of the project. Neena was the Technical Advisor on resettlement.

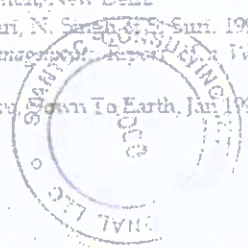
Developing a Social Investment Strategy*Client: British Gas*

ERM India was commissioned by BG, India to prepare a Social Investment and Sustainable Development Strategy for its subsidiary- Gujarat Gas Company Limited's operations in the state of Gujarat, India. The strategy aims to enable the company to respond to changing priorities and pressures from the state and country, utilize this strategy as a competitive means to differentiate GGCL as a socially responsible company to its customers and local communities, whose support is important for future expansion and enable the company to face increasing competition going forward. Neena was the project director and overall in charge of the assignment.

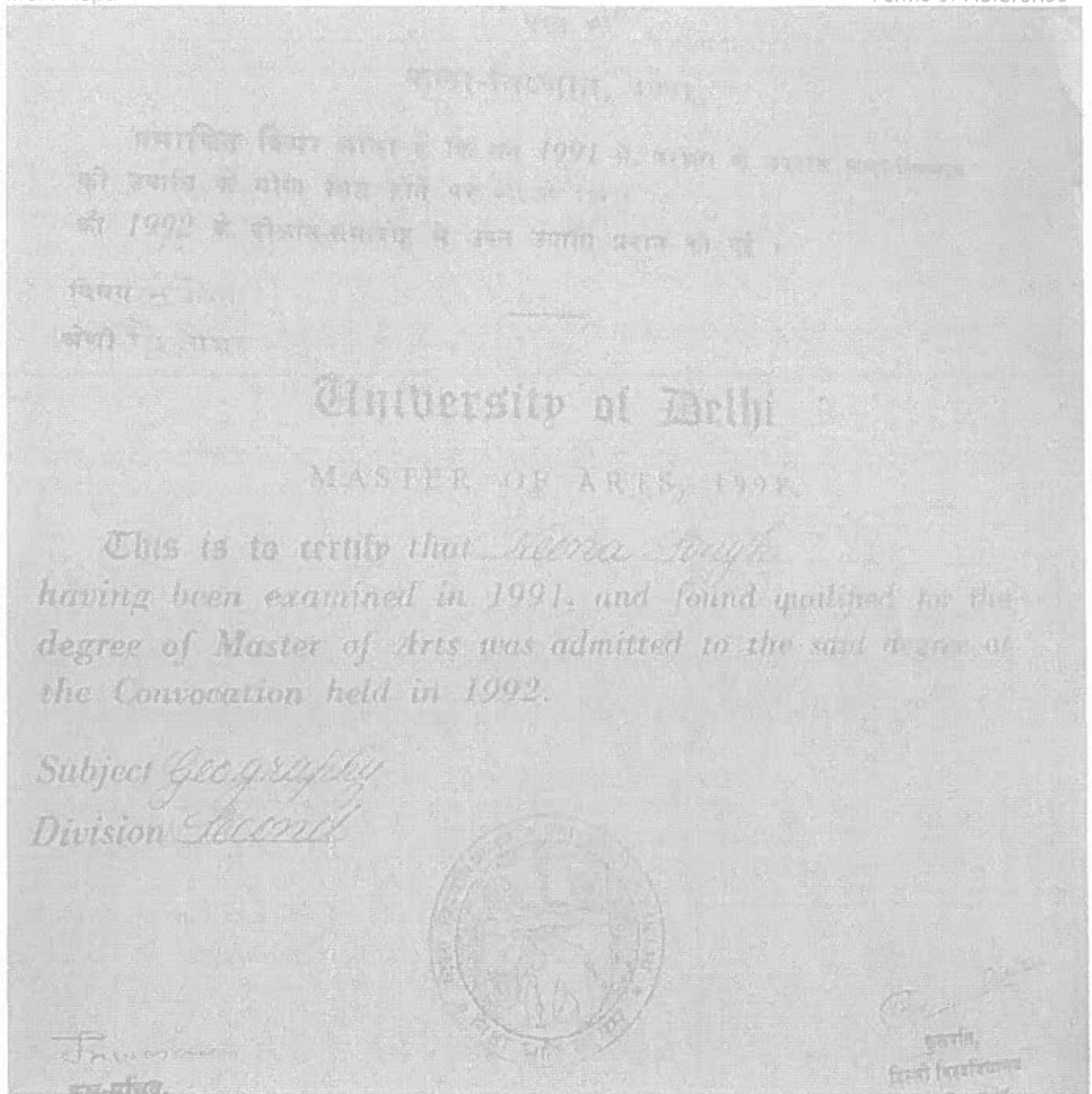
Publications

- Kothari A, N. Singh & S. Suri (eds) 1996. *People and Protected Areas: Towards Participatory Conservation in India*, Sage Publication, New Delhi
- Sarkar S, A. Kothari, N. Singh & S. Suri. 1995. *Joint Protected Area Management Report*, Workshop, IIPA, New Delhi
- *Struggling to Survive*, Down To Earth, Jan 1997

- *Conservation Boomerang*, Down To Earth, September 1993
- *Sowing Loss, Reaping Debt*, Down to Earth, April, 1996
- *Community Participation in India GEF Projects: A Case of Ecodvelopment*, paper presented at the GEF Council Meeting, Washington, 1996.
- Contributed articles on forest and people's conflicts in the Ecologist, Economic and Political Weekly, as well as leading India Newspapers.



NEENA SINGH



11. Rabin Dhakal

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal; Ministry of Finance; Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following:

- (i) I have conducted this study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature:

Official stamp:

Name: Rabin Dhakal

Date: 05-02-2019

Position: National Socio-economic and Resettlement Lead



CURRICULUM VITAE (CV)

Proposed Position	Social Development/Resettlement Expert
Name of expert:	Rabin Dhakal
Date of Birth:	17/02/1967
Citizenship	Nepal
Phone	977-1-9851023494
E-Mail Address	ods.rabin@gmail.com

Education:

Names of Educational Institutions	Date	Degree(s) / Diploma(s) Obtained
Trikhuvan University, Nepal	2002	Masters in Sociology
Trikhuvan University, Nepal.	1992	Master's in Business Administration

Employment record relevant to the assignment.

Period	Name of Employing organization and your title/ Position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
August 2018 To Date	Employer: Stantec/ERM under Millennium Challenge Corporation Position held :Social Development/Resettlement expert Project: 300 km Transmission Line project(400 kv)	Nepal	-Responsible to prepare SIA and EIA scoping report. -Carryout RRs survey and socio economic report -Prepare resettlement plan and arrange skills enhancement training to affected people to reinstate their income. -Identify other social and gender issues and make appropriate plan to address their requirement. -Proposed budget to preserve archaeological and culture heritage which is likely affected by tunnel construction project. -Social Protection (SP) is key responsibilities of this assignment Establish Grievance redress committee and ensure smooth function of the organization
July 2017 to August 2018 date(intermitent)	Employer: NIPPON-KOEI ,Japan /Department of Roads Nepal Position held :Social Development/Resettlement and Cultural expert Project: Tunnel and Approach road Construction Type of employment: Part time	Nepal	-Responsible to prepare archaeological, cultural and social development report -Prepare resettlement plan and arrange skills enhancement training to affected people to reinstate their income. -Identify other social and gender issues and make appropriate plan to address their requirement. -Proposed budget to preserve archaeological and culture heritage which is likely affected by tunnel construction project. -Social Protection (SP) is key responsibilities of this assignment Establish Grievance redress committee and ensure smooth function of the organization.



Period	Name of Employing organization and your title/ Position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
February 2017 – to date (intermittent)	Employer: Nepal Electricity Authority/Power Grid India In association with Jade Consult Pvt. Ltd Position held: Social Safeguard Specialist Project: SASEC Power System Expansion Project Type of Employment: Part time	Nepal/India	Responsible for Carry out review of secondary information on social and economic status of the population and communities that are likely to be affected by the project and may require resettlement. Identify methods of field investigations, field checklists, structured and semi structured questionnaires etc. oversee compensation payment and land transfer. Review Social Action Plans, Social Protection Plan (SPP) and Resettlement Framework, policy, screening and planning procedure. Verify requirements of ADB's Resettlement Policy. Prepare the guideline, Monthly, quarterly, Semi-annual Progress reports with social and environmental issues and suggest for suitable solutions. Identify archaeological site and study the culture and customs of people of project site and prepare social development report.
December 2017 to November 2016 date (intermittent)	Employer: FSDI in JV with PEC, DMES and Silt /Department of Railway Nepal- Position held: Social Development and Resettlement expert Project: Detail survey and design of high Speed Electrified Railway line for Sukhad-Gaddachowki sector. (94km) of Mechhi-Mahakali Railway package-IV Type of employment: Part time	Nepal	-Responsible to prepare Social impact assessment report -Prepare resettlement plan and consultation with APs and local Government. -Identify other social and gender issues and make appropriate plan to address their requirement. -Proposed budget for land acquisition and resettlement to the affected people which is likely affected by Railway project. -Train and Mobilization of cadastral surveyor and social surveyor. -Prepare of survey questionnaire get approval from department before send to field. -Prepare periodic social impact report to update department -Advice and facilitate project manager and engineers regarding impact and route of railway to minimize the impact -Social Protection (SP) is key responsibilities of this assignment. Establish Grievance redress committee and ensure smooth function of the organization.
September 2016 to October 2017	Employer: DOHWA in JV with KRNA, SOGJUNG and Silt /Department of Railway Nepal- Position held: Social Development and Resettlement expert Project: Detail survey and design of high Speed Electrified Railway line for Inruwa-Kakarvita section and Itahari-Biratnagar Link of Mechhi-Mahakali Railway package-IV Section: Inruwa-Biratnagar-Kakarvita		



Period	Name of Employing organization and your title/ Position. Contact information for references	Country	Summary of activities performed relevant to the Assignment:
November 2016 to December 2017	Employer: Asian Development Bank Project: Rural connectivity Improvement Project (TA8690NEP) Contract Number: 130929591786 Position held: Context Sensitive Design Specialist Type of Employment: Part-time	Nepal	-Participate in the review of selected sample road DPRs, ensuring that Community Participation plan(CPP)categories meet ADB's requirements. -Prepare Community participation Plan(CPP) with close coordination of EA and local Government and affected people. -Assist to international consultant to prepare CPP framework to -Prepare land donation agreement paper to timely transfer the ownership of affected plots. - Conduct orientation to EA, local government, consultant and contractor -Prepare CPP implementation report.
July 2015 to December 2016 (Intermittent)	ERMC (P.) Ltd. Position Title: Social Safeguard Specialist / Resettlement Expert / Social Development Expert	Nepal	Various Projects of Road and Bridges. Prepare ESIA report for Pathahiya Kakarvita Road. Prepare resettlement plan of this section Develop institutional capability of DoR divisional office. Prepare estimate cost of affected land, structure and trees. Prepare impact assessment report of the section. Prepare consultation meeting minute and assess the impact of proposed bridge which is plan to construct Nepal, India border in kakarvita and Panitanki(India).
August 2016 to October 2016	Employer: Millennium Challenge Cooperation (MCC)/Tetra Tech US Base consultant Project: Transmission Line Project-Nepal Position held: Resettlement Expert Type of Employment: Part-time		Millennium Challenge Cooperation (MCC) and Government of Nepal(GoN) has agreed to work on Transmission line project in Nepal with the assistance of MCC. TETRA-TECH has been assigned to carry out the detail feasibility study of Transmission line and associated substation project in Nepal. The major deliverable to be produced through this task will be a Resettlement Policy Framework (RPF), which will take into account a review of applicable national laws/policies on land acquisition and resettlement, as well as information gathered through a participatory stakeholder feedback process, to identify and assess potential resettlement impacts and risks, and measures to minimize them. The RPF will be in compliance with MCC's Environmental Guidelines, as well as the International Finance Corporation's Performance Standard 5 (PS5) on Land Acquisition and Involuntary Resettlement, as well as Nepal legal requirements and policies - including the Land Acquisition Act (1977) and the Land Acquisition, Resettlement and Rehabilitation Policy for Infrastructure Development Projects (2015).

Period	Name of Employing organization and your title/ Position Contact information for references	Country	Summary of activities performed relevant to the Assignment
March 2012 – to August 2017	Employer: Ministry of Federal Affairs & Local Development / Swiss Development cooperation Title/Position: Resettlement Advisor Type of Employment: Part time	Nepal	Raise the awareness among stakeholders (centre and district level) regarding land acquisition, compensation, Land Donation and Deed mutation issues are fully complied. Prepare resettlement plans, oversee compensation payment and land transfer documentation.
Mar 2009– Mar 2012	Employer: Swiss Development Cooperation (SDC) and Asian Development Bank (ADB) Title/Position: Resettlement Advisor Type of Employment: Full time	Nepal	Prepares resettlement plans, oversees compensation payment and land transfer documentation. Contributes to Project Procedure Manual in respect of resettlement procedures.
Mar 2007– Mar 2009	Employer: MMM Group association with CEMAT- Soil Test – TMS JV Title/Position: Social Development and Resettlement Specialist Type of Employment: Full time	Nepal	Performed and supervise social base line survey, Carry out review of secondary information on social and economic status of the population and communities that are likely to be affected by the project and may require resettlement, identify areas for baseline study and methods of field investigations, field checklists.
Aug 2006 – Sep 2007	Employer: ITECO Nepal in JV with Full Bright Consultants JV Title/Position: Social Development and Resettlement Specialist Type of Employment: Full time	Nepal	Preparation of Resettlement Action Plan, Vulnerable Development Plan and complete screening report of RA/DP district, Monitor, supervise and coach district NGOs, Planning and budgeting resettlement cost and Social Management Framework (ESMF) and Resettlement Framework, policy, screening and planning procedure.
July 2003– Feb 2007	Employer: Roughton International in JV with ITECO Nepal. Title/Position: Social Development and Resettlement Specialist Type of Employment: Full time	Nepal	Prepare and implement Resettlement Action Plan, Social Action Plan and Indigenous Development Plan. Facilitate to DoR for land acquisition, resettlement, relocation, and community consultation activities.
Oct 2002 – May 2003	Employer: ITECO Nepal (P) Ltd Title/Position: Socio-economist Type of Employment: Full time	Nepal	Major responsible for Socio-economist study and Social Surveyor, Preparation Social technical profiles, site conflict management, Introduction of Integrated Rural Accessibility Planning (IRAP) process in the project districts to prepare District Transport Master Plans (DTMP) and development plans.



Period	Name of Employing organization and your title/ Position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
Aug 2001- Sep 2002	Employer: ERMIC (P) Ltd Title/Position: Sociologist Type of Employment: Full time	Nepal	Carried out field appraisal and assessment of Support organization (SO) who fulfil the eligibility criteria to work in RWSSFDB assisted projects. It requires verifying conformation on pre-feasibility study reports schemes and sub-schemes eligibility criteria.
Jan 2000 - Dec 2000	Employer: ERMIC and Onrui JV Title/Position: Socio-Economist/Social Development Specialist Type of Employment: Full time	Nepal	Develop institutional capability of road users to make the project Output sustainable. Formation of legitimate focal labor groups and ensures fair working condition to the laborers including timely and transparent wage payment. Implementation of training programs to achieve primary objective of the project.
May 1998- Dec 2000	Employer: Udaya and ERMIC in association with SAFE JV Title/Position: Social Development Expert Type of Employment: Full time	Nepal	Carried out field Socio appraisal and assessment of Support Organizations (SO) who fulfill the eligibility criteria to work in RWSSFDB assisted Baich I to III Water Supply and Sanitation Projects
Oct 1996- July 1999	Employer: SYTEC (P) Ltd. (RWSSFDB) Title/Position: Socio-Economist / Community Action Plan (CAP) Trainer Type of Employment: Full time	Nepal	Conducting training on Hygiene and Sanitation Education (HSE)/Community Action Plan (CAP) trainings to Team Leaders, Field Coordinators, and Community Health Supervisors.
June 1993 -Dec 1995	Employer: OXFAM-Bhutanese Refugee Support Program Title/Position: Camp Coordinator/Program Officer Type of Employment: Full time	Nepal	Managing overall camp level activities and day to day administrations. Identify training needs in discussion with refugee committees, women groups and beneficiaries Supervision and monitoring day-to-day activities such as maintaining records, accounts and bookkeeping. Assist consultants and experts.

Membership in Professional Associations and Publications:

- Nepal Red Cross society

Language Skills (indicate only languages in which you can work):

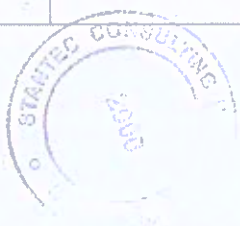
Language	Speaking	Reading	Writing
Nepali	Mother Tongue		
English	Excellent	Excellent	Excellent

Adequacy for the Assignment:

Detailed Task Assigned on Consultant's Team of Experts:	Reference to Prior Work / Assignments that Best Illustrates Capability to Handle the Assigned Tasks



Detailed Task Assigned on Consultant's Team of Experts:	Reference to Prior Work / Assignments that Best Illustrates Capability to Handle the Assigned Tasks
	<p>Project SASEC Power System Expansion Project – Project Supervision Consultant (Project includes three nos. of 220 kV Transmission Line Project such as Kaligandaki Transmission Corridor Subproject, Marsyangdi Transmission Corridor Subproject, Marsyangdi – Kathmandu TL Project and one 132 kV TL Project namely Samundratar – Trishuli 3B Hub 132 kV TL Project)</p> <p>Year: Feb 2017 to date Location: Different locations of Nepal Client: Nepal Electricity Authority Positions held: Social Safeguard Specialist</p> <p>Description of duties: Responsible for Carry out review of secondary information on social and economic status of the population and communities that are likely to be effected by the project and may require resettlement. Identify methods of field investigations, field checklists, structured and semi structured questionnaires etc. oversee compensation payment and land transfer. Review Social Action Plans and Resettlement Framework, policy, screening and planning procedure. Verify requirements of ADB's Resettlement Policy. Prepare the guideline, Monthly, quarterly, Semiannual Progress reports with social and environmental issues and suggest for suitable solutions. Establish grievance redress committee and ensure well functioning of the organization. Train the member of GRC</p>
	<p>Project Asian Development Bank Agriculture Sector Development Programm(TA6690NEP) Contract Number:130929891786 Year: November 2016 to date</p> <p>Prepare 26 CPP as per ADB requirement and prepare CPP framework. Train and orient district team to get accurate data from field. Verify requirements of ADB's Resettlement Policy. Prepare land donation agreement paper with affected land owners. Assst FCU and PIU to transfer the ownership of affected plots. Hold consultation meeting with affected people, local Government and district technical office to assess the impact of road and witness to donate the small strip of barren land. Prepare the document which is required for CPP document</p>
	<p>Project: Decentralized Rural Infrastructure and Livelihood Project Year: March 2012 to December 2017 Location: DRILF-AF -18 districts Client: Ministry of Federal Affairs & Local Development, Do LIDAR/ Swiss Development Cooperation (SDC) and Asian Development Bank (ADB) Positions held: Resettlement Advisor</p> <p>Description of duties: Raise the awareness among stakeholders (center and district level) regarding land acquisition, compensation, Land Donation and Deed mutation issues are fully complied. Prepare resettlement plans, oversee compensation payment and land transfer. Review Social Action Plans and Resettlement Framework, policy, screening and planning procedure. Verify requirements of ADB's Resettlement Policy.</p>



Detailed Task Assigned on Consultant's Team of Experts:	Reference to Prior Work / Assignments that Best Illustrates Capability to Handle the Assigned Tasks
	<p>Project: Consulting services for feasibility review and preparation of resettlement plan for HEP and 132 kV transmission line and prepare social safeguard compliance for tender documents of Upper Solu Hydroelectric Project. Year: January 2012 to March 2013 Location: Solukhumbu district Client: Upper Solu Hydroelectric and Sisa Khola "A" Main project features: 23.5 MW / 132 kV Transmission Line Positions held: Sociologist/Resettlement Advisor Description of duties: Perform and supervise social base line survey, Carry out review of secondary information on social and economic status of the population and communities, Identify areas for baseline study and methods of field investigations, field checklists, structured and semi structured questionnaires etc. to generate database on project area economic aspects. Prepare resettlement action plan.</p>
	<p>Project: Kathmandu Mass Rapid Transit Consortium Project (KMRTC) Year: March 2012 to December 2012 Location: Kathmandu, Client: Ministry of Physical Planning Department of Railway and Works Positions held: Social Development & Resettlement Specialist Description of duties: Responsible for Reviewing project document, consultation with affected people, prepare checklist to conduct focus group discussion, Prepare resettlement plans, determine compensation of affected assets and verify Review resettlement related policy, act prepare resettlement Framework, policy, screening and planning procedure Advise the Department of Railway on the requirement of the Resettlement Framework.</p>
	<p>Project: Preparation of Feasibility Study, Detail Project Report (DPR), Survey, Engineering Design and EIA Report of Likhu 1 (77 MW), Ramechhap District Year: April 2009 to April 2010 Location: Syangja Client: Pan Himalayan Energy (P) Ltd Positions held: Sociologist/Resettlement Advisor Description of duties: Carry out review of secondary information on social and economic status of the population and communities that are likely to be affected by the project and may require resettlement, Identify areas for baseline study and methods of field investigations, field checklists, structured and semi structured questionnaires etc.</p>
	<p>Project: Decentralized Rural Infrastructure and Livelihood Project Year: March 2009 to March 2012 Location: Nepal Positions held: Resettlement Advisor Description of duties: Responsible for Ensuring that land compensation and resettlement requirement of Client and of ADB are fully complied with. Prepare resettlement plans, oversees compensation payment and land transfer documentation. Review Social Action Plans and Resettlement Framework, policy, screening and planning procedure.</p>

Detailed Task Assigned on Consultant's Team of Experts:	Reference to Prior Work / Assignments that Best Illustrates Capability to Handle the Assigned Tasks
	<p>Project: Likhu IV Hydroelectric Project (120MW) Year: April 2008 to March 2009 Location: Ramechhap and Okhaldhunga Districts Client: Green Venture Pvt. Ltd. Positions held: Sociologist/Resettlement Advisor Description of duties: Performed and supervise social base line survey. Carry out review of secondary information on social and economic status of the population and communities that are likely to be affected by project and may require resettlement. Identify areas for baseline study and methods of field investigations, field checklists.</p>
	<p>Project: Road Connectivity Sector Project (design and implement of 594KM Hill Roads) Year: April 2007 to March 2009 Location: Nepal Client: Department of Roads (DOR) ADB Positions held: Social Development and Resettlement Specialist Description of duties: Responsible for Preparing and implement Resettlement Action Plan, Social Action Plan and Indigenous Development Plan. Facilitate to DoR for land acquisition, resettlement, relocation, and community consultation activities e.g. organize and participate OIC meetings, coordinate Govt. institutions, preparation of report for finalization the cost of loss, Prepare resettlement related cost plan. Aware the project affected people to get compensation timely and transparently.</p>
	<p>Project: Rural Access Improvement and Decentralization Project Year: August 2006 to September 2007 Location: 20 districts of Nepal. Client: Government of Nepal and World Bank Positions held: Project Engineer Description of duties: Capacity building component that includes training, institutional strengthening, transport services development and policy document implementation support. Central Project Management and Implementation Support Consultant. Preparation of Resettlement Action Plan, Vulnerable Development Plan and compile screening report of RAIDP district. Monitor, supervise and coach district NGOs.</p>
	<p>Project: Road Network Development Project (RNDP), (design and implementation of 274 km Road Blacktop and Otta seal) Year: July 2003 to February 2007 Location: Eastern and Central Region of Nepal Client: ADB Bank Positions held: Social Development and Resettlement Specialist Description of duties: Prepare and implement Resettlement Action Plan, Social Action Plan and Indigenous Development Plan. Facilitate DoR for land acquisition, resettlement, relocation, and community consultation activities e.g. organize and participate OIC meetings, coordinate Govt. institutions, report preparation for finalize the cost of loss. Implementation of Resettlement Plans including fair and just treatment of displaced persons and adherence to ADB policy. Conduct socio-economic survey.</p>



Detailed Task Assigned on Consultant's Team of Experts:	Reference to Prior Work / Assignments that Best Illustrates Capability to Handle the Assigned Tasks
	<p>Project: Preparation of social profile for various Rural Roads Year: May 1999 to December 2000 Location: Kaski, Salyan and Parbat Districts Positions held: Social Development Expert, Description of duties: Develop institutional capability of road users, formation/mobilization local labor groups; ensure fair working condition, genuine participation, timely and transparent wage payment; training, awareness raising programme, enhance socio-economic condition; preparation of social profile for various rural road in Kaski, Salyan and Parbat Districts under DDC.</p>

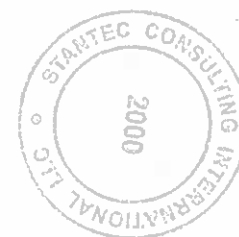
14. Certification		
I, the undersigned, certify to the best of my knowledge and belief that:	Yes	No
i) this CV correctly describes my qualifications and my experience;	✓	
ii) I am employed by the Executing or the Implementing Agency,		✓
iii) I am a close relative of a current ADB staff member		✓
iv) I am the spouse of a current ADB staff member:		✓
v) I am former ADB staff member:		✓
If yes, I retired from ADB over 12 months ago:		
vi) I was part of the team who wrote the ToR for this consulting services assignment.		✓
vii) I am sanctioned (ineligible for engagement) by ADB.		✓

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

Rabin

 Signature of expert

Date: 03/01/2019
 (Day/Month/Year)



Roll Number

A251857



Tribhuvan University

Office of the Controller of Examinations
Kathmandu, Nepal

Academic Transcript

Student's Name: Pratik Bhandari Regd. #: 256124-99
 Campus: Patil Chaurahi, Kathmandu Institute/Faculty: Management & Social Sciences
 Examination: Bachelor's Degree in Social Work Course Duration: Three (3) Years

Subjects appeared in the First Year Examination	Full Marks	Pass Marks	Marks Obtained	Remarks	Subjects appeared in the Second Year Examination	Full Marks	Pass Marks	Marks Obtained	Remarks
I. EDUCATION IN SOCI. & PATH.	100	40	42		V. NEPALI CUR. AND SOCIETY	100	40	45	
II. JEREMY BENTH & HISTORICAL CUR.	100	40	43		VI. SOC. OF. POL. SOCIETY	100	40	37	
III. THEO. ASPECT. IN SOC. / CUR.	100	40	46		VII. REFORMATION STUDIES	100	40	43	
IV. DEVELOPMENT IN SOCIAL RESE.	100	40	55		VIII. DISSERTATION	100	10	30	
Total	400	160	213		Total	400	110	115	

Subjects appeared in the Third Year Examination	Full Marks	Pass Marks	Marks Obtained	Remarks
Total	300	120	419	

Programme starting year: 1997		Rolling year: 1998			
First Year		Second Year		Third Year	
Year	Roll Number	Year	Roll Number	Year	Roll Number
1997	2542	1998	5992		
1999	6209	1999	6207		
2000	12465				

Percentage	57.25
Passed Division	Second
Passed Year	70%

GRAND TOTAL 300 120 419

Date of Issue: 08/07/2006
 Controller of Examinations: [Signature]
 Head of Record Office: [Signature]
 Dy. Controller of Examinations: [Signature]

NOTE: * means the student has passed in the second attempt. ** means the student has passed in more than two attempts.



12. Rutuja Tendolkar

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal; Ministry of Finance; Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following:

- (i) I have conducted this study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature:

Official stamp:



Name: Rutuja Tendolkar

Date: 05-02-2019

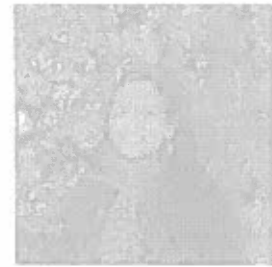
Position: International Social Team Lead



Rutuja Tendolkar

Principal Consultant

Rutuja Tendolkar is a Principal Consultant engaged in the planning and implementation of major capital projects that entail physical and economic displacement, impact on community resources and ecosystem services and specific livelihood impacts. She has interpreted IFC, World Bank, ADB, JBIC, EBRD and OPIC environmental and social safeguards requirements (particularly related to land acquisition, community-based impacts, stakeholder engagement and labour) for projects across their lifecycle. These include ESIA's, RAP, LRP and associated management plans on stakeholder engagement, community development, livelihood restoration and labour influx management for. Rutuja has provided resettlement related advisory (including RAP, implementation, completion audit and monitoring and evaluation) for sectors that include mining, power, power transmission, oil & gas and infrastructure development. Rutuja also leads sustainable finance transactions that pertain to project finance and multilateral investment (direct and through financial intermediaries). Her experience at ERM has given her an exposure to geographies in South Asia; Africa; South-east Asia; Middle-east; and CIS countries. She has directly worked with multilateral institutions that include: ADB, IFC, DEG, KfW, Proparco, CDC, Swedfund, US Exim Bank, FMO and JBIC.



Experience: 11 years

LinkedIn: <https://in.linkedin.com/in/rutuja-tendolkar-13369845>

Email: rutuja.tendolkar@erm.com

Education

- MSc Ecological Economics, University of Leeds, United Kingdom; 2010;
- Economics & Statistics, St. Xavier's College, Mumbai University; 2006;
- Diplôme de Français Commercial; 2003 and Diplôme de Langue Française; 2004, Alliance Française de Bombay.

Professional Affiliations and Registrations

- Not applicable

Languages

- English
- French



- Hindi
- Marathi

Fields of Competence

- Resettlement and Livelihood Restoration;
- Environment and Social Impact Assessments;
- Environmental and Social Management Systems;
- Social, human rights and labour due diligence;
- E&S Training for Lenders and Financial Intermediaries;
- E&S Monitoring and Advisory Support.

Key Industry Sectors

- Mining
- Power - Hydro, Wind, Solar, Thermal
- Oil & Gas
- Pharmaceuticals
- Infrastructure (Roads, Airports, Ports)
- Real Estate
- Financial Services



Countries of Work Experience

The business of sustainability



Rutuja Tendolkar

- South Asia: India, Nepal, Bangladesh, Sri Lanka, Maldives
- South-east Asia: Thailand, Vietnam, Philippines, Malaysia and Indonesia;
- Middle-east: Turkey;
- Africa: Guinea, Democratic Republic of Congo, Ethiopia;
- CIS Countries: Armenia, Uzbekistan and Kazakhstan;
- Myanmar, Jordan – Desk-based

Key Projects

Land Procurement Strategy for a Renewable Energy Company, Magwe (December 2018-ongoing)

Client: Confidential

A renewable energy company has engaged ERM to undertake a land access and social risks review of four (4) sites to develop a wind energy project. The outcome of the review is to support the client in developing a Land Procurement Strategy. Rutuja is the Social Specialist supporting the project team in developing the strategy and a ToR to frame a Land Acquisition Plan.

Resettlement Action Plan for a 305 km transmission line project, Nepal (2018-ongoing)

Client: Millennium Challenge Corporation

A consortium (comprising of Stantec, ERM and Power Engineers) was awarded a contract for Project Preparation and Technical Supervision support for a 305 km transmission line project across ten (10) districts in Nepal. The scope of PPTS includes an EIA/ESIA, local benefit sharing plan, stakeholder engagement and resettlement planning. Rutuja is the Resettlement Lead for the transmission line project and will coordinate temporary and permanent land access, RAP development and presentation of compensation agreements for the project.

Resettlement Action Plan and LRP development for a 900 MW hydro-electric power project, Nepal (2015-2017)

Client: GUKHL

GMR Energy (through its subsidiary GUKHL) has engaged ERM to prepare a Resettlement Action Plan and Livelihood Restoration Plan as per IFC PS (2012) and ADB SPS (2009) for a 900 MW peaking hydropower project in the Far-western and Mid-western regions of Nepal. The project entailed physical displacement, economic displacement, community-based livelihood impacts as well as the potential displacement of artisanal riverine fishing communities linked to the bypass reach of the project. Rutuja was the Project Manager and lead social specialist for the RAP and LRP development. In addition to coordination of the land and asset and social surveys (Feb-April 2015), she also developed the report and carried out extensive consultations with the client, lenders and IBN to finalize the entitlement matrix as well as household-specific entitlement plans for 426 affected households. Rutuja is presently advising the early implementation for the RAP and LRP.

Resettlement Implementation Audit for a natural gas pipeline, Turkey (2016)

Client: TANAP

The Trans Anatolian Natural Gas Pipeline (TANAP) Project is seeking external finance from multilateral agencies, including the World Bank. TANAP commissioned ERM to undertake a resettlement implementation audit to assess the conformance of the land acquisition process and the key commitments in the resettlement documentation against the requirements of the IFC and World Bank standards. Rutuja is the lead social specialist for the project. She led three survey teams within Turkey (across the pipeline corridor) to assess RAP implementation and also undertook the gap assessment against WBG's operational policy on involuntary resettlement.

Resettlement Planning and Implementation for the Simandou project, Guinea (2011-2013)

Client: Rio Tinto and Simfer

ERM was commissioned by Rio Tinto and its subsidiary Simfer to provide resettlement advisory pertaining to the land acquisition and associated

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impacts for the Simandou Iron Ore Project and its key components, i.e. early works, the marine offloading facility (MoF), the mine, the power and the 700 km railway corridor. Rutuja was the Content Manager for resettlement planning over a period of three years (from 2011-2013 – FIFO arrangement) and undertook the following:

- drafting the “Plan d’Action de Reinstallation et de Compensation” (Resettlement Framework) for the Simandou Project;
- supporting the development of a legal instrument to commission land acquisition and resettlement activities for the early works of the Simandou Project (notably the MoF, borrow areas and other early works);
- developed the RAP and LRP for the proposed marine offloading facility (MOF), associated borrow pit and phase I of the deep water port in Forecariah Prefecture which entailed the physical and economic displacement of over 500 households;
- supported the implementation of the RAP and LRP for the MoF and BP 33 with respect to advisory support to Simfer’s Community Relations team, finalizing agreements with affected households and supervising the temporary resettlement of the initial set of physically displaced households;
- Regular presentation and interface with the Land Commission and the Technical Committee of the Government of Guinea to update on the resettlement progress for the project.

Land Acquisition and Resettlement Audit for an urban township project (2017)

Client: IFC

ERM was commissioned by the IFC to undertake a retrospective land acquisition and resettlement completion audit for the Purbachal New Town Project for which the Government of Bangladesh acquired land in 1995-96. Rutuja is the Project Manager and is leading the field assessments. The focus of the assessment is to identify any legacy issues linked to the safeguards applied for the land acquisition process and residual livelihood implications that may pose a reputation risk for IFC’s involvement.



Land Acquisition and Completion Audit for the Dewas Bhopal Project Corridor, India

Client: IDFC Alternatives

ERM was commissioned to undertake an LA completion audit by DBCPL, a road SPV that is the Concessionaire for the Dewas Bhopal Project Corridor. Rutuja was the Project Manager and supported the team to compile and present findings to the client linked to any residual and legacy issues that pose a reputation and/or compliance risk to the FI and to also assess the private-sector responsibilities under government-led resettlement.

Independent review of the Land Acquisition and Resettlement Process of the Cai Mep Container Port Terminal, Vietnam

Client: Asian Development Bank

ERM was commissioned to undertake an independent review of the land acquisition and compensation process involved for an upcoming container port terminal project in the Ba Ria Vung Tau province of Vietnam. Rutuja led the social review and field discussions with the households and the local government officials to understand and compare the compensation process followed with respect to the ADB Policy on Involuntary Resettlement.

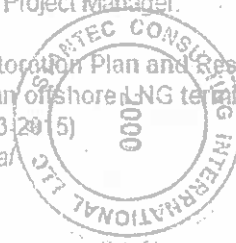
Resettlement Plan and Resettlement Framework for two urban slum redevelopment projects in Mumbai (2016-2017)

Client: ADB and ORDPL

ERM has been commissioned by a consortium of ADB and ORDPL to develop safeguards documentation as per ADB SPS, 2009 for two slum redevelopment projects in Mumbai. This includes Resettlement Plans, IEE-ESMP and a Cultural Impact Assessment for one of the two projects. Rutuja is the lead resettlement specialist and the Project Manager.

Livelihoods Restoration Plan and Resettlement Action Plan for an offshore LNG terminal project, Philippines (2013-2015)

Client: Confidential



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ERM has been commissioned by one of the largest oil & gas companies to undertake an assessment of livelihood and resettlement impacts and develop mitigation measures for a proposed offshore LNG terminal in the Balangas Bay area of the Philippines. Rutuja is the Project Manager of the assignment and is leading the LRP with regards to assessment of impacts on fishing communities and fishermen in the vicinity of the proposed project.

Resettlement Framework and Livelihood Restoration Plan for a diamond mining project in Central India (2014-2015)

Client: Confidential

ERM has been commissioned by a multinational mining company to develop a Resettlement Policy along with a Framework for Land Acquisition and Livelihood Restoration for a mining project located in Madhya Pradesh, India. The project involves an economic impact to households from over 10 villages, especially on communities dependent upon forest areas and other common property resources. Rutuja is the Project Manager and Resettlement Specialist for the assessment.

Rehabilitation Plan and Environmental and Social Impact Assessment for a slum rehabilitation project in Pune, India

Client: Kumar Urban Developers/ADB

ERM was commissioned by KUL to develop a Rehabilitation Plan and ESIA for an integrated township project involving the in-situ resettlement of over 4000 households in the city of Pune. The environmental and social documentation was to be prepared in accordance to the ADB Safeguards Policy (2009). Rutuja was the Project Manager for this assignment and led the development of the Rehabilitation Plan as well as the Social Impact Assessment and Social Management Plan.

Formulation of a Resettlement Framework for the proposed Red Sea Dead Sea Conveyance Scheme

Client: Consortium of International Donors

ERM is undertaking an Environmental and Social Impact Assessment as well as a Resettlement Action Plan as a part of the feasibility studies associated with the proposed 810 km Red Sea Dead Sea Conveyance Scheme wherein water from the Red Sea is to be transported to the Dead Sea basin for the generation of power as well as to stabilize the basin. Rutuja was associated in the formulation of a Land Acquisition Compensation and Resettlement Planning Framework based on a desk-based review of the ESIA and associated project documentation.

Social Impact Assessment and Preparation of an Entitlement Framework and Livelihood Restoration Plan for a thermal power plant, Jhajjar, Haryana August 2008-2009

Client: CLP Holdings /ADB

CLP is expanding its power sector assets and has been in discussion with international donors like the ADB and the IFC for funding its proposed projects. ERM was commissioned to undertake a social impact assessment of an upcoming thermal power plant located near the town of Jhajjar in the north Indian state of Haryana as per the guidelines of the IFC and the ADB. The SIA involved a detailed baseline study of the villages within the project's area of influence which included a 100% household survey for those directly impacted by land acquisition for the project. As a core team member, Rutuja was involved in the identification of social impacts from the project and addressing their mitigation through management plans for stakeholder engagement, livelihood restoration and community development.

