

Environmental Monitoring Report

Semestral Report
August 2022

Nepal: Electricity Transmission Expansion and Supply Improvement Project

CURRENCY EQUIVALENTS

(as of 31 July 2022)

Currency unit	–	Nepalese Rupees (NRs)
NRs1.00	=	\$0.01
\$1.00	=	NRs126.82

ABBREVIATIONS

ADB	–	Asian Development Bank
CF	–	Community Forest
CFUGs	–	Community Forest User Groups
CSR	–	Corporate Social Responsibility
CPP	–	Compensatory Plantation Plan
DFCC	–	District Forest Coordination Committee
DoF	–	Department of Forest
DFO	–	Division Forest Office
EM	–	Entitlement Matrix
ESMU	–	Environmental and Social Management Unit
ESSD	–	Environment and Social Studies Department
ETESIP	–	Electricity Transmission Expansion and Supply Improvement Project
GoN	–	Government of Nepal
GRC	–	Grievance Redress Committee
Ha	–	Hectare
HH	–	Household
HPP	–	Hydro Power Project
IEE	–	Initial Environmental Examination
IP	–	Indigenous People
IR	–	Involuntary Resettlement
LF	–	Leasehold Forest
LRO	–	Land Revenue Office
NF	–	National Forest
NEA	–	Nepal Electricity Authority
PAF	–	Project Affected Family
PCC	–	Plain Cement Concrete
PTDEEP	–	Power Transmission and Distribution Efficiency Enhancement Project
RAP	–	Resettlement Action Plan
RCC	–	Reinforced Cement Concrete
RM	–	Rural Municipality
RP	–	Resettlement Plan
RoW	–	Right of Way
RRM	–	Random Rubble Masonry
SDFO	–	Sub-divisional Forest Office
SPS	–	Safeguard Policy Statement
SOP	–	Standard Operating Procedure
TKTLP	–	Tamakoshi-Kathmandu 220/400kV Transmission Line Project
TL	–	Transmission Line

NOTE{S}

- (i) The fiscal year (FY) of the Government of Nepal and its agencies ends on 16 July. "FY" before a calendar year denotes the year in which the fiscal year ends, e.g., FY2021 ends on 16 July 2022.
- (ii) In this report, "\$" refers to United States dollars.

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1.0 INTRODUCTION

1.1 Background

Electricity Transmission Expansion and Supply Improvement Project (ETESIP) was approved on 15 November 2011, signed on 23 March 2012, and declared effective on 21 June 2012 with its initial loan closing date on 31 December 2017. However, due to certain changes/adjustments on the scope of Tamakoshi - Kathmandu Transmission Line (TKTL) and substation, the project has been extended till 31 March 2020 which has been further revised to 31 December 2021. The project has been extended for the third time until 31 December 2023 to allow completion of remaining activities. The ETESIP is a \$128 million project with financial assistance of 44% loan and 34% grant support from Asian Development Bank (ADB), Government of Norway, Nepal Electricity Authority (NEA) and Government of Nepal (GoN). The project also has an approved fund of \$2 million for capacity development assistance. The project comprises of following three major integrals:

- Transmission line expansion, including new transmission lines and substations
- Distribution system expansion
- Rehabilitation of hydropower stations

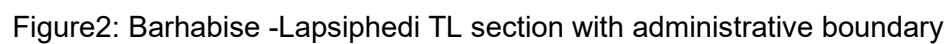
Based on these major integrals, the project has following components:

- a) Tamakoshi - Kathmandu 220/400kV TL
- b) Rehabilitation of 640kV Sundarijal HPP
- c) Rehabilitation of 1MW Tinau HPP
- d) Augmentation of distribution Services (East i.e., Jare, Gaur, Nijgadh, Chandraghadhi and Belbari)
- e) Augmentation of Distribution Services (West i.e., Parasi, Amuwa, Taulihawa, Krishnanagar, Gorkha, Mirm and Gaddachowki)
- f) Expansion of Chapali SS, Kohalpur-Mahendranagar 132kV second circuit
- g) Upgradation of distribution lines at Kathmandu, Bhaktapur, Kavrepalanchowk, Sindhupalchowk, Dolakha, Sindhuli and Ramechhap Districts

Among above components, rehabilitation of 640kV Sundarijal HPP, augmentation of distribution service (East i.e. Jare, Gaur, Nijgadh, Chandragadhi and Belbari), augmentation of distribution service (West i.e. Pasari, Amuwa, Taulihawa, Krishnanagar, Gorkha, Mirm and Gaddachowki), expansion of Chapali SS, Kohalpur-Mahendranagar 132kV second circuit have already completed. Similarly, beyond Sindhupalchowk, upgradation of distribution lines at Kathmandu, Bhaktapur, Kavrepalanchowk, Dolakha, Sindhuli and Ramechhap district have also completed. However, no implementation work has been done on the rehabilitation of Tinau HPP.

Among all the above components, this report is prepared for TKTL and thus contains major of its information and status. The TKTL is rigorously under construction. The TKTL is divided into two sections: i) New Khimti - Barhabise section (Package I) which includes construction of 42.63 kms double circuit 220/400 kV TL from New Khimti, Ramechhap to Barhabise, Sindhupalchowk as shown in **Figure 1** and ii) Barhabise - Kathmandu section (Package II) which includes construction of three different TL a) construction of 46.4 kms double circuit 220/400 kV TL from Barhabise, Sindhupalchowk to Lapsiphedi, Kathmandu, as shown in **Figure 2** b) construction of 9.953 kms double circuit 132 kV TL from Lapsiphedi, Kathmandu to Changunarayan, Bhaktapur and c) construction of 4.098 kms multi circuit 132 kV TL from Changunarayan, Bhaktapur to Duwakot, Bhaktapur, as shown in **Figure 3**.

Some changes have been occurred in the ETESIP due to the shifting of three substations under Power Transmission and Distribution Efficiency Enhancement Project (PTDEEP) from ETESIP. The scope of acquisition, compensation and other associated activities of the mentioned three substation components have also been transferred under the PTDEEP. The shifted substations are: i) Barhabise SS, Sindhupalchowk, ii) Lapsiphedi SS, Kathmandu and iii) Changunarayan SS, Bhaktapur.