Independent Review of the Land Acquisition and proposed resettlement of project-impacted persons of the KMTR Toll Road, Gujarat, India - 2012

Client: DEG

ERM India undertook an Independent Environmental and Social Review of the proposed expansion of the National Highway 8A for a length of 83 km in the Kutch district of Gujarat, India. The review was undertaken as per the IFC Performance Standards. As the Project

Manager, Rutuja led the social review process and also undertook an assessment of the land acquisition and proposed resettlement involved in the widening of the Right-of-Way for the toll road.

Resettlement and Rehabilitation Monitoring as part of Environmental Management and Capacity Building Services to the World Bank funded Mumbai Urban Transport Project (2008-2009)

Client: World Bank and MMRDA

MMRDA and World Bank were desirous of undertaking a pilot project intervention using the EMCB Consultant services in one of the R&R building site wherein project affected people (PAP) have been relocated and resettled. As a core team member, Rutuja undertook a rapid review of the R&R activities undertaken in compliance to state and national level policies. Rutuja was also involved in implementing a community-based environmental management plan for one of the Resettlement and Rehabilitation sites.

Environmental and Social Impact Assessments

Cumulative Impact Assessment of the Trishuli River Basin, Nepal (2017 – ongoing)

Client: IFC

The IFC is supporting a basin-level management intervention for Trishuli River Basin in the context of upstream and downstream hydropower development. ERM has been commissioned to undertake a CIA of the entire river basin, in accordance to IFC's CIA Handbook, in order to determine cumulative environmental, biodiversity and social impacts. Rutuja is the lead social specialist and Project Manager for the assignment.

ESIA and Resettlement Framework for a 225 MW dual fuel power project in Bhola, Bangladesh (2016-2017)

Client: SP Infra

ERM was commissioned to develop an ESIA, Resettlement Framework and secure local regulatory approvals for a power project in Bhola, Bangladesh. The site was adjoining an existing operational power

project of the Bangladesh Power Development Board. As Project Manager, Rutuja coordinated studies across the team leaders for environment, ecology, social and cumulative impacts and compiled the report for local permitting and international lenders. She also led the social impact assessment which included an understanding of specific cumulative impacts linked to availability of land for cultivation, fishing (linked to the two power plants) and in-migration.

Environmental and Social Impact Assessment for a 900 MW hydropower project, Nepal (2015-ongoing)

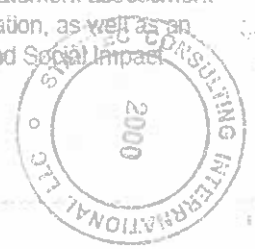
Client: GMR Energy

GMR Energy (through its subsidiary GUKHL) has engaged ERM to prepare an Environmental and Social Impact Assessment (ESIA) and associated management plans as per IFC PS (2012) and ADB SPS (2009) for a 900 MW peaking hydropower project in the Far-western and Mid-western regions of Nepal. Rutuja is the Project Manager and Social Specialist for the ESIA. Her key responsibilities have included: coordinating a range of environmental, social and ecological baseline studies for three seasons along with specific technical studies on cumulative impacts, downstream flow regime management, minimum ecological flow and GHG emissions as well as drafting and compilation of the ESIA-ESMP and associated management plans. Rutuja has also presented the ESIA to potential lenders (including the IFC and the ADB) in Kathmandu, Nepal in April 2016.

Environmental and Social Impact Assessment and Resettlement Framework for the Alimit Hydropower Complex, Philippines (2015-2016)

Client: Confidential

A confidential client consortium (Norway and Philippines) is proposing a 130 MW hydroelectric power project (HEPP) with an associated 250MW pumped storage (PS) facility in north of the Philippines. ERM was commissioned to prepare the local Environmental Impact Statement assessment according to Philippines regulation, as well as an international Environmental and Social Impact



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Assessment to meet IFC performance standards and lender requirements. Rutuja was the Social Specialist for the project in charge of developing the social impact assessment, mitigation and associated management plans that include the Resettlement Framework, the Stakeholder Engagement Plan and the Indigenous Peoples Development Plan.

She also contributed to the understanding of cumulative impacts on social receptors linked to the hydro complex together with another storage project downstream of Ailini River.

Regulatory Environment Impact Assessment for the expansion of a chlor alkali facility, Orissa, India (2016-2017)

Client: Aditya Birla Chemicals

ERM is supporting ABG's chlor alkali facility in Ganjam Orissa to obtain an environmental clearance through the development of an EIA for the proposed expansion. Rutuja is the Functional Area Expert for Social Impacts and undertook the baseline studies as well as impact assessments focusing on fishing, immigration and community health and safety.

Gap Assessment and ESIA Update for a textile manufacturing complex in Mekelle, Ethiopia (2015-2016)

Client: Swedfund and the DBL Group

Swedfund and H&M intend to fund the development of an integrated textile complex outside Mekelle city in Ethiopia that is proposed to be developed by the DBL Group, a leading garments manufacturer based in Bangladesh. ERM was commissioned to undertake a gap assessment of environmental, social and technical studies and thereafter update the existing documentation into an ESIA which met the requirements of international standards (notably IFC PS and WB EHS Guidelines). Rutuja is the lead social specialist for the project and also provided specific technical inputs on community dependence on water for a source vulnerability and socio-economic study for the specific site.

Environmental and Social Impact Assessment of an FSRU for an onshore LNG Terminal, India (2014-2015)

Client: Confidential

ERM assisted a confidential oil & gas developer in the preparation of an Environmental and Social Impact Assessment report in line with the EIA Notification (2006) towards submission for Environmental Clearance. Rutuja led the Social Impact Assessment for the project that involved the identification of adverse and beneficial impacts on the local community and key stakeholders.

Environment and Social Risk Assessment for potentially chromium contaminated sites in the Hooghly district, West Bengal

Client: West Bengal Pollution Control Board (2013-2014)

ERM has been commissioned by the West Bengal Pollution Control Board to develop and plan remediation action plans for industrial hotspots with potential chromium contamination along the Delhi Road in Hooghly district. This project is funded by the World Bank. Rutuja led the social assessment which included undertaking a baseline and risk profile for 27 contaminated sites and developed a risk rating methodology based on multi-criteria analysis. Thereafter, a site-specific E&S assessment and management plan was undertaken on the final 9 sites.

ESIA and Rehabilitation Plan for a proposed coal block, Chattisgarh, India (2011-2012)

Client: BALCO

ERM was commissioned to develop an ESIA and associated management plans for an allocated Durgapur II Taraimar coal block on behalf of BALCO, a part of the Vedania Group. The project involved updating an existing government-approved EIA to the requirements of the IFC Performance Standards. Rutuja led the social scoping of the ESIA, including determination of the requirement for a resettlement plan and an indigenous people's development plan.

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Environmental and Social Impact Assessment of a 100 MW Wind Energy Project in Maharashtra, India (2011-2012)

Client: Panama Wind Energy Private Limited

ERM developed an ESIA and Environmental and Social Management Plan for a 100 MW Wind Energy Project in the eco-sensitive area of the Western Ghats as per the requirements of international lenders such as FMO and DEG. Rutuja was the Project Manager for the ESIA and led the Social Impact Assessment and Management Plan for the project.

Strategic Environmental and Social Assessment for National Dairy Development Board, Anand – 2010-2011

Client: National Dairy Development Board

ERM is undertaking a strategic environmental and social assessment of the proposed National Dairy Plan to be implemented by the NDDB. In line with the Operational Policies of the World Bank, ERM has been commissioned to undertake a detailed survey of 8000 households across India and conduct stakeholder consultations with groups involved in the formal and informal dairying sector at the village, district and national level. As a core team member, Rutuja was in charge of coordinating socio-economic surveys for the states of Gujarat and Karnataka and undertaking stakeholder consultations to identify impacts from the proposed project components of the National Dairy Plan.

Social and Environmental Impact Assessment of a transmission line for the Allain Duhangan Hydro-electric project in Himachal Pradesh – 2008-2009

Client: International Finance Corporation

ERM India was commissioned by the IFC to undertake an impact assessment of the power transmission line of a hydro-electric power project funded by the IFC based in Manali. The transmission line was to through approximately 200 kms from Manali to Nalagarh, across rural communities and hamlets. As a key team member, Rutuja assessed the socio-economic and community risks in accordance with the IFC

Guidelines on the local communities who were to come within the 100 mt corridor of impact. The SIA also included a review of the procedures undertaken by the project proponents in acquiring right of way, managing community risks and community engagement in setting up the project.

Environmental and Social Impact Assessment of a proposed solar powered plant in Tamil Nadu, June 2009

Client: Moser Baer

ERM has undertaken an ESIA for a proposed Solar Photovoltaic Power Plant of 5 MW capacity in the Sivaganga district of Tamil Nadu. Rutuja led the social impact assessment which included discussions with impacted villages in the project's area of influence, stakeholder mapping and predicting the intensity of impacts on the predominantly rural community. The outcome of the SIA was a Social Management Plan and a framework to implement social management systems

Environmental and Social Impact Assessment and for the Coal Bed Methane Block in Birbhum, West Bengal, 2008-2009

Client: BP Energy

BP has been awarded a license to explore CBM for supplying domestic gas in the Birbhum District of West Bengal across three blocks. ERM was commissioned by BP to undertake a detailed Environmental and Social Impact Assessment to submit the same to the Ministry of Environment and Forests to get a clearance and commence operations. The ESIA involved a detailed baseline study of environmental and social indicators of three blocks in Birbhum, Mayureshwar I, Rampurhat I and Mohammad Bazaar. Rutuja was involved in the stakeholder engagement and primary social data collection as well as the identification of potential beneficial and adverse impacts from the upcoming BP operations and development of Framework Management Plans.

Sustainable Finance Ongoing Performance Monitoring



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Independent EHS and Social Performance Monitoring of the Nagpur Metro Rail Project, India
Client: KfW and NMRCL

KfW is a major lender to the Nagpur Metro Rail Project, presently under-construction in Nagpur, Maharashtra, India. The project has an existing ESIA-ESMP and Resettlement Plan which is being implemented through a General Consultants Consortium engaged by NMRCL. ERM is reviewing the EHS and Social Performance of the Project on a quarterly basis (thereafter semi-annually) on behalf of KfW. The objective is to identify key implementation concerns and challenges and propose corrective actions to align the project to the applicable standards. Rutuja is the Project Manager.

Independent Review and Quarterly Environmental and Social Monitoring of the resettlement, land acquisition and livelihood restoration associated with the development of an ultra-mega power project and coal mining project, Madhya Pradesh (2011-2014)
Client: US Exim Bank

The US Exim Bank commissioned ERM to undertake an independent review and environmental and social monitoring of an upcoming ultra-mega power plant and associated coal mines in Singrauli, Madhya Pradesh. Rutuja led the social monitoring in accordance to the Equator Principles and IFC Performance Standards focusing on resettlement completion, livelihood restoration and social impact management.

Sustainable Finance- ESMS Support E&S Management Systems Review for Hamkorbank, Uzbekistan (ongoing)
Client: FMO and Hamkorbank

ERM is undertaking an ESMS Review for Hamkorbank with a specific focus on its implementation for the textile and cotton sector value chain. The scope of the review focuses on Hamkorbank's lending activities in Uzbekistan. Rutuja is the lead Social Specialist for the project to

undertake onsite consultations and analysis of the ESMS as per the applicable standards.

Environmental and Social Management Systems for a leading private equity fund, India (2016-17)
Client: ICICI Venture

ICICI Venture is seeking multilateral investment and therefore commissioned ERM to assist them in developing an ESMS in line with CDC's requirements and the CDC Toolkit for Fund Managers (2015). Rutuja is the Project Manager for the assignment.

E&S Management Systems Policy Framework for a healthcare focused fund, India (2017)
Client: Somerset Capital

Somerset Capital is seeking investment from multilateral lenders for its healthcare focused fund for companies in India. In accordance to E&S requirements, Somerset commissioned ERM to develop a management systems framework in line with the Environmental and Social Policy Statement of the Overseas Private Investment Corporation (OPIC), February 2017. Rutuja was the Project Manager.

Human Rights Management Systems for a sustainability framework (2016)
Client: Aditya Birla Group

The ABG Group commissioned ERM to develop a sustainability framework across its pillars of responsible stewardship, stakeholder engagement and future proofing through policy statements, technical standards and guidance notes. Rutuja led the development of documentation for human rights which included a policy statement to cover ABG's group companies, subsidiaries and partners; technical standard to undertake a human rights due diligence and a guidance note for human rights impact assessment and management planning.

Environmental and Social Management Systems and Operating Procedures for a container terminal and logistics company, India (2016)
Client: Continental Warehousing Corporation

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ERM was commissioned by CWC to prepare an ESMS for the company based on IFC PS and national laws, rules and regulations. The main operations of the company included Container Freight Stations, Multimodal Terminals, Warehousing, Inland Container Depot (Export-Import), and third party logistics. Rutuja was the Project Manager and led the development of the ESMS Handbook along with supporting assessment tools, management standards and operating procedures.

Sustainable Lending Policies and Procedures for India's largest private sector bank (2014-2016)
Client: Axis Bank

Axis Bank Limited intends to align its internal lending policies and procedures to international standards such as the Equator Principles, 2013. ERM was commissioned to assist Axis Bank to develop an internal manual, toolkit and a road map for implementation over a three-year time frame. Rutuja was the Project Manager for the assignment and led the development of Axis Bank's Sustainable Lending Policies and Procedures as well as its pilot implementation across five (5) projects within the company's lending portfolio.

Environmental and Social Management Systems for Medica Synergie Private Limited, West Bengal (2013)
Client: edica Synergie

ERM was commissioned by MSPL to develop a customized environmental and social management system (ESMS) for a healthcare entity with hospitals in West Bengal and Jharkhand. The ESMS was scoped on the basis of an ESG Due Diligence that was undertaken in line with IFC Performance Standards (2012) and GRIIS requirements. Rutuja was the Project Manager.

ESG Management Systems for Kotak Investment Advisors Limited (2015)
Client: Kotak

ERM developed a sector-agnostic Environmental and Social Management Systems for KIAL across their private equity funds of real estate, infrastructure etc. Rutuja was a team member to design and structure the policy document and the toolkit.

Social and Environmental Management Systems for a private equity fund, South Asia (2013)
Client: Motilal Oswal

A sector agnostic private equity fund with investment from the IFC intended to commission a SEMS document to align their investment procedures to IFC's requirements. In addition to the SEMS development, ERM also undertook capacity building and training for the fund's investment team. Rutuja was the Project Manager and led the social management systems development.

Environmental and Social Reputation Risk Assessment of a private-equity fund, Indonesia (2013)
Client: FMO

FMO is evaluating an opportunity to support and invest in a private equity fund based in Indonesia which will invest in energy, mining and plantation assets in South-east Asia. FMO has commissioned ERM to undertake a reputation risk assessment of the private equity fund and its portfolio of investments in Indonesia to support its investment decision. Rutuja is the Project Manager for the assignment.

Sustainable Finance- Training and Capacity Building Sustainable Supply Chain for Tata Group of Companies, 2017
Client: Tata Sustainability Group

ERM developed and delivered content for a training program (across three sessions) on sustainable supply chain for Tata Group of Companies. The training program had a specific focus on extractives sector, the manufacturing sector and the services sector through distinct capacity building workshops. Rutuja was engaged as a social specialist for the



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project and supported in content development and delivery of training for the extractives and manufacturing sector companies.

E&S Risk and Opportunity Management for commercial banks in Bangladesh, 2018

Client: FMO

The Central Bank of Bangladesh has put in place E&S Risk and Opportunity Management Guidelines for the banking sector in Bangladesh with the help of IFC and other lenders. ERM has been commissioned by the FMO to develop content and deliver 8 training workshops on the ESRM Guidelines in Dhaka between February and April 2018. Rutuja is the lead social specialist and one of the trainers for the project.

ESRM Training for Banks in Nepal, 2018

Client: IFC

The IFC is supporting Nepal Rashtriya Bank to develop ESRM Guidelines for the banking sector in Nepal. ERM has been commissioned to deliver training of trainer workshops on the draft guidelines to representatives across the head office and regional office of NRB in Kathmandu, Pokhara and Nepalganj. Rutuja is the Project Manager.

Environmental and Social Due Diligence

Ongoing ESDD Projects

E&S Due Diligence of a power sector portfolio (renewables and conventional power), India – Ongoing

Client: GDPO

GDPO is evaluating an investment opportunity into an independent power producer with conventional and renewable energy assets in India. The assessment framework considers applicable regulations and the Equator Principles, 2013. Rutuja is the lead social specialist to provide overall QA/QC support for the transaction and also led the ESDD for a combined cycle power plant part of the power portfolio.

E&S Compliance Audit for a pharmaceutical manufacturing company, Kazakhstan (2017)

Client: ADB and JSC Chimpharm

ADB is considering a corporate finance investment into JSC Chimpharm for expansion of their existing pharmaceutical manufacturing company in Shymkent, Kazakhstan. ERM was commissioned to undertake an E&S Compliance Audit and develop safeguards documentation for the project. Rutuja is the Project Manager and lead social specialist for the assignment.

E&S Compliance Audit for an agribusiness and greenhouses entity, Armenia (2017)

Client: ADB and Spayka LLC

ADB is considering a project finance investment into a proposed 50 ha vegetable greenhouse to be developed by Spayka LLC in Yerevan Municipality. ERM was commissioned to undertake an E&S Compliance Audit of Spayka LLC (including its procurement supply chain) as well as a due diligence for the specific greenhouse project. Rutuja is the lead social specialist for the assignment.

E&S Due Diligence for a Greenfield airport, North Goa (2017)

Client: Axis Bank

GMR is the Concessionaire to develop a Greenfield Airport for North Goa. Axis Bank commissioned ERM to undertake an ESDD to assess compliance of the project and suggest any key studies in accordance to their Sustainable Lending Policies and Procedures (based on IFC PS). Rutuja is the Project Manager and led the ESDD as the social specialist.

E&S Due Diligence of the Vizhinjam International Sea Port, Kerala, India (2016-2017)

Client: Adani Ports

Adani Ports (AVPFL) on behalf of Yes Bank Limited commissioned an E&S Due Diligence for the Vizhinjam Port in Kerala, India. The ESDD was required to assess compliance against IFC PS as well as provide a comprehensive risk assessment linked to biodiversity issues, National Green Tribunal litigation and the land acquisition process. Rutuja is the Project Manager and is leading the social assessment.



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E&S Due Diligence for a portfolio of road projects in Andhra Pradesh (2017)*Client: Brookfield and Peak Infra*

Brookfield and Peak Infra are evaluating the acquisition of two operational roads in Andhra Pradesh, notably the Simhapuri Expressway and the Rayalseema Expressway. As a part of the transaction, ERM was commissioned to undertake a risk-focused E&S DD as per JBIC's standard. Rutuja is the Project Manager and led the risk assessment and quantification process for the two roads.

Environmental, Social and Structural risk screening of an EPFI's RMG-sector portfolio, Bangladesh*Client: Confidential*

A leading EPFI has commissioned ERM to undertake an environmental, social and structural assessment of 99 facilities within their ready-made-garments portfolio in Bangladesh. The assessment includes the development of a screening and risk assessment methodology based on IFC Performance Standards and Bangladesh national regulations for use by the EPFI's team to evaluate future risks. Rutuja is the Project Manager for the assignment and is leading the social review.

Completed ESDD Projects**Hydropower**

- E&S Due Diligence of the Lower Likhu Hydropower Projects in Nepal for Dolma Impact Fund, 2016 – Project Manager;
- E&S Due Diligence of a portfolio of hydro and wind projects (Project Vaayu) for the CDC Group in 2015-2016 – Project Manager;
- Independent review of three hydropower assets for an infrastructure fund (Project Ambrosia) in the state of Sikkim, India – 2010-2011, Project Manager;
- E&S Due Diligence of four (4) hydropower projects (including Karcham Wangtoo) on behalf of a confidential financial investor – 2008-09.

Conventional Power and Renewable Energy

- E&S Due Diligence for a portfolio of wind and solar energy projects of Hero Futures on behalf of the APG Group, 2017, Project Manager;
- E&S Due Diligence of Azure Power's solar project portfolio for FMO in India, 2016-2017 – Project Manager;
- Independent Environmental and Social Review of waste to energy assets in Thailand and India for Royal Haskoning and FMO, 2013-2014 – Project Manager;
- Independent Review and Environmental and Social Monitoring of an ultra-mega power project, Maharashtra for Standard Chartered 2014-2016, Project Manager;
- E&S DD of ReNew Power's portfolio of projects for APG and Piramal SFG, 2017 – Project Manager;
- E&S Bid Screening for Actis for four solar parks in 2016, Project Manager.

Infrastructure

- E&S Risk Assessment and Quantification for bidding for the proposed Navi Mumbai International Airport, 2016 – Social Specialist;
- ESG Due Diligence for Krishnapatnam Port on behalf of APG and Piramal SFG – 2017 – Project Manager;
- E&S Gap Assessment for five (5) roads of Gammon Infra acquired by Brookfield in 2015-2016;
- E&S Due Diligence for the Hyderabad Metro Rail Project for EDC (2014-2015) – Project Manager and Social Specialist;
- E&S Due Diligence for the Jaipur Mahua Toll Road Project (2014-2015) – Project Manager;
 - Environmental and Social Due Diligence for a Water and Sanitation company for Olympus Capital, 2013-2014 – Project Manager;
 - Independent Review for an upcoming container port terminal at Ennore Port – 2009 – Project Manager.

Healthcare

- ESG Due Diligence for a portfolio of hospital

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- projects across South, East and Central India for the Abraaj Group, 2015 – Project Manager;
- ESG Due Diligence for a portfolio of three hospitals in North East India for the Abraaj Group, 2016 – Project Manager;
- ESG Due Diligence for a diagnostics entity in South India, 2017 – Project Manager.
- Environmental and Social Due Diligence of a healthcare chain, Kolkata for Quadria Capital, 2013 – Project Manager.

Pharmaceuticals and Chemicals

- E&S Due Diligence for Neuland's API Manufacturing facilities in Hyderabad on behalf of ICIICI Ventures, 2016-2017 – Project Manager;
- E&S Due Diligence of Natco Pharma's API and formulations portfolio on behalf of CX Partners, 2017 – Social Specialist;
- ESG Due Diligence of an agrochemicals entity in Kutch along with associated salt washing plants for ADV Partners, 2015-2016 – Project Manager;
- ESG and Social Due Diligence for a biotechnology manufacturing entity in Gujarat for Quadria Capital, 2015 – Project Manager
- Environmental and Social due diligence of a pharmaceutical company's portfolio in Jakarta, Indonesia for Quadria Capital, 2014 – Project Manager and Social Specialist.

Miscellaneous

- Environmental and Social Due Diligence of an integrated cement plant and associated limestone mines and Jetty, Gujarat – 2014, Social Specialist;
- Independent Review and Monitoring of an aluminum refinery at Lanjigarh, Orissa – 2012 – Social Specialist;
- Independent EHS and Social Review of a garment manufacturing group, Chittagong on behalf of DEG – 2014;
- Independent Environment and Social Review of Akruti City Limited's proposed slum rehabilitation project, Mumbai 2011 for FMO – Project Manager;
- Independent EHS and Social Review of Aitken Spence Pte, Sri Lanka for DEG in 2012 – Project Manager and Social Specialist;
- E&S Monitoring for an integrated steel plant in

- Wardha for FMO – 2014 – Social Specialist;
- Environmental and Social Review of an Integrated Steel Plant in the Sindhudurg District, July 2008 – Project Manager.

Social Due Diligence and Labour Audits
Labour, human rights and supply chain audits for mica mines and processing units -2016-2017
Client: Yamaguchi Mica

ERM was commissioned by Yamaguchi Mica to undertake a series of labour and human rights audit in accordance to the SA 8000 framework for their suppliers. The supply chain included mica mines and mica flake processing units in Bihar and Jharkhand. Rutuja was the project manager and lead auditor for the assessment.

Labour and SA 8000 audit of an under construction cement plant in the Congo 2015-2016
Client: PPC Cement

ERM was commissioned by PPC Limited to undertake a labour and SA 8000 assessment for the Songololo Cement Project in the Cataractes district of the Democratic Republic of Congo. Rutuja was the lead social specialist for the labour assessment. The scope included a review of the Congolese and Chinese contractors and assessment of working conditions for the under construction cement facility vis-à-vis IFC Performance Standards, 2012 and SA 8000.

Labour and Supply Chain assessment of a fish processing plant in the Maldives - 2015
Client: DEG

ERM was commissioned by DEG to undertake an environmental and social due diligence for a fish processing plant located in the Hulhumale island of Maldives. Rutuja was the lead social specialist and undertook a review of the onsite labour, community engagement and supply chain practices with reference to the IFC Performance Standards, 2012.

Rutuja Tendolkar

Labour audit and social compliance of textile manufacturing and export facilities in Bangladesh -2012-2015

Client: Confidential

ERM was commissioned by an Equator Principles Financing Institution to undertake an environmental and social due diligence for a major garment manufacturing and export organization in Dhaka, Bangladesh. The assessment included seven facilities engaged in textile printing, dyeing, garment manufacture and spinning. Rutuja is the Project Manager for this assignment and assessed the existing social compliance of the facilities with respect to the IFC Performance Standards, SA 8000, Bangladesh Labour Law 2006 and H&M Code of Conduct.

Labour and Supply Chain assessment of an integrated pulp and paper manufacturing unit and timber plantation, Malaysia -2014

Client: Sabah Forest Industries

SFI commissioned ERM to undertake a detailed assessment of labour, working conditions and supply chain risks of its operations (plantations, timber processing and paper manufacturing) in accordance to applicable labour regulations and the IFC PS 2. Rutuja led the labour assessment and assisted SFI in developing a Corrective Action Plan to address gaps in order to facilitate an investment from the International Finance Corporation.

Labour Audit and EHS Compliance for a pharmaceutical manufacturer in Mysore 2013-2014

Client: Shire Plc

ERM was commissioned to undertake a supply chain audit of an active pharmaceutical ingredient manufacturing facility located in an industrial area of Mysore, Karnataka. The review was undertaken in accordance to the corporate requirements of Shire PLC and applicable Indian labour laws. Rutuja led the social and labour audit for the facility.

Labour Audit and EHS Compliance for a pharmaceutical manufacturer in Vizag – 2013-2014

Client: Shire Plc

ERM was commissioned to undertake a supply chain audit of an active pharmaceutical ingredient manufacturing facility located in a special economic zone in the city of Vizag, Andhra Pradesh. The review was undertaken in accordance to the corporate requirements of Shire PLC and applicable Indian labour laws. Rutuja led the social and labour audit for the API facility.

Social Due Diligence and Supply Chain Assessment of a beverage packaging manufacturing facility, Indonesia (2013)

Client: Namsindo Plas

ERM undertook an Environmental and Social Gap Assessment for ongoing operations of Namasindo Plas in Bandung and Surakarta, Indonesia. The audit also involved a risk assessment of the supply chain in accordance to the IFC Performance Standards. Rutuja led the social gap assessment for labour and working conditions as well as an assessment of the Namasindo's supply chain to cover raw material procurement.

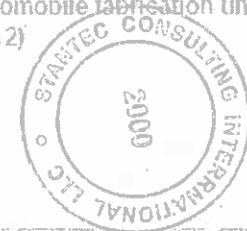
Review of Human Resource and Labour Management Systems of a hydropower project, Himachal Pradesh (2012)

Client: NSL Renewable Power Private Limited

ERM was commissioned by NRPPPL to undertake a gap assessment of corporate human resource and labour management policies as applicable to the Tidong I Hydroelectric Power Project in the Kinnaur district of Himachal Pradesh. Rutuja was the Project Manager of the assignment. The outcomes of the audit included a corrective action plan to provide recommendations to streamline HR and occupational health & safety in accordance to the IFC PS 2 on Labour and Working Conditions.

Labour Audit for an automobile fabrication unit in Pune, Maharashtra (2012)

Client: DC Designs



Rutuja Tesrokar

ERM was commissioned to undertake an environmental and social due diligence of an automobile fabrication unit located in Pune, India. The due diligence was undertaken to the requirements of the IFC Performance Standards and applicable regulations. Rutuja led the social review and helped to identify a corrective action plan to ensure compliance of the social management systems.

Social Due Diligence and Labour Compliance Assessment of a captive mine and manufacturing facility (2013-2014)

Client: Confidential

ERM has been commissioned to undertake an EHS and Social Due Diligence of a manufacturing facility and its captive mines in Orissa, India. Rutuja undertook the social risk assessment for two of the sites which included a compliance assessment against Indian labour laws.

Social Due Diligence for two thermal power plants and a captive coal mine in Madhya Pradesh and Chattisgarh (2012)

Client: Confidential

A confidential investor sought ERM's assistance in assessing labour, community, environment and health & safety risks of an upcoming independent power producer (IPP) who is developing two thermal power plants in MP and Chattisgarh and a captive coal mine. Rutuja led the social review for the two thermal power plants.

Social Risk and Impact Assessments

Retrospective Social Impact Assessment (SIA) for Sabah Forest Industries, Malaysia (2014)

Client: IFC-World Bank

ERM was commissioned to undertake a retrospective SIA, labour assessment and analysis of claims from the local community on SFI's (2007-2010) concession and associated manufacturing facilities. As a Social and Labour Specialist, Rutuja undertook the following

activities: (a) Independent review of labour and working conditions for the SFI concession and paper manufacturing operations; (b) Developing the socio-economic baseline report on the basis of desk-based review and data analysis; (c) Preparation of a framework to conduct SIA for forward-looking SFI activities; and (d) To identify labour and human rights impacts from the proposed project.

Development of a Social Investment Strategy for GGCL in Gujarat -- (2007-2008)

Client: British Gas, India

As part of its corporate social responsibility the BG Group has commissioned ERM to develop a social investment strategy in line with its principles on sustainable development through the Gujarat Gas Company Limited in the southern districts of Bharuch and Surat. The social investment strategy identified adhered to the needs assessed of all of GGCL's urban and rural consumers including domestic, industrial and commercial along with other stakeholders so that BG has a positive impact and contribution on the social sector in the region. Rutuja was a team member leading field work and strategy development.

Independent Impact Assessment for BPCL's Community Supported Projects, January 2009

Client: Bharat Petroleum Corporation Limited

ERM is undertaking an independent impact assessment for BPCL's community supported projects in order to help the client to develop a sustainable approach to their corporate responsibility strategy. The impact assessment covers 10 long-term initiatives supported by BPCL across the south, east, west and north of India. The assessment and review intends to evaluate each of these CSPs on the basis of their community engagement and ownership strategies, delivery mechanism and sustainability. Rutuja was the Project Manager for the assignment.

Updation of Social Impact Assessment, February 2009

Client: Lafarge Umium Mining Private Limited(LUMPL)

Rutuja Tendolkar

LUMPL is a 100% subsidiary company of Lafarge Surma Cement Limited (LSC), Bangladesh, and is engaged in limestone mining and export operations for use in cement plant at Chattak, Bangladesh. ERM was commissioned by Lafarge to undertake a mid-term assessment of their ongoing operations in their project footprint area and identify potential environmental and social risks. As a team member Rutuja was involved in assessing the operational impacts of LUMPL on the social project footprint area within the Shella confederacy and update the Social Impact Assessment along with Updation of the relevant social management plans.

Social Impact Assessment for the Hon Chong Cement Plant Expansion, Vietnam, 2008
Client: Holcim Vietnam Ltd

Holcim Vietnam proposes to expand its existing operations in the Kien Giang Province. HVL aims to undertake a Social Impact Assessment (SIA) of their expansion Project in accordance with Holcim's corporate objectives and standards. ERM was commissioned to undertake the SIA as a corporate imperative of the Holcim Group. While Holcim have yet to develop corporate guidelines and set requirements for conducting an SIA, Holcim have recently conducted a number of SIA's for other projects, most notably in India and Indonesia. Accordingly a team comprising of ERM personnel from India and Vietnam undertook this SIA with the objectives of meeting the socio-economic impact assessment component of the Vietnamese EIA requirements; and initiating the public consultation and stakeholder engagement process. The SIA involved assessing the beneficial and adverse impacts of the proposed cement plant expansion on the communities living in the Kien Luong province.

Social Impact Assessment and assessment of land acquisition for an upcoming cement grinding unit, Nalagarh, Himachal Pradesh, 2008
Client: Ambuja Cements Limited

Ambuja Cements Limited is developing a grinding unit at Nalagarh in the northern Indian state of Himachal

Pradesh which requires an acquisition of around 50 hectares of land, impacting around 120 households in the Navagraon Panchayat. ACL commissioned ERM to undertake a social impact assessment of the potential social and livelihood impacts of the upcoming grinding unit on the project affected families as well as the villages in the project's area of influence. The socio-economic impact assessment was undertaken over a two-phased site visit which was based on detailed community consultations, discussions with the district authorities and a household survey of the project affected people to identify potential social impacts and highlight mitigation measures as well as community engagement strategies.

Socio-Economic Baseline Study and impact assessment of a mine exploration site in Madhya Pradesh – January to May 2007
Client: Confidential

A multinational mining company, with an exploration site in Madhya Pradesh, hired ERM for a project, which entailed the development of a detailed social baseline for the project, which is presently at the prospecting stage. The project involved an assessment of local community dependence on forest resources, which may be impacted by the project and issues to enhance the ongoing community relations interventions by the client. ERM was asked to conduct village appraisals, detailed stakeholder analysis and local institutional assessment to enable the project proponent to make informed decisions for the subsequent stages, including scoping for the impact assessment. Rutuja was part of the onsite stakeholder engagement and data collection for the project.

Social Impact Assessment and Stakeholder Analysis of a proposed pipeline from Rajasthan to Gujarat – September to December 2007
Client: Cairn Energy India Pvt. Ltd.

Cairn Energy India Pvt Ltd is developing a pipeline of 600 km from its oil fields in Barmer, Rajasthan to its offshore facility in Jamnagar, Gujarat. Cairn has identified ERM in the preparation of a social baseline and strategic impact assessment of the project.

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community within the corridor of impact of the proposed pipeline. ERM was commissioned to undertake a detailed assessment of the impacts of the proposed project to the local communities from where the pipeline traversed, as well as understand local economic and political dynamics which would affect the project.





The University of Leeds

DEGREE OF MASTER OF SCIENCE

It is hereby certified that

Rutuja Tendolkar

was admitted to the degree of Master of Science

with Merit

having followed a programme of advanced study in

Sustainability (Ecological Economics)

on the 24th of November 2010



VICE-CHANCELLOR



13. Srijana Bhattarai

DECLARATION FORM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal; Ministry of Finance; Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following:

- (i) I have conducted this study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature:



Name: Srijana Bhattarai

Date: 05-02-2019

Position: International Social Team

Official stamp:



Srijana Bhattarai

Senior Consultant

Srijana is a senior consultant within ERM's Capital Project Support team in Bangkok. Her area of focus is resettlement and livelihood restoration planning, stakeholder engagement, gender equity and social inclusion and benefit sharing with an in-depth understanding of the international standards in particular IFC Performance Standards and ADB Safeguards.

Srijana has experience working in mega-scale hydropower projects, mining sector (cement) and solid waste management projects. She has worked with indigenous communities and communities with diverse ethnic groups. She was working in Nepal before moving to Bangkok.



Experience: Over 7 years' experience in social safeguards, resettlement, GESI, and livelihood restoration, benefit sharing and project management.

Email: srijana.bhattarai@erm.com

Education

- Masters in Public Administration, University of Connecticut, USA, 2007- 2009
- Bachelors in Economics, Salem College, USA, 2002- 2006
- Certificate in Land Acquisition, Resettlement and Social Sustainability, University of Groningen, the Netherlands, 2015

Languages

- Nepali, native speaker
- English, fluent
- Hindi, conversational

Fields of Competence

- Resettlement Planning
- Livelihood Restoration
- Stakeholder Engagement
- Social Impact Assessment
- Benefit Sharing
- IFC Standards/ADB Safeguards

Key Industry Sectors

- Hydropower
- Mining
- Waste Management



Srijana Bhattacharj

KEY PROJECTS

The Millennium Challenge Corporation and Government of Nepal: Project Preparation and Technical Supervision Services for Electricity Transmission Project: Transmission and Substation Activities; March 2018- Present; Stakeholder Engagement and Benefit Sharing.

Srijana is appointed as a stakeholder engagement and benefit sharing lead for the 500km (±200kV) transmission line project in Nepal. She is also supporting the development of a Resettlement Action Plan, where approximately 5000 households are expected to be impacted.

Cumulative Impact Assessment for Tamor Basin, January 2019- Present; Resettlement, Benefit Sharing and Stakeholder Engagement for the CIA of Tamor River Basin, Nepal.

ERM has been appointed by the Department of Electricity Development, Government of Nepal to conduct a Cumulative Impact Assessment for the Tamor Basin and compliance monitoring of Kibehi A Hydroelectric Project. This project is supported by a grant from the World Bank and executed by the Ministry of Energy of Nepal. Srijana is leading the Resettlement, Benefit Sharing and Stakeholder Engagement component for the project.

EGAT's project; August 2018- September 2018; 2x660MW Ultra Super Critical (USC) Coal Fired Power Plant in Quang Tri Province, Vietnam

ERM has been appointed to develop the Environmental and Social Impact Assessment, and Resettlement Action Plan for the 2x660MW Ultra Super Critical (USC) Coal Fired Power Plant in Quang Tri Province, Vietnam. Srijana developed the Stakeholder Engagement Plan for the Project.

Arun-3 Transmission Project: Transmission and Substation Activities for Arun-3 Hydropower Project; May 2017 –April 2018; Social Impact Assessment and Benefit Sharing for the transmission line project, Nepal.

Srijana assisted in resettlement planning, stakeholder engagement and leading the benefit sharing component for the Arun-3 Transmission Line Project.

Upper Kamali Hydropower Project (900MW); August 2012- March 2018; Resettlement and Benefit Sharing Plan for 900MW Upper Kamali Hydropower Project in Nepal.

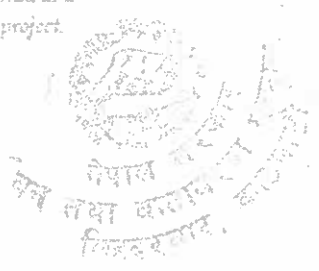
The Office of the Investment Board Nepal negotiated a concession agreement with CMR, the private party developing the hydropower project in Western Nepal. Srijana was a part of the negotiations team to ensure inclusion of international standards on social safeguards and benefit sharing. Srijana was the social lead to ensure compliance with IFC PS as well as the concession agreement.

Cambodia Airport; August 2017 –September 2017; Environmental impact Assessment for the Sihanouk Airport Extension, Cambodia.

ERM has been appointed to develop the Environmental and Social Impact Assessment for the runway extension of the Sihanouk airport. Srijana assisted the social lead in finalizing the social impact assessment and the stakeholder engagement plan.



Srijana Bhatnagar	
<p>Arun-3 Hydropower Project (900MW); August 2012- March 2018; Resettlement and Livelihood Benefit Sharing Plan for 900MW Arun-3 Hydropower Project in Nepal.</p> <p><i>The Office of the Investment Board Nepal negotiated a concession agreement with SJVN, a subsidiary company of the Government of India, developing the hydropower project in Nepal. Srijana was a part of the negotiations team to ensure inclusion of international standards on social safeguards and benefit sharing. Srijana was the social lead to ensure compliance with ADB SFS as well as the concession agreement.</i></p> <p>Benefit Sharing in Hydropower Projects; August 2017-April 2018.</p> <p><i>Policy Entrepreneurs Inc. was appointed by IFC to conduct a study on Benefit Sharing practices in hydropower projects in Nepal. Srijana was the social lead assisting the study "Local Shares as a Benefit Sharing Mechanism for Hydropower Projects" to study the mechanism through which affected population can have equity participation in the project.</i></p> <p>Hongshi Cement (6000 TPD); September 2017-April 2018; Social screening of the 6000 TPD mining plant in Nepal.</p> <p><i>The office of the Investment Board Nepal and Hongshi Cement Pvt. Ltd. signed a project investment agreement to set up a mega cement factory in Nawalparasi, Nepal. Srijana conducted initial social screening and was a social lead to assess compliance with the agreement on social safeguards.</i></p> <p>Huaxin Cement (3000 TPD); December 2017-April 2018; Social screening of the 3000 TPD mining and production sites in Nepal.</p> <p><i>The office of the Investment Board Nepal and Huaxin Cement Nanqian initiated a project investment agreement to set up a mega cement factory in Dhangadhi, Nepal. Srijana worked as a social lead to conduct initial social screening for the project.</i></p>	<p>Integrated Solid Waste Management for Kathmandu Valley; August 2014- April 2018; Social due diligence for the ISWM project in Nepal.</p> <p><i>The office of the Investment Board led the negotiations for the Integrated Solid Waste Management Project and initialled a contract with Nepwaste. Srijana worked as a social lead to conduct social impact assessment for the project.</i></p> <p>Lower Likhu Hydropower Project (28.1MW); August 2017-date; Resettlement and Livelihood Restoration Plan for Lower Likhu Project in Nepal.</p> <p><i>Sweet Ganga Hydropower and Construction Pvt. Ltd is developing a 28.1 MW run-of-the-river hydropower plant in Nepal. Srijana was the social development specialist for the project to advise on complimentary social baseline and assessment of project social and land acquisition related impacts against IFC Performance Standard (IFC PS 2012).</i></p> <p>Suri Khola Hydropower Project (6.4MW); April 2017-date; Resettlement and Livelihood Restoration Plan for the Project in Nepal.</p> <p><i>Suri Khola Hydropower Pvt. Ltd developing a 6.4 MW run-of-the-river hydropower plant in Nepal. Srijana was the social development specialist for the project to advise on complimentary social baseline and assessment of project social and land acquisition related impacts against IFC Performance Standard (IFC PS 2012) requirements.</i></p> <p>Wesi Seti Hydropower Project (700 MW); August 2013- March 2018; Initial social screening and review of resettlement and vulnerable community develop plan for the project in Nepal.</p> <p><i>The Office of the Investment Board Nepal is in a process of negotiating a concession agreement with CIVE Investment Corporation (a subsidiary of China Three Gorges Corporation). Srijana was the social lead to conduct initial social screening for the project and review existing documents on land acquisition and resettlement.</i></p>



UNIVERSITY OF COMMERCE

It is known that

Srijana Bhattarai

having satisfied the requirements for the Degree of

Bachelor of Public Administration

in

The Graduate School

has been admitted to that degree with all the related honors, privileges, and obligations. In recognition we present the seal of the University and the signatures as authorized by the Board of Trustees.

Given at Pokhara, in the State of Comanchal, on the Twenty Fourth day of August, Two Thousand and Nine.

Srijana Bhattarai
Srijana Bhattarai



Manoj Bhattarai
President of the University

Manoj Bhattarai
President of the Board of Trustees





14. Chandra Tripathee

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal, Ministry of Finance
Millennium Challenge Account- Nepal: Yaks and Yeti Hotel Complex, Kathmandu

I declare the following:

- (i) I have conducted this study professionally using acceptable and standard methodologies.
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my part(s) of study.

Signature:

Official stamp.



Name: Chandra Tripathee

Date: 05-02-2019

Position: National Cultural Heritage



Consulting Services of Project Preparation and Technical Supervision Services for Electricity Transmission Project: Transmission and Substation Activities.

FORM TECH-11 CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL PERSONNEL

1. Proposed Position : Archeologist / Cultural Expert
 2. Name of Firm : Total Management Services Pvt. Ltd. (TMS)
 3. Name of Personnel : Chandra Prasad TRIPATHEE
 4. Date of Birth : 5 April 1948
 5. Nationality : Nepalese
 6. Education :
 • M.A. (in Nepalese History, Culture and Archaeology) Tribhuvan University, Kathmandu 1983
 • Post Graduate Diploma in Archaeology (Two years Course in Field Archaeology), Institute of Archaeology New Delhi 1989
 • Advanced Course on Management & Development Nepal Administrative Staff College 2003
 • Three month Training in Pre-Historic Research: Köln University, Germany 1991
 7. Membership of Professional Associations:
 • Management Committee of Pashupati Multiple Campus, Chabahil, Kathmandu
 8. Other Trainings :
 • Three month Training in Pre-Historic Research, Köln University, Germany 1991

Publications:

- "NEPALI PURATATTWOMA KEHI PACHHILLA UPALABDHIHARU" (Recent Achievements in Nepalese Archaeology)- 2061
- "SHRI 5 PRITHVINARAYAN SHAH DEKHI SHRI 5 GIRVANYUDDHA BIKRAM SHAHAKA PALA SAMMAKA BHARDARI SABHA (MANTRIPARISAD) HARU, (Council of Ministers from the time of Prithvinarayan Shah to Girvanayuddha Bikram Shah of Nepal), *Ancient Nepal*, No.162, 2006
- "TIRHUT RAJYA RA RAJDHANI SIMARAUNGARH" (Tirhut Kingdom and its Capital Simaraungarh) *Voice Of History*, Vol. XIV, No.1, 1999, Central Department of History, T.U. Kathmandu
- "ARCHAEOLOGICAL EXCAVATION AT KHINGAR AND DZARKOT" *Ancient Nepal*, No.136, 1994, Department of Archaeology, Kathmandu
- "PRACHIN TAMANG VASTI TIMALKO ITIHAS" (A History of Timal, The Ancient Tamang Settlement) *Ancient Nepal*, No.91, 1986, Department of Archaeology, Kathmandu
- "NEPALKA PRACHIN DURVAR" (Ancient Palaces of Nepal), *Nepali Sanskriti*, Vol.1, No.3, 1985, Sanskritik Samsthan, Kathmandu
- "TAMANG CHADPARVAHARU" (Tamang Festivals) *Nepali Sanskriti*, Vol.1, No.1, 1985, Sanskritik Samsthan, Kathmandu
- NEPAL SAMVATKO UTPATTI" (Origin of the Nepal Samvat) *Charumati*, No.1, 1985, Pashupati Campus, Kathmandu
- "SHIVAKA NRITYA MURTIHARU" (Dancing Image of Shiva), *Madhuparka*, 1982, Gorkhapatra Corporation, Kathmandu
- "VISVO SAMPADA, HANUMANDHOKA RAJDARVAR" (Hanumandhoka Royal Palace, A World Heritage), *Unesco Bulletin*, Vol. XII No. 2, 1980, Ministry of Education and Culture, Kathmandu

9. Countries of Work Experience: Nepal

10. Languages	: Speaking	Reading	Writing
Nepali	: Excellent	Excellent	Excellent
English	: Excellent	Excellent	Excellent
Hindi	: Good	Good	Good

11. Employment Record

From April 2007	: To Till date (81 months)
Employer	: Heritage Services Pvt. Ltd.
Position Held	: Advisor/ Archeologist
From March 2011	: To March 2012 Intermittent (6 months months)
Employer	: Kathmandu University
Position Held	: Visiting Professor
From 2005	: To 2007 (25 months)



Consulting Services of Project Preparation and Technical Supervision Services for Electricity Transmission Project: Transmission and Substation Activities

Employer	:	Department of Archaeology, Government of Nepal
Position Held	:	Deputy Director General
From April 1996	:	To May 2005 (109 months)
Employer	:	Department of Archaeology, Government of Nepal
Position Held	:	Chief Exploration Officer
From 1984	:	To 1996 (145 months)
Employer	:	Department of Archaeology, Government of Nepal
Position Held	:	Research officer
From 1982	:	To till date
Employer	:	Pashupati Multiple Campus
Position Held	:	Founder Professor/Assistant Campus Chief

12. Detailed Tasks Assigned :
As per the TOR.

13. Work Undertaken That Best Illustrates Capability To Handle The Tasks Assigned
Name of assignment or project: Consultant and Expert; Year: April 2007- Till Date;
Location: Nepal; Client: Various National and International Agencies; Main project features: Research, advisory work and report preparation on different archaeological and conservation issues, Positions held: Advisor/ Archaeologist

Activities performed:

- Advising Nepal Tourism Board (NTB) on Tourism Development and Conservation and Heritage Sites.
- Archaeological planning and Historical structure / feature study on:
 - Maruole santaneshwor temple study
 - Bannigadi archeological study
 - Establishment of museum on Far western region
 - Study on living god (human)
 - Historical study on Kathmandu and Bhaktapur (Newari Culture)
 - Research on 34 District for conservation of Culture.
 - Conservation of Archaeological Sites in Nepal

Name of assignment or project: Regulating Growth, Kathmandu Valley, Year: 2005-2007, Location: The Kathmandu Valley, Client: Department of Archaeology, Government of Nepal; Main project features: Analysis of the current situation, identification of major problems and issues, description of prospects and options to improve the situation and recommendation of policy action for rehabilitation, protection and wisely use of the cultural heritage and monuments in the valley; Positions held: Deputy Director General; Activities performed: Coordinated the growth prospect with the densely scattered archaeological and monumental sites to preserve cultural heritage of the Valley. Formulated policy to accommodate future growth safeguarding the such sites and recommendation was made to the Government for implementation.

Name of assignment or project: Excavations and Research of different archaeological sites in the Kathmandu valley, Year: 1995-2005; Location: The Kathmandu Valley, Client: The Government of Nepal; Main project features: To find out the antiquity of ancient capital of the Lichchavi rulers of medieval Nepal, Positions held: Chief Exploration Officer; Activities performed: Conducted technical research and excavations works and managed the team of experts. Analysed the archaeological impact studies made by ISMEO at Patan Bhandarkhal garden, Patuko at Kwakaku tole, Patan, and Bhandarkhal Garden at Pasupatinath world heritage sites.

Name of assignment or project: Research of different archaeological sites, Year: 1984-1996; Location: Various District of Nepal; Client: Department of Archaeology, Government of Nepal; Main project features: technical research and excavations works; Positions held: Research officer; Activities performed: Conducted technical research and excavations works and managed the team of experts. Analysed the archaeological impact studies, identification of major problems and issues; research works for rehabilitation, protection and wisely use of the cultural heritage and monuments in the valley.

Expert's contact information: (e-mail: chandra.p.tpathee@gmail.com

phone: 9851092633)

14. Reference:

Contact information

Name: Bhash Narayan Dahal
Title: Director General
Phone: 9851092644
E-mail:

Name: Bishnu Raj Karki
Title: Ex. Joint Secretary
Phone: 9851196610



Consulting Services of Project Preparation and Technical Supervision Services for Electricity Transmission Project: Transmission and Substation Activities.

E-mail:

Name: Prayaga raj Bhattaraj

Title: Campus Chief, pashupati Multiple Campus

Phone: 9851217017

E-mail:

15. CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience. I understand that any willful misstatement described herein may lead to my disqualification or dismissal, if engaged.

I, the undersigned, hereby declare that I agree to participate with the Total Management Services Pvt. Ltd. (TMS) in the above-mentioned Request for Proposal. I further declare that I am able and willing to work:

1. for the period(s) foreseen in the specific Terms of Reference attached to the above referenced Request for Proposal for the position for which my CV has been included in the offer of the Consultant and
2. Within the implementation period of the specific contract.

.....

Signature of Key professional Personnel

Name of the expert: Chandra Prasad Tripathi – Archeologist / Cultural Expert

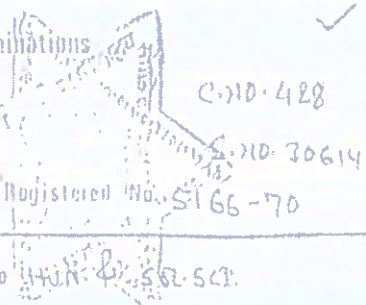
Date: 10 February 2019

Day/Month/Year





TRIBHUVAN UNIVERSITY
Office of The Controller of Examinations
Kathmandu, Nepal
Transcript of Academic Records



Name: CHANDRA PRASAD TRIPATHI Date of Birth: 5TH APRIL 1948 Registered No.: 5166-70

Entry date: 2035 SUMMER Campus: RIRAPUL Institute: H.H.N. & S.S.C. S.I. S.C.
Level: DEGREE Major: NEHCA
Credit Transfer, if any:

Level	Year	Inst/Univ	Exam	Division	Major	Campus	Reference
Matriculation Level	2014	S.L.C. BOARD	S.L.C.	III	-	-	3222 X
Certificate Level	2030	T.U.	G.A.	III	-	PRIVATE	4236
Diploma Level	2033	T.U.	DIPLOMA	PASS	NEHCA	T.C.	546/021

Course No	Course Title	Cr hr	Int	Ass	Sen	Total	Course No	Course Title	Cr hr	Int	Ass	Sen	Total
2035 SUMMER							2036 SUMMER						
NEHCA							NEHCA						
551	POL. HIST. OF ANCI. & EARLY MEDIEVAL NEPAL	5	7.5	26.4		33.9	552	POL. HIST. OF MEDIEVAL NEPAL	5	7.0	21.0		28.2
554	SOCIAL & CULT. ANTH. OF NEPAL	5	6.6	28.4		35.0	555	HISTORY OF RELIGIONS	5	8.2	22.4		30.6
559	HINDU & BUDDHIST SCULPTURE & GRAPHY.	5	5.6	21.6		27.2	558	HINDU SOCIAL ORGANIZATION	5	7.1	22.4		29.5
560	FINE ARTS OF NEPAL	5	5.5	22.0		27.5	561	ARCHITECTURE OF NEPAL	5	7.2	23.2		30.4
		20				123.6			20				118.7

Stamp: NEPALI REGISTERED CONSULTING INTERNATIONAL LLC
Signature: [Handwritten]

Signature: [Handwritten]

Signature: [Handwritten]



श्री चंद्र प्रसाद त्रिपाठी को
 उत्खनन, बन्वेषण, प्रकाशन, स्मारकीय संरक्षण, ऐतिहासिक परिवहन एवं संप्रदाय विधि में अन्वेषणात्मक प्रशिक्षण तथा
 सितम्बर 1989 में निर्धारित परीक्षा में विनिश्चित विषयों में उतीर्ण होने के आधार पर

पुरातत्व का स्नातकोत्तर डिप्लोमा
 ग्रहण किया जाता है।

संद्वान्तिक

प्रागैतिहासिक पुरातत्व, आर्कैविहासिक एवं प्राथमिक ऐतिहासिक पुरातत्व, कला एवं स्मारक, पुराविरिगसन् एवं पुरावाहन, उत्खनन, बन्वेषण, प्रकाशन, स्मारकीय संरक्षण एवं ऐतिहासिक परिवहन के सिद्धांत एवं संप्रदाय विधि, संप्रदाय तथा पुरावेषण विषयक विषय।

प्रायोगिक

संरक्षण, ऐतिहासिक, पुराविरिगसन्, कोशल विधि, पुरावेषण प्रतिक्रिया, एवं पुरावु प्रतिक्रिया निर्माण।

[Signature]
 निदेशक
 पुरातत्व संस्थान

[Signature]
 महाविदेशक
 भारतीय पुरातत्व सर्वेक्षण
 नई दिल्ली

दिनांक 12-09-1990
 मसूदा 12-09-1990

Shri Chandra Prasad Tripathi is hereby awarded

Post-graduate Diploma in Archaeology

by virtue of having undergone practical training in Excavation, Exploration, Publication, Preservation of Monuments, Chemical Preservation and Museum-methods, and in token of having passed the prescribed examination, in **September 1989**, in the following subjects :

THEORETICAL

Prehistoric Archaeology; Protohistoric and Early Historical Archaeology; Art and Architecture; Palaeography and Numismatics; Principles of Excavation, Exploration, Publication; Preservation of Monuments and Chemical Preservation; Museum-methods; and Antiquarian Laws.

PRACTICAL

Surveying; Drawing; Photography; Potter's-craft; Taking impression of inscriptions; and Preparation of casts.

[Signature]
 Director


Institute of Archaeology
 Archaeological Survey of India
 New Delhi

[Signature]
 Director General

Archaeological Survey of India
 New Delhi

S.No. 3067/110.496
Reg. No. 5166-70

Name: CHANDRA PRASAD TRIPATHI					Level: B.E.D.E.E.						
Course No	Course Title	Cr. Hr	Int. Assn	Sem	Total	Course No	Course Title	Cr. Hr	Int. Assn	Sem	Total
2037 SUMMER											
562	SOCI. & ELD. HIST. OF ANCIENT NEPAL	5	6.8	24.0	30.8		THESIS (2040-6-14)	10	—	—	75.0
567	FIELD ARCHAEOLOGY	5	6.4	20.4	26.8		M.D.S.	50	—	—	89.3
557	MATHEMATICS OF NEP	5	7.0	22.8	29.8			20			164.3
556	EPIGRAPHY OF NEPAL	5	6.0	25.4	34.4						
		20			130.2						


 MCA
 NEW, W. 2001
 Kathmandu, Nepal

Total Marks: 536.8 Total Credits: 80 Percentage: 67.1

Completed necessary courses for Certificate/Diploma/Degree level
 on 2040 SUMMER SEMESTER with Pass/Merit/Distinction.

Note:-
 Classification Pass Merit Distinction
 Certificate 40% 60% 80%
 Diploma 45% 65% 85%
 Degree 50% 70% 90%

One credit hour equals 20 marks.
 20% of marks allotted to internal assessment. Marks encircled indicate failure.



Checked by [Signature]
 Date of Issue

[Signature]
 Controller of Examinations



क्रमांक १३९५/९२

चिप्ले नं ५१६६-७०

त्रिभुवन विश्वविद्यालय

Tribhuvan University



मानविकी र सामाजिक शास्त्र अध्ययन संस्थान
Institute of *Humanities and Social Sciences*

त्रिभुवन विश्वविद्यालय विनियमहरूद्वारा निर्धारित सबै आवश्यकताहरू पूरा गरी
चन्द्र प्रसाद त्रिपाठी

शैक्षिक वर्ष २०४०-२०४१ वि.सं.मा मानविकी र सामाजिकशास्त्राचार्य
(नेपाली इतिहास, संस्कृति र पुरातत्व) परोक्षा

सिद्धि / उत्तम / सामान्य श्रेणीमा उत्तीर्ण भएको प्रमाणित गरिन्छ।

This is to certify that on the successful completion of all the requirements prescribed by the regulations of Tribhuvan University Chandra Prasad Tripathi has been declared to have passed the Degree of Humanities and Social Sciences (Nepalese History, Culture & Archaeology) examination with Distinction / Honor in the Academic year १९९३-१९९४ A.D.

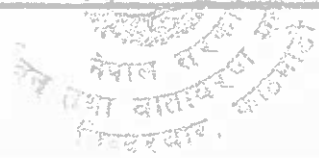
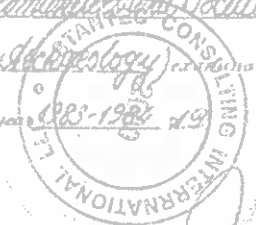
महेन्द्र शर्मा
Dean

Kathmandu, Nepal.

Date of Issue: 24 JUN 1993

Chandra Prasad Tripathi
Rector

Chandra Prasad Tripathi
Vice-Chancellor



15. Ramu Subedi

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal, Ministry of Finance Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following

- (i) I have conducted this study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study

Signature:

Official stamp



Name: Ramu Subedi

Date: 05-02-2019

Position: Domestic Benefit Sharing (BIKASH)

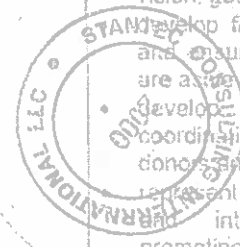
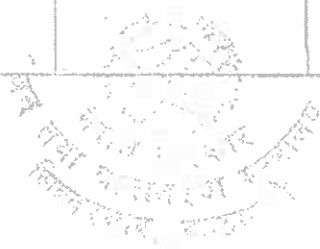


CURRICULUM VITAE

RAMU SUBEDI,
Domestic Benefit Sharing (BIKASH)

Date of Birth: 28 September 1968
 Nationality: Nepali
 Contact Address: /01-4241001(Office)/98510-34720
 Email: ramusubedi@gmail.com

WORKING EXPERIENCE AND EXPERTISE			
<p>Ramu has over 25 years of experience of leading, managing and implementing development programmes in the field of environment and social assessment and safeguard, forestry/community based forestry, climate change, poverty and livelihoods. He has a good knowledge of development policy in the sector of environment, forestry and climate change. He has worked closely with the wide range of stakeholders such as government, development partners, policy makers, research institutes and academia, I/NGOs, private sector and local communities in different capacities.</p>			
ACADEMIC QUALIFICATIONS			
<p>MSc in Climate Change from the University of Edinburgh, UK (2010)</p> <p>Master in Humanities and Social Science from Tribhuban University (TU), Nepal (1999)</p> <p>BSc Forestry from Institute of Forestry, Pokhara, TU, Nepal (1994)</p>			
EMPLOYMENT RECORD:			
Position held:	Project/Employer:	Duration:	Key Responsibilities:
Chief Executive Officer/Environment and Social Safeguard Expert	Nepal Environmental and Scientific Services (NESS) (Pvt) Ltd, Ttapathali, Kathmandu	January 2016 to date	<p>Lead and manage NESS under the strategic direction of the Board of Directors; specific roles and responsibilities include:</p> <ul style="list-style-type: none"> provide strategic leadership and management of NESS in achieving its vision, goals and targets; develop firm's strategic plan and target and ensure that the targets and results are achieved; develop networking and functional coordination with relevant stakeholders, donors and clients of the firm; represent the organization in national and international forum/events in promoting marketing and visibility of the Company; provide expert inputs expertise in the field of environment and social



			<ul style="list-style-type: none"> • safeguard; • provide technical inputs on environment and social impact assessment including EIA, IEE and ESIA of various projects including hydropower and transmission lines • provide technical expertise and advise in the field of environment, social development, climate change, disasters risks reduction (DRR), community forestry and livelihoods; • coordinate and manage environment and social impact assessment including EIA, IEE and ESIA of various projects; • design and execute various studies and research; • review various reports and ensure its quality; • design projects and proposals in securing funding; and • manage contracts and partnership with clients and stakeholders.
Team Leader	Multi Stakeholder Forestry Programme (MSFP), SDC Nepal Kathmandu	June 2011 to Jan 2016	<ul style="list-style-type: none"> • lead and manage the project team and the programme and ensure that the objectives are achieved; • provide strategic guidance to the programme team, partners (government, NGO, private sector) on programme related issues; • coordinate with government ministries such as Ministry of Forests and Soil Conservation, Ministry of Population and Environment, National Planning Commission and other stakeholders at national level; • contribute to national policy and strategy development process related to forestry, biodiversity, and climate change; • manage the review of the programme, documentation of the achievements and learning, and sharing of the learning and achievement to wider audience; • monitoring and reporting of the programme.
Deputy Programme Manager/Forestry Expert	Livelihoods and Forestry Programme (LFP)	Jan 2008 to May 2011	<ul style="list-style-type: none"> • co-manage the programme with Programme Manager with providing strategic guidance and technical advisory support to the programme team and

	Kathmandu		<p>partners on programme planning, management, implementation and coordination;</p> <ul style="list-style-type: none"> • coordinate with government ministries such as Ministry of Forests and Soil Conservation, Ministry of Environment, Science and Technology, Ministry of Finance and other stakeholders at national level; • provide advice and technical inputs to programme partners on sustainable forest management, environment, livelihoods, climate change, and community based forestry process; • facilitate in designing and implementing various studies and capacity development training to project team and partners on forestry, livelihoods and climate change; • manage the review of the programme, documentation of the achievements and learning, and sharing of the learning and achievement to wider audience; • contribute to policy development process; • monitoring and reporting of the programme.
Hills Forestry Adviser	<p>Livelihoods and Forestry Programme (LFP)</p> <p>Kathmandu</p>	Feb 2006 to Jan 2008	<ul style="list-style-type: none"> • lead and coordinate the programme in Koshi and Dhaulagiri zone; • provide technical advisory support to the programme team and partners on sustainable forest management, biodiversity, social inclusion, and livelihoods diversification; • facilitate in designing and implementing various studies and research related to natural resource management, forestry, livelihoods and climate change; • engage in policy development process.
Deputy Hills Forestry Adviser	<p>Livelihoods and Forestry Programme (LFP)</p> <p>Kathmandu</p>	Feb 2003 to Jan 2006	<ul style="list-style-type: none"> • lead and coordinate Hills (Koshi and Dhaulagiri) component of the programme; • provide technical advisory support to the team and partners on sustainable forest management, biodiversity, social inclusion, and livelihoods diversification; • promote community based approach to forest management; • facilitate participatory action research on



			<p>community based forestry, biodiversity, and livelihoods activities with active involvement of local communities/community forestry members;</p> <ul style="list-style-type: none"> • engage in policy development process
Area Manager/Forestry Expert	<p>Livelihoods and Forestry Programme (LFP)</p> <p>Dhaulagiri Area (3 Districts)</p>	Aug 2001 to Jan 2003	<ul style="list-style-type: none"> • Lead and manage the LFP Dhaulagiri team and programme; • programme planning, budgeting, implementation, coordination, monitoring and reporting; • facilitate in designing and implementing sustainable forest management, biodiversity, and livelihoods related activities in 3 districts with focus to poor and women; • promote community based approach to forest management – community forestry.
District Manager/Forestry Expert	<p>Livelihoods and Forestry Programme (LFP)</p> <p>Baglung</p>	April 2001 to July 2002	<ul style="list-style-type: none"> • lead and manage the LFP Baglung team and programme; • programme planning, budgeting, implementation, coordination, monitoring and reporting; • facilitate in designing and implementing community forestry, biodiversity, and livelihoods related activities in Baglung district with focus to poor and women; • promote community based approach to forest management; • provide advisory support to the team and partners on community based forestry, social inclusion and pro-poor livelihoods.
Community Forestry Adviser	<p>Nepal-UK Community Forestry Project (NUKCFP)</p> <p>Dhaulagiri Area</p> <p>(NUKCFP was a bilateral aid programme of Government of Nepal and DFID UK with objective to improve livelihoods of poor and women through natural resources.</p>	Aug 1999 to Jan 2001	<ul style="list-style-type: none"> • provide technical advisory support to the Project team and partners (DFO NGO) in 3 districts of Dhaulagiri zone on community forestry and rural livelihoods; • facilitate community based approach to forest management; • facilitate preparation and implementation of various income generating activities to local communities with focus to poor and women; • manage the review of the programme, documentation of the achievements and learning, and sharing of the learning and achievement to wider audience; • programme monitoring and reporting.



	<i>This programme is implemented by Government and Non-government actors in 7 districts of Nepal</i>		
Community Forestry Officer	Nepal-UK Community Forestry Project (NUKCFP) Chankuta and Baglung,	Nov 1995 to July 1999	<ul style="list-style-type: none"> • provide technical support to the programme partners (DFOs, NGOs) and local communities on community forestry process, sustainable forest management and pro-poor livelihoods; • facilitate community forestry process – formation of community forestry groups, preparation of forest management plan, preparation of livelihoods plan, monitoring and reporting; • facilitate pilot participatory action research on community based forestry and livelihoods activities with active involvement of local communities/community forestry members; • facilitate capacity building and training to DFO and NGO staff and local communities on livelihoods, community approach to forest management, community forestry process.
Programme Officer/Field Officer	Institute of Integrated Development studies (IIDS) Nawalparasi and Kathmandu (An national NGO)	Aug 1994 to Oct 1995	<ul style="list-style-type: none"> • lead and manage the district team of Nawalparasi for the effective implantation of the programme; • planning, implementation, monitoring and reporting of the district programme; • facilitate the implementation of various studies, action research programmes on poverty reduction, social inclusion and empowerment; • facilitate in designing and implementing various income generating and skills development activities for local communities particularly to poor and women; • involve in various studies and social analysis of various projects; • support to develop proposals and fund raising.





DEGREE OF MASTER OF SCIENCE BY RESEARCH

By the Authority of the Senatus Academicus

Ramu Subedi

was admitted to the Degree of Master of Science by Research
in the College of Science and Engineering
in Climate Change
on the Twenty Eighth day of June
Two Thousand and Eleven.



T. M. M. O'Se

Principal and Vice-Chancellor

[Signature]

Head of the College of Science
and Engineering

[Signature]

University Secretary

7439847



S. No. 503/43

Registered No. 6069-36

त्रिभुवन विश्वविद्यालय

Tribhuvan University



कलाचार्य

मानविकी र सामाजिकशास्त्र

रामु सुवेदी

विक्रम सम्बत् २०५६ को

समाजशास्त्र

विषयको कलाचार्य परीक्षा

द्वितीय

श्रेणीमा उत्तीर्ण भई

स्नातकोत्तरप्राधिकार निर्मित योग्य उल्लेखकोले निजलाई यस उपाधिद्वारा विभूषित गरिएको छ ।

Master's Degree

In Humanities and Social Sciences

This is to certify that *Ramu Subedi* having passed **Master's Degree** examination in **Humanities and Social Sciences** in *Sociology* in *Second* division of the year *1999* this degree has been recorded on him/her (this day).

Kathmandu, Nepal.

Date: Nov. 22, 2003



[Signature]
Vice-Chancellor

16. Sali Devkota

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal, Ministry of Finance, Millennium Challenge Account- Nepal; Yak and Yeli Hotel Complex, Kathmandu

I declare the following

- (i) I have conducted this study professionally using acceptable and standard methodologies.
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner.
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements, and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature:



Official stamp

Name: Sali Devkota

Date: 05-02-2019

Position: Environmental Expert/Coordinator



CURRICULUM VITAE (CV) FOR PRO SED 'R' NA ER ON U

1. Proposed Position : Environmental Expert/Coordinator
2. Name of Firm : Nepal Environmental and Scientific Services (NESS) P. Ltd
3. Name of personnel : Sallil Devkota
4. Date of Birth : 1968 / 04 / 29
5. Nationality : Nepali
6. Education :
 - Masters in Environment Management , University of Denver, Colorado, USA, 1996
 - Bachelor in Civil Engineering, University of Mysore, India, 1992.
7. Membership of Professional Associations:
 - Member, Nepal Engineering Association
 - Member, Nepal Engineering Council (Reg. # 2957 'A' Civil)
 - Member, Society of Public Health Engineers-Nepal (SOPHEN)
8. Other Trainings :
 - Training on Environmental Impact Assessment, Organized by CAS-N, and Tribhuvan University, November 15-December 25, 2006
 - International Program on Management of Sustainability, Organized by Sustainable Challenge Foundation (SCF), Zeist, The Netherland, Duration:, June 2006
 - Training Program on "Sustainable Community Management" Organized by Society for Sustainable Development (SSD), Kathmandu, Nepal, April 4-May 20, 2004.
 - Certificate Course in "Sustainable Environmental Management", University of California, Berkeley, USA, June-July 2001
 - Environmental Management System (EMS) Training Jointly Organized by Environment Canada/UNEP/UNCHS/ICLE/UNU/FIDIC, Singapore, May 2001
 - "Lead Inspector's Training" conducted by the New York University, New York, USA, June-July 1993.
9. Countries of Work Experience: Nepal, USA, India
10. Languages:

	<u>Reading</u>	<u>Writing</u>	<u>Speaking</u>
Nepali	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent
Hindi	Excellent	Fair	Excellent
11. Employment Record:

From June 2007	:	Till Date
Employer	:	Nepal Environmental and Scientific Services (NESS) P. Ltd
Position held	:	Environmental Expert/Managing Director
From January, 2004	:	To April 2007
Employer	:	Melamchi Water Supply Development Board, Baneshwor
Position held	:	Team Leader, Resettlement, Social, and Public Relations Consulting Services
12. Detailed Tasks Assigned:
 - Deputy Manager (Env), site based, overall planning, guidance, ensure tasks as per environment checklist Q A/QC of works, liaison with stakeholders and client in environmental aspects.



13. Relevant Project Experience:

Name of assignment of project: Preparation of new hydropower sector EIA guidelines for Nepal meeting IFC standards

Year: Feb 2016- October 2017

Location: Nepal

Client: ICIMOD/IFC

Main project features: Preparation of new hydropower sector EIA guidelines for Nepal meeting IFC standards

Position held: Environmental management and institutional development expert.

Activities performed: Review of previous plan, policies and guidelines related to environment in Nepal. Worked closely with Ministry of energy, Department of Electricity Development, bilateral funding agencies, and relevant stakeholders in preparing the "EIA Guidelines for Hydropower Sector in Nepal".

Conducted stakeholders' consultation meeting, preparation of draft EIA guidelines and conduction of seminar for its dissemination and finalization of guideline, conduction of training to professional on the newly approved EIA guidelines.

Name of assignment of project: Initial Environmental Examination (IEE) for the 400 kV D/C Transmission Line System from 900 MW (98.6 KM) Upper Karnali HEP Power House Substation to Nepal India Border

Year: August 2015- February 2016

Location: Achham, Sirkhet, and Kailali Districts

Client: Karnali Transmission Line Company P. Ltd

Main project features: Initial Environmental Examination (IEE) for the 400 kV D/C Transmission Line System from 900 MW (98.6 KM) Upper Karnali HEP Power House Substation to Nepal India Border, Achham, Dailekh, Sirkhet, Bardiya and Kailali Districts

Position held: Environmental Engineer

Activities Performed: Involved in transmission line route selection, route survey, discussion with DPR team in planning for angle tower and RoW (along with resettlement and forest expert), responsible for Coordination and Management Arrangement and Liaison with Client; Finalization of Contents of Terms of Reference (ToR) for IEE study document for approval; Route selection for transmission line, obtaining consent on the selected route, data analysis of physical, biological & ecological, socio-economic & culture aspects of the projects, alternative analysis of project, identification and evaluation of predicted impacts and suggestion of mitigation measures, Develop EMAP and Monitoring plans, review of GoN and International policies, legislative provisions and guidelines relating to IEE and Prepare IEE Report as per EPA and EPR of GoN.

Name of assignment of project: Initial Environmental Examination of Rasuwagadhi to Chitline Hub Transmission Line Project (10 km, 132 kV Double Circuit up to Chitline Hub for Rasuwagadhi HEP), Nepal

Year: July 2014 – August 2015

Location: Rasuwagadhi

Client: Rasuwagadhi HEP

Main project features: Environmental Impact Assessment Study

Position held: Environmental Expert

Activities Performed: Transmission line route survey, joint meeting and confirmation of route with DPR team, site survey from physical environmental aspects (geology, topography, access, site for project foot prints, tower locations, RoW), physical impact assessment, preparation of terms of reference and approval from ministry of energy, preparation of IEE report including detail mitigation measures and EMP, Coordination with biological and social and resettlement team for overall IEE report preparation.

Name of assignment of project: Environmental Impact Assessment of Upper Karnali Hydroelectric Project (900 MW)

Year: January 2012- August 2012

Location: Nepal

Client: Upper Karnali Hydroelectric Project (900 MW), GEAR, India, through NESS

Main project features: Preparation of Environmental Impact Assessment (EIA) Report

Position Held: Environment Expert

Activities performed: Review of project DPR, involved in site survey along with other members, physical data collection at project site including project foot print, direct and indirect areas, baseline monitoring of air, water, soil noise, impact identification, prediction and preparation of scoping and Terms of Reference document, site survey for collection of physical

environmental parameters, preparation of EIA document and its approval from the Government of Nepal, Integration of components in EIA meeting IFC requirements.

Name of assignment or project: Kabeli Corridor 132kV Transmission Line Project, Transmission Line / substation Construction

Year: August, 2011 – December, 2011

Location: Nepal

Client: Nepal Electricity Authority

Main project features: Preparation of Resettlement Action Plan, Social Action Plan and VCDP for

Position held: Coordinator

Activities performed: Coordinated the social and resettlement team for field survey, calculations of forest losses, permanent and temporary losses, identification of project affected families, seriously project affected families survey, integration of field findings in preparation of Social Impact Assessment (SIA), Resettlement Action Plan, and VCDP meeting the GoN and the World Bank requirements.

Name of assignment or project: Preparation of Environmental Management Framework regarding Environmental and Social Safeguard Management to staff of USDP recipient municipalities

Year: May, 2011 – August, 2011

Location: Nepal

Client: The World Bank

Main project features: Preparation of Environmental Management Framework and Training

Position held: Environment Specialist/Consultant

Activities performed: Field level environmental assessment of projects identified in 6 municipalities namely Baglung, Tansen, Lekhnath, Dhanusa, Mochinagar, Itahari by the engineering team, prepared EMP for each sub projects in each of the 6 municipalities. The EMP includes identification of impacts, mitigation measures, and cost associated with mitigation measures. The supervision and monitoring format, roles and responsibilities of staff for EMP implementation is also included in the document.

Name of assignment or project: Environmental Impact Assessment Study (EIA) of Upper Marsyangdi-2, Transmission Line Project (400 kV/Double circuit line, 201 KM) Manang, Nepal

Year: December 2010- April 2011

Location: Manang/Lanjung, Nepal

Client: Himtal HEP, GMR, India through NESS

Main project features: transmission line route selection, topographic and cadastral survey, preparation of scoping and terms of reference report for EIA study

Position held: Environment Expert

Activities performed: Route survey of transmission line from Bus Bar at Syange to Nepal-India Border at Sunauli, route: Syange (Lanjung)-Tanshu- Bhrampur- Nawalparasi- Sainapani/Sunauli, involvement in preparation of detail project report, data collection w.r.t physical, biological, socio-economic information for preparation of scoping and ToR reports.

Name of assignment or project: ADB RETA 6504, Regional Technical Assistance for Improving Connectivity and Destination Management of Cultural and Natural Resources in the South Asia Sub Region.

Year: August 2009 - November 2010

Location: Rupendehi, Nepal

Client: ADB RETA 6504 (Nepalconsult)

Main project features: Safeguard documents consistent with Government and ADB guidelines. Finalization of Environmental Impact Assessment (EIA), and Resettlement Action Plan (RAP) documents for Ghatam Bakhra Airport.

Position held: Environment and Resettlement Safeguard Specialist

Activities performed: Assist in finalizing the safeguard documents. Finalizing safeguard documents consistent with Government and ADB guidelines. This includes finalizing the Resettlement Plan of Bhairahawa Airport and Environmental Impact Assessment for Bhairahawa Airport.