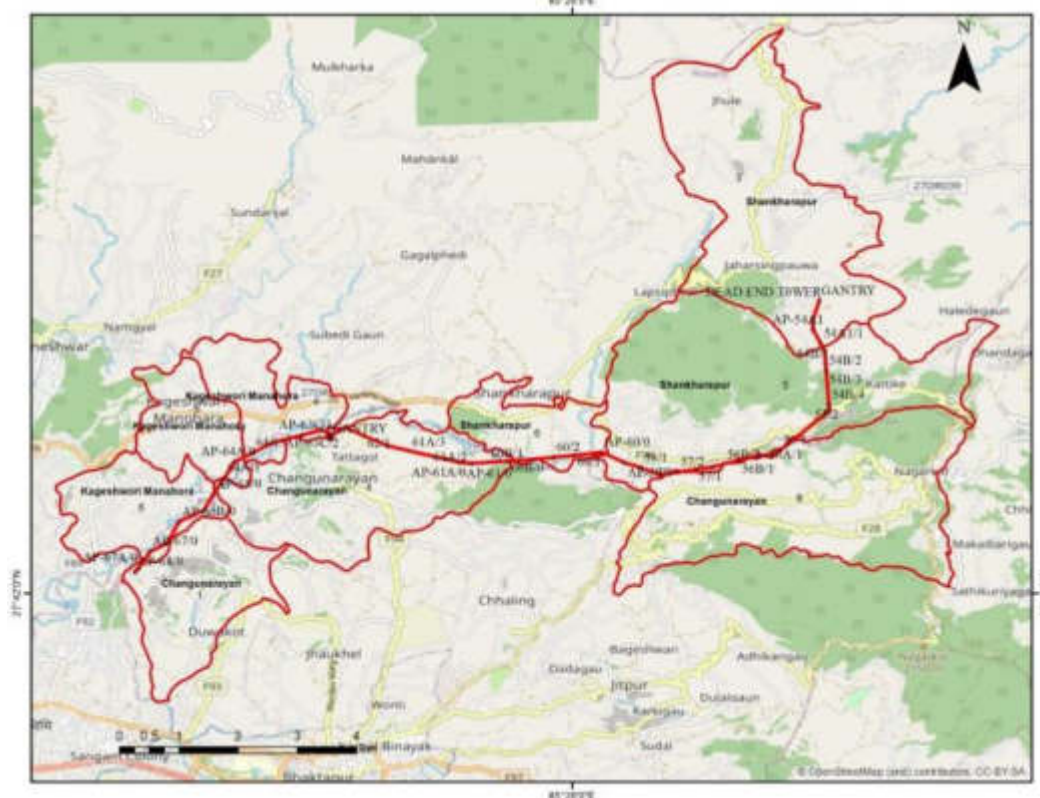


Figure3: Lapsipedi -Changunarayan TL section with administrative boundary

1.2 Overall Progress Status of the Project

The overall progress status of sub-project components is summarized below in **Table 1**.

Table1: Overall Progress Status of the Project

SN	Name of the Project	Project Details	Progress Status	Completion Schedule
Tamakoshi – Kathmandu 220/400 kV Transmission Line Project (TKTLP) – ETESIP				
a.	New Khimti - Barhabise TL section (Package I)	Construction of double circuit 220/400 kV TL from New Khimti, Ramechhap to Barhabise, Sindhupalchowk	<p>i. Initial contract was awarded on 26 September 2016 cancelled and recently the new contract agreement has been awarded on 20 May 2019 with the date effective from 20 July 2019</p> <p>ii. Route alignment finalized and check survey has been progressively undergoing</p> <p>iii. Check survey completed for 115 tower locations.</p> <p>iv. Social and environmental public awareness campaign via installation of 30 hoarding boards at 30 different locations</p> <p>v. A 35-day public notice for land acquisition has been published on October 13, 2020 on Gorkhapatra daily for Dolakha district.</p> <p>vi. Public notice for land acquisition for Sindhupalchowk section has been published in 24 June 2021</p> <p>vii. Divisional Forest Office, Dolakha has provided tree cutting approval for all the fifteen APs that falls on the eleven CFs (AP 10/1, AP 13/0, AP 16/1, AP 17/1, AP 18/0, AP 19/1, AP 21/0, AP 22/0, AP 24/1, AP 25/0, AP 26/0, AP 36/0, AP 37/0, AP 49/1 and AP 52/1) and tree</p>	12 July 2022

SN	Name of the Project	Project Details	Progress Status	Completion Schedule
			<p>cutting have been completed in all the fifteen APs.</p> <p>viii. Division Forest Office, Sindhupalchowk has provided tree cutting approval for 9 tower foundations (AP 53/0, AP 57/0, AP 57/1, AP 57/2, AP 57/4, AP 58/0, AP 58/1, AP 58/2 and AP 58/4) of Sindhupalchowk district and tree cutting has been completed in 6 locations.</p> <p>ix. Handover of felled trees of tower foundation to respective CFs has been completed in Dolakha district.</p> <p>x. Division Forest Office, Dolakha has provided tree cutting approval for 5 community forests of RoW. Tree cutting has been started in RoW of Dolakha district.</p> <p>xi. NEA has paid NRs. 165,058,031 for the acquired forest land to Forest Development Fund. Also, NEA is preparing to pay NRs. 218,170,981.47 for the cost of compensatory plantation as per the letter of Department of Forest and Soil Conservation dated 2079/03/14 BS.</p> <p>xii. Foundation work completed in 74 out of 115 (64.34%) locations and ongoing in 6 locations</p> <p>xiii. Erection completed in 55 out of 115 (47.82%) locations and ongoing in 2 locations.</p> <p>xiv. Stringing of 5.2 km stretch completed and ongoing on 2.244 km stretch.</p> <p>xv. Compensation Determination Committee of Dolakha has finalized the cost estimate for compensation of structure, crops and fruit trees of tower pad.</p> <p>xvi. Conservation awareness raising program in two locations and Social Awareness Program in three locations of Dolakha district have been conducted to PAFs and stakeholders.</p> <p>xvii. 15 out of 15 GRCs (100%) have been formed in Ramechhap, Dolakha, and Sindhupalchowk districts.</p>	
b.	Barhabise – Lapsiphedi section (Package II)	Construction of double circuit 220/400 kV TL from Barhabise, Sindhupalchowk to Lapsiphedi, Kathmandu	<p>i. Contract awarded on 13 June 2017 with the date effective from 13 August 2017</p> <p>ii. Check survey completed</p> <p>iii. Social and environmental public awareness campaign via installation of 30 hoarding boards at 30 different locations</p> <p>iv. Enumeration of trees to be cut in Sindhupalchowk and Kavrepalanchowk has been completed and accordingly Tree cutting approval has been granted from the Cabinet and hence the agreement has been done between Department of Forest and Soil Conservation (DoFSC) and NEA; based on which the letter has been sent to the respective DFO.</p> <p>v. After the recipient of tree cutting approval letter from DoFSC, the tree cutting has been completed for tower pads (except AP 47/3) and the tree cutting is under progress for RoW</p> <p>vi. An agreement has been done between Department of Forest and Soil Conservation and Nepal Electricity Authority to provide funds for compensatory tree plantation for all the trees to be felled in TKTL</p>	Initially, 13 April 2020, which has been further renewed to 31 March 2023

SN	Name of the Project	Project Details	Progress Status	Completion Schedule
			vii. Occupational Safety Training- 3 and Health and Sanitation Program- 3 has been conducted among labors (Participants- 22 in each) viii. Social Awareness program conducted in 3 different locations ix. GRC formation in Sindhupalchowk (11 out of 11), Kavrepalanchowk (10 out of 10) and Kathmandu (0 out of 1) completed x. Final field re-verification remaining (4 locations) xi. Basic Computer Training Completed (Total participant- 33; Male- 14, Female- 19) xii. Tower foundation construction under progress (106 foundation completed & 2 under construction) xiii. Tower erection under progress (101 erection completed & 0 under construction) xiv. Tower protection work under progress (17 completed and 1 under progress) xv. Stringing in progress (AP 24/0 – AP 25/0 – AP 25/1 – AP 25/2 – AP 25/3 – AP 26/0 – AP 26/1 – AP 27/0 – AP 27/1, AP 41/1 – AP 42/0 – AP 42/1 – AP 42/2 – AP 42/3 – AP 42A/0 – AP 43/0 – AP 44/0 – AP 44/1 – AP 45/0 – AP 46/0 – AP 46/1 – AP 46/2: Rough = 5.574 km, Final = 4.411 km)	
c.	Lapsipedi – Changunarayan section (Package II)	Construction of double circuit 132 kV TL from Lapsipedi, Kathmandu to Changunarayan, Bhaktapur Construction of multi circuit 132 kV TL from Changunarayan, Bhaktapur to Duwakot, Bhaktapur (LILO)	i. Contract awarded to L&T, that has been included as a complete package within Package II ii. Detailed survey has been completed for 14.13 km (57 towers) iii. Check survey completed for 57 towers iv. Contouring completed v. Final cadastral report submitted for publication of land acquisition notice (22 locations- 39%) vi. Final verified cadastral report to be obtained from Naapi (5 locations- 8%) vii. Final re-verification to be done in field (30 locations- 52%) viii. Enumeration of trees to be cut in Kathmandu and Bhaktapur Districts has been completed and accordingly Tree cutting approval has been granted from the Cabinet and hence the agreement has been done between Department of Forest (DoF) and NEA; based on which the letter has been sent to the respective DFO. xviii. GRC formation in Kathmandu (1 out of 5) and Bhaktapur (0 out of 3) completed	

(Source: Field visit, compensation disbursement data sheet, project document and consultation with project staffs)

1.3 Implementation Status

NEA has established a separate Project Management Directorate (PMD) to expedite decision making process for the timely implementation of all ADB funded projects and other subsequent projects. PMD is headed by Deputy Managing Director (DMD) responsible for preparation, procurement, construction and supervision of ADB funded projects.

1.4 Reporting Period

The Semi-annual Environmental Compliance Monitoring Report is prepared for the period of January - June, 2022.

1.5 Monitoring Requirements and Frequency of Submission

The Semi-annual Environmental Compliance Monitoring Report has been prepared by NEA and submitted to ADB as per the reporting guidelines and compliance with ADB requirements. The report has been prepared to cover and evaluate the environmental activities conducted by Environment and Social Management Unit (ESMU) in TKTL for the period of January- June, 2022.

2.0 COMPLIANCE STATUS WITH APPLICABLE STATUARY REQUIREMENTS

The environmental safeguard related regulatory compliance requirements are as given in **Annex-1**. Similarly, environmental compliance status with loan and grant covenants are presented in **Annex- 2**, whereas the health & safety and environmental safeguard related project activities are in compliance with contract clauses as given in **Annex- 3** and **Annex- 4** respectively.

3.0 INSTITUTIONAL ARRANGEMENT

3.1 Establishment of Safeguard Unit

NEA is the main executing agency of this project. However, there are multiple layers directly involved in the implementation of the project: i) NEA as the project proponent, ii) Project Management Directorate (PMD) responsible for managing ADB projects, iii) Project office responsible for implementation of the project iv) Environment and Social Studies Department (ESSD) responsible for monitoring, supervision and implementation of safeguard compliances v) Environment and Social Monitoring Unit (ESMU) responsible for field based monitoring, supervision and **implementation of safeguard compliances**. The current institutional arrangement and organogram is described below in the **Figure 4**:

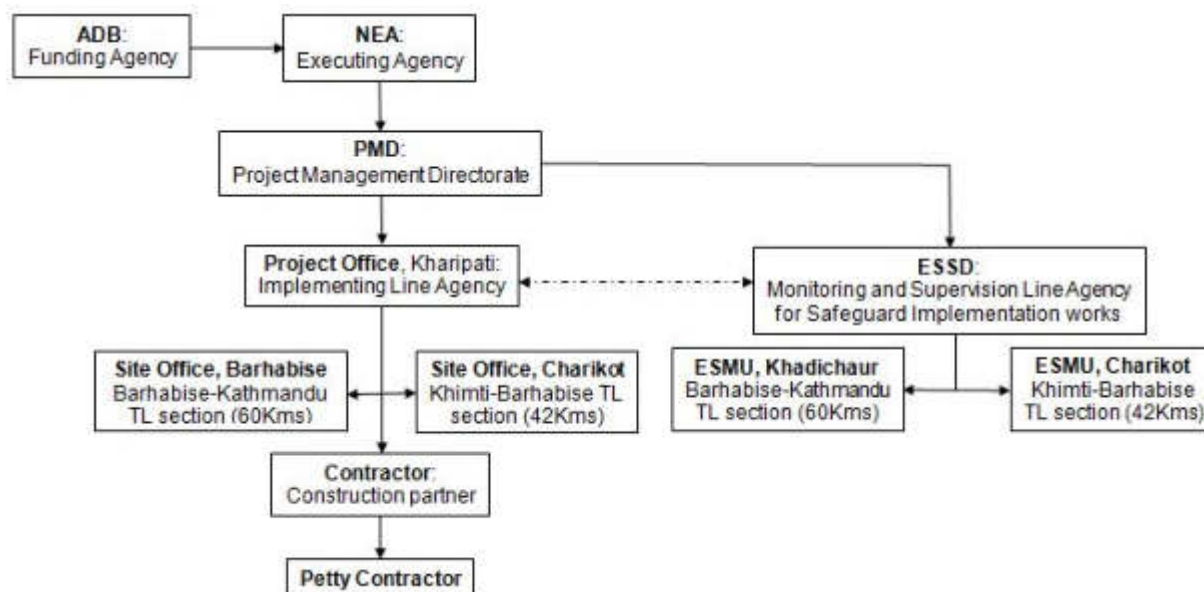


Figure 4: Current Institutional Arrangement and Organogram

The site office for ESMU has been established at Charikot, Dolakha for New Khimti-Barhabise TL section (Package I) and at Khadichaur, Sindhupalchowk for Barhabise – Changunarayan TL section (Package II). Since the establishment of the site office, the Environmental and Social Monitoring teams are in site for regular monitoring, supervision and implementation of Environmental and Social safeguard activities. The team consists of following team members listed in **Table 2**.