Name of assignment or project: Initial Environmental Examination Study (IEE) of Kabeli Corridor 132 kV transmission line project

Year: June 2009- October 2010

Location: Jhapa, Ilam, Panchthar of Mechi Zone and Terai part of Koshi Zone

Client: Nepal Electricity Authority, NEA, Kathmandu

Main project features: 132/33 kV sub-station at Sabitra Chowk of Lathampur VDC, 132 kV TL extension to north east through Chaju Khola at the foot hills of Chum and across Chum mountains into the valley of Mai Khola in the Muzhabharat and Midlands. From Soyak, it bifurcates into two branches. The one extending north east is a short 5 km long arm terminating at Godak 132/33 kV substation (Saturwasi, Godak VDC-3). The longer arm proceeds north-north-west from Soyak up to Amarapur 132/33 kV substation (Pirasi ghat, Amarapur VDC-9) in the northern part of midland zone.

Position held: Environmental Expert

Activities Performed: Collection of physical data base of transmission line corridor, physical impact

Assessment of TL corridor, impact prediction and devising mitigation measures, preparation of Environmental Management Plan, preparation of IEE report as per GoN format, presentation at ministries.

Name of assignment or project: 1. Transmission line (220 kV, 12 KM) route selection, cadastral survey, and preparation of IEE report from Power House at Ragani VDC in Ramechhap District to Shaare VDC near Khimti

Year: March 2005 – January 2009

Location: Ramechhap and Sindhupalanchok

Client: Green Venture (P) Ltd. through NESS

Main project features: Transmission line route survey, cadastral survey, preparation of IEE report

Position held: Environmental Expert

Activities performed: route survey of transmission line from Ragani VDC- Pokali VDC- Saipu VDC- Bijulkot VDC- Nagdaha VDC- Tapjung VDC- Khimti (identification of different routes include bee line, assessment of forest, private land, road crossing, other TL crossings), selection of route, performed cadastral survey of angle tower spots and ROW, review of the project design aspects and physical environment of the project areas; Assist team leader in the preparation of scoping and TOR; Conduct baseline surveys of the physical and chemical environment pertaining to the project; integrate the sectoral report in the context of the project and predict environmental impact, propose mitigation measures, analyze the various project design alternatives; Write sectoral report for draft and Final EIA, Assist team leader in the preparation of draft and final EIA report; and Assist Team Leader in the public hearing at project sites. Involved in preparation of Environmental Management Plan for the project. Facilitated the client and obtaining necessary approvals from the government of Nepal.

Name of assignment or project: Environmental Impact Assessment (EIA) Study of Mahakali Irrigation Project Stage III

Year: July 2007- January, 2008 (Intermittent engagement)

Location: Kanchanpur and Kailali

Client: Department of Irrigation, Mahakali Irrigation Project, Nepal through: NESS

Main project features: Environmental Impact Assessment

Position held: Environment Engineer

Activities performed: Overall study arrangements and quality control in general and review literature on physical environment of the area. Provide guideline for EIA study to other members of the study group, preparation of physical environment study plan for detailed EIA; carry out physical environmental baseline studies for EIA covering geology, land use, erosion, estimate physical environmental losses and predict impact on physical environmental aspects by the project, design mitigation actions and estimate costs required, prepare monitoring plan on physical aspects and give input for the environmental management plan related to physical aspect. Complete the EIA report from the study documents of the other EIA study group, conduct public hearing meetings, presented the EIA report to the review committee.

The project covers a net command area of 26255 ha of surface water irrigation and 5265 ha of ground water irrigation. The project falls under Far Western Development Region covering two districts namely Kailali and Kanchanpur of Mahakali zone.

Name of assignment or project: Melancia Water Supply Project, Baneshwor, Kathmandu

Year: January 2004- April 2007

Location: Sindhupalanchok, Kavre and Kathmandu Valley

Client: Melancia Water Supply Development Board, Baneshwor, Nepal / A project funded by GON, AIB, JBIC, OPEC

Main project features: Execution of community support activities, land acquisition and rehabilitation activities

Position held: Team Leader

Activities performed: prepared Resettlement Action Plan (RAP) and community support programs to be launched in project affected VDC. Responsible to supervise the public relations staff, resettlement staff, grievance management staff, social uplift program staff of the public relations; Developed the Public Relation Strategy; Prepared a manning schedule, devise annual program and activities of public relation activities. Public relation related activities both in MV (sub project-1) and KV (sub project-2). After the project restructuring in 2008, and device PR programs and assigns work to Public Relations, Grievance Management and Resettlement staff of the project; Asian Development Bank (ADB); Coordinates and administers all public relations, resettlement, social uplift program activities of the MWSP; Prepared the Resettlement Action Plan (RAP) for MV and KV in coordination as per the policy of the Provided trainings on negotiation, mediation to the client and other consultants of the project, Updated Ethnic Minority Development Plan of MWSP; liaison between the district and the project in the formation of "Community issues Resolving Team" for the effective management of community and social grievances;

Name of assignment or project: Preparation of Environmental Management Framework for School Building Construction

Year: From August 2003 to January 2004

Location: Kathmandu, Nepal

Client: Department of Education, Sanohimi, Bhektaur, Nepal

Position held: Environment Consultant

Main project features: Preparation of environmental management framework to be used for school construction in Nepal

Activities Performed: Visit to school building in different zones of Nepal constructed under EFA/BPEP, literature review, interview with school teachers, education policy makers, environment expert, engineers, architects and prepared "Environmental Management for Construction of School Building in Nepal".

Name of assignment or project: Bagmati Area Sewerage Construction/Rehabilitation Project

Year: March 2002 – May 2002

Location: Kathmandu

Client: The Auditor General's Office for the Kingdom of Nepal

Main project features: External monitoring of Bagmati Area Sewerage Project, perform technical audit of Bagmati Area Sewerage Construction/Rehabilitation Project.

Position held: Environmental Engineer

Activities performed: Appointed to provide technical support for Auditor General's office for the monitoring and evaluation of Bagmati Area Sewerage Construction/Rehabilitation Project. This is a project that involves multiple stakeholders and diverse interest. Technical audit involves evaluation of ongoing engineering, environmental and social works. The requirement of 4C (Criteria, Condition, Causes, Consequences) is used for the evaluation of engineering, environmental, and social activities of the project.

Name of assignment or project: Training and Orientation about Healthy City Program to ward chairman and municipality staff of Kirtipur Municipality

Year: January 2002 – March 2002

Location: Kirtipur, Nepal

Client: WHO/Department of Urban Development and Building Construction

Main project features: Training on health, sanitation, concept of healthy city; environmental conservation

Position held: Trainer (Environment)

Activities performed: Developed training materials including framework for healthy city preparation of healthy city action plan by the participants, discussion and finalization of Health City Action Plan (HCAP) for Kirtipur Municipality

Name of assignment or project: Training and Orientation about Healthy City Program to ward chairman and municipality staff of Banepa Municipality

Year: October 2001– December 2001

Location: Banepa

Client: WHO/Department of Urban Development and Building Construction

Main project features: Training on health, sanitation, concept of healthy city, environmental conservation

Position held: Trainer (Environment)

Activities performed: Developed training materials including framework for healthy city, preparation of healthy city action plan by the participants, discussion and finalization of Health City Action Plan (HCAP) for Banepa Municipality

Name of assignment or project: Environmental Monitoring of Generation and Transmission Line Components of Kali Gandaki 'A' HEP (144 MW), and 132 kV transmission line from power house to Jogi Kuti substation, Butwal and another TL at Powerhouse to Lekhnath Substation,

Year: March 1999 - Sept. 2001

Location: Syangja

Client: Kali Gandaki 'A' Hydroelectric Project, Syangja, Nepal / ADB and JBIC funded project

Main project features: Monitoring of community support programs launched by the project in project affected VDC, environmental monitoring of all the construction sites of construction contractor (compliance monitoring)

Position held: Environmental Monitoring Expert/Environmental Engineer

Activities performed: Responsible for monitoring of community support activities implemented in project affected VDCs, environmental and social monitoring of project construction sites namely powerhouse, dam site, tunnel, storage areas, camps etc. Implementation of community support programs in project affected VDCs of Kali Gandaki 'A' HEP. Responsible for compliance phase monitoring of power house, dam site constructions, transmission line constructions from power house to Butwal, and powerhouse to Lekhnath substations.

Name of assignment or project: Water and waste water testing, treatment at household and commercial entity.

Year: June 1996 To February 1999

Employer: Everpure (USA) and Everest Water (Nepal) JV, Balaatar, Kathmandu.

Main project features: Study of underground aquifers, water quality testing, recommendation of suitable filters, awareness raising about clean drinking water, design of waste water treatment facilities for businesses and industries

Position held: Trainer (Environment)

Activities performed: Provided training in water supply and sanitation system and fittings, water and waste water treatment related technologies to engineers, and supervisors of company



THE UNIVERSITY OF NEPAL

upon the nomination of

The Faculty of the University College

has admitted

Sati Baskota

to the Degree of

Master of Environmental Planning and Management

with all the Rights, Honors and Privileges appertaining to that Degree.

This Witness Whereof, the seal of the University and the signature of the proper officers are herewith affixed.

Given in the City of Kathmandu, in the State of Nepal

on the eighth day of June, in the year of our Lord one thousand nine hundred and ninety-six.



S. A. Bhandari
Chairman, Board of Trustees

[Signature]
Chairman

[Signature]
Secretary

[Signature]
Dean, Kathmandu College

17. Naresh Rimal

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal, Ministry of Finance, Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following

- (i) I have conducted this study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature

Official stamp

Name: Dr. Naresh Nath Rimal

Date: 05-02-2019

Professional Climate Change Specialist



CURRICULUM VITAE PROPOSED PROFESSIONAL PERSONNEL

1. Proposed Position : National Climate Change Specialist
2. Name of Firm : Nepal Environmental and Scientific Services (NESS) P. Ltd
3. Name of personnel : Narash Rimal, Ph. D
4. Date of Birth : 1971/10/01
5. Nationality : Nepal
6. Education :
 - PhD Environmental & Social Science, Central Queensland University, Queensland, Australia Submitted 2016 (ABD)
 - MSc Environmental Science and Policy, University of Wisconsin-Green Bay, USA, 1998
 - BSc Environmental Science, University of Wisconsin-Green Bay, USA, 1996
7. Membership of Professional Associations:
 - Mountain Forum, MF Global Node Office, Lima, Peru (ICIMOD-Nepal)
 - International Society for the Systems Sciences (IS3S), York, United Kingdom
 - American Association for the Advancement of Science, Washington, DC, USA
 - System Dynamics Society, NY, USA
 - Asia-Pacific Peace Research Association
8. Other Trainings :
 - Environmental Impact Assessment (EIA) Training organized by College of Applied Sciences-Nepal, (June –August 2017), Thapathali, Kathmandu, Nepal.
 - Environmental Impact Assessment (EIA), use of SWOT Analysis, AI Technique, organized by RESTUC, Koteshwor, July September, 2006, Kathmandu, Nepal.
 - System Dynamics and Bayesian Belief Network Modeling (Prof. Kamalz Maani and Prof. Carl Smith of University of Queensland), 53rd Meeting of The International Society for the Systems Sciences July 12-17, 2009.
9. Countries of Work Experience: Nepal, Australia and USA.
10. Languages:

	<u>Reading</u>	<u>Writing</u>	<u>Speaking</u>
Nepali	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent
Hindi	Excellent	Fair	Excellent
11. Employment Record:

From Dec. 2012	:	Till Date
Employer	:	Nepal Environmental and Scientific Services (NESS) P. Ltd
Position held	:	Socio-ecological Resilience Specialist
From January, 2009	:	To Nov 2011
Employer	:	Centre for Environmental Management of Central Queensland University, Australia
Position held	:	Senior Research Assistant, Regional Housing and Social research and Assessment of non-traditional PhD student in 15 countries, and Climate Policy assessment of Queensland Government, Australia.
From March 2003	:	August 2008
Employer	:	Centre for Environment Equity and Partnership, Kathmandu, Nepal
Position held	:	Executive Chairperson
From May 1996	:	January 1999



Employer : Solid and Hazardous Waste Education Centre (UW-Extension), USA
 Position held : Environment Specialist

12. Detailed Tasks Assigned:

- Identify the climate change induced disasters in the project areas and its trend, assess its potential impact to the project, develop mitigating measures.

13. Relevant Project Experience:

Name of assignment of project: Supplementary Environmental Impact Assessment Study of Likhu Project 52.4 MW

Year: Nov. 2016-April 2017,

Location: Okhakhunga and Ramechhap District

Client: Green Venture Pvt. Ltd.

Main project features: Preparation of new hydropower sector EIA guidelines for Nepal meeting IFC standards. Establish climate resilience, adaptation and mitigation context as the following.

1. Climate change at the design level with flexible systems to integrate with renewable, reduce water consumption and maximize water efficiency. Also consider seasonal challenges and storage capacity. For example, run-of-river projects may encounter difficulties in the future if the frequency of the high-extreme precipitation rises, resulting in more vulnerable systems.

2. Technology and information: developing regional climate models; information systems; climate monitoring networks; trans-disciplinary studies; and training and capacity building.

• Developing portfolio of adaptation projects increasing the reliability of existing systems through grid integration and cooperation measures.

Position held: Coordinator/Environmental Expert

Activities performed: Responsible for Coordination and Management Arrangement and Liaison with Client; Finalization SEIA study document for approval; Data analysis of physical, biological & ecological, socio-economic & culture aspects of the projects, alternative analysis of project, Identification and evaluation of predicted impacts and suggestion of mitigation measures, Develop EMAP and Monitoring plans, review of GoN and International policies, legislative provisions and guidelines relating to SEIA and Prepare EIA Report as per EPA and EPR of GoN

Name of assignment of project: Supplementary Environmental Impact Assessment Study of Likhu Project 52.4 MW

Year: Nov 2016- April 2017

Location: Okhakhunga and Ramechhap District,

Client: Green Venture Pvt. Ltd.,

Main project features: Initial Environmental Examination (IEE) for the 400 KV DVC Transmission Line System from 900 MW (93.6 KM) Upper Karnali HEP Power House Substation to Nepal India Border, Achham, Daitikh, Surkhet, Parsiya and Kailali Districts. The goal of climate resilience is to help to establish climate resilient development path, consistent with national poverty reduction and sustainable development goals. Broadly, linkages and role of decentralized energy development to strengthen pathways towards climate resilient programs. It also involves integrating Adaptation Process in Micro/Mini Hydro Project and studying Viability of Integrating Adaptation Options in MHP development.

Position held: Coordinator/Environmental Expert

Activities Performed: Responsible to include Responsible for Coordination and Management Arrangement and Liaison with Client; Finalization SEIA study document for approval; Data analysis of physical, biological & ecological, socio-economic & culture aspects of the projects, alternative analysis of project, Identification and evaluation of predicted impacts and suggestion of mitigation measures, Develop EMAP and Monitoring plans, review of GoN and International policies, legislative provisions and guidelines relating to SEIA and Prepare EIA Report as per EPA and EPR of GoN.

Name of assignment of Project: Environmental Impact Assessment Study (EIA) of Sanjen Khola Hydroelectric Project 78 MW

Year: Nov. 2012-July 2014

Location: Rasuwa District

Client: Salasungi Power Ltd.

Main project features: Responsible for overall study arrangements and quality control and building climate resilience of watersheds and water resources in mountain eco-regions, building resilience to climate-related extreme events, mainstreaming climate risk management in development, and building climate resilient communities through participation and

institutional engagement. As micro hydro is clearly associated with one of the most mature decentralised energy technologies used in developing countries like Nepal. Micro hydro as "social infrastructure" supports in development of isolated off-grid electricity through community participation, which increases the capacity of rural communities to understand the dynamics of rural development and needs of social cohesion for expected impact. Similarly, as "physical infrastructure" uses the approaches applied to electric power generation more generally, and to such investments as the provision of rural roads, and irrigation systems. Even more recently micro hydro has been seen in terms of small and medium enterprise development, and the role that such enterprises can play in "securing livelihoods" can support in building adaptive capacity of vulnerable communities, which is expected to occur/occurring due to climate change and natural disaster thus climate resilience factors are key elements of HEP projects.

Position held: Environmentalist

Activities performed: Responsible for overall study arrangements and quality control in general and review literature on physical environment of the area for the preparation of Scoping Document and TOR in particular, conduct scoping meeting, Compile scoping document and TOR. Provide guideline for EIA study to other members of the study group, preparation of physical environment study plan for detailed EIA, carryout physical environmental baseline studies for EIA covering geology, land use, erosion, estimate physical environmental losses and predict impact on physical environmental aspects by the project, design mitigation actions and estimate costs required, prepare monitoring plan on physical aspects and give input for the environmental management plan related to physical aspect.

Name of assignment of project: IEE Study of Sahid Lok Marga (Ghorahi- Deukhola, Rolpa) Project (110km)

Year: April 2013-Sept. 2013

Location: Dang and Rolpa Districts,

Client: Department of Roads

Main project features: Responsible for Coordinating field works, organizing FGD and stakeholder's discussions, coordinating with the Geo-environmental and Social Unit of Department of Roads.

Position held: Environmental Expert

Activities Performed: Obtaining stakeholders suggestions, reviewing the legal measures to be followed by the project and institutional status of the client, Preparing TOR documents, coordinating and carrying out environmental baseline survey, Suggesting the alternative and mitigation measures, preparing EMAP, Preparing IEE report and its presentation in GESU and MoPIT.

Name of assignment of project: IEE of Khilung Kalika Agro Farm, Syangja, from January 2016- June 2016), Prepared IEE report for Khilung Kalika Agro Farm and the report is approved by the ministry of agriculture and cooperatives.

Year: Jan. 2016-Jun 2016

Location: Syangja

Client: KhilungKhola Agro Farm

Main project features: Environmental Expert

Position held: Environmental Expert

Activities Performed: Prepared IEE



Name of assignment of project: Output Based Solid Waste Management in municipalities of Nepal, 5 municipalities of Nepal, Town Development Fund (TDF)

Year: May 2015- December 2016

Location: Tansen, Ghorahi, Dhankuta municipalities and Lalpur and Pokhara sub metropolitan

Client: Town Development Fund (TDF)

Main project features: , Responsible for Independent Technical Verification Agent for assessment of solid waste management in municipalities of Nepal based on performance.

Position held: Environmental Expert

Activities Performed: Responsible for Independent Technical Verification Agent for assessment of solid waste management in municipalities of Nepal based on performance. The independent solid waste management assessment were carried out in Tansen, Ghorahi, Dhankuta municipalities and Lalpur and Pokhara sub metropolitan

Name of assignment or project: Environmental Expert, EIA study of New Hope Food Industry

Year: February – October 2015

Location: Nepal

Client: New Hope Feed Industry

Main project features: EIA study of New Hope Feed Industry in Mangalpur, Chitwan

Position held: Environment Specialist

Activities performed: conducted baseline environmental survey, prepared scoping and terms of reference document, and EIA report. The report is approved by the ministry of population and environment

Name of assignment or project: IEE Study of Star Hospital (P) Ltd, Sanepa

Year: February 2014- May 2014

Location: Sanepa, Lalitpur

Client: Star Hospital

Main project features: responsible for preparing ToR, presentation at ministry of health, upon approval of ToR, prepared IEE report and submitted to the MoH and obtained approval

Position held: Team Leader/Environment Expert

Activities performed: preparing ToR, presentation at ministry of health, upon approval of ToR, prepared IEE report and submitted to the MoH and obtained approval

Name of assignment or project: IEE Study Yellow Pagoda Hotel

Year: Jan 2014-March 2014

Location: Kathmandu

Client: Yellow Pagoda Hotel

Main project features: Preparation of Environmental Impact Assessment (EIA) Report

Position Held: Environment Expert

Activities performed: Responsible for preparing Scoping and terms of reference documents, Conducted field studies, compiled the physical, biological and socio-economic information of the project in draft IEE, presentation of draft EIA to the Ministry of Environment and obtained approval.

Name of assignment or project: Study of Environmental and Social aspects of project sites for 10 projects in

Year: June 2012-Feb., 2013

Location: Nepal

Client: J Power

Main project features: Study of Environmental and Social aspects of project sites for 10 projects

Position held: Environment Expert

Activities performed: Identification of environmental and social safeguard measures to be met for the above 10 identified projects. Conducted Cumulative Impact Assessment (CIA) of 10 reservoir type hydroelectric projects, provided input to the Government of Nepal for Carrying out Strategic Environmental Assessment (SEA). Conducted specific environmental studies namely: status of wildlife in project areas, identification of vulnerable community in project affected areas, biodiversity impact assessment, fish impact assessment, impacts on community infrastructures due to inundation of project site.

Name of assignment or project: Solid Waste Management Expan. Health Care Waste Management in Western Regional Hospital

Year: Jan. 2012 - Aug 2012

Location: Pokhara, Nepal

Client: UNDP/PPPUE

Main project features: Implementation of Hospital Waste Management Project in Western Regional Hospital, Pokhara under PPP arrangements.

Activities performed: Conducted an in-depth assessment on SWM, to organize trainings and capacity building to concerned stakeholders to improve the waste management capacity of Hospital, Municipalities and communities in SWM activities and to evaluate & monitor the SWM.

➤ Assess and enhance the waste management capacity of Pokhara Sub Metropolitan from 3 R Perspective

➤ Prepare Terms of Reference and request for proposal document for consultant of central treatment facility planned

- Y To onboard at Pokhara Sub Metropolitan City for the management of health care waste
- Y Provide technical input through PPPUE/UNDP to CTF consultant for carrying out study of health care waste management in Pokhara Sub Metropolitan
- Y Review of CTF report prepared by the consultant and provided necessary input for finalizing it.
- Y Assisted WRH in procuring equipment for health care waste management in WRH
- Y Conducted trainings at WRH,
- Y Established coordination with PSMC for the site selection of CTF
- Y Assisted PPPUE/UNDP in preparing bid documents for selection of CTF operator.

Name of assignment or project: Environmental Environmentalist, Environmental Impact Assessment Study of Bheri-Babai Diversion Multipurpose Project (48 MW);

Year: Jan 2012 - Aug 2012

Location: Surkhet, Banke and Bardiya Districts

Client: Bheri-Babai Diversion Multipurpose Project, Department of Irrigation, Lalitpur

Main project features: Developing resilient infrastructure, including the understanding and perception of climate change risks, accessing climate data and climate model projections, understanding and quantifying climate projection uncertainty, communicating between experts of various backgrounds and the limitations of existing climate modeling tools. Responsible for overall study arrangements and quality control in general and review literature on physical environment of the area for the preparation of Scoping Document and TOR in particular.

Position held: Environment Expert

Activities performed: Conduct scoping meeting, Compile scoping document and TOR. Provide guideline for EIA study to other members of the study group, preparation of physical environment study plan for detailed EIA, carryout physical environmental baseline studies for EIA covering geology, land use, erosion, estimate physical environmental losses and predict impact on physical environmental aspects by the project, design mitigation actions and estimate costs required, prepare monitoring plan on physical aspects and give input for the environmental management plan related to physical aspect

Name of assignment of project: Environmental impact Assessment Study of Chhaya Devi Commercial Complex Year: Dec. 2011 to July 2012

Location: Thamel, Kathmandu

Client: Chhaya Devi Commercial Complex

Main project features: Responsible for Responsible for overall study arrangements and quality control in general and review literature on physical environment of the area for the preparation of Scoping Document and TOR in particular.

Activities Performed: Conduct scoping meeting, Compile scoping document and TOR. Provide guideline for EIA study to other members of the study group, preparation of physical environment study plan for detailed EIA, carryout physical environmental baseline studies for EIA covering geology, land use, erosion, estimate physical environmental losses and predict impact on physical environmental aspects by the project, design mitigation actions and estimate costs required, prepare monitoring plan on physical aspects and give input for the environmental management plan related to physical aspect.



University of Wisconsin-Green Bay

The Board of Regents of the University of Wisconsin System,
on the recommendation of the faculty, has conferred upon

Ramesh Nath Kimal
The Degree of Master of Science



Together with all honors, rights, and privileges belonging to that degree.

In witness whereof, this diploma is granted.

Given at Green Bay in the State of Wisconsin,
this nineteenth day of December in the year nineteen hundred twenty eight
and of the Ninety-sixth year of the University the thirteenth.

John D. Galt

President, Board of Regents

Raymond J. Dore

President, University of Wisconsin System

Carol L. Miller

Chancellor, University of Wisconsin-Green Bay





18. Jayakrishna Vasam

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal; Ministry of Finance; Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following:

- (i) I have conducted this study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature: 

Official stamp:

Name: Jayakrishna Vasam

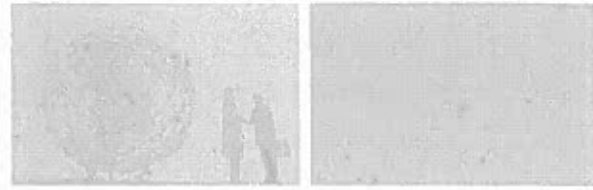
Date: 05-02-2019

Position: International GIS Specialist



Jayakrishna Vasam

Senior Consultant



Mr. Jayakrishna has over 13 years of professional experience in the GIS, Remote Sensing and GPS. He has a lot of experience in environmental sensitivity analysis, ecological sensitivity analysis, land suitability analysis, flood risk analysis, peak flood calculation, hydraulics calculation, digital elevation model, digital terrain model, contour generation from different sources, cut & fill volume calculations and Sustainability & Disaster Management. Remote Sensing: Geo-reference & geo-processing all kinds of Satellite Image data and processing satellite image using Remote sensing techniques & visual interpretation and analysis of all type of GIS applications. GPS: he has worked on numerous GPS Surveying projects like Static and RTK survey.

Summary of Qualifications:

- Create, translate and integrate GIS data layers and digitize new data using a variety of software for preparation of Base map, Land-use map, Physical Feature maps and other maps.
- Compile geographic data from a variety of sources including censuses, field observation, satellite imagery, aerial photographs, and existing maps.
- Worked out various analysis studies and prepared the maps for Site Suitability, Land-use Suitability and Ecological Sensitivity Analysis for Urban planning, Regional planning and Transportation planning projects.
- Worked out Flood risk analysis, Peak flood calculation, Hydraulics calculation and DEM preparation for Flood Risk Assessment Projects
- Prepared GIS maps for 150 EIA Phase-I and Phase-II sites
- Worked out more than 100 EIA projects with various clients like Religare, NSL Power, Green Infrastructure, Mudra, Cairn India and Orion Power.
- Provide technical expertise and support to in-house team as well as clients
- Assisting in the preparation of technical presentations and proposals when required
- Extraordinary proficiency in using geometrical methods, mapping techniques and arithmetic
- Strong communication skills with tremendous presentation abilities

Fields of Competence

- GIS and Remote Sensing
- Flood risk analysis, peak flood calculation, hydraulics calculation and DEM preparation

Education

- M.Tech in Civil Engg. (Geomatics Engineering) from Indian Institute of Technology Roorkee-India in 2006.
- B.Tech (Computer Science & Information Technology) from JNTU, Hyderabad-India in 2003.

Languages known

- English
- Hindi
- Telugu

Certification Programs / Training

- Professional certification course on Climate Change and Urban Environment from Center for Environmental Planning and Technology, Ahmedabad.

Honors and Awards

- Government of India scholarship for clearing Graduate Aptitude Test in Engineering (GATE-2004) in Computer Science and Information Technology (Aug 2004 - June 2006).
- Awarded certification on Sustainable System Integration Model, AECOM, March-2011.

Publications

- Published paper on "A model for determining social network interest profile based on six-man-nine framework" on International Conference TEICC 2012 at Bikaner, Rajasthan.
- Presented paper on "Assessing site location using GPS and GIS technology" on International Conference 2006, Roorkee.

Jayakrishna Vasam

Senior Consultant



Employment Record

- October 2017 to Present: Senior Consultant with ERM India Ltd.
- March-2010 to Oct-2017: Senior GIS Specialist with AECOM Lanka Pvt. Ltd. (Environment)
- June-2009 to Feb-2010: Assistant Professor with JNTU, Hyderabad.
- Dec-2006 to June-2009: Manager (GIS Analyst) with Reliance Industries Ltd. Transportation Infrastructure Business Group (TIBG).
- Jun-2004 to Jun-2006: Junior Research Associate (Civil Dept.) with IIT Roorkee.
- May-2005 to Jun-2004: Lecturer with Jyoushvanathi Institute of Technology & Science, Karnataka.

Key Project Experience

Conducting Social and Property Survey for Multi-purpose Projects in Uttarakhand.
Client: WAFSCOS Ltd.

Key Role: Identified villages under the reservoir submergence area. Merging and Geo-referencing of Revenue Khassa maps for 155 villages and superimposition of Submergence Area on the villages Khassa Maps and extracted the Khassa numbers under submergence area.

Flood Risk Assessment study for 12 Solar plant sites.
Client: SunEzation Pvt Ltd.
Key Role: Preparation of methodology for Flood Risk Assessment and Hydrological Modelling for assessment of Rainfall runoff from the site, Flood Hazard Modelling and preparation of Flood Inundation Maps and suggestion of mitigation measures. Using GIS tools and techniques: prepared DEM, Contour Map, Slope Map and Drainage map.

Assessment (EIA) for five Common Municipal Solid Waste Management Facility at villages Lingadheeranahalli, Doddabiddurakallu, Subbaranapalya, Chikkanagamangala and Kannahalli/ Seeghalli in Bengaluru.
Client: Karnataka Urban Infrastructure Development and Finance Corporation (KUIDFC)
Key Role: Preparation of Study Area (10 km radius) Map, Land use map, Contour Map for the site and the vicinity. Preparation of Environmental

Monitoring Location Mapping for Ambient air Quality, Noise, Water Quality, Traffic and Ecology.

Environmental and Social Impact Assessment of 630 MW (Unit II) Thermal Power Plant at Dhaka, Bangladesh as per the requirements of Equator Principles and IFC Performance Standards

Client: Orion Power Limited, Bangladesh
Key Role: Study and carried out the site behaviour of the project. Registration of satellite imageries and processing of the images in ERDAS imagine software. Preparation of Landuse suitability, Landuse map, Slope map and Site sensitivity analysis. Preparation of Landuse technical report.

Environmental and Social Impact Assessment of 630 MW Thermal Power Plant at Dhaka, Bangladesh as per the requirements of Equator Principles and IFC Performance Standards

Client: Orion Power Limited, Bangladesh
Key Role: Study and carried out the site behaviour of the project. Registration of satellite imageries and processing of the images in ERDAS imagine software. Preparation of Landuse suitability, Landuse map, Slope map and Site sensitivity analysis. Prepared technical Landuse report.

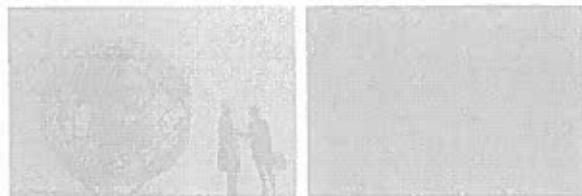
Environmental and Social Impact Assessment of 630 MW Thermal Power Plant at Khulna, Bangladesh as per the requirements of Equator Principles and IFC Performance Standards for Orion Power.
Client: Orion Power Limited, Bangladesh
Key Role: Study and carried out the site behaviour of the project. Registration of satellite imageries and processing of the images in ERDAS imagine software. Preparation of Landuse suitability, Landuse map, Slope map and Site sensitivity analysis. Prepared technical Landuse report.

EIA study for Cairn Oil and Gas
Client: Cairn India Limited, India
Key Role: Initial study of the project site about 3500sqkm. Registration of satellite imageries and processing of the images in ERDAS imagine software. Preparation of Landuse suitability, Landuse map, Slope map and Site sensitivity analysis. Preparation of Landuse technical report

Environment and Social Impact Assessment for 220MW gas based thermal power plant in Ashuganj.

Jayakrishna Vasam

Senior Consultant



Dhaka as per requirements of IFC Performance Standards.

Client: United Ashugany energy Limited Bangladesh

Key Role: Prepared GIS based Land-use maps and physical features map for the project area using latest high resolution satellite imagery as well as other secondary data information. Superimposed EIA monitoring locations on the maps. Generated contour map from the surveyed spot height data. Prepared maps for Environmental monitoring and Ecological monitoring location maps for the project.

Conceptual Master Planning Consultancy Service & Services for obtaining SPCB/CRZ/MoEF Clearance for "Atlanta City" at Survali, Surat

Client: Atlanta Tourism Ventures Limited, Surat, Gujarat

Key Role: Study and carried out the site behaviour, topography and baseline analysis. Prepared Costal Sensitivity analysis, environmental sensitivity analysis and Site suitability analysis. Carried out Water resource management studies for Basins and Cut and fill analysis for site development.

Preparation of EIA study report for Phase-1 40.55 acre Residential, Nagpur

Client: KRS Realty Pvt. Ltd, Nagpur

Key role: Preparation of Land-use map, Ecological and sampling location map and Ecological and Environmental sensitivity analysis maps in GIS & generate contours from ASTER data and prepare drainage patterns and slope maps. Recommended proposed land use pattern for the low impact of environment.

Interim Consultancy for Mumbai Metro Line 3 (Bandra - Colaba- SEEPZ) - Muck Disposal

Client: Mumbai Metro Rail Corporation, Mumbai

Key Role: Identified six abandoned quarries for muck disposal. Surveyed all the sites and collect the spot heights with 1m grid for the entire site area and generated the surfaces in ArcGIS software without disturbing to the local drainage pattern. Generated the volumes and cross section drawings for all the sites surfaces before and after muck disposal.

Recommendations for low impact of the environment during the muck disposals.

ESIA for 186MW wind farm

Client: Bindu Vayu Urja Pvt Ltd.

Key role: Preparation Land-use & Base map, Drainage, Road network and Ecological and environmental

sampling location maps using Remote sensing techniques and GIS softwares from various source of data. Generated the contours using ASTER and SRTM data. Preparation of EIA report and review.

ESIA for 20MW Solar RABO SAI

Client: SAI Sudhir Energy Ltd., AP

Key role: Preparation Land-use & Base map, Drainage, Road network and Ecological and environmental sampling location maps using Remote sensing techniques and GIS softwares from various source of data. Generated the contours using ASTER and SRTM data. Preparation of EIA report and review.

Preparation of Development Plan for Dighi Port Industrial Area in Maharashtra sub-region of DMIC

Client: DMICDC, Delhi

Key role: Carried out environmental sensitivity analysis, Land use suitability sensitivity analysis, developing land-use patterns, high quality of contour generation and preparation of base map. Satellite Image registration, geo-processing and raster analysis. Developed customization tools for calculating peak flood rainfall, Rainfall-runoff analyst, analyzed the terrain of Dighi port with GIS, and simulated the monthly average water flow with HEC-FMS model. This analysis was useful for the channel and water collection pool design of the next step.

Preparation of Development Plan for Nashik-Sinnar-Igatpuri Investment Region in Maharashtra sub-region of DMIC

Client: DMICDC, Delhi

Key role: Carried out environmental sensitivity analysis, Land use suitability sensitivity analysis, developing land-use patterns, high quality of contour generation, and preparation of Base map. Satellite Image registration and geo-processing. Developed customization tools for calculating peak flood rainfall, Rainfall-runoff analyst, analyzed the terrain of Sinnar with GIS, and simulated the monthly average water flow with HEC-FMS model. This analysis was useful for the channel and water collection pool design of the next step.

Hitachi Japan Recovery Visionity and Strategic Planning

Client: Hitachi Japan

Key role: The site located in Gifu and Miyagi prefectures, Japan studied entire city prefecture and prepared earthquake triggered tsunami affected areas

Jayakrishna Vasam

Senior Consultant



showing map using GIS analysis. Prepared Land-use, topography, slope and sensitivity analysis maps.

Chevron Thailand Shore Base Management plan for Invasive species

Client: Chevron Thailand Exploration and Production, Thailand

Key role: The CTSS site is about approximately 390 rai (56 ha) and is in Ban Bang San, Moo 3, Kai Sub-District, Tha Sala District, in Nakhon Si Thammarat, Thailand. Prepared Land-use map include all existing physical feature using high resolution satellite imageries. The key environment issues were GIS site analysis, calculating the suitable land for development, the ecological sensitive analysis and the important ecosystem type analysis.

Corporate Social Responsibility Service for the Ramsar Wetlands in Johor

Client: Khazanah Nasional Berhad, Malaysia

Key role: Ramsar Sites are about 103 sqkm in Malaysia are located on the coast of Southwest Johor: Sungai Puaia (Sg. Puaia), Tanjung Piai (Tg. Piai) and Pulau Kundur (P. Kukup). Identified Ramsar sites and marked on GIS map. Prepared topography, slope, drainage, catchment areas and habitat maps in GIS. Created wetland zoning plan maps and update in the wetland management report.

Bukit Jonggol Asri- Environment planning

Client: Pt Bukit, Indonesia

Key role: Prepared topographic, slope, geology and habitat/ecology maps. Carried out the environmental sensitivity analysis and create site suitability maps for next step of design and strategy.

Environmental Sustainability Study For ASCENDAS Industrial Park

Client: ASCENDAS, Chennai

Key role: Carry out a sustainability study for the proposed industrial park and residential development for around 1420 Acres of land located along Old Mahabalipuram Road (OMR) near Chennai. The key environment issues were GIS site analysis, environmental and ecological analysis, calculating site cut and fill volume analysis. Created drainage lines from contours data and prepared topography and slope analysis maps.

Hyderabad Aerotropolis Masterplan

Client: GMR, Hyderabad

Key role: Developed drainage stream line planning and flood inundation calculation for airport-related mixed use development in Andhra Pradesh. Preparation of GIS maps for various requirements of Aerotropolis master plan.

ABC City Masterplan

Client: Uppal Chadha, Noida

Key role: Managed environmental analysis, site suitability and sensitivity analysis, drainage stream line analysis and peak flood calculation for new town development in Greater Noida, Uttar Pradesh. Developed customization tools for calculating peak flood rainfall.

DPR for Port cum Maritime City at Okhamadhi

Client: GVK, Gujarat

Key role: Carried out environmental and ecological sensitivity analysis, developed Land-use information system and analysis and generated stream lines for drainage system and also generated site elevation model for new port and associated development at Okhamadhi, Gujarat.

IREO Master Planning, Hospitality and Residency

Client: IREO, Gurgaon

Key role: Carried out study area and done environmental and ecological sensitivity analysis and generated contours and geo-referenced satellite images with DGPS points. Clean and filtered all CAD drawings and converted in to GIS Platform for input of all analysis.

Concept Master Plan and conceptual Infrastructure Design for ERA Residential

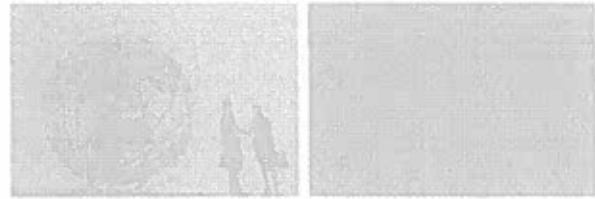
Client: ERA Group, Gurgaon

Key role: Carried out study area and done environmental and ecological sensitivity analysis and generated contours using sub-meter grid site survey spot heights and geo-referenced satellite images with DGPS points. Clean and filtered all CAD drawings and converted in to GIS Platform for input of all analysis. Prepared the GIS and Landuse mapping technical report.