Table-2: List of team members for Safeguard Implementation

SN	Team Members	Designation
1.	Mr. Raman Raj Sharma	Project Manager, TKTL, NEA

SN	Team Members	Designation
2.	Mr. Bhakti Timsina	Assist. Director-ESSD, NEA, TKTL-Coordinator
Package I (New Khimti – Barhabise 220/400 kV TL)		
1.	Mr. Gajendra Narayan Yadav	Focal Person, Civil Engineer
2.	Mr. Navaraj Sanjel	Focal Person
3.	Mr. Saroj Shrestha	Environmental Safeguard Officer
4.	Mr. Santosh Kaphle	Social Safeguard Officer
5.	Mr. Amit Poonia	Project Manager, KEC International (Construction Contractor)
Package II (Barhabise – Lapsiphedi 220/400 kV TL; Lapsiphedi – Changunarayan 132 kV TL; Changunarayan – Duwakot 132 kV (LILO) TL)		
1.	Mr. Shiva Ram Dhimal	Focal Person, Electrical Engineer
2.	Mr. Rajendra Prasad Joshi	Focal Person, Electrical Engineer
3.	Mr. Mahendra Bhattarai	Environmental Safeguard Officer
4.	Mr. Pradeep Kumar Adhikari	Social Safeguard Officer
5.	Mr. Subash Chander Sharma	Project Manager, L&T International (Construction Contractor)

3.2 Establishment of Grievance Redress Mechanism

There is a Grievance Management Department (GMD) headed by director within NEA. The preparation of grievance redress mechanism acceptable to ADB will be complied. Moreover, under the PMD a separate department to overlook the safeguard implementation is being formed. Besides, the issues raised in local consultative meetings are first handled and solved in the field level Grievance Redress Committee (GRC) chaired by local elected representative and other representatives from project personnel, PAFs, contractor, ESMU. The issues not solved will then be forwarded to project level GRC, chaired by Project Manager and representatives from project personnel, ESMU. Again, if the issues could not be solved there, then it will be forwarded to GMD. The establishment of GRC for all the affected RMs' and Municipalities' wards is in the process of formation. Altogether, 45 GRCs are supposed to be formed in complete TKTL as per the available approved cadastral data till this reporting period. Among those, 15 GRCs are to be formed in New Khimti – Barhabise TL section, 22 in Barhabise – Lapsiphedi TL section and 8 in Lapsiphedi – Changunarayan - Duwakot TL section till this reporting period, which are subjected to change as the final re-verification survey and approval of cadastral report are still under process. In New Khimti-Barhabise TL section, 15 GRCs (100%) have been formed. Out of 22 GRCs to be formed in Barhabise-Lapsiphedi TL section 21 GRCs (95%) has been formed, similarly, 1 out of 8 (12%) GRC has been formed in Lapsiphedi-Changunarayan-Duwakot TL section. In Sindhupalchowk district, 5 GRCs are to be formed for New Khimti-Barhabise TL section and 11 GRCs for Barhabise-Lapsiphedi TL section. The GRC formation is being done following SOP for COVID-19 issued by PMD. Likewise, the letter has been dispatched to the ward offices of 132 kV TL alignment of Kathmandu and Bhaktapur sections. The ESMU team is in close consultation with ward chairperson and is in process to conduct meetings and GRC formation.

The details of GRC formation status have shown in **Figure 5**.

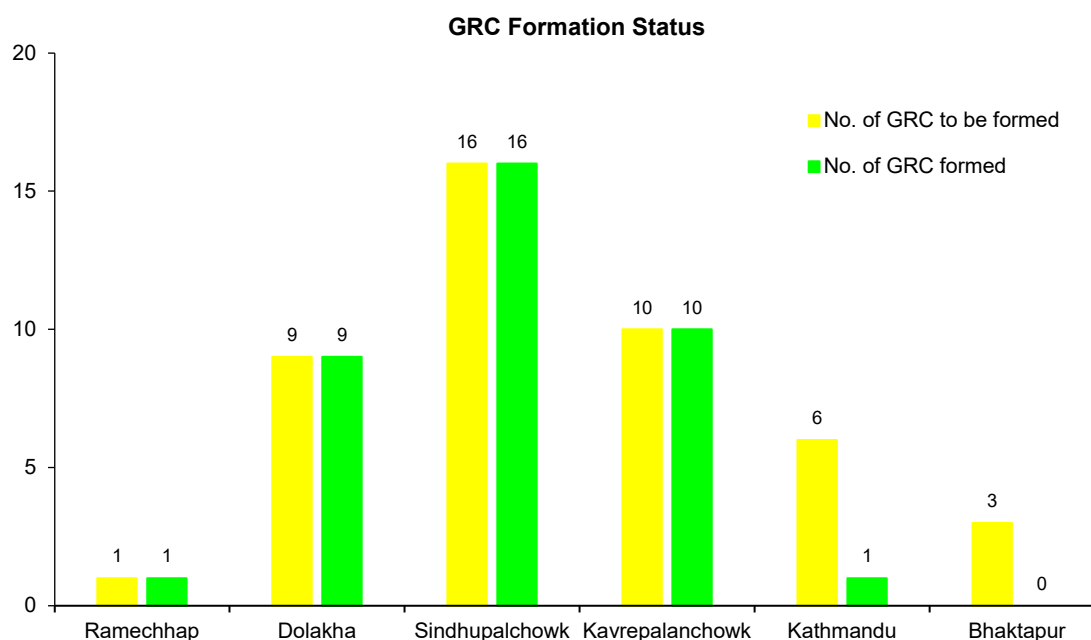


Figure 5: Total no. of GRCs to be formed and GRCs formed till this period

(Source: Field Data)

3.3 EMP Implementation, Monitoring and Reporting

Monitoring mechanism in each project has been established for regular compliance monitoring. Reports are prepared on monthly, quarterly and biannual basis. During monitoring and consultation, meetings are conducted with the contractors and contractor's supervisor and also with the labors/staffs employed in construction works; through informal meetings in a group and individually. The consultative process aimed to obtain required information feedback and advice from the participants i.e., Contractors and labors/staffs engaged for the civil construction to assess the actual scenario of the labor issues and concerns.

4.0 COMPLIANCE WITH ENVIRONMENTAL SAFEGUARD MEASURES

The environmental assessment with mitigation, corrective and compensatory measures for the development interventions is a major component in ensuring minimal adverse environmental impacts. According to Environmental Protection Act (EPA), 2019 and Environmental Protection Rules (EPR), 2020 of GoN and ADB Safeguard Policy Statement (SPS), 2009 Initial Environmental Examination (IEE) is mandatory for the electricity transmission line projects. However, if the transmission line passes from protected areas (National Park, Wildlife reserves, Conservation areas), Environmental Impact Assessment (EIA) is mandatory according to schedule 3 of EPR, 2020. With the promulgation of EPA, 2019 and EPR, 2020, EPA, 1996 and EPR, 1997 has been dissolved; however, the IEE of the project was prepared as per then EPR, 1997. Moreover, considering National Energy Crisis Alleviation and Electricity Development Decade concept note, Ministry of Energy, Water Resources and Irrigation has issued "IEE and EIA Working Procedures for Hydropower and Transmission Line Project, 2073 BS" effective from 2073 Kartik 4 (20 October, 2016) to simplify and expedite environmental assessment approval process by assigning authority to Department of Electricity Development (DoED).

4.1 Planning Status of the Project

The transmission line projects are screened to be of Category B. The IEE of Tamakoshi-Kathmandu 220/400kV TL has been approved from ADB and GoN through the line ministry. The TL avoids any environmentally sensitive sites. A section approximately 16 km passes through forest areas of Charnawati Watershed (The watershed area set aside for carbon sequestration pilot site) although not a legally protected area the offsetting of the Right of Way (RoW) clearance has been proposed. The work for the transmission line is in progress where contractors have

been mobilized and ESMU are established. The details of the project planning are provided in **Annex-5**.

4.2 Construction Approach

The construction approach is applied with focus on reducing adverse environmental impacts, costs and promoting local jobs. The preventive and corrective measures on handling hazardous chemicals, oils, occupational health and safety requirements are incorporated as per the safeguard requirements.