Perspective Transportation Plan for Navi Mumbai Special Economic Zone (NMSEZ)

Jayakrishna Vasam

Senior Consultant



Client: NMSEZ Development Co Pvt. Ltd. / CIDCO, Mumbai

Key role: Carried out study area mapping and zoning in GIS platform. Developed Land Parcel Information System in GIS platform using ArcGIS software from IKONOS Image, Revenue maps and Topographic Sheets. Satellite images registration, geo-processing and raster analysis. Developed existing and proposed road, rail, and metro rail network for study area. Developed existing road, rail, and metro-rail and proposed Sweri - Worli Link updated in network. Developed database design, spatial data construction and maintenance, attribute data capture and Transport traffic forecasting analysis.

Integrated Transportation Plan for Navi Mumbai

Client: NVMIC / MIDC / CIDCO, Mumbai

Key role: Carried out study area mapping and zoning in GIS platform. Developed existing and proposed road, rail, and metro-rail network for study area. Developed database design, spatial data construction and maintenance, attribute data capture and Transport traffic forecasting analysis done by using TransCAD GIS software.

Integrated Transportation Plan for EMMR

Client: NHAI / FWD / MMRDA / CIDCO / NMSEZ Development Co Pvt. Ltd, Mumbai

Key role: Carried out study area mapping and zoning in GIS platform. Developed existing and proposed road, rail, and metro-rail network for study area. Database design, spatial data construction and maintenance, attribute data capture and analysis and Transport traffic forecasting analysis done by using TransCAD software.

Sion - Panvel Expressway Phase-I (Kalamboli to BARC)

Client: MSRDC, Mumbai

Key role: Carried out study area mapping in GIS platform. Developed alternative alignment plan in GIS software. Developed database design, spatial data construction and maintenance, attribute data capture and analysis.

Sweri-Worli Sea Link

Client: MSRDC, Mumbai

Key role: Managed environmental analysis, site zoning in GIS platform. Developed existing road, rail, metro-

rail and proposed Sweri - Worli Link updated in network. Developed database design, spatial data construction and maintenance, attribute data capture and Transport traffic forecasting analysis.

Sion - Panvel Expressway Phase-II (BARC to Sion)

Client: MSRDC, Mumbai

Key role: Carried out study area mapping in GIS platform. Capture existing and proposed road networks and clean and filtered all CAD drawing files and converted into GIS for sensitivity and suitability analysis. Developed database design, spatial data construction and maintenance, attribute data capture and analysis. Done environmental analysis and checked out traffic carrying capacity in GIS software.

Chirle- Dushmi Expressway

Client: MSRDC, Mumbai

Key role: Carried out study area mapping in GIS platform. Capture existing and proposed networks and clean and filtered all CAD drawing files and converted into GIS for sensitivity and suitability analysis. Developed database design, spatial data construction and maintenance, attribute data capture and analysis.

Metro-II (Charkop-Bandra-Mankhurd)

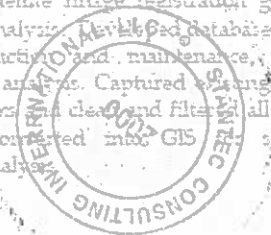
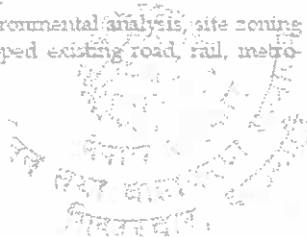
Client: MMRDA, Mumbai

Key role: Carried out study area mapping in GIS platform. Developed database design, spatial data construction and maintenance, attribute data capture and analysis. Satellite Image registration geo-processing and Raster analysis. Captured existing and proposed road networks and clean and filtered all CAD drawing files and converted into GIS for sensitivity and suitability analysis.

Western Freeway Sea Link (Haji Ali-Nariman Point)-Phase II-B

Client: MSRDC, Mumbai

Key role: Carried out study area mapping in GIS platform. Satellite Image registration geo-processing and Raster analysis. Developed database design, spatial data construction and maintenance, attribute data capture and analysis. Captured existing and proposed road networks and clean and filtered all CAD drawing files and converted into GIS for sensitivity and suitability analysis.



Jayakrishna Vasam

Senior Consultant



Mumbai Metro-THL (Trans Harbour Link)

Client: MMRDA, Mumbai

Key role: Registered satellite images and captured existing and proposed road, rail networks and clean and filtered all CAD drawing files and converted into GIS for sensitivity and suitability analysis. Developed database design, spatial data construction and maintenance, attribute data capture and analysis. Done environmental analysis and checked out traffic carrying capacity in GIS software. Study the tidal behavior for past 25 yrs and developed safety construction time frames in GIS software and calculated flood inundation.

Passenger Water Transport Across Mumbai Harbour

Client: MMRDA, Mumbai

Key role: Registered satellite images and captured existing and proposed road, rail networks, cleaned and filtered all CAD drawing files and converted into GIS for sensitivity and suitability analysis. Developed database design, spatial data construction and maintenance, attribute data capture and analysis. Study the tidal behavior and developed peak flood analysis in GIS software.

Vidya Vihar ROB

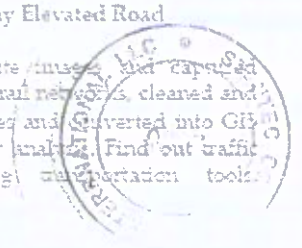
Client: MMRDA, Mumbai

Key role: Carried out study area mapping in GIS platform. Satellite image registration geo-processing and Raster analysis. Developed database design, spatial data construction and maintenance, attribute data capture and analysis.

BKC - Sion - Panvel Highway Elevated Road

Client: MMRDA, Mumbai

Key role: Registered satellite images and captured existing and proposed road, rail networks, cleaned and filtered all CAD drawing files and converted into GIS for sensitivity and suitability analysis. Find out traffic forecasting in GIS using transportation tools.



Serial No. 060508

Enrolment No. 043111

भारतीय प्रौद्योगिकी संस्थान रुड़की

(पूर्व रुड़की विश्वविद्यालय)

अभिप्राय की अनुमति पर

सिविल इंजीनियरी में प्रौद्योगिकी अधिस्नातक

की उपाधि

वासम जय कृष्णा

को, जिन्होंने इस उपाधि की अर्जादि हेतु विनिश्चय विहित अपेक्षाओं को सन् 2006 में सफलतापूर्वक पूरा कर लिया है, एतद्वारा इदान करता है।

10 अंकीय मास्टरम में इम्पेज संचित कोटि अंक मात्र 7.87 है।

भारतीय गणराज्य के अन्तर्गत रुड़की में आज, दिनांक 11 नवम्बर 2006, संस्थान की मुद्रा अंकित यह उपाधि दी गई।

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE (Formerly University of Roorkee)

Upon the recommendation of the Senate hereby confers the degree of

Master of Technology in Civil Engineering

on

VASAM JAYA KRISHNA

who has successfully completed in the year 2006 the requirements prescribed under the regulations for the award of this degree with a Cumulative Grade Point Average of 7.87 on a 10 point scale.

Given this day, the 11th of November 2006, under the seal of the Institute at Roorkee in the Republic of India.



अध्यक्ष, अभिषासक परिषद्

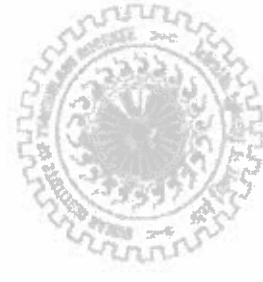
Chairman, Board of Governors

निदेशक एवं अध्यक्ष, अभिप्राय

Director & Chairman, Sonno

कुलसचिव

Registrar



19. Pawan Ghimire

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal; Ministry of Finance; Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu;

I declare the following:

- (i) I have conducted this study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature: 

Official stamp:

Name: Pawan Ghimire

Date: 05-02-2019

Position: National GIS Specialist



CV # Mr. Pawan Kumar Ghimire

FORM TECH-6: CURRICULUM VITAE (CV)

Position Title and No.	KN-03: GIS and Database Expert
Name of Firm	Total Management Services Pvt. Ltd.
Name of Expert:	Pawan Kumar Ghimire
Date of Birth:	September 23, 1972
Citizenship	Nepalese

EDUCATION

- M.Phil. in Mountain Ecology and Human Adaptations, Department of Geography, Faculty of Social Sciences, University of Bergen, Norway, in 2003 – 2005 (M.Phil. Dissertation: *State of Land Abandonment - Impacts of Out Migration on Local Farming System A Case Study of upper Manang in the Central Himalayas, Nepal*, Supervisor: Prof. Tor H. Aase).
- Specialized study in Development Geography (online course), from University of Bergen, Norway, October-December 2002.
- MA in Geography (specialization in *Application of GIS on Natural Resource Management*), Central Department of Geography, Tribhuvan University, Kirtipur, Kathmandu, Nepal, in 1994

OTHER TRAINING

- GIS (Geographic Information System) ARC/INFO and ArcView from Central Department of Geography, T.U. in 1994 and 1997

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
January 2016 to of date Employment Type: part-time	Employer: Total Management Services Pvt. Ltd (TMS) Position Held: DSS/Modeling Expert Reference: Prjo Shrestha - MD of TMS Tel No : 9851921129 E-mail: info@tms.com.np		ADB-Grant: 0367-NEP ADB-Grant: 0367-NEP - Bagmati River Basin Improvement Project - Bagmati River Basin Decision Support System, Flood Forecasting and Early Warning System, Water Quality Monitoring System and Preparation of Bagmati River Basin Integrated Master Plan <ul style="list-style-type: none"> • Work closely with other members of the DSS and the FEWS to develop and setup of the Bagmati DSS and FEWS • Provide specific inputs on development of database management systems, Geographic Information System (GIS)-based modelling applications and simulation/optimization tools; • Contribute to the trainings provided to WECS and ERBO staff;
Year: Sept. 2015 to July 2016 Employment Type: part-time	Employer: RBMP/ICIMOD Position Held: Team Leader/GIS Analyst Contact Address of Employer Name: Dr. Arun Bhakta Shrestha Tel No.: 977-1-5003311 Email: Arun.Shrestha@icimod.org	Nepal	Responsible for Modeling of Glacial lake outburst scenarios, flood propagation scenarios, inundation scenarios, flood velocity scenarios, and preparation of vulnerability maps of the area, Socio-economic Risk (Impact) and Vulnerability Assessment of Flood



<p>Year: 2005 to March 2014</p> <p>Employment Type: Part time</p>	<p>Employer: Various Multi-national and Donor organizations (like SKW Nepal, WWF Nepal, ADB, NPBOL/Ful Bright Consultancy, ICIMOD, ECARDS/JNDP)</p> <p>Position Held: Team Leader/GIS Expert/ Database Analyst/ Hazard Expert</p> <p>Contact Address of Employer Ref. Prof. Dr. Om Guring, CBSA TU 977-1-4331852, omguring@cdsatu.edu.np</p> <p>Ref. Mr. Bhawani S. Dangol, WWF Nepal 977-1-4439508, bhawani.dangol@wwfnepal.org</p> <p>Ref. Mr. Min Bahadur KC, Full Bright, 977-1-4469749, min@fbc.com.np</p> <p>Ref. Dr. Arun Bhakta Shrestha, ICIMOD, 977-1-5003311, arun.shrestha@icimod.org</p> <p>Ref. Dr. P.S. Chapagain, ECARDS, 977-1-9841561737, ps.chapagain@gmail.com</p>	<p>Nepal</p> <p>During the period he was continuously involved in various water resources engineering, river basin, flood forecasting, watershed management, climate change projects. Moreover he has had a sound experience in the design and development of standard database as a team leader/ GIS and database analyst. During the period he has been involved in various projects, which was accomplished using the updated/ modern tools and technologies. Major projects undertaken during the period are as follows:</p> <ul style="list-style-type: none"> • May 2012 to March 2014: GIS database design, development, analysis to prepare Social Inclusion Atlas of Nepal (4 Volumes), Database Establishment and Capacity Development in Tackling Human Resources for Health (HRH) Crisis in Nepal • Jan 2012 – May 2012: Climate Risk Assessment and Integrated Watershed Management Plan of Kura-Suri Watershed of Dolakha District in Nepal • Dec 2010 – Jan 2011: GIS Analysis for RFA • Sept 2009 – July 2010: Glacial Lake Outburst Flood Modelling of Imja, Tsho Rolpa and Thulagi Lake • 2009: GIS Analysis and Mapping Work of Freshwater Program with Special focus on KREM Program for WWF Nepal • 2008-09: Glacial Lake Outburst Flood Modelling of Lumu Chini Lake/Gangsi Co Lake, PoqurBhore Kosi Basin • 2008: Baseline Survey of PASARA Program Districts of Western Nepal and Topographic and Bathymetric Survey of Tsho Rolpa Lake • 2007-08: Development of GIS Capacity at the Department of Education, Phase I & II
<p>Year: 1994 - 2003</p> <p>Employment Type: Part time</p>	<p>Employer: Various Multi-national organizations including Government Agencies (like Nepal Red Cross Society, ICIMOD, WWF Nepal, DHM, ODG TU etc.)</p> <p>Position Held: Team Leader/GIS Specialist</p> <p>Contact Address of Employer Ref. Mr. Bhawani S. Dangol, WWF Nepal, 977-1-4439508, bhawani.dangol@wwfnepal.org</p> <p>Ref. Basanta Shrestha, ICIMOD, 977-1-5003311</p> <p>Ref. Prof. Dr. Padma Chandra Paudel, OGD TU, 977-1-4330329, poudeljo@yashon.com</p>	<p>Nepal</p> <p>During 1994 -2003 Mr. Chimre involved in various water resources engineering, river basin management, river training works, socio-economic flood forecasting, watershed management, climate change projects. Moreover he has had a sound experience in the design and development of standard database as a team leader/ GIS and database analyst. During the period he has been involved in various projects, which was accomplished using the updated/ modern tools and technologies. Major projects undertaken during the period are as follows:</p> <ul style="list-style-type: none"> • 2001 to 2003: Project on Atlas and Geography of Nepal GIS Database Design of Community Based Primary Health Care Project Area of Achham District, GIS database preparation of Kankai River, River Training Project and Flood Risk Mapping of the Khandi River • 1999 to 2000: Geomorphological Mapping of the Kyau River Basin, Flood Risk Mapping of the Bagmati River (Sundarjal to Khokhajor), Lakhadshi River and Tinau River, Geomorphological Study of the Kamala River Basin • February 1997 to December 1998: Royal Bardia National Park - Extension Area Project and Digital Database and Map Preparation of Royal Bardia National Park using GIS/GPS • 1994 to 1996: Preparation of Contour Line database in Nepal and Study of Small Market Centers and Their Potential Development and Natural Hazard Mapping of Ilam, Baglung, and Kailali districts of Nepal



Membership in Professional Associations and Publications:

- Treasurer, Nepal University of Bergen Alumni Association (NeB/AA)
- Member, Nepal Geographical Society, Kathmandu, Nepal.
- Member, Nepal GIS Society, Kathmandu, Nepal

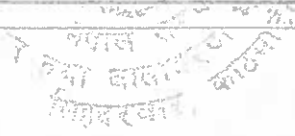
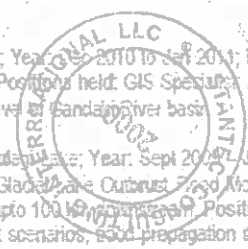
LANGUAGE SKILLS

	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent
Nepali	Excellent	Excellent	Excellent
Hindi	Good	Good	Good

ADEQUACY FOR THE ASSIGNMENT

Updated tasks Assigned Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks

on Consultant's Team of Experts	
	<p>Project Name or Assignment: ADB-Grant: 0367-NEP - Bagmati River Basin Improvement Project; Year: January 2016 - till date (10 months intermittent input over the 30 months period); Location: Singadurbar, Nepal; Client: WECS/PCIDBC</p> <p>Main Project Features: Bagmati River Basin Decision Support System, Flood Forecasting and Early Warning System, Water Quality Monitoring System and Preparation of Bagmati River Basin Integrated Master Plan</p> <p>Position: Decision Support System (DSS)/Modelling Expert</p> <p>Activities Performed:</p> <ul style="list-style-type: none"> • Work closely with other members of the DSS and the FEWS to develop and setup of the Bagmati DSS and FEWS • Provide specific inputs on development of database management systems, Geographic Information System (GIS)-based modelling applications and simulation/optimization tools; • Contribute to the trainings provided to WECS and BRBO staff, and • Assist the Team Leader in timely delivery of all outputs and preparation of reports. <p>Name of assignment or project: Glacial Lake Outburst Flood Modelling of Nagma Pokhari and Lower Barun Lake; Year: 2015 Sept - 2016 June (5 months); Location: Nepal; Client: RAMP/CIMOD, Lalitpur, Nepal; Main Project Features: Glacial Lake Outburst Flood Modelling of Nagma Pokhari and Lower Barun Lake; Position Held: Team Leader/GIS Analyst; Activities Performed: Responsible for Modelling of Glacial lake outburst scenarios, flood propagation scenarios, inundation scenarios, flood velocity scenarios, preparation of vulnerability maps of the area, and Socio-economic Risk (Impact) and Vulnerability Assessment of Flood.</p> <p>Name of assignment or project: Various GIS related projects under the various International/National Firms; Year: Feb 2013 to March 2014; Location: Nepal; Client: SIFP SNV Nepal and CDSA TU Kathmandu/ Save the Children Nepal/ WWF Nepal Program and Department of Soil Conservation and Watershed Management, Kathmandu/ and ECARDS/UNDP; Main Project Features: Preparation of Social Inclusion Atlas of Nepal (4 Volumes) Database Establishment and Capacity Development; Position Held: Team Leader/ GIS Expert/ Hazard Expert; Activities performed: Responsible for Preparation of Social Inclusion Atlas of Nepal (4 Volumes), Database Establishment and Capacity Development in Tackling Human Resources for Health (HHR) Crisis in Nepal. Responsible for Vulnerable areas to Climate Change and Hazard Mapping of Indrawati Basin.</p> <p>Name of assignment or project: Building Climate Resilience of Watersheds in Mountain Eco-Regions, TA-7653 NEP; Year: April 2012 to January 2013 (4 months); Location: Hilly region, Nepal; Client: Department of Soil Conservation and Watershed Management; Main Project Features: GIS database preparation, modeling, and analysis; Positions Held: GIS Experts; Activities Performed: Prepare detailed maps and generate information for identification and prioritization of watersheds by using available GIS and management information systems from DSCWM, Forest Resource Assessment, Water and Energy Commission Secretariat, National Planning Commission, and others; Finalize the delineation of the watershed boundaries in the two sample watersheds; Prepare GIS maps; Coordinate with other agencies; Conduct analysis on information for watershed planning using bio-physical and socio-economic information; and Prepare detailed maps for the 2 sample watersheds, GIS maps for the watersheds selected for the Project, and a detailed procedure for data-input and information generation to be used during Project implementation.</p>
	<p>Name of assignment or project: Kathmandu Khulakhani Hetauda Tunnel Highway Projects; Year: July 2012 to Dec 2012 (4 months); Location: Hilly region, Nepal; Client: NPBC/Full Bright Consultancy Pvt. Ltd.; Main Project Features: Detail feasibility study and design of Kathmandu Khulakhani Hetauda Tunnel Highway, Adjoining Area Development Study; Positions Held: GIS Specialist/Geographer; Activities Performed: Data management and analysis of geology, hydrology, engineering, socio-economic, and environment etc. GIS analysis of alternative routes, landuse analysis of different routes, hydrological analysis, Landuse plan and zonation for adjoining area development.</p>
	<p>Name of assignment or project: Climate Risk Assessment and Integrated Watershed Management Plan of Khare-Suri Watershed of Dolakha District in Nepal; Year: Jan 2012 - May 2012; Location: Nepal; Client: ECARIS, Dolakha; Main Project Features: Implementation of Community Based Climate Risk Management initiatives on NAPA thematic sectors at community and local administration levels in Dolakha District in Nepal. Position Held: GIS/Hazard Expert; Activities Performed: Analysis of the information related to the geological and geomorphological aspect, hazard assessment and analysis and production of several maps. Preparation of different HVR maps using satellite imagery and GIS analysis compiled to a one proposed land use plan map.</p>
	<p>Name of assignment or project: GIS Analysis and Mapping of Gandaki River Basin for RFA Work; Year: Oct 2010 to Jan 2011; Location: Hilly Region, Nepal; Client: WWF Nepal Program; Main Project Features: GIS analysis and Mapping; Position held: GIS Specialist; Activities performed: GIS database development and analysis with several maps at watershed and catchment level of Gandaki river basin.</p>
	<p>Name of assignment or project: Glacial Lake Outburst Flood Modelling of Imja, Tsho Rolpa and Thulsi Lake; Year: Sept 2009/ July 2010; Location: Mountain region, Nepal; Client: IWH/CIMOD, Lalitpur, Nepal; Main Project Features: Glacial Lake Outburst Flood Modelling of Imja, Tsho Rolpa and Thulsi Lake, Hazard, Risk and Vulnerability assessment along the river bank upto 100 km downstream; Position Held: Team Leader/GIS Analyst; Activities Performed: Responsible for Modelling of Glacial lake outburst scenarios, flood propagation scenarios, inundation scenarios, flood velocity scenarios, and preparation of vulnerability maps of the area.</p>



Name of assignment or project: Topographic and Bathymetric Survey of Inja Glacier Lake; Year: 2008 (4 months); Location: Inja Lake, Mountain region, Nepal; Client: WWF Nepal Program, Bahawalpur, Kathmandu; Main Project Features: GIS Analysis and Mapping Work of Freshwater Program with Special focus on KRBM Program. Topographic and Bathymetric Survey of Inja Glacier Lake; Position Held: Team Leader/GIS Specialist; Activities Performed: Responsible for GIS Analysis at catchment level of Koshi River basin. And also responsible for water depth survey of the lake, assessment of the lake volume and the storage-elevation relationship, preparation of the Bathymetric and Topographic maps using GIS.

Name of assignment or project: Glacial Lake Outburst Flood Modeling of Lunzu Chimi Lake/Gangri Co Lake - Poku-Ebote Kosi Basin; Year: 2008-09 (6 months); Location: China and Nepal; Client: IWH/MRC/MOD, Lalitpur, Nepal; Main Project Features: Modeling of Glacial Lake Outburst Flood of Lunzu Chimi Lake/Gangri Co Lake. Hazard, Risk and Vulnerability assessment along the river bank; Position Held: Team Leader/GIS Analyst; Activities Performed: Responsible for Modeling of Glacial lake outburst scenarios, flood propagation scenarios, inundation scenarios, flood velocity scenarios, and preparation of vulnerability maps of the area.

Name of assignment or project: Baseline Survey of PASARA Program; Year: 2008 (2 months); Location: Hill Regions of Western Nepal; Client: GTZ Kathmandu; Main Project Features: Baseline Survey of the PASARA program districts in Mid-Western Development Region; Position Held: Database Manager; Activities Performed: Responsible for survey tools development, supervision of field survey database design and management, and analysis.

Name of assignment or project: Topographic and Bathymetric Survey of Tsho Rolpa Lake; Year: 2008 (3 months); Location: Mountain region, Nepal; Client: Department of Hydrology and Meteorology, CoN Kathmandu; Main Project Features: Topographic and Bathymetric Survey of Tsho Rolpa Lake; Position Held: Team Leader/GIS Analyst; Activities Performed: Responsible for water depth analysis of the lake, assessment of the lake volume and the storage-elevation relationship, preparation of the Bathymetric and Topographic map using GIS.

Name of assignment or project: Development of GIS Capacity at the Department of Education Phase I & II; Year: 2007-08 (4 months); Location: Nepal; Client: Department of Education, GoN, Bhaktapur; Main Project Features: Development of Flash database entry in GIS System, GIS analysis, mapping and manual preparation of database entry and analysis, GIS training; Position Held: GIS Specialist; Activities Performed: Responsible for Supervision of GIS database Preparation, Database design and management, Linking EMIS to GIS system, GIS analysis and Education Service Mapping, Analysis of capacity gaps, Preparation of GIS Manual and transferring the knowledge (GIS training) to the selected DOE staffs.

Name of assignment or project: For Nepal Family Health Program, USAID, Sanepa, Nepal; Year: 2007 to 2008; Location: Nepal; Client: Nepal Family Health Program, USAID, Sanepa, Nepal; Main Project Features: GIS database development of the program districts of NFHP, GIS mapping of different indicators and analysis; GIS training; Position Held: Team Leader/ GIS Specialist; Activities Performed: Responsible for Supervision of GIS database Preparation, Map Design, and GIS analysis in the field of Health Service Planning, GIS training to NFHP staffs.

Name of assignment or project: Flash Flood Modeling of Janku Khola Catchment; Year: 2007 (2 months); Location: Kavrepalanchok District; Client: IWH/MRC/MOD, Lalitpur, Nepal; Main Project Features: Flash Flood Modeling of Janku Khola Catchment using HEC GeoHMS and HEC HMS software; Position Held: Team Leader; Activities Performed: Responsible for Performing hydrological modelling of the Janku Khola watershed using HEC GeoHMS and HEC HMS models. Conducting event based model for flash flood events. Preparing training manual and conducting regional level (Hindu Kush Himalayas) training on application of the Model.

Name of assignment or project: Detailed Planning Report of Land Pooling Scheme Package-I to Package-V Outer Ring Road Development Project; Year: 2008 (5 months); Location: Nepal; Client: Outer Ring Road Development Project; Main Project Features: Detailed Planning Report Preparation; Position Held: GIS Experts; Activities Performed: Responsible for preparation GIS map and report of Hansiddhi to Lubhu section of Outer Ring Road Development Project.

Name of assignment or project: Development of Geographic Information System (GIS) Database from the Existing District Water Use Inventory Studies; Year: 2008 (4 months); Location: Hill and Terai regions, Nepal; Client: Water and Energy Commission Secretariat; Main Project Features: GIS database development, mapping and analysis; Position Held: GIS Experts; Activities Performed: Responsible for GIS database preparing, analysis, field survey and mapping. The works also include the on the job training to other team members in the new developments and practices in GIS applications and related software; Preparation and map and report.

Name of assignment or project: Various GIS related Projects under the DOD/DHM; Year: Jan 2001 to July 2003; Location: Nepal; Client: Geographic Information Systems & Integrated Development Center/ Nepal Red Cross Society/ Department of Irrigation/ Department of Hydrology and Metrology/ National Program for Rural Poverty Alleviation Program; Main Project Features: Project on Atlas and Geography of Nepal, GIS Database Design of Confluence, Basic Primary Health Care Project Area of Achham District, GIS database preparation of Kankai and Lafekaha River, River Training Project and Flood Risk Mapping of the Khando River/ GIS data development of Dolpa, Taplejung, Rupandehi and Chitwan; Position Held: GIS Specialist; Activities Performed: Responsible for Project supervision and GIS Database Preparation, GIS mapping and analysis, Field Survey with GPS of the Study area, GIS training to project staffs.

Name of assignment or project: For International Centre for Integrated Mountain Development (ICIMOD); Year: Jan 2000 to Nov 2000; Location: Nepal; Client: International Centre for Integrated Mountain Development; Main Project Features: Field Data Collection and Database design for KTM Valley Application Series Case Study; Position Held: Team Leader/Geographer; Activities Performed: Responsible for Team supervision and Database design and management of the Study area for Field Data Collection and Database design for KTM Valley Application Series Case Study; Preparation and finalization of report.

Name of assignment or project: Various GIS related projects under the Department of Hydrology and Metrology (DHM); Year: Apr 1998 to July 2000; Location: Nepal; Client: Department of Hydrology and Metrology; Main Project Features: Geomorphological Mapping of the Kyan River Basin, Flood Risk Mapping of the Bagmati River (Sundarjal to Khokhajor), Lakhadehi River and Tinau River, Geomorphological Study of the Kamala River Basin, and Geomorphological Mapping of the Maru River Basin; Position Held: GIS Consultant; Activities Performed: Responsible for GIS database preparing, GIS analysis, field survey for biodiversity and socio-economic assessment, GPS survey and mapping of area in between ACAP and RCNP. Also responsible for Project supervision, GIS mapping and analysis of the Study area. GIS mapping of flood risk zone of the Study area. Geomorphological and GIS mapping of the Study area

Name of assignment or project: Royal Bardia National Park - Extension Area Project and Digital Database and Map Preparation of Royal Bardia National Park using GIS/GPS; Year: February 1997 to December 1998; Location: Nepal; Client: WWF Nepal Program, Kathmandu, Nepal; Main Project Features: Digital Database and Map Preparation of Royal Bardia National Park using GIS/GPS; Position Held: GIS Specialist/ Consultant; Activities Performed: Responsible for GIS database preparing, analysis, field survey for biodiversity and socio-economic assessment, GPS survey and mapping of RBNP Extension Area.

Name of assignment or project: Various Projects such as Preparation of Contour Line database in Nepal and Study of Small Market Centers and Their Potential Development, and Natural Hazard Mapping of Ilam, Baglung, and Kailali districts of Nepal; Year: Feb 1994 to Dec 1996; Location: Nepal; Client: Central Department of Geography; Main Project Features: GIS database Development, Landslide and flood risk and hazard mapping; Position Held: GIS Assistant / Research Assistant; Activities Performed: For Natural Hazard Mapping, was responsible for preparing GIS database from topographical map of respective districts at the scale of 1:25,000. Responsible for digitization of contour lines from the topographical map for transforming contour lines from the toposheets of 1:63360 scale). For the Study of Small Market Centers and Their Potential Development, was responsible to collect the data

EXPERT'S CONTACT INFORMATION : (E-mail: pawan.ghimire@gmail.com; Tel No.: 977-1-5544465, 9851123135

CERTIFICATION :

- I, the undersigned, certify to the best of my knowledge and belief that-
- (i) this CV correctly describes my qualifications and my 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
 - (vi) I certify that I have been informed by the firm that is including my CV in the Proposal for the "Bagmati River Basin Decision Support System, Flood Forecasting and Early Warning System, Water Quality Monitoring System and Preparation of Bagmati River Basin Integrated Master Plan". 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 disqualification or dismissal, if engaged



(Signature of expert or authorized representative of the firm)
Full name of authorized representative:

Date: 22nd February 2015
Day:Month/Year





TRIBHUVAN UNIVERSITY
UNIVERSITY CAMPUS
Central Department of Geography
 Kirtipur, Kathmandu, Nepal.

TO WHOM IT MAY CONCERN

*This is to certify that Mr./Ms. Pawan Kumar Ghimire
 has successfully completed a year long course on Geographical
 Information System (..... 1994 to 1995)
 and has used it meaningfully as an analytical tool in his / her
 M. A. thesis writing.*

Mangal S. Manandhar
Mangal S. Manandhar, Ph.D.
 Professor and Head

Date : _____



Tel : 330329, Fax : 977-01-331319, Email : cdg@whuk.com.np

Transcript of Record

University of Bergen

Name: Ghimire, Pawan Kumar

Date of birth: 1972-09-23

Master Programme in Mountain Ecology and Human adaptations

The student has completed the following examinations at University of Bergen:

Course		Semester	Points	Mark
GEO335	Specialized study in development geography I, Myths and Narratives in Development and Environment	2002 autumn	10	2,4
GEO300	Writing work shop and draft project proposal	2003 autumn	5	Recognized
GEO302	Theory of science for human geographers	2003 autumn	10	A
GEO336	Ecology, People and Institutions in Development	2003 autumn	10	B
GEO303	Individual term paper	2004 spring	15	Recognized
GEO307	Qualitative Methodology in Human Geography	2004 spring	10	C
GEO306	Social scientific methodology	2005 spring	10	Passed
GEO350	Master thesis	2005 spring	60	B
	State of Land Abandonment. Impacts of out Migration on Local Farming system (A Case Study of upper Manang in the Central Himalayas, Nepal)			

Total: 159,0

16 June 2005



signature




Pawan Kumar Ghimire
GPO - 8975
BPC - 1868
Kathmandu
NEPAL

Name: Ghimire, Pawan Kumar

Date of birth: 1972-09-23

Has completed the following examinations at the University of Bergen:

Course		Semester	Credits	Mark
Geography Social Sciences:				
GEO235	Specialized study in development geography I Myths and narratives in development and environments	2002 autumn	3.3	2.4

1 Norwegian credit is equivalent to 3 ECTS-credits.

24 January, 2003

Elin Augustin
signature



An official transcript must be signed and stamped by the University of Bergen.

S. No. 4501

Registered No. 44721-90

त्रिभुवन विश्वविद्यालय

Tribhuvan University



कलाचार्य

मानविकी र सामाजिकशास्त्र

पवनकुमार घिमिरे विक्रम सम्वत् २०५१ को

भूगोल विषयको कलाचार्य परीक्षा प्रथम श्रेणीमा उत्तीर्ण भई स्नातकोत्तरोपाधिका निमित्त योग्य ठहरिएकोले निजलाई यस उपाधिद्वारा विभूषित गरिएको छ ।

Master's Degree

In Humanities and Social Sciences

This is to certify that *Pawan Kumar Ghimire* having passed **Master's Degree** examination in **Humanities and Social Sciences** in *Geography* in *First* division of the year *1999* this degree has been awarded on him/her this day.

Kathmandu, Nepal.

Date:

Nov. 28, 1999



Vice-Chancellor



TRIBHUVAN UNIVERSITY
OFFICE OF THE CONTROLLER OF EXAMINATIONS
KATHMANDU, NEPAL
ACADEMIC TRANSCRIPT

051

Issue Number

Name of the student

PAWAN KUMAR GHIMIRE

Faculty: Humanities & Social Sciences

Registered number

447201-90

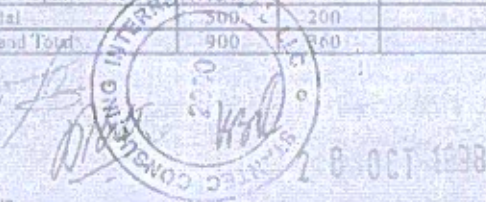
Campus: KIRTIPUR

Course Duration: 2 Academic Years

Examination: Master's Degree in Geography

Subjects appeared in the examination	Full Marks	Pass Marks	Examination attended year and Roll No.	Examination attended year and Roll No.	Examination attended year and Roll No.	Examination attended year and Roll No.	Examination attended year and Roll No.	Remarks
			1218-93	5632-94				
			Marks secured	Marks secured	Marks secured	Marks secured	Marks secured	
1st Yr. Examination								
I. Physical Geography	100	40	—	39				
II. Cartography, Aerial Photography, Surveying and Excursion	100	40	79					
III. Research Technique and Quantitative Geography	100	40	45					
IV. Optional (any one)	100	40	72					
<i>Agri. & pd... 600</i>								
Total	400	160		255				
2nd Yr. Examination								
V. Geography of Nepal:	100	40						
a) Physical, Economic, Social and Regional	40	16		28				
b) Seminar on Geographic problems of Nepal	60	24		52				
VI. Settlement and Population Geography	100	40		65				
VII. Regional Geography of Latin America or Anglo America or West Europe or East Europe of East Europe including USSR or S.E. Asia or South Asia or East Asia or West Asia or Africa	100	40		67				
VIII. Optional (any one)	100	40						
or								
— Dissertation	100	40		23				(U.D. 052-5-12)
National Development Services	100	40						
Total	500	200		305				
Grand Total	900	360		560				

Written by
Checked by



Total Marks secured 560.0
Percentage 70.0
Passed Division FIRST
Passed examination of 209 (19/94)

Controller of Examinations

Date of issue

Grading system of marks secured in the examination:

Distinction - 80 percent and above in the aggregate.

First Division - 65 percent and above in the aggregate.

Second Division - 50 percent and above in the aggregate.

To pass the examination at least 40 percent of the marks must be secured in the Internal and External examinations as well as in the theory and practical examinations of each paper separately.



20. Dr. Bhagawat Rimal

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal; Ministry of Finance; Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following:

- (i) I have conducted this study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature:

Official stamp:

Name: Dr. Bhagawat Rimal

Date: 05-02-2019

Position: GIS Expert



CURRICULUM VITAE (CV) FOR PROFESSIONAL PERSONNEL

1. Proposed Position : GIS Expert
2. Name of Firm : Nepal Environmental and Scientific Services (NESS) P. Ltd
3. Name of personnel : Bhagawat Rimal, Ph. D.
4. Date of Birth : 6th August, 1976
5. Nationality : Nepali
6. Education :
- Ph. D. In Geography, University of Wrocław, 2011
 - Master Degree in Geography, Tribhuvan University Kirtipur, Kathmandu, Nepal, 2002
7. Membership of Professional Associations:
- Nepal Geographical Society
 - Association of American Geographers
 - International Association of Hydrological Sciences (General Member)
8. Other Trainings :
- Environmental Assessment (SEA, EIA and IEE) training jointly conducted by Lumbini Environmental Services and Bristol Training and Research Centre, on December 11th to December 17th, 2011 in Kathmandu
 - Research Paper Presentation on Urban Growth and Land Use/Land Cover Change of Kathmandu Metropolitan City, Nepal, in the Conference of Cartography, University Wrocław, May 13, 2011
 - Paper presentation on Geography of Nepal in the "Geography Seminar and Research Workshop" in, conducted by Department of Climatology, University of Wrocław, in January, 2008.
 - Successfully participated for "Capacity Building Training on HIV/AIDS"; Conducted by joint venture of Siddhi Memorial Foundation, ICA Nepal and World Vision Nepal, on July 23rd to July 25th, 2006.
 - Successfully participated in "Training of Trainer for School Cancer Education Programme" Organized by B.P. Koirala Memorial Cancer Hospital, Bharatpur, Chitwan, Nepal, from 2063-02-28 to 2063-02-29 (May 11th 2006 to May 12th 2006)
 - Successfully participated in "School Teacher's Workshop on Disaster Education" Organized jointly by HMG, Ministry of Education and Sports, Department of Education, District Education Office, Bhaktapur National Society for Earthquake Technology Nepal (NSET) and Kyoto University, Japan held at Bhaktapur, Nepal on 23 March, 2006
 - Successfully participated in the seminar CUM workshop on Janak School and its Importance And Use, conducted by Janak Educational Materials Centre (JEMC) Limited, on the 17th February, 2003 A.D.
 - Successfully participated in the Seminar CUM Workshop on "Research Methodology" conducted by CDG, TU. From Jan. to Feb. 2003 Sponsored by NCCR North- South Project.
9. Countries of Work Experience: Nepal
10. Languages:
- | | <u>Reading</u> | <u>Writing</u> | <u>Speaking</u> |
|---------|----------------|----------------|-----------------|
| Nepali | Excellent | Excellent | Excellent |
| English | Excellent | Excellent | Excellent |
| Hindi | Excellent | Fair | Excellent |
11. Employment Record:
- From March, 2011 : To date (Intermittent)
- Employer : Nepal Environmental and Scientific Services (P) Ltd.
- Position held : GIS Expert/ Cartographer
- From Dec. 2002 : To 2007

Employer : Minnesota State University, Mankato, MN, USA
 Position held : GIS Expert

12. Detailed Tasks Assigned:

- Manage collection of geospatial data and manage databases, analysis of data, produce maps and data required for other experts, develop reports

13. Relevant Project Experience:

Name of Assignment or Project: Environmental and Social Impact Assessment Study of Karnali Chisapani Multipurpose Project (10800 MW)

Year: Aug 2016 –Jan. 2017.