4.3 Tree Marking and Tree Cutting Status

The enumeration of trees to be cut has been completed in Ramechhap, Dolakha, Sindhupalchowk, Kavrepalanchowk, Kathmandu and Bhaktapur districts. The then obtained enumeration list has been submitted to the respective agency i.e., Department of Forest. The enumeration list shows more trees to be cut than expected from the IEE report and thus IEE has been updated and approved on October 2019, in the portion of Sindhupalchowk Forest area, especially in Balephi RM. The total number of trees to be cut is counted as 35,231 with the total timber volume of about 441,674.527 cft. The details are presented in **Table 3** and **Table 4**. The tree cutting approval has been approved/decided from the cabinet meeting and the authorized letter from the concerned agency/authority (DoF) has been dispatched. The request letter for approval of tree cutting submitted to Division Forest Office, Dolakha, Kavrepalanchowk and Sindhupalchowk by Project Office has been registered and the concerned agency has further provided the permission for tree cutting via respective Sub-division Forest Office in the respective districts.

Table-3: Tower Details and Trees to be felled

SN	TL section	Length	Districts	Total No. of approved towers			Number of trees to be felled	Remarks
				Towers in Government land/Forest area	Towers in Private land	Total Towers		
1.	New Khimti – Barhabise (220/400 kV)	42 km	Ramechhap	26	92	118	0	However, the tree cutting will be avoided in valleys and the trees with smaller heights that maintain conductor clearance.
			Dolakha				4291	
			Sindhupalchowk				28582	
2.	Barhabise - Lapsipedi (220/400 kV)	46 km	Sindhupalchowk	25	97	122	1424	
			Kavrepalanchowk				838	
			Kathmandu				93	
	Lapsipedi - Changunarayan (132 kV)	14 km	Kathmandu	7	50	57	93	
Total			Bhaktapur				35231	
		102 km	6	47	246	293	35231	

(Source: Project document, Updated IEE report)

Table-4: Forest types in TKTL

SN	District	Affected CF		Affected GF		Affected LHF		Total	
		No.	Area (ha)	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)
1	Dolakha	17	35.34	0	0	0	0	17	35.34
2	Sindhupalchowk	27	53.6912	2	0.7678	2	1.9412	31	56.4002
3	Kavrepalanchowk	6	9.200					6	9.2
4	Kathmandu	2	2.0300					2	2.03
5	Bhaktapur	1	0.2500					1	0.25
Total	5	53	100.5112	2	0.7678	2	1.9412	57	103.2202

(Source: Updated IEE report)

New Khimti-Barhabise TL Section

The DFO, Dolakha has granted tree cutting approval in eleven community forests. With this approval from DFO, tree cutting in AP 10/1, AP 12/2, AP 16/1, AP 17/1, AP 18/0, AP 19/1, AP 21/0, AP 22/0, AP 24/1, AP 25/0, AP 26/0, AP 36/0 and AP 37/0 has been completed in presence of respective Sub-division Forest official and CFUG members. There are no trees in tower pads

of AP 49/1 and AP 52/1, and thus only the shrubs that present there will be cleared during the time of foundation work in presence of CFUG members. During the enumeration of trees in tower pads the enumeration of trees in AP 44/1 was mistakenly missed by Bhimeshwor Sub-division Forest Office. Hence an application has been forwarded to the Divisional Forest Office, Dolakha for further processing and cutting approval. Altogether 690 numbers of trees have been cut for tower pad in thirteen APs of nine CFs till this reporting period. Handover of the felled trees to respective CFUGs has been completed in presence of officials from respective Forest Sub-division Office in Dolakha district. Division Forest Office, Dolakha, has provided tree cutting approval for RoW in 5 community forests. Altogether 370 no. of trees have been cut in RoW in Dolakha district till this reporting period. Similarly, Division Forest Office, Sindhupalchowk has provided tree cutting approval for 9 tower pads of 3 community forests in Tripurasundari RM and tree cutting has been completed in 6 locations. A total of 1221 number of trees of volume 18423.16 cubic feet will be felled in these 3 community forests. Till this reporting period, 1069 number of trees have been cut in 7 tower foundation in Sindhupalchowk district.

TKTL passes through Charnawati watershed, one of the watersheds among three selected for REDD pilot project. Out of 58 CFs in the watershed, twelve CFs are affected by New Khimti-Barhabise section where tower pads lie in five CFs and RoW impacts seven CFs as shown in **Figure 6**. The Charnawati watershed is resided by rare Thami people who are considered to have close connection with forest for their livelihood and culture. So, to offset the impacts by the intervention of TKTL, consultation meetings with CFUGs affected regarding their capacity development programs were conducted.