Location: Kailali, Surkhet, Achham, Bardiya and Dofu District,

Client: Department of Electricity Authority (DoED)

Main Project Features: Environmental and Social Impact Assessment (EIA) Study within the jurisdictional area of Bardiya National Park;

Position held: GIS Expert

Activities Performed: Responsible for Carryout surveys and investigation required to find possible areas for infrastructures location social and environmental study. As per the ToR of work, there are basically two types of surveys required namely; i. geological, geotechnical, construction material and seismicity study, and ii. Environmental and social study. Analysis of land use of proposed Project area including VDCs level land use map, hydrology map, structure map and infrastructure map using satellite images of World View I & II and Quick Bird. Preparation of report and Maps

Name of Assignment or Project: Preparation of Scoping Document and Terms of Reference for Environmental Impact Assessment of Jamli-Bardagaha-Neulapur System and Extension of Western Main Canal, Babai Irrigation Project

Year: June 2016-Oct., 2016

Location: Bardiy District

Client: Babai Irrigation Project

Main Project Features: Preparation of Scoping Document and Terms of Reference for Environmental Impact Assessment Study

Position held: GIS Expert

Activities Performed: Assisted the team leader in preparing maps, procurement of satellite images, assessment of site specific features from images, preparation of GIS maps, provided input in preparing social, environmental, geological reports of the project.

Name of assignment or project: Cumulative Impact Assessment (CIA) of Upper Trishuli-1 HEP, 216 MW;

Year: May 2015 -Sept. 2015;

Location: Rasuwa District, (Upper Trishuli- 1), Langtang NP;

Client: ESSA Technologies Ltd, Canada;

Main project features: Preparation of thematic maps, satellite image analysis, preparation of CIA report;

Positions held: GIS/ RS Expert;

Activities Performed: Assisted the team leader in preparing maps, procurement of satellite images, assessment of site specific features from images, preparation of GIS maps, provided input in preparing social, environmental, geological reports of the project.

The major activities involved selection of promising project sites, field visits, and confirmation of technical, environmental and social condition, as per the TOR. The main task of this session is analysis the project impact in land use and land cover as well as analyzed the past land use statistic using LRMP data analysis of present land use statistic, building structure and road network of project site using cloud-free Google earth image of study area.

Name of assignment or project: Participatory Land Use Planning and Implementation Project Catalytic Support on Land Issues Project;

Year: March 2014 to July 2015;

Location: Nepal;

Client: UN-HABITAT

Main project features: Preparation and Implementation of Participatory Land Use Planning (PLUP) in Jhorabat VDC Morang, Anarud VDC Nawalparasi and Latikoil VDC of Surkhet District;

Positions held: Team Leader/ GIS Expert,

Activities Performed: Overall guidance to the team members regarding the development of methodologies, data collection and report writing in order to complete the assigned task in the stipulated time. Preparation of National Land use plan of

Nepal, district land use plan of three selected districts namely Morang, Nawalparasi and Surkhet and Preparation and Implementation of Participatory Land Use Planning (PLUP) of three selected VDCs namely- Jhorohat, Amraud and Latukoli.

Name of assignment or project: Preparation of Municipality Transport Master Plan;

Year: March, 2015 to June 2015;

Location: Nepal;

Client: Government of Nepal, MoFALD;

Main project features: Prepare a Municipality Transport Master plan of Sandhikharka Municipality road (70 Km); Kushina Municipality road (93 Km); Devdaha Municipality (85 Km); Krishna Nagar Municipality (40 Km) according to the road Network and other resources.

Prepare visionary city development plan with the consultation of stakeholders. Prepare an Inventory Road Map, MTMP of 5 years and MTPP for 20 years;

Positions held: Team Leader / GIS Expert;

Activities Performed: Overall guidance to the team members regarding the development of methodologies, data collection and report writing in order to complete the assigned task in the stipulated time. Prepare Municipality level Land resource Map and Municipality profile on the basis of TOR, Design appropriate GIS database, and presentation of report.

Name of assignment or project: Review of the Implementation Status of the Terai Air Landscape (TAL) Nepal Strategy (2004-2014) and Implementation Plan and Design the New Strategic Plan and Action Plan (2015-2025);

Year: May 2014 to September 2014;

Location: Nepal;

Client: World Wildlife Fund (WWF);

Main project features: To review the implementation status of the TAL Nepal strategy and implementation plan and design the new strategy in the changing context of the country;

Positions held: Remote Sensing and Land Use Planning Expert;

Activities Performed: Design appropriate GIS database, land cover analysis overtime 2004 and 2014 using land sat image, identify the forest, settlement and design the new strategy in the changing context of the country.

Name of assignment or project: Status Mapping and Trade Analysis of MAPs/NTFPs in Trans Himalayan Region of Nepal;

Year: March 2014 to May 2014;

Location: Nepal; Client: Government of Nepal;

Main project features: Document status and mapping of major NTFPs/MAPs in these regions and recommend future activities for the conservation and sustainable utilization of NTFPs/MAPs;

Positions held: GIS Expert,

Activities Performed: Delineation identified/prioritized MAPs/NTFPs and GIS Mapping; Land Use Pattern analysis, identify the forest Types using satellite image, NTFPs/MAPs Abundance, Effective area calculation and GIS Mapping

Name of assignment or project: Analytical Study on Assessing the Value of Forests, the Political Economy of Land Use and the Carbon Emissions from the Drivers of DD;

Year: Jan. 2014 to April 2014;

Location: Nepal;

Client: World Bank for REDD Cell;

Main project features: Overview of land use dynamics and land tenure interactions in Nepal in Relation to deforestation and forest degradation and prepare land cover map from 1990 to 2010 and projection for 2030 for the further plan;

Positions held: National Land Use Planning/ GIS Expert;

Activities Performed: Comprehensive assessment of Land use Change, Describe the procedure for reviewing the plan, progress and revising the plan, Find out the driving forces of land use change and analysis of drivers and deforestation of forest. Design appropriate GIS database, Identify alternatives for land use, select and adopt the best land use options. Analysis of land zoning and recommendation type of land use zoning is required. Assisted the team leader in preparing maps, procurement of satellite images, assessment of site specific features from images, preparation of GIS maps, provided input in preparing social, environmental, geological reports of the project.

Name of assignment or project: GIS Based Floral Mapping in Surkhet District;

Year: OCT, 2013 to Nov 2014;

Location: Surkhet;

Client: GIZ Nepal;

Main project features: Preparing a vegetation Map of Surkhet District;

Positions held: GIS Expert.

Activities Performed: Collection of VDC wise vegetation and other natural as well as social information of Surkhet district and prepare a floral map and categories people participation in bee keeping.

Name of assignment or project: Environmental Impact and safeguard studies including Feasibility studies and design of Buxti Gandaki hydro Power Project;

Year: Dec 2012 to Oct 2014;

Location: Gorkha and Dhading Districts;

Client: TRACTEBEL Engineering S.A, France;

Main project features: Assisted the team leader in preparing maps, procurement of satellite images, assessment of site specific features from images, preparation of GIS maps, provided input in preparing social, environmental, geological reports of the project;

Positions held: GIS/RS Expert;

Activities Performed: The major activities involved selection of promising project sites, field visits, and confirmation of technical, environmental and social condition, as per the TOR. The main task of this session is analysis the project impact in land use and land cover as well as analyzed the past land use statistic using LRMP data and analysis of present land use statistic, building structure, road network terrain analysis of project site using cloud-free Ortho photo and LiDAR image of study area.

Name of assignment of project: Initial Environmental Examination (IEE) study of Ghorahi-Dui Khali Rolpa Road (Shahid Lok Marga, 107.5 Km);

Year: October 2011 to 2013.

Location: Dang and Rolpa Districts;

Client: Government of Nepal Ministry of Physical Planning and Works, Department of Roads, Planning and Design Branch, Geo-Environment & Social Unit, Babarmahal, Kathmandu;

Main project features: Initial Environmental Examination (IEE) study of Ghorahi-Dui Khali Rolpa Road (Shahid Lok Marga);

Position held: GIS Expert;

Activities Performed: Responsible for surveys and investigation required to find possible areas for infrastructures location and environmental study. As per the ToR of work, there are basically two types of surveys required namely, geological, geotechnical, construction material and seismicity study, and environmental and social study. Preparation of Land use map of project area.

Name of assignment or project: EIA Study of Dhap Water Storage Dam in Shivapuri-Nagarjun National Park;

Year: July 2013- March 2014;

Location: Shivapuri Nagarjun National Park, Kathmandu;

Client: Department of Irrigation, Jawaharhat;

Main project features: A water storage reservoir for augmenting the water flow during dry seasons, the project is a part of Integrated Bagmati Basin Improvement;

Positions held: GIS expert,

Activities Performed: Orient the team members in acquiring the GIS related information, select the appropriate GIS software and produce various maps like vegetation cover map, climatic map, land use cover and land use change map, resource map, habitat maps etc. of the project.

Name of assignment or project: Environmental, Social and Geological Survey for Nationwide Master Plan Study On Nine Storage-type Hydroelectric Power Development In Nepal;

Year: Mar 2012 to Feb., 2013;

Location: Nepal;

Client: JICA Study Team, Electric Power Development Co. Ltd, Japan;

Main project features: Environmental, Social and Geological Survey for Nationwide Master Plan Study On Storage-type Hydroelectric Power Development In Nepal;

Positions held: GIS Expert;

Activities Performed: Nine selected promising project sites were visited and confirmed technical, environmental and social condition. The major activities involved selection of ten promising project sites, field visits, and confirmation of technical, environmental and social condition. As per the TOR of work, basically two types of surveys are required namely; i) geological, geotechnical, construction material and seismicity study, and ii) environmental and social study. To analyse the land use structure prepare the land use plan for the proposed project. Preparation of the updated land use map by utilizing Quick Bird and Worldview Images was one of the major responsibilities.

Name of assignment or project: Research conducted on Urban Development and Decline of Pokhara Sub- Metropolitan City Nepal, 2012/2013;

Year: 2012-2013;

Location: Nepal,

Client: Everest Geo-science Information Service centre Pvt.;

Main project features: Study of urban development and Land use change;

Positions held: Team Leader/ GIS Expert;

Activities Performed:

- Overall coordination of the project.
- Overall guidance to the team members regarding developing methodologies, data collection, report writing in order to complete the assigned task in the stipulated time.
- Overall coordination and communication with different stakeholders viz., Municipalities, VDCs, DDC, and other institutions regarding the procedure, meeting, data collection for the smooth mobilization of the study.
- Define roles and responsibilities of each team members.
- Organize local, regional and central level interaction programs and meetings for information collection, identification of problems, potential, opportunities, Delineation of the spatial boundary of the study area
- Identification of different kinds of linkage of the study area to hinterland and another area; identification of the existing economic base and role and function of the study area

Name of assignment or project: Environmental Impact Assessment of 900 MW Upper Karnali Hydroelectric Project;

Year: Jan 2012 –Sept. 2012;

Location: Dailokh, Achham and Sirkhet Districts,

Client: Upper Karnali Hydropower Company (P.) Ltd.;

Main project features: Run of the river scheme with a peaking reservoir, tunnel, underground desander, surge tank, and surface powerhouse with support facilities such as construction camps, spoil disposal, internal access roads etc. .

Positions held: GIS Expert;

Activities Performed: Responsible for surveys and investigation required to find possible areas for infrastructures location and environmental study, As per the ToR of work, there are basically two types of surveys required namely; geological, geotechnical, construction material and seismicity study, and environmental and social study. Preparation of Land use map of project area.

Name of assignment or project: Environmental Impact Assessment of Bheri-Babai Diversion Multipurpose Project;

Year: May 2011-Aug. 2012;

Location: Sirkhet and Bardiya Districts, Bardiya NP;

Client: Bheri-Babai Diversion Multipurpose Project, Department of Irrigation;

Main project features: Environmental Impact Assessment Study;

Positions held: GIS Expert;

Activities Performed: Responsible for surveys and investigation required to find possible areas for infrastructures location and environmental study, As per the ToR of work, there are basically two types of surveys required namely; geological, geotechnical, construction material and seismicity study, and environmental and social study. Preparation of Land use maps, land capability maps of project area.

Name of assignment or project: Catchment Area Treatment Plan (CAT Plan) of Upper Marsyangdi HEP (660 MW);

Year: March 2012 – August 2012;

Location: Manang and Lamjung Districts / Annapurna Conservation Area;

Client: Himlal Hydropower Company (P.) Ltd.;

Main project features: Preparation of a plan to manage the Marsyangdi Watershed that drains into the Upper Marsyangdi HEP;

Positions held: GIS Expert;

Activities Performed: Responsible for surveys and investigation required to find possible areas for infrastructures location and environmental study, prepare the hazard maps including flood, GLOF hazard maps, land use and land use change maps, climatic maps, vegetation maps etc.

Name of Assignment: Environmental survey for Upgrading Feasibility Study on Upper Seti (Damauli) Storage Hydroelectric Project in the Kingdom of Nepal, including IEE of Damauli – Bharatpur 220 kV Transmission Line;

Year: May, 2006- December 2006;

Location: Tanahu and Chitwan ;

Client: JICA Study Team;

Main Project features : Environmental survey for Upgrading Feasibility Study;

Position Held : GIS Expert;

Activities performed: Responsible for surveys and investigation required to find possible areas for infrastructures location and environmental study, As per the ToR. of work, there are basically two types of surveys required namely; geological,

geotechnical, construction material and seismicity study, and environmental and social study. Preparation of Land use map, land capability map of project area

Name of Assignment: EIA of Dang Cement Project including 22 km long access road:

Year: June, 2004 - Feb., 2005;

Location: Dang District;

Client: Dang Cement Industries Pvt. Ltd;

Main Project features: Environmental Impact Assessment Study;

Position Held: GIS Expert;

Activities performed: Responsible for surveys and investigation required to find possible areas for infrastructures location and environmental study. As per the ToR of work, there are basically two types of surveys required namely; geological, geotechnical, construction material and seismicity study, and environmental and social study. Preparation of Land use map of project area.

Name of Assignment: Preparation of Environmental Management Plan for Gokarna Landfill Site;

Year : August 2003-June, 2004;

Location: Kathmandu;

Client : Solid Waste Management and Resource Mobilization Center, MoLDIGON;

Main Project features: Preparation of Environmental Management Plan;

Position Held: GIS Expert;

Activities performed : Responsible for surveys and investigation required to find possible areas for infrastructures location and environmental study. As per the ToR of work, there are basically two types of surveys required namely; geological, geotechnical, construction material and seismicity study, and environmental and social study. Preparation of Land use map of project area



copy



THE REPUBLIC OF POLAND
UNIWERSYTET WROCLAWSKI
(The Wrocław University of Science and Technology)

INSTITUTE OF GEOGRAPHY AND REGIONAL DEVELOPMENT
(Institute of Geography and Regional Development of the Wrocław University of Science and Technology)

DIPLOMA

BHAGAVAT RIMAL
(First name and surname)

born on 6th August 1976 in Sablakhu 05, Taplejung, Nepal

on the basis of submitted doctoral dissertation entitled:
Urban development and land use change of Nepalese main cities

and having passed required examinations, obtained the academic degree of

DOCTOR (Ph.D.)

in Geography, Geography sciences, Section of Earth
(Field of Research)

granted pursuant to the resolution adopted by the Faculty
Institute of Geography and Regional Development
(Faculty of Geography and Regional Development of the Wrocław University of Science and Technology)

on 28th October 2011

The Supervisor of doctoral dissertation:

Dr. Elżbieta Wysłowska-Zytkowska, prof. UW

The Reviewers of doctoral dissertation:

Prof. Andrzej Kozłowski

Dr. Andrzej Kozłowski

Wrocław, 28th October 2011
(Place and date)

Prof. Andrzej Kozłowski
(Dean or Chairman of Faculty)

[Signature]
(Rector or Director of Academic Institution)



10 130001

21. Bimal Subedi

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal; Ministry of Finance; Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following:

- (i) I have conducted this study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature:

Official stamp:


Name: Bimal Subedi

Date: 05-02-2019

Position: National Legal Regulatory Specialist



CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL

1. Proposed Position : National Legal Regulatory Specialist
2. Name of Firm : Nepal Environmental and Scientific Services (NESS) P. Ltd
3. Name of personnel : Bimal Subedi
4. Date of Birth : 26th September, 1955
5. Nationality : Nepal
6. Education :
 - LL.M (Master of Laws) in Business Laws, Bharati Vidyapeeth New Law College, Pune INDIA, 2004
 - B.L. (Bachelor in Law), Tribhuvan University, Nepal Law Campus, Kathmandu, Nepal, 1993
7. Membership of Professional Associations:
 - Holding Pleader License from Supreme Court, 1991
 - Holding Advocate License from Supreme Court Bar Association, 2050 /1994
 - Member of Kathmandu District Court Bar Association, till 2008
 - Council Member of Kathmandu District Court Bar Association, 2001
 - Member of Supreme Court Association, 2009
 - Worked as a Member of various committee of Nepal Bar Association
 - Ex. Family, Election, Publicity, Human Rights, etc
8. Other Trainings :
 - EIA trainings conducted by Institute of Applied Sciences-Nepal, Thaaithall, April-May 2017
 - Negotiation Skills, Society for Sustainable Development, Lalitpur, March 1995
9. Countries of Work Experience: Nepal
10. Languages:

	<u>Reading</u>	<u>Writing</u>	<u>Speaking</u>
Nepali	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent
Hindi	Excellent	Fair	Excellent
11. Employment Record:

From April 1999	: To date (Intermittent)
Employer	: Nepal Environmental and Scientific Services (P) Ltd.
Position Held	: Legal and Policy Expert
From June 2000	: To date
Employer	: Lex Juris
Position Held	: Advocate
From April 1993	: March 1995
Employer	: Mukund Regmi and Associates
Position Held	: Advocate



12. Detailed Tasks Assigned:

- Assess and document provisions of Nepal's policies and laws on environment, forests, conservations, land acquisitions and resettlement related to the transmission lines sector; assess the norms and standards on environment and social safeguards of international finance institutions, analysis of gaps and suggests mitigating measures to be taken as per the policies and laws.

13. Relevant Project Experience:

Name of assignment of project: Environmental Impact Assessment (EIA) Study for Eastern Canal System of Sirta Irrigation Project

Year: Jan. 2017 –October 2017

Location: Banke Districts

Client: Sirta Irrigation Project

Main project features: EIA Study

Position held: Legal and Policy Expert

Activities Performed: Responsible for the review of environmental legislations and policies and other sectoral policies related to environment and others relevant to the project. Preparation of legal and policy review documents required for the project implementation and operation with recommendations for the compliance to the existing policies and legislations to smoothen the project implementation and operation. Assisted the team in resettlement and rehabilitation part write up and other write up in legal chapter, and explanation of legal connotations in EIA report.

Name of assignment of project: Initial Environmental Examination (IEE) for the 400 KV D/C Transmission Line System from 600 MW Upper Kamali HEP Power House Substation to Nepal India Border

Year: August 2015- December 2015

Location: Achham, Suklhat Kailali Districts

Client: Kamali Transmission Line Company P. Ltd through consultant: Nepal Environmental and Scientific Services (NESS) P. Ltd

Position held: Legal and Policy Expert

Main project features: Initial Environmental Examination (IEE) Study

Activities Performed: Responsible for the review of environmental legislations and policies and other sectoral policies related to environment and others relevant to the project. Review of legal rights of land owners, non title holders, review of land acquisition in TL corridor (permanent for tower and lands under RoW), policies regarding CFUGs, Gulthi and other lands. Provided legal and policy related suggestions to the developers and assisted the IEE team of NESS in drafting legal part of IEE, assisted in preparing resettlement and rehabilitation matrix, formation of Grievance redress mechanisms, drafting public consultation and disclosure planning, prepared all the proceeding and records in a systematic fashion in IEE report.

Name of assignment of project: Environmental Impact Assessment Study of Budhigandaki Hydroelectric Project (BGHEP) 1200 MW

Year: Nov. 2014- Oct 2016

Location: Dhading and Gorkha Districts

Client: Budhigandaki Hydroelectric Development Committee (BGHEPDC) through NESS

Main project features: Storage project with an installed capacity of 1200MW generating 3 383 GWh of annual energy. The key project structures are: i) Double curvature arch dam of height 263m from the foundation level, ii) reservoir area occupying nearly 65% of land along Budhigandaki and Anikhu Khola across 13 VDCs of Gorkha District and 14 VDCs of Dhading District, iii) turbine powerhouse at the toe of the Dam at the left bank and iv) shaft headrace tunnel and penstock tunnels linking powerhouse with the intake in the reservoir

Position held: Legal expert

Activities Performed: Involved in literature review of all the legal documents related to hydropower development in Nepal, review of India Nepal treaty, Land Acquisition Act (1977), review of land acquisition and resettlement policy of CoN (2015), Environmental Protection Act (1996), Regulations (1997), review of Labor Act (1992) and other policies and Acts, assisted in providing legal services for tenant right, gulthi right, non title holders, dealt in issues related to land, downstream water use, ILO 169, issues of forest clearance, preparation of land entitlement matrix, provided legal advices to the consulting team and project proponent. Assisted in preparing legal write up in Environmental Impact Assessment report of the project.

Name of assignment of project: 1. Environmental Impact Assessment Study of Sanjen Khola Hydroelectric Project 78 MW, 2. Feasibility study of 132 KV transmission line study from P/H of SKHEP to Chyamdon

Year: Nov. 2012- May 2013

Location: Rasuwa District

Client: Salasungi Power Limited through Nepal Environmental and Scientific Services (NESS) P Ltd

Main project features: Run of the river scheme with a peaking reservoir, tunnel, underground desander, surge tank, and surface powerhouse with support facilities such as construction camps, spoil disposal, internal access roads, transmission lines etc

Position held: Legal Expert

Activities Performed: Involved in providing legal review for EIA study of the project and also for transmission line for SKHEP powerhouse site to Chyangdon. Prepared details of land required for the project in generation and transmission line part separately

Name of assignment or project: Environmental, Social and Geological Survey for Nationwide Master Plan Study on Storage Type Hydroelectric Power Development in Nepal, Rolpa, Arghakhanchi, Pyuthan, Jajarkot, Okhaldhunga/Kothang, Ramechhap, Syangja, Gulmi, Sindhuli, and Sindhupalchowk Districts,

Year: June 2012-November, 2012

Location: Nepal

Client: J-Power (Japan)

Position held: Legal and Policy Expert

Activities Performed: Responsible for the review of environmental legislations and policies and other sectoral policies related to environment and others relevant to the project. Preparation of legal and policy review documents required for the project implementation and operation with recommendations for the compliance to the existing policies and legislations to smoothen the project implementation and operation. Prepared entitlement matrix for land acquisition and rehabilitation, list of plan, policies, Acts, regulations, directives, standards applicable for the planning and construction of storage type hydropower projects in Nepal.

Name of assignment of project: Initial Environmental Examination (IEE) study of Ghorahi-Dui Khali Rolpa Road (Sahid Lok Marg) 197.5 km)

Name of assignment or project: Environmental Impact Assessment of 900 MW Upper Kamaki Hydroelectric Project

Year: March 2012- September 2012

Location: Nepal

Client: Upper Karnali Hydropower Company (P.) Ltd.

Main project features: Run of the river scheme with a peaking reservoir, tunnel, underground desander, surge tank, and surface powerhouse with support facilities such as construction camps, spoil disposal, internal access roads etc.

Positions held: Legal and Policy Expert

Activities Performed: Responsible for the review of environmental legislations and policies and other sectoral policies related to environment and others relevant to the project. Preparation of legal and policy review documents required for the project implementation and operation with recommendations for the compliance to the existing policies and legislations to smoothen the project implementation and operation.

Name of assignment or project: Environmental Impact Assessment of 600 MW Upper Marsyangdi II Hydroelectric Project

Year: Dec 2011- Feb 2012;

Location: Nepal

Client: Himani Hydropower Company (P.) Ltd.

Main project features: Run of the river scheme with a peaking reservoir, tunnel, surge tank, and underground powerhouse with support facilities such as construction camps, spoil disposal, internal access roads etc.

Positions held: Legal and Policy Expert

Activities Performed: Responsible for the review of environmental legislations and policies and other sectoral policies related to environment and others relevant to the project. Preparation of legal and policy review documents required for the project implementation and operation with recommendations for the compliance to the existing policies and legislations to smoothen the project implementation and operation.

Name of assignment or project: Kabeli Corridor 132kV Transmission Line Project (Transmission Line / substation Construction

Year: August, 2011 – October, 2011

Location: Nepal

Client: Nepal Electricity Authority through NESS

Main project features: Preparation of Resettlement Action Plan, Social Action Plan and VCDP for Kabeli Corridor TL Project

Position held: Legal Expert

Activities performed: Review of project documents, review of legal documents of the project, Act /Rules/Regulations/Guidelines/Standards/Directives in transmission line development, provided training to the NESS study team on public dialogue and interviews, prepared information dissemination and disclosure framework for the project, Prepared entitlement matrix for project affected households, developed modality for compensation payment for buildings,

crops, fruits, vegetables which needs to be acquired which are along the TL alignment, assisted the team in review and write up of legal aspects in the report. Provided advisory services to the NEA engineering team on likely legal complication, approach for resolving it. The report was prepared meeting the World Bank and GoN Requirements.

Name of assignment of project: Initial Environmental Examination (IEE) Study of Jayramghat Bridge Project (Majepani-Dixit Road)

Year: May 2010 to July 2011

Location: Khotang Districts

Client: Kojika Construction, Hulas Steel Industries

Main project features: IEE Study of Jayramghat Bridge

Position held: Legal Expert

Activities Performed: Review of Act, Regulations, Guidelines, and Directives of Government of Nepal related to environment

Name of assignment of project: Revival of Ambient Air Quality Monitoring Stations of Kathmandu Valley

Year: September, 2010 - February, 2011

Location: Kathmandu

Client: Ministry Environment

Main project features: Revival of permanent air quality monitoring stations in Kathmandu valley under KVAQMS program

Position held: Legal Expert

Activities Performed: Review of Act, Regulations, Guidelines, and Directives of Government of Nepal related to environment

Name of assignment of project: Environmental Impact Assessment (EIA) Study of Hetauda By – Pass Road; Year: April, 2010 To Feb, 2011

Location: Makawanpur District

Client: Foreign Cooperation and Quality Standards Division, Ministry of Physical Planning and Works, Government of Nepal, Singhadaha, Kathmandu, Nepal

Main project features: Environmental Impact Assessment (EIA) Study of Hetauda By – Pass Road

Position held: Legal Expert

Activities Performed: Responsible for the review of environmental legislations and policies and other sectoral policies related to environment and others relevant to the project. Preparation of legal and policy review documents required for the project implementation and operation with recommendations for the compliance to the existing policies and legislations to smoothen the project implementation and operation.

Name of assignment of project: Environmental Monitoring and Analysis along Kathmandu Bhaktapur Road Extension Project

Year: March 2010 to April 2010

Location: Kathmandu and Bhaktapur Districts

Client: Department of Roads, Planning and Design Branch, Geo-environment and Social Unit

Main project features: Study of Environmental Monitoring and Analysis along Kathmandu-Bhaktapur Road.

Position held: Legal Expert

Activities Performed: Review of environmental standards of GoN.

Name of assignment of project: Environmental Impact Assessment Study of Kaligandaki Upper Hydropower Project (KGUHP)

Year: December, 2009-April 2010

Location: Myagdi and Mustang Districts

Client: Trade Link Pvt. Ltd

Main project features: Run of the river scheme with a diversion dam, tunnel, surge tank, and powerhouse with support facilities such as construction camps, spoil disposal, internal access roads

Position held: Legal and Policy Expert

Activities Performed: Responsible for the review of environmental legislations and policies and other sectoral policies related to environment and others relevant to the project. Preparation of legal and policy review documents required for the project implementation and operation with recommendations for the compliance to the existing policies and legislations to smoothen the project implementation and operation.

Name of assignment of project: 13th, 14th, 15th and 16th Monitoring and Assessment for Water, Waste water, Noise and Air Quality for Middle Marsyangdi Hydroelectric Project Area

Year: Nov., 2007-Dec., 2008

Location: Lamjung District
 Client: Middle Marsyangdi Hydroelectric Project/NEA
 Main project features: Monitoring and Assessment for Water, Waste water, Noise and Air Quality for Middle Marsyangdi Hydroelectric Project Area
 Position held: Legal Expert
 Activities Performed: Responsible for the review of environmental legislations and policies and other sectoral policies related to environment and others relevant to the project. Preparation of legal and policy review documents required for the project implementation and operation with recommendations for the compliance to the existing policies and legislations to smoothen the project implementation and operation.

Name of assignment of project: Environmental Impact Assessment of Waste Resource Management center, Biratnagar Dharan Corridor

Year: Feb, 2004 – Feb., 2005

Location: Hetauda, Makawanpur District

Client: Waste Resource Management center, Biratnagar

Main project features: Environmental Impact Assessment Study of Waste Resource Management center, Biratnagar Dharan Corridor

Position held: Legal and Policy Expert

Activities Performed: Responsible for the review of environmental legislations and policies and other sectoral policies related to environment and others relevant to the project. Preparation of legal and policy review documents required for the project implementation and operation with recommendations for the compliance to the existing policies and legislations to smoothen the project implementation and operation.

Name of assignment or project: Supplementary Environmental impact Assessment Survey of Upgrading Feasibility Study on the Development of Kulekhani III Hydropower Project

Year: Feb 2000-Nov, 2002

Location: Nepal

Client: JICA Study Team

Main project features: A 42 MW cascade project of Kulekhani with a diversion weir, tunnel, small reservoir, and powerhouse

Positions held: Legal Expert

Activities Performed: Responsible for the review of environmental legislations and policies and other sectoral policies related to environment and others relevant to the project. Preparation of legal and policy review documents required for the project implementation and operation with recommendations for the compliance to the existing policies and legislations to smoothen the project implementation and operation.

Name of assignment of project: Environmental Impact Assessment of Drainage, Sewerage and Wastewater Treatment Plant, Hetauda Industrial District, Hetauda

Year: April 1999 – March 2002

Location: Hetauda, Makawanpur District

Client: Hetauda Industrial District

Main project features: Environmental Impact Assessment Study of Drainage, Sewerage and Wastewater Treatment Plant

Position held: Legal and Policy Expert

Activities Performed: Responsible for the review of environmental legislations and policies and other sectoral policies related to environment and others relevant to the project. Preparation of legal and policy review documents required for the project implementation and operation with recommendations for the compliance to the existing policies and legislations to smoothen the project implementation and operation.

Other Experience

- Staff Lawyer/Advocate with Sr. Advocate Mukund Regmi 1993-1999
- Partner Lawyer/Advocate with Sr. Advocate Basant Ram Shandari 2000-2007
- Legal expert, Study Report on DDC environmental administration strengthening, Strengthening of Environmental Administration and Management at the local level in Nepal, (SEAM - N) Project Office, GPO Box: 13, Pashupati Marg, Ward No. 13, Dharan (June – August 2007), with Nepal Environmental and Scientific Services (NESS) (P) Ltd. Thapathali, Kathmandu, Nepal.
- EIA Metamchi Water Supply project, "Preparation of Social Legislation for MWSP". As a Legal Expert reviewed various laws, Acts and regulations relating to Water Resources, resettlements, environment, social upliftment program and NGO participation proposed for the execution of MWSP (Sept.1999 - Dec. 1999), with with Nepal Environmental and Scientific Services (NESS) (P) Ltd. Thapathali, Kathmandu, Nepal.

- Currently handle LEGAL ACCESS & CONCERN Anamnagar, A private Law Firm
- Worked as a Session Officer at Appeal Court, Bhatnagar - 1993
- Worked as a Founder president of Anamnagar Youth Club, KTM. - 1995
- Have worked as an Election Officer in various companies and institution like Nepali Life Insurance Company Ltd.
- Worked as an Active Member of various committee of Nepal Bar Association, every year.
- Worked as a consultant and supervised the area of legal issues of different business nature of National/Multinational companies. ex - Ashaman Nepal/ Balaju Industrial Area/ Everest Art Paper /Arle Namuna/CGECO/ KTC /Sat Telecom/Travel Net/Standard Chartered Bank/NIC Bank/Exim Nepal/Dhulikhel Mountain Resort/ RNAC/ Nepal Airways/MNBC etc.





22. Managala Karanjit

DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal; Ministry of Finance, Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following:

- (i) I have conducted this study professionally using acceptable and standard methodologies.
- (ii) The study findings are correct to the best of my knowledge and have not been altered in any manner.
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature

Official stamp

Managala Karanjit
Name: Managala Karanjit

Date: 05-02-2019

Position: National Communication and Stakeholder Engagement Specialist



Consulting Services of Project Preparation and Technical Supervision Services for Electricity Transmission Project: Transmission and Substation Activities.

FORM TECH - 11 CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL PERSONNEL

1. Proposed Position : Communications /Outreach Specialist
2. Name of Firm : Total Management Services Pvt. Ltd. (TMS)
3. Name of Personnel : Mangala Karanjit
4. Date of Birth : 8th August 1952
5. Nationality : Nepali
6. Education :
 - Master's Degree in Social Sciences (specialization in Folk Culture & Gender), Tribhuvan University (TU), Nepal, 1992
 - Bachelor Degree in Arts (Economics and Literature), Raina Rajya Laxmi Girls College, TU, Nepal, 1978
7. Professional Trainings:
 - 15 days Authentic Women Leadership Trainings inclusive of Coaching and Mentoring organized by Born Global Norway/Beyond Beijing Committee Nepal (3 days intensive TOTs held in May 2012, October 2012, April 2013, July 2014, October 2015) and further certifies and recognized as Master I Trainer of Authentic Leadership Training and conducted trainings to the sprouts, Women Members of First Constituent Assembly, Elected Women Representatives of Local Elections and various women organizations.
 - 1 week TOT on Indigenous Women & Decision Making, Asia Indigenous Peoples Pact Foundation/ NIWF, Pokhara, Nepal, (5-11 Sept, 2007)
 - 1 week Regional TOT on Gender Mainstreaming in Integrated Water Resources Management (IWRM), Gender & Water Alliance/Institute of Rural Management Anand (IRMA) Gujarat, India and further certifies & recognized Trainer for Regional TOT under the GWA, the Hague. (2-7 Feb. 2004)
 - 10 days TOT on Capacity Development of Indigenous Nationalities (women) in Nepal, organized GoN National Foundation for Upliftment of Indigenous Nationalities, (Nov. 2003)
 - 5 weeks Tailored made Community Organizing and Organizational Development for Consumer Education and Participation along with field study of village, water districts, provincial and Metro Manila WSS under LUWA, the Philippines. Field study covers the District and Provincial WSS of Penang and Kuala Lumpur. Also observed the KL Water Authority's communication and customer relations strategies and Singapore WS System inclusive of strategic tools for social and public relations for system ownership generation and participation of stakeholders, the consumers. (May-June 1994)
 - 1 months intensive Introductory course on Development Management and Communication Planning along with Thai Urban Water Supply Systems inland/coastal in Bangkok and community water systems as practical field study organized Trainer for Regional Training of Trainer, DTCP/UNDP/University of Life, Manila, 1993.
 - Community Development/ Organization of Income Generating Projects in Small Communities, Golda Meir MCTOC Haifa University, Israel, (1992, 3 months)

Other Trainings:

 - 3 days Result Based Management (RBM), Reporting, the Leger Foundation, Canada, November 2011
 - 2 weeks training on Constituent Assembly to draw a people's constitution (mock) organized by National Coalition Against Racial Discrimination (NCARD) May 2008
 - 4 days certificate of Achievement – Private Sector Participation in Water and Wastewater Services, the Institute of Public-private Partnerships, UK, 2003
 - 3 weeks Project Management and Evaluation Course, USAID Nepal, April 1993
8. Membership of Professional Associations:
 - International Federation of Business & Professional Women
 - Federation of BFW Nepal
 - Nepal Council of World Affairs
 - Beyond Beijing Committee Nepal
 - Himalayan Human Rights
 - Nepalbhasa Misa Khata
 - SUNGAVA Vocational Training Centre for Mentally Rearded Women
 - Newa Nugaa (Newa Heart),
 - Nepalbhasa Parload
9. Countries of Work Experience: Nepal
10. Languages :

	Speaking	Reading	Writing
Nepalbhassa (mother tongue)	Excellent	Excellent	Excellent
Nepali	Excellent	Excellent	Excellent



Consulting Services of Project Preparation and Technical Supervision Services for Electricity Transmission Project: Transmission and Substation Activities.

English	Good	Good	Good
11. Employment Record			
From February 2016	To August 2018		
Employer	Lahmeyer International, Germany JV NIFAS, Denmark in association with Total Management Services		
Position Held	Public Communication Specialist		
From November 2010	To May 2014		
Employer	Total Management Services Pvt. Ltd		
Position Held	Public Participation and Communication expert		
From September 2007	To till date		
Employer	Business & Professional Women (BFW), Nepal		
Position Held	Executive Board Member/Spokes Person		
From Sept. 2003	To August 2007		
Employer	Melamchi Water Supply Development Board (MWSDB)		
Position Held	Division Chief, Information & Public Relations Division		
From August 2002	To August 2003		
Employer	Jaishree Vekash Sanstha (host of Global Water Partners/Nepal Water Partners - GWP/NWP)		
Position Held	Regional Council Member of GWP, South Asia and Country Coordinator of WWN Nepal		
From 1999	To 2003		
Employer	Nippon Koi TAEC Consult/Management Consultants for Melamchi WS Project		
Position Held	Public Relations/Communication Expert		
From July 1991	To 1999		
Employer	UNDP/NEP 91/028 Pilot Project for Consumer Education and Community Participation for Urban WS Service Improvement Project/NWSC		
Position Held	Mass Communication / Social Development Specialist		
From July 1987	To 1991		
Employer	<ol style="list-style-type: none"> UNDP/NEP 80/009 Feasibility Study Outside KV Sources for Greater KV Projects with B&Ps, UK UNDP/NEP 83/004 Service Improvement Project for 12 Municipalities outside KV worked with B&Ps, UK Feasibility Study of Melamchi WS Project worked with SMEC Australia 		
Position Held	Senior Administrative Officer Counterpart		
From July 1975	To 1987		
Employer	Nepal Water Supply Development Board/Corporation (Urban WSS Service Provider)		
Position Held	Senior Administrative Officer		

12. Detailed Assigned As Per TOR



Tasks

13. Work Undertaken That Best Illustrates Capability To Handle The Tasks Assigned

Name of Assignment or Project: Irrigation Master Plan Preparation Through Integrated River Basin Planning ADS Grant 0299-NEP; Year: February 2016 - August 2018 (28 Months); Location: Kathmandu; Client: DOI/WRPPF - ADB; Main Project Features: Irrigation Master Plan (IMP) Preparation Through Integrated River Basin Planning; Position Held: Public Communication Specialist; Activities Performed:

- Work with the TL, DTL and Mo/Dol, DAVIDP officials to determine the best means of disseminating the findings of the inventory at a national and local level and determining the institutions/agencies/persons to which it should be sent;
- Assist in summarizing the conclusions of the analysis of the inventory and the new IMP and disseminating the results to key stakeholders;
- Take lead role in preparing the consultation workshops, assist in deciding the participants, venue and content of documentation to be provided;

Handwritten signature and official stamp of a representative.