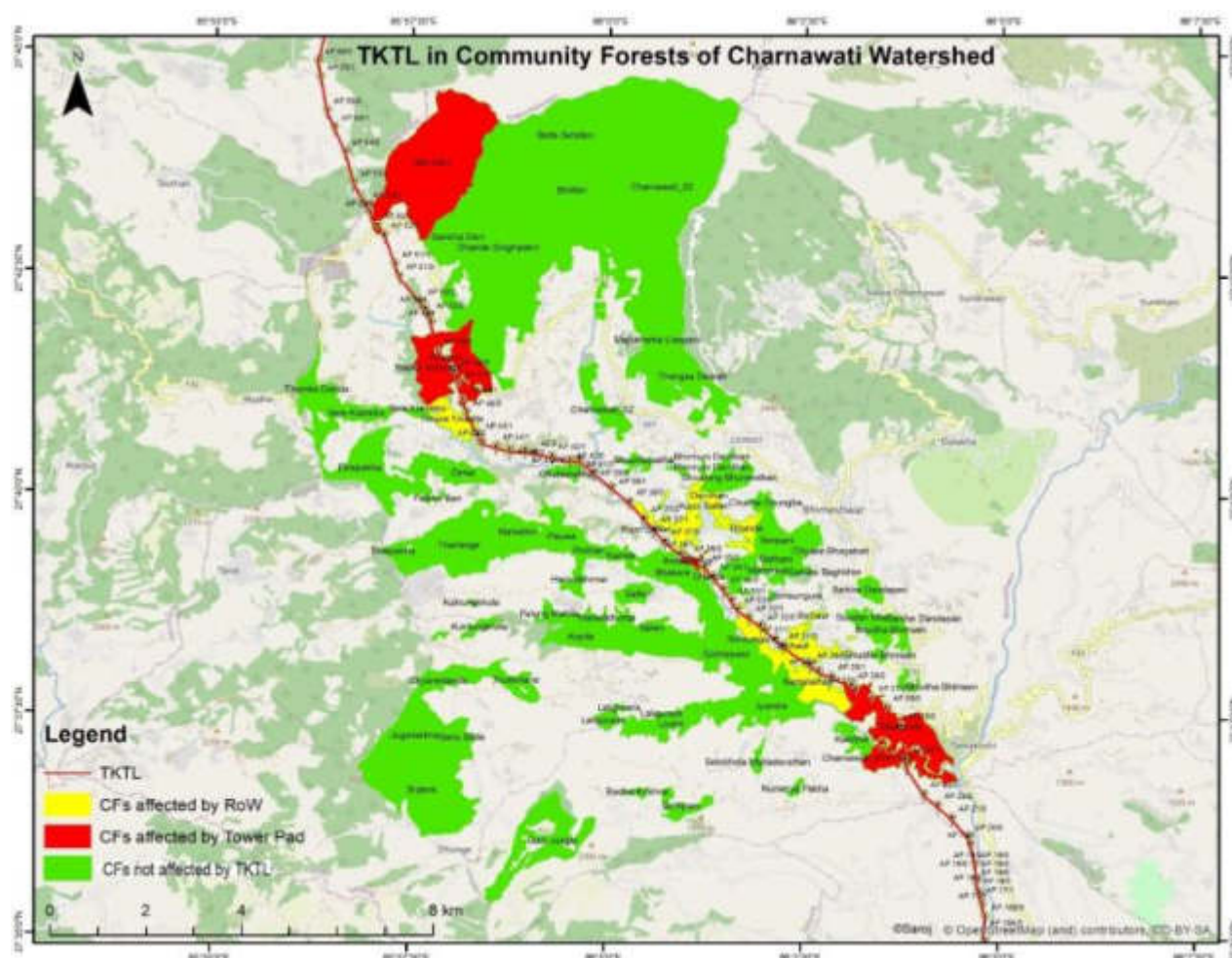


Figure 6: CFs in Charnawati Watershed affected by TKTL

Barhabise-Changunarayan TL Section

The enumeration list shows more trees to be cut than expected from the IEE report and thus IEE has to be updated, in the portion of Sindhupalchowk Forest area, especially in Balephi RM.

After the agreement between DoF and NEA, the letter has been dispatched to respective DFO, from where the required letter and approval has been granted. Based on those granted permission, the tree cutting has been completed in following location in direct supervision of representatives from respective Ilaka Forest Office: AP 13/1, AP13A/0, AP 19/0, AP 20/0, AP 21/0, AP 22/0, AP 23/0, AP 26/0, AP 27/0, AP 27/1, AP 34/0, AP 36/0, AP 36/1, AP 36A/0, AP 46/0, AP50/1, AP 52/0 and Row: AP23/0 - AP24/0 - AP25/0 with the total 2972 number of trees being felled. All the felled trees have been handed over to respective CFUGs in presence of respective Ilaka Forest officials.

Similarly, the tree cutting request letter has been submitted to the respective DFOs for tree cutting approval in RoW. However, the approval letter for tree cutting in RoW has been granted from Kavrepalanchowk DFO only, and the project is still awaiting approval letters from Sindhupalchowk DFO. The complete cadastral survey has not been finished in Lapsipedi-Changunarayan section and thus the further process for tree marking and cutting has not been preceded further in this section.

The district wise tree cutting status in TKTL is shown in **Figure 7** below and the details are presented in **Annex- 10**.

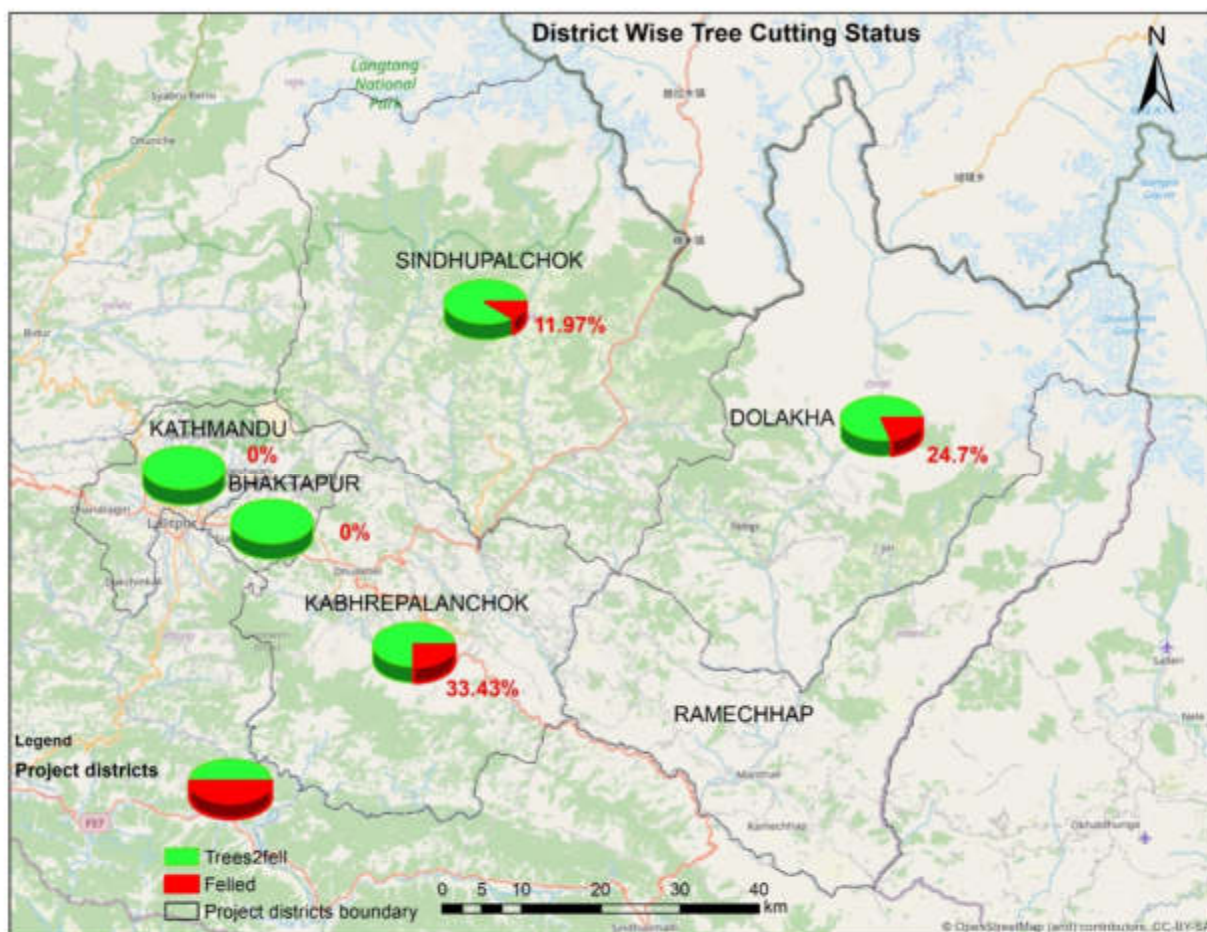


Figure 7: District wise tree cutting status in TKTL

4.4 Status of Compensatory Plantation Plan

An agreement has been done with Department of Forest and Soil Conservation and Nepal Electricity Authority to provide fund for compensatory tree plantation for all the trees to be felled

in TKTL. A current tree enumeration shows that 35,231 trees to be felled in TKTL, however the trees number might decrease during the construction phase as the project will cut only the required tree for foundation clearance and the required trees for RoW clearance and will avoid tree cutting in valleys and trees with smaller height that does not obstruct the RoW clearance. Thus, the project will not clear all the trees that come in TKTL alignment.

The agreement between DoFSC and NEA clearly explains that the fund will be provided in three installments. The first installment will cover the compensation cost of all the trees that will be felled, the second installment will cover the compensation cost for the area of the land that has to be acquired and the third installment will cover the compensation cost for the caretaking of the compensatory plantation. The entire fund will be deposited in the Forest Development Fund of department of Forest and Soil Conservation. NEA has paid the cost of NRs. 165,058,031 for acquired land. In addition, the project has requested respective DFOs to provide detailed estimates of compensatory plantation and has recently obtained the detail estimate. Based on those estimates the project has allocated the amount and the disbursement of NRs. 218,170,981.47 for the cost of compensatory plantation is in process, as per the letter of Department of Forest and Soil Conservation dated 2079/03/14 BS. The compensatory plantation cost includes the cost for all five districts Dolakha, Sindhupalchowk, Kavrepalanchowk, Bhaktapur, and Kathmandu. The compensatory plantation estimate has been done in the rate of 1:10.

4.5 Consultation with Community

The regular consultation with the local peoples, PAFs and relevant stakeholders is conducted whenever needed. Information regarding project activities is shared with them and any questions/queries are answered. While implementing the RP, IR activities a meaningful consultation, group discussion programs is carried out with the PAFs. Regular field visit, consultation and interaction is being conducted by strictly following the Standard Operating Procedure (SOP) for COVID-19 issued by PMD as there are some evidences of COVID-19 cases in Nepal. There were 68 public consultations held during this reporting period with the total participant numbers 822/832 (Male-703/708 and Female-119/124). Among those consultations, environment related consultations are presented below in **Table 5**: Since, most of the consultations were informal, hence lacks proper minuting, however documented with photographs.

Table 5: Environment Related Public Consultation Details

SN	Location and Date	Major Issues in Discussion	Participant			Remarks
			Male	Female	Total	
New Khimti – Barhabise TL section						
1.	Bhimeshwar Municipality-5, Dolakha(2022/01/28)	<ul style="list-style-type: none">Protection of edge of access road	17	0	17	
2.	Bhimeshwar Municipality-5, Dolakha (2021/1/30)	<ul style="list-style-type: none">Rehabilitation of agricultural land impacted by landslide near tower foundation	5	0	5	
3.	DAO, Dolakha(2022/02/09)	<ul style="list-style-type: none">Installation of Hume pipes in a rivulet	11	1	12	
4.	Melung RM-1, Dolakha (2022/02/10)	<ul style="list-style-type: none">Construction of protection walls	9	0	9	
5.	Bhimeshwar Municipality-5, Dolakha(2022/02/13)	<ul style="list-style-type: none">Construction of protection walls	7	0	7	
6.	Melung RM-7, Dolakha(2022/03/24)	<ul style="list-style-type: none">Construction of protection wallsRehabilitation of foot trail impacted by foundation work	6	0	6	

SN	Location and Date	Major Issues in Discussion	Participant			Remarks
			Male	Female	Total	
7.	Bhimeshwar Municipality-9, Dolakha (2022/03/27)	<ul style="list-style-type: none"> Spoil management during foundation work Compensation of private trees of access road 	12	3	15	
8.	Kiratichhap, Bhimeshwar Municipality-5, Dolakha (2022/04/06)	<ul style="list-style-type: none"> Installation of Hume pipes Tree cutting of Right of Way 	11	0	11	
9.	Boch, Bhimeshwar Municipality-8, Dolakha (2022/05/26)	<ul style="list-style-type: none"> Spoil management with safe tipping 	6	3	9	
10.	Ghyangsukathokar, Melung RM-2, Dolakha (2022/06/03)	<ul style="list-style-type: none"> Regarding rehabilitation of irrigation canal after foundation work 	9	0	9	
11.	Boch, Bhimeshwar Municipality-8, Dolakha (2022/06/14)	<ul style="list-style-type: none"> Regarding management of excavated debris and earth materials during foundation work Compensation of damaged potato by spoil 	9	4	13	
12.	Okhrenei, Barhabise Municipality-4, Sindhupalchowk (2022/06/18)	<ul style="list-style-type: none"> Regarding maintenance of road degraded during foundation work 	11	0	11	
Barhabise – Changunarayan TL section						
1.	Chautara- 8 (2022/02/24)	<ul style="list-style-type: none"> Consultation and discussion with local peoples, PAFs and ward chairperson for ROW compensation payment procedure, private tree and crop loss 	25	7	32	
2.	District Forest Office, Kavrepalanchowk (2022/04/03)	<ul style="list-style-type: none"> Tree cutting of Right of Way 	7	2	9	
3.	Gairigaun, Barhabise (2022/04/16)	<ul style="list-style-type: none"> Hume pipe casting for road maintenance 	15	7	22	
4.	Changunarayan- 4 (2022/06/29)	<ul style="list-style-type: none"> Public discussion and presentation of TKTL alignment, impact and IEE 	75-80	25-30	100 – 110	
5.	Ramche (2022/06/30)	<ul style="list-style-type: none"> Issue regarding management of excavated debris and maintenance of degraded land 	13	4	17	
Total			248 - 253	56 - 60	304 – 314	

(Source: Field visit)

4.6 Monitoring Visits and Discussion

Each ESMU team is conducting regular compliance monitoring and supervision in their respective section. ADB has conducted a field visit on 21-24 March to New Khimti-Barhabise and Barhabise-Kathmandu TL section and discussed on environmental and social issues and other issues related to the project. Similarly, the site visit was done by NEA Managing Director and officiating chief of PMD along with other project staffs on 5 June. During the visit, discussion and consultation with Shankarapur municipality mayor, ward chairpersons and PAFs was done.

4.7 Implementation of Mitigation Measures

4.7.1 Material Storage Yards and Workshop

The storage yard and workshop have been set up by contractor (KEC International Limited) at Kiratichhap of Bhimeshwor municipality-5 on a rented land for New Khimti-Barhabise section. The contractor has established another storage yard at Kharidhunga of Bhimeshwor municipality. Currently, including a security guard there are 7 full time staffs in New Khimti-Barhabise section in the storage yard.

The storage yard and workshop have been set up by contractor of Barhabise-Changunarayan TL section at Kuntabesi close to Cha Khola at Mandandeupur Municipality of Kavrepalanchowk District approximately 56km away from Kathmandu and 10km from Zero Kilo on a rented land. Currently, including a security guard there are 5 full time staffs in the yard.