Consulting Services of Project Preparation and Technical Supervision Services for Electricity Transmission Project, Transmission and Substation Activities.

- Manage the workshops and assist in the facilitation efforts, assist in preparing and disseminating documentation on the workshop decisions and conclusions;
- Consult with the DOW/WIDP on the best means of disseminating the updated IMP and its findings, including form of presentation and the institutions/agencies and persons to which it will be sent;
- Prepare a communication strategy on IMP preparation providing details of communication methods and time frames;
- Supervise the production, packaging and dissemination of the final IMP Preparation and ensure that the data are stored in a secure and accessible manner;
- Prepare press releases time to time during the preparation of IMP; and
- Assist the team leader in all aspects of project preparation

Name of Assignment or Project: Kathmandu Valley Water Services Sector Development Project – Capacity Building and Public Private Partnership Support Team for Kathmandu Upatyaka Khanepani Limited (KUKL) - Loan 2059-NEP; Year: November 2010 to May 2014; Location: Kathmandu; Client: KUKL / JV Berlinwasser International (BWI) – Ranhill – Gaufl; Main Project Features: Initial management and capacity building of KUKL including overall management, Operate the water and wastewater facilities within the Service area, Carry out personnel as well as financial/inventory management and assist to ensure that all obligations of KUKL under its license and lease to provide water and wastewater services including low income community supports mechanisms; Position Held: Public Relations and Media Advisor; Activities Performed: Responsible for develop and implement a public relations strategy and plan for effective dissemination of information to all stakeholders including consumers, key stakeholders and general public. Responsible for all promotional campaign and dialogue with the civil society, NGO's and other stakeholders of the Company. Advise on effective use of media and conduct media interaction and also be responsible for updating and maintaining an informative, interactive and optimal website of the Company. Worked closely with multidisciplinary multinational consultant team of Berlinwasser International Germany/BMC & Ranhill WS Malaysia/Gaufl Ingenieure and TMS Nepal.

Name of Assignment or Project: Building of earthquake affected houses Year: September 2015 – July 2016; Location: Nepal; Client: BPW Nepal; Position Held: Secretary General; Main Project Features: Use of expertise local people and reuse of local materials and local labour through community mobilization and community awareness Activities Performed: Coordinated with members of BPW International to help at a sisterhood level to have roof for the sisters affected by earthquake and trauma. Build 48 house of indigenous Putuwar community at Chhagdol, Kathmandu District and a house for a couple with blindness in Nuwakot. The project has been awarded First Place Award for Power to Make Different through Action by 29th Congress of BPW International, Egypt 2017.

Name of Assignment or Project: Empowerment of Women through quality water supply, it was a follow up activity of the 2nd International Women & Water Conference, 1998 held in Nepal, jointly coordinated by BPW Nepal, INHURED Nepal and Women & Water USA. Year: September 2000 – October 2007; Location: Nepal; Client: BPW Nepal; Position Held: Coordinator and Spokes Person; Main Project Features: Use of expertise of international Graduate Student in testing, reporting and building community awareness for domestic water quality in rural Nepal and enhance their participation to ensure quality of water at community level. Activities Performed: Coordinate water projects/issues and Massachusetts Institute of Technology, USA for multinational graduate students to research and educate on safe water in rural Nepal. Provided water quality testing support to DWSS and Central Laboratory of NWSC since 2000 for 3 years. Then BPW Nepal linked MIT/USA to ENPHO Nepal to reach further disadvantaged community through professional private sector involvement.

Name of Assignment or Project: ADB funded Second Small Towns Water Supply and Sanitation Sector Project, Project Management Consultant; Year: 48 months spread over 5 years starting February 2010 – 2014; Location: Nepal (Kathmandu and Project sites in 24 small towns); Client: Department of WSS (CON), Small Towns Water Supply and Sanitation Sector Project; Position Held: Social Development and Safeguard Specialist; Main Project Features: Second Small Town WSSSP is the continuation of ADB grant 1755 NEP SF to provided water and sanitation services to 12 new small towns and feasibility study of 12 emerging small towns. The silent features of SSTWSSSP are Output Based Aid (OBA), cost sharing/recovery/public participation, GESI, and transparency/accountability. Activities Performed: The project is to manage and capacitate consumers committees, Responsible for develop and implement GESI, Guidelines of project implementation and public relations plan for the stakeholders (consumers, key stakeholders, line agencies and Town Development Fund (TDF), ADB and general public. Responsible for all promotional dialogues with the municipalities, civil society, NGO's and other stakeholders of the Project. Designed and prepared materials for Guidelines for Project Implementation and GESI Policy and Plan of Action. Designed and produced promotional materials for dissemination. Designed detail survey questionnaires for the HH surveys and conducted survey works. Advise on effective use of media and conduct media interaction and also responsible for maintaining/updating an informative, interactive and optimal website. Worked closely with multidisciplinary teams: TAEC-ICON JV Nepal, TDF, ADB and the Project Director SSTWSSSP.

consulting Services of Project Preparation and Technical Supervision Services for Electricity Transmission Project: Transmission and Substation Activities.

Name of Assignment or Project: Asian Development Bank funded Melamchi Water Supply Development Board (MWSDB), Year: Sept. 2003 – August 2007; **Location:** Kathmandu Valley and Sindhupalchowki District/Melamchi Valley, Nepal; **Client:** MWSDB, **Main Project Features:** Preparation of project documents, **Position Held:** Chief, Communication/Public Relations, Resettlement and Social Division; **Activities Performed:** Social Upliftment Program (SUP) having 5 diversified (Education, Health, Rural Electrification, Buffer Zone Development and Income Generation & Community Development) people benefiting programs designed participatory way and implemented for first phase component, Income Generation, Local people Development in water supply and sanitation works, rural electrification, MWSP Gender strategy development and implemented including social inclusion aspect to every cross cutting sector and internalized in all aspect of consultation, formation of various level committees, compensations etc.; Stakeholder involvement strategy designed for the mobilization of community and stakeholder involvement in Social, environmental and information dissemination activities of the MWSP; Land acquisition, compensation and resettlement policy developed and consulted with donor and government line agencies; SUP redesigned incorporating stakeholders' needs, demands and aspirations inclusive of men, women and girls/children (considering people with disabilities); An Integrated Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) completed as per GoN guidelines; Contributed Sociological inputs to Integrated EIA and EIA made by NORAD; Series of Community consultations for IEIAs are conducted. During the period Public Relations and Information Division has had to bear all social/PRs activities/responsibility; Contributed in designing consensus building strategy for public relations issues and public relations staff and community members are trained in grievances placing mechanism, follow-ups and grievances handling approach and dissemination of information to stakeholders at field level; Criteria for Levy fixation for Project affected VDCs, tariff fixation and appointment issues of private operation for Kathmandu Valley water supply system and consulted with various type and level of stakeholders, Human Rights activists and Staff unions with various political schoolings; Facing press media, negotiating with demand groups, effort to unlock numerous padlocking of Project Offices, staff assaulting and vandalisms, project property/vehicles burning and road blocking and blocking the donor's mobility are common and regular activities to engage on; Designed Training Packages, modules, Manuals and conducted trainings/workshops for project staff on team building, consensus building and grievance handling skill in social, environmental and public relations staff; Coordinated the training programs conducted for the Environment and Social Development staff on monitoring of environmental and social aspects including gender and social inclusion, skills in PRs, Conflict Resolution and Public speaking and reporting procedures and modules; Establishment of Grievances response and Conflict management mechanism with full participation of stakeholders in 2003 from Project affected areas at 3 level - Local Consultative Groups (LCG) in all 9 wards of 14 VDCs, one each in 14 VDC level and one umbrella committee comprising of 14 VDCs at MV level named Melamchi Consultative Group; Contributed necessary inputs to the Optimizing water use in the project as MWSP social scientist/sociologist; Establish different types of rapport building inter-personal to mass communications activities like free health camps, children's competitions, programs for youths promotions, demonstrations, exhibitions, celebration of world events like earth day, water day, environment days etc along with local festivals like Teej; Reviewed community development components/ restructuring of MWSP management and bridging management of consulting services; Facilitated workshops/seminars in promoting public/private/partnerships (P3). Worked closely with multinational and multidisciplinary consultant team with Nippon Koei, Japan and TAEC, Nepal.

Name of Assignment or Project: Jashraj Vikash Sanatha (JVS), host of Global Water Partners/Nepal Water Partners - GWP/NWP; Year: August 2002 – August 2003. **Location:** Nepal, **Client:** JVS; **Position Held:** Regional Council Member of GWP South Asian and Country Coordinator Women & Water Network; **Activities Performed:** Contributed regional council meetings in policy outlook and implementing strategy at area water partner's level/local level with full participation of women at various cross cutting level. Lunched series of advocacy, training/workshops targeting women water professionals and other level women for social mobilization for need of water conservation and adaptation of Integrated Water Resource Management (IWRM) concept in Nepal. Gender mainstreaming and educating womenfolk in water & sanitation sector issue and conduct IEC programs focused to women with close coordination with Gender and Water Alliance (GWA) as Gender Ambassador. Worked closely with multidisciplinary and multinational team from Global Water Partner, GWA the Hague, Netherland and Nepal.

Name of Assignment or Project: Project Management Consultants under ADB funded Melamchi WS Project, Year: July 1999 – July 2003. **Location:** Nepal, **Client:** GoN MWSDB. **Main Project Features:** Design of functional structure for MWSP and development of conceptual framework (inception) including NGO involvement Policy, GESI strategy/action plan, resettlement policy guidelines and EIA implementation policy and implementation strategy developed for 14 project affected VDCs, working together with an international consultants; **Position Held:** Public Relations/Communication Officer; **Activities Performed:** Community Development in water supply and sanitation works, NGO/stakeholder dialogue and involvement in WS program, mobilization of stakeholder in Social, environmental and information dissemination activities; Land acquisition, compensation and resettlement policy developed and consulted with GoN line agencies and processed for approval; developed Levy fixation criteria, tariff fixation and appointment issues of private operator for Kathmandu Water Supply System and consulted with various type and level of stakeholders, Human right activists and staff unions; Facing press media, negotiating with demand groups, effort to unlock numerous padlocking staff assaulting and vandalisms, project property/vehicles burning and road blocking and blocking the donor's mobility are common and regular activities to engage on; Establishment of Conflict management mechanism with full participation of stakeholders: all 9 wards of 14 VDCs, one each in 14 VDC level and one

Consulting Services of Project Preparation and Technical Supervision Services for Electricity Transmission Project: Transmission and Substation Activities. umbrella committee, comprising of 14 VDCs at Melamchi Valley level named Melamchi Consultative Group; Contributed necessary inputs to the Optimizing Water Use Project as MWSP social scientist/sociologist; Reviewed development components/ restructuring of MWSP management/ and bridging management of consulting services; Facilitated workshops/ trainings/seminars in partnerships promoting public/private/ activities. Worked Closely with multinational and multidisciplinary consultant teams and the Nippon Koei, Japan and TAEC Consultant, Nepal.

Name of Assignment or Project: UNDP funded pilot project for Consumer Education and Community Participation for Urban Water Supply Service Improvement Project in Nepal; Year: January 1992 – June 1999; Location: Nepal; Client: Nepal Water Supply Corporation (NWSC); Main Project Features: Identify grievances of stakeholders the service provider (NWSC) and receiver the customers/consumers of piped water; design and develop the Information Communication Educational and Awareness (ICEA) materials and contents; Media Lunch (TV, Radio and Print), Media Briefings (Press meeting); organize Video conference; Launch ICEA and in-house institutional improvement programs in Central Office and branch offices in Kathmandu valley, Position Held: Mass Communications/ Social Development Specialist/Training Development Specialist; Activities Performed: Developed complaints/ grievance processing mechanisms through communication strategy for which complaint receiving processing and reporting to the customer and to the top management by establishing customer relations units in each branches and at central office level; Furnished technical units like leakage, metering, meter reading and distribution sections with fully staffed and improved tools/equipment and mobility to respond public reports on leakage, breakage of pipes by illegal actions, direct pumping/vandalisms and no water complaints received in customer relations units; Established Customer Relations Units under CCEP Project to provide on the job training; Massive appeal to customers/ general public to inform water wastes, leakage and illegal activities to stop misuse of water; Regular reporting to customer through press/electronic mass media and interactive "face to face" programs; Developed and launched self-billing system, reading water meters by customer and pay tariff at nearest collections convenient points for customer's that promoted and involved customer in WSS system operation/improvement activities; Organizing ward level with women participation to lunch ICEA program on right and duty based issues; Conduct open interaction with top management of NWSC and the consumer at open public places like roads junctions/crossings; Conduct water supply and sanitation program to women through women literacy programs and collaboration with other women organizations and local people; School Programs for high school student like debates on water issues, creative writing completions on water and sewerage issues; Community development program - clearing of water and sewage system, repair of platforms/public tap stands, security initiative of stand posts, stoppage of illegal activities (direct pumping, meter breaking, vandalisms and no payment of tariff) through organizations initiatives for which information sharing is vital tools for them; Design and develop the night run collection of water from stone spouts in Sundhara and Alikhola of Patan and Ramhiti and Kapurdhara of Kathmandu etc. to benefit water scared consumers.

Name of Assignment or Project: Asian Development Bank funded Feasibility Study of Melamchi Water Supply Project; Year: 1989 – 1992; Location: in and out of KV; Client: MWSP; Main Project Features: Prepare feasibility study report of the project, Position Held: Counterpart Sr. Administrative Officer; worked together with SMEC, Australia; Activities Performed: Carryout necessary field visit and preparation of various report on feasibility study of water supply project. Worked closely with multinational and multidisciplinary consultant team from SMEC Australia and Nepal Consult P. Ltd.

Name of Assignment or Project: UNDP/NEP 88/004, Service Improvement and Management Support Project; Year: 1988 – 1989; Location: 12 Municipalities out of KV; Client: NWSC; Main Project Features: Preparation of service improvement and Management Support activities report for 12 Municipalities; Position Held: Administrative Officer counterpart staff assigned by NWSC with Binnie & Partners UK (worked together with international consultants); Activities Performed: Prepared service Improvement and Management Support for 12 Municipalities' water and waste water improvement system of Nepal.

Name of Assignment or Project: World Bank/IBRD funded Urban Water Supply and Sewerage Development Projects; Year: 1975 – 1987; Location: Kathmandu and Pokhara Valley; Client: NWSC; Main Project Features: Design, procure, construct and supervision of water supply and sewerage system; Position Held: Sr. Administrative Officer, counterpart staff with the Consultants, the Engineering Science Inc. USA (worked together with international consultants); Activities Performed: Provided supervision of project management and assist to prepare reports for WSS projects and documentation.

14. Reference:

Contact information

Name: Mr. Prajod Lal Shrestha
Title: Managing Director of TMS
Phone: 01-4439182
E-mail: info@tms.com.np

Name: Mrs. Ambica Shrestha
Title: President, Federation of Business & Professional Women (FBPW) Nepal
Phone: 9851021311
E-mail: ambica@dwarikas.com /fbpwn@mail.com.np



Consulting Services of Project Preparation and Technical Supervision Services for Electricity Transmission Project: Transmission and Substation Activities.

Name: Mrs. Anjana Shakya
Title: President, Himalayan Rights Movitors [HmRights]
Phone: 9851073540
E-mail: hmrights@wind.com.np

Expert's Contact Information: E-mail: nananewa@yahoo.com

Tel No.: 9841309638

15. CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience. I understand that any willful misstatement described herein may lead to my disqualification or dismissal, if engaged.

I, the undersigned, hereby declare that I agree to participate with the Total Management Services Pvt. Ltd. (TMS) in the above-mentioned Request for Proposal. I further declare that I am able and willing to work:

1. for the period(s) foreseen in the specific Terms of Reference attached to the above referenced Request for Proposal for the position for which my CV has been included in the offer of the Consultant and
2. Within the implementation period of the specific contract.

Signature of Key professional Personnel
Name of the expert: Ms. Mangala Karanjit - Communications /Outreach Specialist

Date: 10 February 2019
Day/Month/Year



S. No. ... 10/28

Registered No. 159-69..

त्रिभुवन विश्वविद्यालय

Tribhuvan University



कलाचार्य

मानविकी र सामाजिकशास्त्र

मंगला कारंजीत विक्रम सम्वत् २०४१ को नेवारी
विषयको कलाचार्य परीक्षा द्वितीय श्रेणीमा उत्तीर्ण भई
स्नातकोत्तरोपाधिको निमित्त योग्य ठहरिएकाले निजलाई यस उपाधिद्वारा विभूषित गरिएको छ ।

Master's Degree

In Humanities and Social Sciences

This is to certify that Mangala Karanjit
having passed Master's Degree examination in **Humanities and
Social Sciences** in Newari in Second division
of the year 1985.., this degree has been awarded on him/her this day.

Ueda Mathew
Vice-Chancellor

Kathmandu, Nepal

Date 7 MAR 1994



DECLARATION FROM EIA STUDY TEAM MEMBER

Title of the Scoping/EIA Report: Environmental Impact Assessment Study for Electricity Transmission Project

Name/Address of the Project Proponent: Government of Nepal; Ministry of Finance; Millennium Challenge Account- Nepal; Yak and Yeti Hotel Complex, Kathmandu

I declare the following:

- (i) I have conducted this study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature:

Official stamp:

Name: Udeepita Rajbhandary

Date: 05-02-2019

Position: Environmentalist/Coordinator



Curriculum Vitae

PERSONAL INFORMATION

Udeeptta Rajbhandary
Bailachhen-9, Lalitpur, Nepal.

Telephone: +977-01-5260373 Cell Phone: +977-9841818352

Email: udeep.rajbhandary@hotmail.com

Date of Birth: 9 Dec, 1990 Citizenship: Nepali Sex: Male



WORK EXPERIENCE

Feb 2018 – Jul 2018 Environmental Consultant

- Environmental Impact Assessment
- Soil Research and Literature Review
- Disaster Risk Reduction Plan and program facilitation

Mar 2016 – Jan 2018 Program Officer
Friends Service Council Nepal (FSCN)
Imadol, Lalitpur, Nepal.

- Disaster Risk Reduction Program (DRR)
 - Community and School based Disaster Risk Reduction (DRR)
 - Entire program, budget and team management
 - Networking with government line and community stakeholders
 - Good report writing, case studies and presentations
- Solid Waste and Sanitation Management Program
 - Household and hospital solid waste management
 - Advocacy with government agencies and community
 - Report writing and presentations
- Concept Development and Fundraising
 - Concept notes and proposal writing
 - Log frame preparation

Dec 2015 – Feb 2016 Research officer
eG Tech Pvt. Ltd.
Kupondole, Lalitpur, Nepal.

- Scientific research on soil science, food security and climate change
- Data collection, analysis, interpretation and management using statistical software
- Report writing, proposal development and presentation skills

Dec - Jan 2014 Environmental Officer
Solid Waste Management Technical Support Center (Government of Nepal),
Pulchowk, Lalitpur, Nepal.

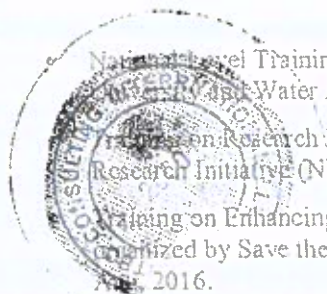
- Preparing and conducting questionnaire survey

- Municipal solid waste hazard monitoring, segregation and characterization
 - Report writing and presentations
- April-July 2013 Research Assistant
Centre for Energy and Environment Nepal (CEEN),
Bhotebahal, Kathmandu, Nepal.
- Scientific research on biomass energy and environment development
 - Laboratory procedures and testing, scientific papers and report writing
- March 2013 Environmental Monitor
Ministry of Federal Affairs and Local Development (Government of Nepal)
- Initial Environmental Examination

EDUCATION

- 2013-2015 M.Sc. Environment and Natural Resources
Kathmandu University, Dhulikhel, Kavre, Nepal.
3.74 CGPA
- 2009-2013 B.Sc. Environmental Science
Kathmandu University, Dhulikhel, Kavre, Nepal.
3.17 CGPA
- 2006-2008 10+2 (Science faculty) H.S.E.B. Board
National School of Sciences (NSS), National Institute of Science and Technology
(NIST), Lainchour, Kathmandu, Nepal.
71.80% in aggregate (first division)
- 2006 School Leaving Certificate (S.L.C)
Little Angels' School, Haitiban, Lalitpur, Nepal.
81.38% (first division with distinction)

TRAININGS



- National level Training on Water, Sanitation and Hygiene jointly organized by Kathmandu Water Aid in Nepal, 17-20 March 2014.
- Training on Research Methodology and Proposal Writing organized by Nepal Development Research Initiative (NDRI), 25-30 January 2015.
- Training on Enhancing Quality and Accountability in Humanitarian Organizations jointly organized by Save the Children, Ground Truth Solutions and Dan Church Aid (DCA), 24 and 26 Feb. 2016.
- Training on Disaster Risk Reduction and Emergency Preparedness and Response Plan (DRR and EPRP) organized by Fin Church Aid (FCA), 11-18 Dec. 2016.
- Training of Trainers (ToT) on Enhancing Humanitarian Quality and Accountability through Listening and Responding to Community Feedback in Relation to the Core Humanitarian Standard jointly organized by Save the Children, Ground Truth Solutions and Dan Church Aid (DCA), 2, 3 and 6 March, 2017.

HONORS/CERTIFICATIONS

- Received "*Nepal Vidhya Bhusan Award*" for achieving outstanding academic result in Master's degree in Environment and Natural Resources, 2016.
- Awarded with "Certificate of Honor" by Private and Boarding Schools' Organization Nepal (PABSON) for distinctive performance in SLC Examination, 2006.

WORKSHOPS AND PROGRAMS ATTENDED

- Orientation on Urban Sanitation Planning, Government of Nepal, Department of Water Supply and Sanitation in collaboration with 500B Solutions, 2-3 June, 2017.
- International Conference on Forests, Soil and Rural Livelihoods in a Changing Climate, Kathmandu University in collaboration with Norwegian University of Life Sciences, Department of Forest Research and Survey, Nepal Agroforestry Foundation and Forest Action Nepal, 27-30 September 2014.
- Annual Conference on Water, Sanitation and Hygiene (WASH), Department of Mechanical Engineering and Department of Environmental Science and Engineering, Kathmandu University, in collaboration with Water Aid in Nepal, March 2014.
- Lecture Series entitled "Conservation Biology and Wildlife Genetics", Kathmandu University, 24-25 November 2013.
- Capacity Building Workshop on Rapid Assessment of Biodiversity and Ecosystem Services of Wetlands in Relation to Global Change organized by National Institute of Ecology, New Delhi, 12-14 March 2015.

PERSONAL SKILLS

Analytical/Computer Skills

- SPSS for Windows
- Microsoft Office Package
- Internet browsing/E-mail

Organizational Skills

- Coordination skills
- Experienced working with both Government and Private sector
- Maintaining good relationship with community and relevant stakeholders
- Entire program management including staff handling, following time frame and budget controlling

Job related Skills

- Research methodology, log frame and concept note development
- Good proposal and report writing
- Case study collection and preparation
- Following laboratory procedures
- Fine presentation and facilitation skills

REFERENCES

- Prof. Dr. Roshan Man Bajracharya
Department of Environmental Science and Engineering
Kathmandu University, Dhulikhel, Kavre, Nepal.
ambaj@ku.edu.np



- Ms. Shakti Gurung
Project Coordinator (NERP Project)
Friends Service Council Nepal
Imadol, Lalitpur, Nepal.
shaktig01@yahoo.com





KATHMANDU UNIVERSITY
OFFICE OF THE REGISTRAR
DHULIKHEL, NEPAL

No. 121037

ACADEMIC TRANSCRIPT

Name of the Student: RAJBHANDARY UDI P. P. JA Year of Enrollment: 2015 August
 Registration Number: 01083109 Year of Completion: 2015 November
 School: SCIENCE Discipline: ENVIRONMENT AND NATURAL RESOURCES
 Degree: MASTER OF SCIENCE (M.Sc.)

First Semester					
Course No.	Course Description	Credit	Letter Grade	Grade Value	Grade Points
MESC 502	Natural Resources Utilization and Development	3	A	3.7	11.1
MESC 503	Environmental Planning and Management	3	A	4.0	12.0
MESC 521	Environment and Resource Economics	3	A	4.0	12.0
MESC 522	Human Dimensions of Environment	3	A	3.7	11.1
MESC 523	Principles of Environmental Pollution	3	A	4.0	12.0
Total		15			58.20
G.P.A.					3.88

Second Semester					
Course No.	Course Description	Credit	Letter Grade	Grade Value	Grade Points
MESC 511	GIS and Remote Sensing Applications	2	A-	3.7	7.4
MESC 514	Disaster and Risk Management	3	B+	3.3	9.9
MESC 524	Environmental Research Methodology	3	A	4.0	12.0
MESC 525	Statistical Applications in Environment	3	A-	3.7	11.1
MESC 526	Environmental Impact Assessment and Strategic Environmental Assessment	3	B	3.0	9.0
MESC 528	Seminar in Research Focus Areas	1	A-	3.7	3.7
MESN 601	Advances in Aquatic Ecology	3	A	4.0	12.0
Total		18			67.1
G.P.A.					3.73

Third Semester					
Course No.	Course Description	Credit	Letter Grade	Grade Value	Grade Points
MESP 605	Environmental Epidemiology	3	A-	3.7	11.1
MESN 605	Land and Soil Evaluation and Management	3	A	3.7	11.1
MESN 622	Forest Resources Management	3	A	3.7	11.1
MESN 623	Environmental and Development	3	A	3.7	11.1
Total		12			45.40
G.P.A.					3.78

Total Credit Hours of Taught Courses: 45
 Total Grade Points of Taught Courses: 171.7
 Cumulative Grade Point Average (CGPA): 3.74

Fourth Semester (Dissertation)			
Course No.	Course Description	Credit	Letter Grade
MESN 611	Title of Dissertation: Assessment of The Impact of Climate Change and Management on Crop Yield in Three Districts of Nepal	12	S

Checked by:
 Date of Issue: January 19, 2016
 Controller of Examinations:

N.B. 1. This record is not official unless it bears original signature and impress seal.
 2. An all Black and White copy is unofficial.

FORM 196/15

KATHMANDU UNIVERSITY

Dhulikhel, Kavre, Nepal



CONFERS UPON

Abhepita Singhbandhu

THE DEGREE OF

Master of Science

IN THE FIELD OF

Enrichment of Natural Resources

IN RECOGNITION OF THE COMPLETION OF THE COURSE PRESCRIBED BY THE UNIVERSITY
FOR THE DEGREE WITH ALL THE RIGHTS AND PRIVILEGES APPERTAINING
GIVEN UNDER THE SEAL OF THE UNIVERSITY

DATE: 13 October 15, 2015

[Signature]
REGISTRAR

[Signature]
VICE CHANCELLOR



C - 3

Public Hearing Municipality Recommendation Letters





शंखरापुर नगरपालिका

नगर कार्यपालिकाको कार्यालय

साँखु काठमाडौं
३ नं. प्रहरी चौकी नेपाल
२०७३

Web: www.shankharapurmun.gov.np

फोन नं.: ९७७-४४५०३५५

फ्याक्स नं.: ९७७-४४५०३०६

पत्र संख्या: २०७६/०७७

मिति:- २०७६/०८/२१

चलानी नं.: १०१२ -

श्री मिलिनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल)
याक एण्ड यति कम्प्लेक्स, दरवार मार्ग काठमाडौं, नेपाल।

विषय : जानकारी गराइएको सम्बन्धमा

महोदय,

प्रस्तुत विषयमा तहाँबाट मिति २०७६/०८/०६ मा यस कार्यालयमा मिलिनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल) ले प्रस्ताव गरेको विद्युत प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिश गरिदिन अनुरोध भइ आएकोमा त्यस आयोजनाले विस्तार गर्न लागेको प्रसारण लाइन क्षेत्रका स्थानिय सरोकारवालाहरुले सो विस्तारका कारण वातावरणमा उल्लेखनीय प्रतिकूल प्रभाव पर्ने र व्यक्तिको स्वास्थ्य एवं सम्पत्तिमा गम्भीर असर पर्ने भनी यस कार्यालयमा जनगुनासो आएको र त्यस संस्था वाट मिति २०७६/०८/१८ मा आयोजना गरिएको सार्वजनिक सुनुवाई कार्यक्रममा समेत सरोकारवालाहरुबाट सोहि वमोजिमको गुनासो आएको हुँदा उक्त कुराहरुको मूल्याङ्कन एवं सम्बोधन गर्दै वातावरण तथा स्थानिय वासीहरुमा पर्न सक्ने नकारात्मक प्रभावहरुलाई न्यूनिकरण गरी यथासम्भव प्रसारण लाइनको वैकल्पिक व्यवस्था समेतको खोजी गरी प्रस्तावित आयोजना कार्यान्वयन गर्नको लागि सिफारिश गरिएको व्यहोरा अनुरोध छ।

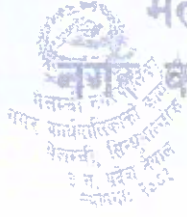


नेपाल सरकार
तथा वातावरण मन्त्रालय
सिंहदरवार काठमाडौं



२०७६/११/२२
(सुवर्ण श्रेष्ठ)
नगर प्रमुख

Arar



मेलम्ची नगरपालिका
कार्यपालिकाको कार्यालय



मेलम्ची, गिन्धुपाल्चोक
३ नं प्रदेश, नेपाल
स्थापना :- २०७३

फोन नं. :- ०११-४०१०८८

प.सं. :- २०७६/०७७(का.पा.प्रशा.)

मिति :- २०७६।०८।२०

च.नं. १०९८

विषय :- सिफारिस गरिएको बारे ।

श्री मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल),
थक एण्ड यति कम्प्लेक्स, दरबार मार्ग, काठमाण्डौ ।

उपर्युक्त सम्बन्धमा तह्राँवाट मिति २०७६।०८।०६ मा यस कार्यालयमा मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल) ले प्रस्ताव गरेको विद्युत प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मुल्याङ्कन प्रतिवेदनका सम्बन्धमा सिफारिस गरिदिन अनुरोध भई आएकोमा तह्राँवाट मिति २०७६।०८।१८ गते आयोजना गरिएको सार्वजनिक सुनुवाई कार्यक्रममा सरोकारवालाहरूबाट उठान भएका विषयहरूलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मुल्याङ्कन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरूलाई न्यूनीकरण गरी वातावरणमा न्यूनतम असर पर्ने गरी प्रस्ताव आयोजना कार्यान्वयन गर्नका लागि सिफारिस गरिएको ब्यहोरा अनुरोध छ ।



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(भगवती नेपाल)
का.वा.नगरप्रमुख





शिवपुरी गाउँपालिका
गाउँ कार्यपालिकाको कार्यालय

शेरावगर, नुवाकोट
३ नं प्रदेश, नेपाल



प.स. २०७६/०७७

मिति: २०७६/०८/१२

च.न. २३२

श्री मिलेनियम च्यालेञ्ज एकाउन्ट नेपाल (एमसीए-नेपाल)
याक एण्ड यति कम्प्लेक्स, दरवार मार्ग, काठमाडौं, नेपाल

विषय: सिफारिस गरिएको बारे ।

प्रस्तुत विषयमा तहाँबाट मिति २०७६/०८/०६ मा यस कार्यालयमा मिलेनियम च्यालेञ्ज एकाउन्ट नेपाल (एमसीए-नेपाल) ले प्रस्ताव गरेको विद्युत प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिश गरिदिन अनुरोध भई आएकोमा तहाँबाट मिति २०७६/०८/१२ मा आयोजना गरिएको सार्वजनिक सुनुवाई कार्यक्रममा सरोकारवाहरुबाट उठान भएका विषयहरुलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरुलाई न्यूनिकरण गरी वातावरणमा न्यूनतम असर पर्ने गरी प्रस्ताव आयोजना कार्यान्वयन गर्नको लागि सिफारिस गरिएको व्यहोरा अनुरोध छ ।



किसान न्यौपाने
प्रमुख प्रशासकीय अधिकृत
किसान न्यौपाने
प्रमुख प्रशासकीय अधिकृत

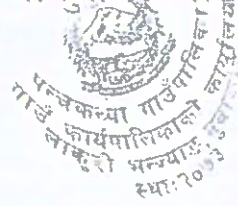




पञ्चकन्या गाउँपालिका
गाउँकार्यपालिकाको कार्यालय
लाकुरीभञ्ज्याङ, नुवाकोट

प.स. :- ०७६।०७७

च.न. :- ४८२



३ न प्रदेश, नेपाल
मिति: २०७६।०।११

विषय: सिफारिस गरिएको सम्बन्धमा ।

श्री मिलेनियमच्यालेन्ज एकाण्ट नेपाल (एमसिए-नेपाल),
याक एण्ड यतिकम्प्लेक्स, दरवार मार्ग,
काठमाण्डौ, नेपाल ।

प्रस्तुत विषयमा तहा वाट मिति २०७६/०८/०६ मा यस कार्यालयमा मिलेनियमच्यालेन्ज एकाण्ट नेपाल (एमसिए-नेपाल) ले प्रस्ताव गरेको विद्युत प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मुल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिन अनुरोध भइ आएकोमा मिति २०७६/०८/११ मा आयोजना गरिएको सार्वजनिक सुनुवाइ कार्यक्रममा सरोकारवालाहरुबाट उठान भएका विषयहरुलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मुल्याङ्कन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धी र नकारात्मक वातावरणीय प्रभावहरुलाई न्यूनीकरण गरी वातावरणमा न्यूनतम असर पर्ने गरी प्रस्ताव आयोजना कार्यान्वयन गर्नको लागि सिफारिस गरिएको व्यहोरा अनुरोध छ ।



तेज बहादुर तामाङ
अध्यक्ष
तेज बहादुर तामाङ
अध्यक्ष





लिखु गाउँपालिका गाउँ कार्यपालिकाको कार्यालय

ढुँडे, नुवाकोट



३ नं. प्रदेश, नेपाल

प.सं. : ०७६/७७

च.नं. : ३४९

मिति: २०७६/८/१०

विषय : सिफारिश गरिएको सम्बन्धमा ।

श्री मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल(एम.सि.ए.-नेपाल)
याक एण्ड यति कम्प्लेक्स, दरबार मार्ग, काठमाडौं ।

प्रस्तुत विषयमा तहाँबाट मिति २०७६/८/०६ मा यस कार्यालयमा प्रस्ताव गरिएको विद्युत प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मूल्यांकन प्रतिवेदन सम्बन्धमा सिफारिश गरिदिन अनुरोध भई आएकोमा तहाँबाट मिति २०७६/८/१० गते आयोजना गरिएको सार्वजनिक सुनुवाई कार्यक्रममा सरोकारवालाहरूबाट उठान भएका विषयहरूलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मूल्यांकन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरूलाई न्यूनीकरण गरी वातावरणमा न्यूनतम असर पर्ने गरी प्रस्तावित आयोजना कार्यान्वयन गर्नको लागि सिफारिश गरिएको व्यहोरा अनुरोध छ ।

नेपाल सरकार
धन तथा वातावरण मन्त्रालय
सिंहदरबार काठमाडौं



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धुव श्रेष्ठ
अध्यक्ष





प.स. : २०७६/७७
च.नं. : ५६०

बेलकोटगढी नगरपालिका
नगर कार्यपालिकाको कार्यालय
बाघखोर, नुवाकोट
३ नं. प्रदेश, नेपाल



मिति : २०७६।०८।१५


विषय : सिफारिस गरिएको सम्बन्धमा ।

श्री भिद्वेनियम च्यालेन्ज एकाउण्ट नेपाल (एमसिए-नेपाल),
याक गण्ड यन्त्रिकम्प्लेक्स, दरवार मार्ग,
काठमाडौं, नेपाल ।

प्रस्तुत विषयमा नं.घाट मिति २०७६।०८।१५ मा यस कार्यालयमा भिद्वेनियम च्यालेन्ज एकाउण्ट नेपाल (एमसिए-नेपाल) ले प्रस्ताव गरेको विद्युत प्रसारण आयोजना कार्यक्रमको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिस गरिएको अनुरोध भइ आएकोमा मिति २०७६।०८।०८ मा आयोजना गरिएको सार्वजनिक सुनुवाइ कार्यक्रममा सरकारवालाहम्व्याट उठान भएका विषयहरूलाई समेत सम्बोधन गर्ने र वातावरणीय मूल्याङ्कन प्रभावहरूलाई न्युनिकरण गरी वातावरणमा न्यूनतम असर पर्ने गरी प्रस्ताव आयोजना कार्यान्वयन गर्नको लागि सिफारिस गरिएको व्यहोरा अनुरोध छ ।

नेपाल सरकार
धन तथा वातावरण मन्त्रालय
सिंहदरवार काठमाडौं


राजेश्वर रमण खनाल
नगर प्रमुख





तारकेश्वर गाउँपालिका
गाउँ कार्यपालिकाको कार्यालय
दाङसिङ मुनुवाकोट



प.सं.: ०७६/०७७
च.नं.: २७८



प्रदेश नं. ३, नेपाल
मिति : २०७६/८/१६

विषय: सिफारिस गरिएको सम्बन्धमा ।

श्री मिलेनियम च्यालेञ्ज एकाउन्ट नेपाल (एमसीए- नेपाल)
याक एण्ड थि कम्प्लेक्स, दरवारमार्ग काठमाडौं ।

प्रस्तुत विषयमा तहाँ कार्यालयको च.न. १२७ मिति २०७६/०८/०६ को प्राप्त पत्रानुसार यस कार्यालयमा मिलेनियम च्यालेञ्ज एकाउन्ट नेपाल (एमसीए- नेपाल) ले प्रस्ताव गरेको विद्युत प्रसारण आयोजना कार्यक्रमको वातावरणीय प्रभाव मुल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिन अनुरोध भई आएकोमा तहाँबाट मिति २०७६/०८/०९ मा आयोजना गरिएको सार्वजनिक सुनुवाइ कार्यक्रममा सरोकारवालाहरु वाट उठान भएका विषयहरुलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मुल्याङ्कन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरुलाई न्यूनिकरण गरी वातावरणमा न्यूनतम असर पर्ने गरी प्रस्ताव आयोजना कार्यान्वयन गर्नका लागि सिफारिस गरिएको व्यहोरा अनुरोध छ ।



रमेश बहादुर बस्ती
अध्यक्ष

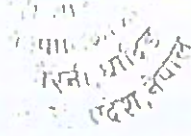




गल्छी गाउँपालिका
गाउँ कार्यपालिकाको कार्यालय

बैरेनी, धादिङ
३ नं प्रदेश, नेपाल

पत्र संख्या :- ०७६/७७
चलानी नं. ४४



मिति : २०७६/०८/२२

श्री मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल)
याक एण्ड यति कम्प्लेक्स, दरवार मार्ग, काठमाडौं, नेपाल

विषय : - सिफारिस गरिएको बारे ।

प्रस्तुत विषयमा तर्हावाट मिति २०७६।०८।०६ मा यस कार्यालयमा मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल)ले प्रस्ताव गरेको विद्युत् प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिश गरिदिन अनुरोध भइ आएकोमा तर्हावाट मिति २०७६।०८।१२ मा आयोजना गरिएको सार्वजनिक सुनुवाइ कार्यक्रममा सरोकारवालाहरुबाट उठान भएका विषयहरुलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मूल्यांकन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरुलाई न्यूनिकरण गरी प्रस्ताव आयोजना कार्यान्वयन गर्नको लागि सिफारिस गरिएको व्यहोरा अनुरोध छ ।



कृष्णहरी श्रेष्ठ
अध्यक्ष
गल्छी गाउँपालिका





थाके गाउँपालिका

गाउँ कार्यपालिकाको कार्यालय

महादेवपुरी घाटिछ
३ नं प्रदेश, नेपाल
१५४४

प.सं. : ०७६/७७

च.नं. १३८४

मिति : २०७६/०८/२१

विषय : सिफारिस गरिएको बारे ।

श्री मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल)
याक एण्ड यति कम्प्लेक्स, दरबार मार्ग, काठमाडौं, नेपाल

प्रस्तुत विषयमा तहसिलाट मिति २०७६/०८/०६ मा यस कार्यालयमा मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल) ले प्रस्ताव गर्नेको विद्युत प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन सम्वन्धमा सिफारिस गरिएको अनुरोध भइएकोमा तहसिलाट मिति २०७६/०८/१३ मा आयोजना गरिएको साबन्दा कार्यक्रममा संकेतबालाहरुबाट उठान भएका विषयहरुलाई राम्रो सम्वोधन गर्ने र वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा उल्लेखित भकारत्मक प्रभाव अतिवृद्धि र नकारात्मक वातावरणीय प्रभावहरुलाई न्यूनिकरण गरी वातावरणमा न्यूनतम असर पर्ने गरी प्रस्ताव आयोजना कार्यान्वयन गर्नको लागि सिफारिस गरिएको व्यहोरा अनुरोध छ ।



शंफकान्त पौडेल
नि.प्रमुख प्रशासकीय अधिकृत
वि.प्रमुख प्रशासकीय अधिकृत





नीलकण्ठ नगरपालिका

नगर कार्यपालिकाको कार्यालय

पाकप्लेस, काठमाडौं

प्रदेश नं.३, नेपाल

पत्र संख्या :-

घ.नं. ११३

मिति:- २०७६।०८।२४

श्री मिलेनियम चालेन्ज एकाउण्ट नेपाल (एमसीए-नेपाल)

गाक एण्ड यति कम्प्लेक्स, दरवार मार्ग, काठमाडौं, नेपाल

विषय : - सिफारिस गरिएको थारो ।

प्रस्तुत विषयमा तहर्बाट मिति २०७६।०८।०६ मा यस कार्यालयमा मिलेनियम चालेन्ज एकाउण्ट नेपाल (एमसीए-नेपाल) ले प्रस्ताव गरेको विद्युत प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मूल्यांकन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिन अनुरोध भइएकोमा तहर्बाट मिति २०७६।०८।१५ मा आयोजना गरिएको सार्वजनिक सुनुवाई कार्यक्रममा सरोकारवालाहरुबाट उठान भएका विषयहरुलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मूल्यांकन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरुलाई न्यूनिकरण गरी वातावरणमा न्यूनतम असर पर्ने गरी प्रस्ताव आयोजना कार्यान्वयन गर्नको लागि सिफारिस गरिएको व्यहोरा अनुरोध छ ।

नेपाल सरकार
वातावरण मन्त्रालय
सिंहदरवार काठमाडौं



शिवराज पीटेल
प्रमुख सहायक अधिकारी



जतिजासुखी प्रशासन सृष्टि र सुशासन

Contact: 010-520559, 520568

email:neelakanthamun@gmail.com

web site:www.neelakanthamun.gov.np



गजुरी गाउँपालिका गाउँ कार्यपालिकाको कार्यालय



गजुरी, धादिङ
३ नं. प्रवेश, नेपाल
गजुरी गाउँपालिका कार्यालय
गजुरी, धादिङ
३ नं. प्रवेश

प.सं. : २०७६/०७७

मिति : २०७६/०८/२६

च.नं. : २१२

श्री मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल)
याक एण्ड यति कम्प्लेक्स, दरबार मार्ग, काठमाडौं, नेपाल

विषय :- सिफारिस गरिएको बारे ।

प्रस्तुत विषयमा तर्हावाट मिति २०७६/०८/०६ मा गग कार्यालयमा मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल) ले प्रस्ताव गरेको विद्युत् प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिन अनुरोध भइ आएकोमा तर्हावाट मिति २०७६/०८/१० मा आयोजना गरिएको सावजनिक सुनुवाई कार्यक्रममा सरोकारवालाहरुवाट उठान भएका विषयहरुलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरुलाई न्यूनिकरण गरी वातावरणमा न्यूनतम असरपने गरी प्रस्ताव आयोजना कार्यान्वयन गर्नको लागि सिफारिस गरिएको व्यहोरा अनुरोध छ ।

नेपाल सरकार
तथा वातावरण मन्त्रालय
सिंहदरबार काठमाडौं



राजेन्द्र विक्रम वस्नेत
राजेन्द्र विक्रम वस्नेत
गजुरी गाउँपालिका
धादिङ



"सक्षम निजामती प्रशासन विकास, समृद्धि र सुशासन"

फोन नं. : +९७७-०१०-४०२१४२, ४०२१४५, ४०२१३९ ईमेल: info@gajurimun.gov.np, वेबसाइट: www.gajurimun.gov.np

फोन नं. ०१०-४१९०००

E-mail: benighatrorangmun@gmail.com



बेनीघाट रोराङ गाउँपालिका गाउँ कार्यपालिकाको कार्यालय

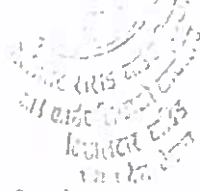


विशालटार, धादिङ

३ नं प्रदम, नेपाल

पत्र संख्या:-०७६/०७७

चलानी संख्या:- १०३५



मिति: २०७६/०८/२४

श्री मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल)
याक एण्ड यात कम्पेन्स, दरबार मार्ग, काठमाडौं, नेपाल

विषय : - सिफारिस गरिएको बारे ।

प्रस्तुत विषयमा तह्राघाट मिति २०७६/०८/०६ मा यस कार्यालयमा मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल)ले प्रस्ताव गरेको विद्युत् प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिन अनुरोध भइ आएकोमा तह्राघाट मिति २०७६/०८/०९ मा आयोजना गरिएको सार्वजनिक सुनुवाई कार्यक्रममा सरोकारवालाहरूबाट उठान भएका विषयहरूलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा उल्लेखित नकारात्मक प्रभाव अतिवृद्धि र नकारात्मक वातावरणीय प्रभावहरूलाई न्यूनिकरण गरी वातावरणमा न्यूनतम असर पर्ने गरी प्रस्ताव आयोजना कार्यान्वयन गर्नको लागि सिफारिस गरिएको व्यहोरा अनुरोध छ ।



(Handwritten signature)

(लक्ष्मण प्रसाद भट्टराई)

प्रमुख प्रशासकिय अधिकृत,
लक्ष्मण प्रसाद भट्टराई
प्रमुख प्रशासकिय अधिकृत





थाहा नगरको आधार, कृषि, पर्यटन र पूर्वाधार

थाहा नगरपालिका

नगर कार्यपालिकाको कार्यालय

इन्द्राकोशी, धौलागढ, मकवानपुर

३ नम्बर पौडि, नेपाल

२०७३

पत्र संख्या : ०६६/१०६६

शाखा/उपशाखा/इकाई :

चलानी नं. १०४०

मिति : २०७६/०८/२४

श्री मिलेनियमच्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल),
याक एण्ड यति कम्प्लेक्स, दरवारमार्ग, काठमाडौं, नेपाल

विषय : - सिफारिस गरिएको बारे ।

प्रस्तुत विषयमा तहाँबाट मिति २०७६।०८।२० मा यस कार्यालयमा मिलेनियमच्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल)ले प्रस्ताव गरेको विद्युत् प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिन अनुरोध भईआएकोमा तहाँबाट मिति २०७६।०८।१५ मा आयोजना गरिएको सार्वजनिक सुनुवाई कार्यक्रममा सरोकारवालाहरूबाट उठान भएका विषयहरूलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरूलाई न्यूनिकरण गरी वातावरणमा न्यूनतम असर पर्ने गरी प्रस्ताव आयोजना कार्यान्वयन गर्नको लागि सिफारिस गरिएको व्यहोरा अनुरोध छ ।



अजित घिमिरे

अधिकृतस्तर आठौं
अजित घिमिरे
अधिकृत





कैलाश गाउँपालिका गाउँ कार्यपालिकाको कार्यालय

पत्र संख्या :- ०३६/०३७
चलानि नं. :- ५९८

कालिकाटार, मकवानपुर
प्रदेश, नेपाल
कालिकाटार, मकवानपुर
३ नं. प्रदेश,



मिति :- २०७६/०८/१८

श्री मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल)
याक एण्ड यति कम्प्लेक्स, दरवार मार्ग, काठमाडौं, नेपाल ।

विषय : - सिफारिस गरिएको वारे ।

प्रस्तुत विषयमा तहाँवाट मिति २०७६।०८।०६ मा यस कार्यालयमा मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल) ले प्रस्ताव गरेको विद्युत प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिश गरिदिन अनुरोध भइ आएकोमा तहाँवाट मिति २०७६।०८।१८ मा आयोजना गरिएको सार्वजनिक सुनुवाई कार्यक्रममा सरोकारवालाहरुवाट उठान भएका विषयहरुलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मूल्यांकन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरुलाई न्यूनिकरण गरी वातावरणमा न्यूनतम असर पर्ने गरी प्रस्ताव आयोजना कार्यान्वयन गर्नको लागि सिफारिस गरिएको व्यहोरा अनुरोध छ ।



(Signature)

सुरेश न्यौपाने

नि. प्रमुख प्रशासकीय अधिकृत

नि. प्रमुख प्रशासकीय अधिकृत



"स्वच्छ शिबित एवं सम्बृद्ध कैलाश, कृषि, पर्यटन र पूर्वाधारकी योजनाबद्ध विकास"

फोन: ९८४५२९३४५९ ईमेल: kailashruralmunicipal@gmail.com वेबसाईट: www.kailashmun@gmail.com



राक्सवण्ड गाउँपालिका

गाउँ कार्यपालिकाको कार्यालय

पत्र संख्या : 2063/1066

चलानी नं. :- 292

(कृपया प्राप्त पत्र संख्या र चलानी नं. उल्लेख गर्नुहोला)

राक्सवण्ड, सिराहा जिल्ला
३ नं. प्रदेश, नेपाल

मिति :

श्री मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल)

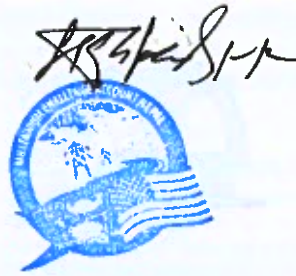
मिति : २०७६/०८/१७

याक एण्ड यति कम्प्लेक्स, दरवार मार्ग, काठमाडौं, नेपाल

विषय : - सिफारिस गरिएको बारे ।

प्रस्तुत विषयमा तर्हाबाट मिति : २०७६।०८।०६ मा यस कार्यालयमा मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल)ले प्रस्ताव गरेको विद्युत् प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिन अनुरोध भइ आएकोमा तर्हाबाट मिति : २०७६।०८।१७ मा आयोजना गरिएको सार्वजनिक सुनुवाई कार्यक्रममा सरोकारवालाहरूबाट उठान भएका विषयहरूलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मूल्यांकन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरूलाई न्यूनीकरण गरी वातावरणमा न्यूनतम असर पर्ने गरी प्रस्ताव आयोजना कार्यान्वयन गर्नको लागि सिफारिस गरिएको ब्यहोरा अनुरोध छ ।

नेपाल सरकार
वातावरण मन्त्रालय
सिंहदरवार काठमाडौं



शम्भु प्रसाद बर्तौला

नि. प्रमुख प्रशासकीय अधिकृत

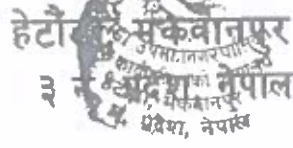
वि. प्रमुख प्रशासकीय अधिकृत





हटाडा उपमहानगरपालिका

नगर कार्यपालिकाको कार्यालय



पत्र संख्या :-

शाखा/उपशाखा/इकाई :-सामाजिक विकास महाशाखा

चलानी नं. : २१२४

मिति : २०७६/०८/२९

श्री मिलिनियम च्यालेन्ज एकाउन्ट नेपाल
(एम.सि.ए.) नेपाल
दरबारमार्ग, काठमाण्डौ ।

विषय : सिफारिस सम्बन्धमा ।

उपरोक्त सम्बन्धमा त्यस संस्थाको मिति २०७६।०८।०६ गतेको पत्रानुसार यस उपमहानगरपालिकामा प्रस्तुत गरेको विद्युत प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मूल्यांकन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिनुहुन अनुरोध भई आएकोमा मिति २०७६।०८।१६ गते जिल्ला समन्वय समिति, मकवानपुरको प्रांगणमा आयोजना गरिएको सार्वजनिक सुनुवाईमा विशेषगरी आयोजना कार्यान्वयनको विषयमा स्थानीय स्तरमा छलफल र समन्वय नभएको, स्थानीय प्रभावित तथा सरोकारवालालाई हालसम्मको प्रक्रियामा सहभागिता नगराएको भनी स्थानीय वासीहरुबाट प्रसारण लाइनको प्रस्तावित योजना प्रति असन्तुष्टि र गुनासा आएकोले प्रभावितहरुसंग वडागत रुपमा स्थानीय स्तरमै छुट्टाछुट्टै छलफल गरेर मात्र अघि बढाउने सहमति भएकोले सो अनुसार छलफल गरी सहमतिमा गुनासोको सम्बोधन गर्न, उपयुक्त विकल्प रोज्न र सरोकारवालाहरुबाट उठान भएका विषयहरुलाई गम्भीरताका साथ ग्रहण गरी मानवीय, धार्मिक, पर्यटकीय एवं सांस्कृतिक प्रभाव समेतलाई सकारात्मक प्रभाव पार्नेगरी सम्बोधन गर्ने र वातावरणीय प्रभाव मूल्यांकन प्रतिवेदनमा उल्लिखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरुलाई न्यूनीकरण गरी वातावरणमा न्युनतम असर पार्नेगरी प्रस्तावित आयोजना कार्यान्वयन प्रक्रिया अघि बढाउन सिफारिस गरिएको व्यहोरा अनुरोध छ ।



(हरिबहादुर महता)
नगर प्रमुख



कार्यकारी बसिन्स	०५७-५२२७५७	सार्वजनिक निर्माण शाखा	०५७-५२२७५५
वित्तीय व्यवस्थापन महाशाखा/सेवा शाखा	०५७-५२४४४०	राजस्व प्रशासन शाखा	०५७-५२४४८८
राहरी विकास, अनुसन्धान तथा वातावरण महाशाखा	०५७-५२०४६३	सूचना तथा अभिलेख शाखा	०५७-५२२८७६
योजना तर्जुमा तथा पूर्वाधार विकास महाशाखा	०५७-५२२०४५	गरिब/बिनी उपशाखा	०५७-५२४४२७
सामन्वय प्रशासन तथा सुरासन प्रबर्धन महाशाखा	०५७-५२४८३९	सिफारिस उपशाखा	०५७-५२२०४५
सामाजिक विकास महाशाखा	०५७-५२४८८८	नियमन इकाई (नगर प्रहरी)	०५७-५२०३७७
घरन इजाजत व्यवस्थापन शाखा (नक्सा पास)	०५७-५२०८७०	आयुध भण्डार	०५७-५२०६७७/१०१

पदास : ०५७-५२२८७७/५२३०४५ इमेल : info@hetaudamun.gov.np वेबसाइट : hetaudamun.gov.np



इच्छाकामना गाउँपालिका

गाउँपालिकाको कार्यालय

करिन्दार, चितवन
न. प्रदेश, नेपाल

प.सं. ०६४/०६६

च.नं. ६६५

मिति २०७२/०८/१६

विषय : - सिफारिस गरिएको बारे ।

श्री मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल)

याक एण्ड यति कम्प्लेक्स, दरवार मार्ग, काठमाडौं, नेपाल ।

प्रस्तुत विषयमा ताहाँबाट मिति २०७६/०८/०६मा यस कार्यालयमा मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल)ले प्रस्ताव गरेको विद्युत् प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिन अनुरोध भई आएकोमा ताहाँ मिति २०७६/०८/१३ मा आयोजना गरिएको सार्वजनिक सुनुवाई कार्यक्रममा सरोकारवालाहरुबाट उठान भएका विषयहरुलाई गम्भिरताका साथ ग्रहण गरी मानविय, धार्मिक, पर्यटकीय एवं सास्कृतिक प्रभाव समेतलाई सकारात्मक प्रभाव पार्ने गरी सम्बोधन गर्ने र वातावरणीय प्रभाव मूल्यांकन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरुलाई न्यूनिकरण गरी वातावरणमा न्यूनतम असर पार्ने गरी प्रस्तावित आयोजना कार्यान्वयन गर्नको लागि सिफारिस गरिएको व्यहोरा अनुरोध छ ।

नेपाल सरकार
जन तथा वातावरण मन्त्रालय
सिंहदरवार काठमाडौं



सुकदेव लम्साल
प्रमुख प्रशासकीय अधिकृत
सुकदेव लम्साल
प्रमुख प्रशासकीय अधिकृत





आंबुखैरेनी गाउँपालिका
गाउँ कार्यपालिकाको कार्यालय

आंबुखैरेनी, तनहुँ
गण्डकी प्रदेश, नेपाल
२०७३

मिति : २०७६/०८/२०



पत्र संख्या ०८०३/०६६
चलानी नं. २०९

मिति : २०७६/८/१७

विषय :- सिफारिस सम्बन्धमा ।

✓ श्री मिलिनियम च्यालेन्ज एकाउण्ट नेपाल
(एम.सि.ए. नेपाल)
दरवारमार्ग, काठमाण्डौ ।

प्रस्तुत विषयमा तहाँ संस्थाको मिति २०७६/०८/०६ गतेको पत्रानुसार यस गाउँपालिकामा प्रस्तुत गरेको विद्युत प्रसारण आयोजना कार्यन्वयनको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिनुहुन अनुरोध भई आएकोमा मिति २०७६/०८/१५ गते यस गाउँपालिकाको सभाहलमा आयोजना गरिएको सार्वजनिक सुनुवाईमा सरोकारवालाहरुबाट उठान भएका विषयहरुलाई गम्भीरताका साथ ग्रहण गरी मानवीय, धार्मिक, पर्यटकीय एवं सांस्कृतिक प्रभाव समेतलाई सकारात्मक प्रभाव पार्ने गरी सम्बोधन गर्ने र वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरुलाई न्यूनीकरण गरी वातावरणमा न्यूनतम असर पर्ने गरी प्रस्तावित आयोजना कार्यन्वयन गर्नका लागि सिफारिस गरिएको व्यहोरा अनुरोध छ ।



गिर बहादुर थापा
अध्यक्ष
गिर बहादुर थापा
अध्यक्ष





बन्दिपुर गाउँपालिका
Bandipur Rural Municipality
गाउँ कार्यपालिकाको कार्यालय

Office of Rural Municipal Executive

बन्दिपुर, तनहुँ

Bandipur, Tanahun



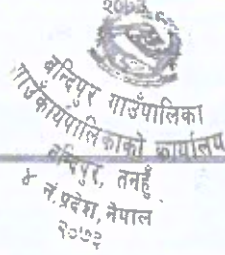
गण्डकी प्रदेश, नेपाल

Gandaki Province, Nepal

प.सं. (Ref. No.): - ०७६/७७

च.नं. (Des. No.): - ८१८

मिति (Date): - २०७६/८/१६



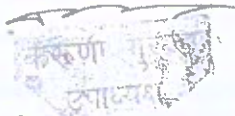
श्री मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल

याक एण्ड यति कम्प्लेक्स, दरवार मार्ग, काठमाण्डौ ।

विषय: सिफारिस गरिएको सम्बन्धमा ।

प्रस्तुत विषयमा तहाँ कार्यालयको च.नं. १२७, मिति २०७६।८।६ गतेको पत्रानुसार मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एम.सि.ए. नेपाल) ले प्रस्ताव गरेको विद्युत प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मूल्यांकन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिनुहुन अनुरोध भइ आएकोमा तहाँ कार्यालयबाट मिति २०७६।०८।१६ गते आयोजना गरिएको सार्वजनिक सुनुवाई कार्यक्रममा सरोकारवालाहरुबाट उठान भएका विषयहरुलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मूल्यांकन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरुलाई न्यूनीकरण गरी वातावरणमा न्यूनतम असर पर्ने गरी प्रस्तावित आयोजना कार्यान्वयन गर्नको लागि सिफारिस गरिएको व्यहोरा सादर अनुरोध छ ।

हस्ताक्षर:



पदाधिकारीको नाम: करुणा गुरुङ

पद: गाउँपालिका उपाध्यक्ष

मिति: २०७६।०८।१६



Handwritten signature





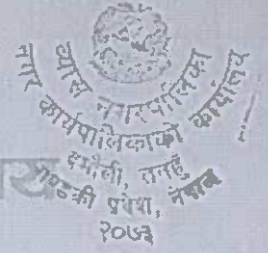
विद्येधन्यायं एकताको अमुकनेत भावः श्रुतेः
उज्यानी हरामरा अर्द्धे हामी व्यास नगर

व्यास नगरपालिका

नगर कार्यपालिकाको कार्यालय

दमौली, तनहुँ

गण्डकी प्रदेश, नेपाल
२०७३



पत्र संख्या: २०७६/०७७

चलानी नम्बर: २११४

मिति: २०७६/०८/१८

विषय: सिफारिस गरिएको बारे।

श्री मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल(एमसिए-नेपाल),
याक एण्ड यति कम्प्लेक्स, दरबारमार्ग
काठमाण्डौ, नेपाल

प्रस्तुत विषयमा तहाँबाट मिति २०७६/०८/०६ मा यस कार्यालयमा मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल(एमसिए-नेपाल) ले प्रस्ताव गरेको विद्युत प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मुल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिन अनुरोध भईआएकोमा तहाँबाट मिति २०७६/०८/०९ मा आयोजना गरिएको सार्वजनिक सुनवाई कार्यक्रममा सरोकारवालाहरुबाट उठान भएका विषयहरूलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मुल्याङ्कन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरूलाई न्यूनिकरण गरी वातावरणमा न्यूनतम असर पर्ने गरी प्रस्ताव आयोजना कार्यान्वयन गर्नका लागि सिफारिस गरिएको व्यहोरा अनुरोध छ।

हस्ताक्षर:

पदाधिकारीको पदमा **प्रमुख न्योपान**

पद: प्रमुख

मिति २०७६/०८/१८



"ऋषिङ्ग सम्बृद्धिको आधार, कृषि, संस्कृति, पर्यटन र पूर्वाधार"

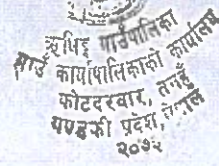


ऋषिङ्ग गाउँपालिका

गाउँ कार्यपालिकाको कार्यालय

कोटदरबार, तनहुँ

गण्डकी प्रदेश, नेपाल



पत्र संख्या :- २०७६/०७७

चलानी नम्बर :- ४४८

मिति : २०७६/०८/१६

विषय : सिफारिस गरिएको बारे ।

श्री मिलेनियम च्यालेन्ज एकाउण्ट नेपाल (एमसीए-नेपाल)
याक एण्ड यति कम्प्लेक्स, दरवार मार्ग, काठमाण्डौ, नेपाल ।

प्रस्तुत विषयमा, तहाँबाट मिति २०७६/०८/०४ मा यस कार्यालयमा मिलेनियम च्यालेन्ज एकाउण्ट नेपाल (एमसीए-नेपाल) ले प्रस्ताव गरेको विद्युत् प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिन अनुरोध भइ आएकोमा तहाँबाट मिति २०७६/०८/१० मा आयोजना गरिएको सार्वजनिक सुनुवाई कार्यक्रममा सरोकारवालाहरुबाट उठान भएका विषयहरुलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरुलाई न्यूनिकरण गरी वातावरणमा न्यूनतम असर पर्ने गरी प्रस्ताव गरिएको पाइयो । आयोजनाले वन क्षेत्र कम परोस् भनेर विभिन्न उपायहरु अपनाएको र सरोकारवालाहरु सँग पटक पटक छलफल समेत गरेकोले आयोजना कार्यान्वयन गर्नको लागि सिफारिस गरिएको व्यहोरा अनुरोध छ ।



[Signature]
(.....)

राजेन्द्रकृष्ण श्रेष्ठ
अध्यक्ष



धिरिङ
गाउँ कार्यपालिकाको कार्यालय
पोखरीछाप, तनहुँ
गण्डकी प्रदेश, नेपाल
२०७२

Ghiring Rural Municipality

गाउँ कार्यपालिकाको कार्यालय

Office of the Rural Municipal Executive

पोखरीछाप, तनहुँ
Pokharichhap, Tanahun



गण्डकी प्रदेश, नेपाल
Gandaki Province, Nepal

पत्र संख्या/Reference No.: २०७६/०७७

चलानी नं/Dispatch No.: २१०

मिति : २०७६/०८/१७

श्री मिलेनियम च्यालेन्ज एकाउन्ट नेपाल (एमसीए नेपाल)
याक एण्ड यति कम्प्लेक्स, दरबार मार्ग, काठमाण्डौ, नेपाल

विषय : सिफारिस गरिएको बारे ।

प्रस्तुत विषयमा तहाँबाट मिति २०७६/०८/०३ मा यस कार्यालयमा मिलेनियम च्यालेन्ज एकाउन्ट नेपाल (एमसीए नेपाल) ले प्रस्ताव गरेको विद्युत प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिन अनुरोध भइआएकोमा तहाँबाट मिति २०७६/०८/११ मा आयोजना गरिएको सार्वजनिक सुनुवाइ कार्यक्रममा सरोकारवालाहरुबाट उठान भएका विषयहरुलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरुलाई न्युनिकरण गरि वातावरणमा न्युनतम असर पर्नेगरी प्रस्ताव आयोजना कार्यान्वयन गर्नकालागि सिफारिस गरिएको व्यहोरा अनुरोध छ ।



.....
(रन बहादुर राना)
रन बहादुर राना
धिरिङ गाउँ कार्यपालिका





रामपुर नगरपालिका नगर कार्यपालिकाको कार्यालय



च.नं. ०५४४

रामपुर, नेपाल

पत्र संख्या - २०७६/०७७

५ नं. प्रेदिश, नेपाल

मिति २०७६/०८/१९

श्री मिलेनियम ज्यालेज एकाउण्ट नेपाल (एमसीए-नेपाल)

याक एण्ड यतिकम्प्लेक्स, दरबार मार्ग, काठमाडौं, नेपाल ।

विषय :- सिफारिस गरिएको बारे ।

प्रस्तुत विषयमा तहोवाट मिति २०७६/०८/०६ मा यस कार्यालयमा मिलेनियम ज्यालेज एकाउण्ट नेपाल (एमसीए-नेपाल)ले प्रस्ताव गरेको विद्युत प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिन अनुरोध भइआएकोमा तहोवाट मिति २०७६/०८/१२ मा आयोजना गरिएको सार्वजनिक सुनुवाई कार्यक्रममा संरोकारवालाहरुबाट उठान भएका विषयहरुलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मूल्याङ्कन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरुलाई न्यूनिकरण गरी वातावरणमा न्यूनतम असर पर्ने गरी प्रस्ताव आयोजना कार्यान्वयन गर्नको लागि सिफारिस गरिएको व्यहोरा अनुरोध छ ।

नेपाल सरकार
जन तथा वातावरण मन्त्रालय
सिंहदरबार काठमाडौं



[Signature]
प्रमुख प्रशासकीय अधिकृत





च.नं : ४९५
पत्र संख्या : ०७५/७७

निस्दी गाउँपालिका



५ नम्बर प्रदेश
मिति : २०७६।०८।१३ गते

श्री मिलेनियमच्यालेन्ज एकाउन्ट नेपाल (एमसीए-नेपाल)
याक एण्ड यतिकम्प्लेक्स, दरवार मार्ग, काठमाण्डौ नेपाल ।

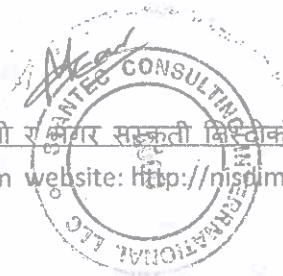
विषय :- सिफारिस गरिएको बारे ।

प्रस्तुत विषयमा तहाँवाट मिति:-२०७६।०८।१३ मा यस कार्यालयमा मिलेनियमच्यालेन्ज एकाउन्ट नेपाल (एमसीए-नेपाल) ले प्रस्ताव गरेको विद्युत प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मुल्याङ्कन प्रतिवेदन सम्बन्धमा सिफरिश गरिदिन अनुरोध भइ आएकोमा तहाँवाट मिति:-२०७६।०८।१३ मा आयोजना गरिएको सावजनिक सुनुवाई कार्यक्रममा सरोकारवालामा उठान भएका विषयहरूलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मुल्यांकन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावलाई न्यूनिकरण गरी वातावरणमा न्युनतम असर पर्ने गरी प्रस्ताव गरिएको पाइयो । आयोजनाले वनक्षेत्र कम परोस् भनेर विभिन्न उपायहरु अपनाएको र सरोकारवालाहरूसंग पटक पटक छलफल समेत गरेकोले आयोजना कार्यान्वयन गर्नका लागि सिफरिस गरिएको व्यहोरा अनुरोध छ ।



रिता कुमारी खनाल अर्याल
उपाध्यक्ष
रिता कुमारी खनाल अर्याल
उपाध्यक्ष

"शिक्षा, स्वास्थ्य र रोजगार पर्यटन सहितको पूर्वाधार, प्रकृति र शहर सङ्कृती क्षेत्रको आधार ।"
E-mail : nisdi2007@gmail.com, ito.lgnisdimun@gmail.com website: <http://nisdimun.gov.np> फोन
नं.०७५-६२००३९





विनयी त्रिवेणी गाउँपालिका

गाउँकार्यपालिकाको कार्यालय
नवलपरासी, बर्दघाट सूस्ता पूर्व
गण्डकी प्रदेश, नेपाल
स्था : २०७३



प.सं. ०७६/०७३
च.नं. ६८८

फोन नं. ०७८-४९६९८५
मिति: २०७६।०८।३०

विषय: सिफारिस गरिएको बारे ।

श्री मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल)
याक एण्ड यति कम्प्लेक्स, दरवारमार्ग, काठमाण्डौ, नेपाल ।

प्रस्तुत विषयमा तह्राँबाट मिति २०७६।०८।०६ मा यस कार्यालयमा मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए- नेपाल)ले प्रस्ताव गरेको विद्युत प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मुल्याङ्कन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिन अनुरोध भई आएकोमा तह्राँबाट मिति २०७६।०८।१५ मा विनयी त्रिवेणी गाउँपालिका वडा नं. ५ वडा कार्यालय परिसरमा आयोजना गरिएको सार्वजनिक सुनुवाई कार्यक्रममा सरोकारवालाहरूबाट उठान भएका विषयहरूलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मुल्याङ्कन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरूलाई न्यूनीकरण गरी प्रस्ताव आयोजना कार्यान्वयन गर्नको लागि सिफारिस गरिएको व्यहोरा अनुरोध छ ।

वन तथा वातावरण मन्त्रालय
सिंहदरवार, काठमाण्डौ




हस्ताक्षर:- 

पदाधिकारीको नाम:- डम्बर बहादुर जि.सी.

पद:-अध्यक्ष

मिति: २०७६।०८।३०, जम्बर बहादुर जि.सी.
अध्यक्ष



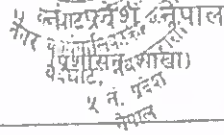



बर्दघाट नगरपालिका
नगर कार्यपालिकाको कार्यालय

नवलपरासी (बर्दघाट) सुस्ता पश्चिम।

पत्र संख्या : २०७६।०७७

चलानी नं. ११८०



मिति : २०७६।०९।०९

विषय : सिफारिस सम्बन्धमा ।

श्री मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल)
याक एण्ड यतिकम्प्लेक्स, दरवार मार्ग, काठमाण्डौ नेपाल ।

प्रस्तुत विषयमा, त्यस संस्थाबाट मिति २०७६।०८।०६ मा यस कार्यालयमा मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए- नेपाल) ले प्रस्ताव गरेको विद्युत् प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव मूल्यांकन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिन अनुरोध भइ आएकोमा बर्दघाट नगरपालिका वडा नं. २ अन्तर्गत सामुदायिक भवन आमवासमा मिति २०७६।०८।१६ मा आयोजना गरिएको सार्वजनिक सुनुवाई कार्यक्रममा सरोकारवालाहरुबाट उठान भएका विषयहरुलाई समेत सम्बोधन गर्ने र वातावरणीय प्रभाव मूल्यांकन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणीय प्रभावहरुलाई न्यूनीकरण गरी वातावरणमा न्यूनतम असर पर्ने गरी प्रस्ताव आयोजना कार्यान्वयन गर्नको लागि २ नं. वडा कार्यालयको पत्र अनुसार सिफारिस गरिएको व्यहोरा अनुरोध छ ।

नेपाल सरकार
वातावरण प्रशासन विभाग
सिंहदरवार काठमाण्डौ

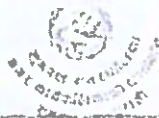


[Signature]

मेघनाथ पाध्या
(प्रमुख प्रशासकिय अधिकृत)

प्रमुख प्रशासकिय अधिकृत





फोन नं : } ०३८-५७०११६
फ्याक्स नं : }

सुनतल नगरपालिका

नगर कार्यपालिकाको कार्यालय

सुनतल, नवलपरासी, प. नं. प्रदेश, नेपाल

पत्र संख्या: ०६२०/६६
चलानी नं.: १०१८

मिति: २०७६.९.१ गते

विषय: सिफारिस सम्बन्धमा।

श्री मिलेनियम च्यालेन्ज एकाउण्ट नेपाल,
याक एण्ड यति कम्प्लेक्स,
दरवारभार्ग, भाठमाडौं।

उपरोक्त सम्बन्धमा, तल्लो कार्यालयको प. सं. ०७६/७७, च. नं. १२७, मिति २०७६.८.६ गतेको पत्र माफत मिलेनियम च्यालेन्ज एकाउण्टले प्रस्ताव गरेको विद्युत प्रसारण आयोजना कार्यान्वयनको वातावरणीय प्रभाव नमुल्याकिन प्रतिवेदन सम्बन्धमा सिफारिस गरिदिन अनुरोध भै आएको पत्र सम्बन्धमा आवश्यक निर्णय हुन मिति २०७६/८/३० गतेको यस नगरपालिकाको नगर कार्यपालिकाको बैठकमा पेश गरिएकोले यस सम्बन्धमा मिलेनियम च्यालेन्ज एकाउण्टको तर्फबाट मिति २०७६/८/१७ गतेमा गरिएको सार्वजनिक सुनुवाई कार्यक्रममा सरोकारवालाहरुबाट उठान भएका विषयहरु समेत सम्बोधन गर्ने र आयोजनाले आघ्रियहण गर्ने तथा यस आयोजनाबाट प्रभावित हुने जग्गाको चल्नचल्नि अनुसार उचित मूखब्जाको व्यवस्था गर्नुका साथै वातावरणीय प्रभाव नमुल्याकिनमा उल्लेखित नकारात्मक प्रभाव आभिवृद्धि र नकारात्मक प्रभावलाई न्यूनीकरण गरी स्थानीय वातावरणमा न्यूनतम असर पर्ने गरी कार्यान्वयन गरिनुपर्ने, साथै आयोजना क्षेत्रका वन तथा कृषि क्षेत्रमा नकारात्मक प्रभाव न्यूनीकरण गर्ने उपायहरु अपनाउने र सो सम्बन्धमा सरोकारवालाहरु सँग आवश्यक छलफल गर्ने गरी आयोजना कार्यान्वयन गर्नुपर्ने मुभाव सहित सिफारिस गर्ने भन्ने नगर कार्यपालिकाको बैठकबाट निर्णय गरिएकोले नगर कार्यपालिकाको उक्त निर्णय बमोजिम हुने गरी आयोजना कार्यान्वयनको लागि सिफारिस गरिएको व्यहोरा अनुरोध गर्दछु।

नेपाल सरकार
वन तथा वातावरण मन्त्रालय
सिंहदरवार काठमाडौं



श्रीम बहादुर थापा क्षेत्री
सदस्य
श्रीम बहादुर थापा क्षेत्री
प्रमुख



Palhinandan Rural Municipality
गाउँ कार्यपालिकाको कार्यालय
Office of Rural Municipal Executive

Form No. 1
9299

कृष्मा, नवलपरासी (ब.सु.प.), प्रदेश नं. ५, नेपाल
Kushma, Nawalparasi (Ba.Su.Pa.), State No. 5.

visit nepal
2020

मिति २०७६/०८/२६

श्री मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल)
याक एण्ड जर्न कन्सेल्स, दरवार मार्ग, काठमाडौं, नेपाल

विषय - सिफारिस सम्बन्धमा ।

मिति २०७६/०८/१९ मा यस कार्यालयमा मिलेनियम च्यालेञ्ज एकाउण्ट नेपाल (एमसीए-नेपाल) ले प्रस्ताव गरेको विद्युत प्रसारण आयोजना कार्यान्वयनको वातावरणिय प्रभाव मूल्यांकन प्रतिवेदन सम्बन्धमा शान्ति गण्डिन अनुरोध भइ आएकोमा तर्होवाट मिति २०७६/०८/१९ मा आयोजना गरिएको साविकको मूल्यांकन कार्यक्रममा सरोकारवालाहरुवाट उठान भएका विषयहरुलाई समेत सम्बोधन गर्ने र वातावरणिय प्रभाव मूल्यांकन प्रतिवेदनमा उल्लेखित सकारात्मक प्रभाव अभिवृद्धि र नकारात्मक वातावरणिय प्रभावहरुलाई न्यूनतम गरी वातावरणमा न्यूनतम असर पर्ने गरी तथा आयोजनामा वन तथा कृषि क्षेत्र कम परेको क्षेत्रमा उपयुक्त उपकरण अपनाई तथा सरोकारवालाहरु संग आवश्यक छलफल गरी आयोजना कार्यान्वयन गर्नका लागि सिफारिस गरिएको छ ।

नेपाल सरकार
वातावरण मन्त्रालय
सिंहदरवार काठमाडौं



वैजु प्रसाद गुप्ता (दिपक)
अध्यक्ष
पाल्हीनन्दन गा.पा. नवलपरासी
अध्यक्ष