Similarly, the storage of construction materials at different construction sites is kept adjacent to the site. The storage of those materials at each site is satisfactory. However, the contractors are regularly advised for proper storage of these materials at the designated sites. The detail description of the status of construction material on each site is described below in **Table-6**:

Table-6: Status of Storage of Construction Materials at each site

Transmission Line	Construction Material	Storage Type	Condition
New Khimti – Barhabise TL section	Cement	Stored in a temporary hut	Stored in elevated area free from water. Condition was in satisfactory condition
	Sand	Open Storage	Sand stored near the aggregates bordered by the bricks and was in satisfactory condition
	Aggregate	Open storage	Stocked on the construction site in a satisfactory condition .
	Reinforcement bar	Open air storage	Stored in open ground with no ground clearance and in unsatisfactory condition
Barhabise – Changunarayan TL section	Cement	Stored inside the rented houses	Moisture and water proofing were done and the condition was good
	Sand	Open storage	Direct piling on simply labelled land, covering with simple plastics as a water proof layer, bordered by small boulders to restrict foreign material, however not enough separation distance from aggregate, however satisfactory condition
	Aggregate	Open storage	Direct piling on semi-labelled land, no water proof layer however bordered from direct runoff and foreign material, not enough separation distance from sand, however satisfactory condition
	Reinforcement Bars	Open air storage	Storage provided without sufficient clearance from ground, no water proofing layer, notsatisfactory condition

(Source: Field visit)

4.7.2 Establishment of Labor Camps/Camp Site Management

New Khimti – Barhabise TL section

The contractor has rented private houses as well as established a temporary labor camp in the sites with basic accommodation including safe drinking water and lighting facility. The temporary tarpaulin camp is used to take rest during daytime. The contractor has been advised to follow the labor camp standard as per the EHS plan. The 46.19% (801 out of 1734) of labors were found to be local in New Khimti-Barhabise TL section during this period.

Barhabise - Changunarayan TL section

In Barhabise–Lapsipedi TL section, the contractor (Larsen & Toubro Ltd.) has rented private house with proper arrangements for accommodation (warm cloths, bed and lodging sets, mosquito nets and insect repellent), light/power system and drinking water. The contractor has been advised to follow the campsite plan as addressed by them in their approved EHS plan. The 13.39% (100 out of 747) of labors were found to be local in Barhabise-Changunarayan TL section during this period. The indicators were found to have been complied in most of the sections

whereas in some sections they were partially complied, the detail summary is presented in **Table-9**.

The 36.32% (901 out of 2481) of labors were local in all the sections of transmission lineduring this monitoring period. The detail employment data record is presented below in **Table 7**:

Table 7: Employment Data Record

Reporting month	Reporting station/TL	Total No. of labor	No. of local/Nepali labor				No. of women labor		
			Total	Marginalized labor			Skilled/ Semiskilled	Unskilled	Total
				Skilled	Unskilled	Total			
January– June, 2022	New Khimti – Barhabise section	1734	801	22	263	285	0	0	0
	Barhabise – Changunarayan section	747	100	25	26	151	0	0	0
Total		2481	901	47	289	1237	0	0	0
Percentage (%)		100	36.32	1.89	11.65	49.86	0	0	0

(Source: Field data)

4.7.3 Occupational Health and Safety Measures

The PMD has issued and circulated SOP for COVID-19 Risk Management at Work Place on 16th August 2020, both in English and Nepali version to all its associated units and requested to follow the guidelines strictly during construction, compliance monitoring, field visits and all other associated working activities. After the outbreak of COVID-19, all the construction and other project related activities are being done following the circulated guidelines.

Similarly, for both the sections the contractor has submitted the EHS plan to NEA including SOP regarding COVID-19. The Health and Safety Officer has been recruited by the contractors for compliance monitoring and implementation of EHS, in order to prevent potential harm to labors/staffs during construction activities. Regular instructions, orientations and pep talks in site during construction work regarding Occupational Health and Safety, and use of PPEs are being conducted. The construction workers and field staffs have been provided with Personnel Protective Equipment (PPEs) and safety gears like helmet, reflective jacket, facemasks, goggles, and boots etc. Health and Sanitation facilities to the construction workers have been installed and first aid kit box has been arranged in the sites. Also, the labors/staffs have been following the Standard Operation Procedure for COVID-19 during the construction work.

The assigned Health and Safety Officer are in regular monitoring of their TL section. The ESMU team has monitored the sites as per their approved EHS plan and if found non-compliance immediate action has been taken. The site in-charge, H&S officer has been advised to arrange and maintain the compliance as per their plan. The detail safety and safeguard compliance status and issues along with corrective actions for the all the sub-projects are presented in **Annex- 6**, and **Annex- 7**.

New Khimti-Barhabise TL section

The contractor has been advised to put the information board and safety signs related to OHS in local language in site instead of English language as labors and local people may not understand in English. The contractor has been advised to tie up with the local hospital in case of emergency and as per the instruction, the contractor KEC International Ltd has tied up with Dolakha Community Hospital of Charikot where all medical treatment expenses of staffs and labors are borne by the contractor.

Barhabise-Changunarayan TL section

The contractor has been advised to submit the Occupational Health and Safety Measures and Plans for the continuation of work to abide the protocols and circulars issued by GoN after the global pandemic of COVID-19; and thus, they submitted the Supplementary Health and Safety Plan on account of COVID-19 Pandemic dated 20 July 2020.

Besides, the contractor is using SHEILD app to monitor the safe and unsafe work conditions for erection and stringing works. The app is regularly monitored by site in-charge, EHS officer and

Project Manager. A sample report is attached in **Annex 16**. Also, EHS hazard and risk assessment has been conducted for foundation, erection and stringing activities. The detail reports are attached in the **Annex 17, Annex 18** and **Annex 19**. Similarly, sign and signage are being installed in each site. They include work information flex, hazard signage, safety signage and other precautionary signage. The contractor has been strictly advised to keep all those signage in a pictorial manner and the information written should either be in the local language and the language commonly used by the labors. During the monitoring it has been found that the contractor is following it strictly.

No issue has been observed during this reporting period.

4.7.4 Slope Stabilization and Bio-engineering work

New Khimti-Barhabise TL section

Precaution and special measures for protection of foundations are needed for towers and poles located in mountainous and rough terrain. In AP 32/1, a slope failure has been seen near the tower foundation, for which, protection work (Gabion wall and RRM wall) is ongoing. In AP 65/0, due to the subduction of road while foundation works, two masonry walls have been proposed. Also, in AP 62/0 a crevasse of nearly 20 m had seen on tower foundation. A team of geologist from NEA, project office team and ESMU team together inspected the location and geologist recommended shifting of the center point of the foundation towards 30 m south from the existing center point is safe. However, in late September, a huge landslide occurred in the location, because of which reroute of the alignment is needed with addition of three more towers. These rerouted alignment passes through a community forest. The contractor KEC International Ltd. has submitted the detailed survey data of the rerouted alignment and waiting for approval. If the submitted route is approved, update of EMP and/or IEE is required as per EPR, 2020 due to increase in number of trees.

Barhabise- Changunarayan TL section

The TL passes through private and community land along with public structures and utilities. Similarly, precaution and special measures for protection of foundations are needed for towers and poles located in mountainous and rough terrain. However, no any tower foundations have been constructed so far with zero problem of slope instability. The construction of tower foundation protection wall will be started after the completion of all the pits of the specific tower. The construction will be done before labeling of the excavated debris/spoils and erection of the tower.

The slope stabilization and tower protection work has been started in few locations to mitigate and control erosion, surface runoff and slope instability. Those construction works are being done after the approval from NEA Project Office on the design and types of walls designed by the contractor in support of their external consultant. During this reporting period the status of the tower protection work is as follows:

Completed: - AP 3/0, AP 3A/0, AP 5/0, AP 5A/0, AP 6/0, AP 7/0, AP 13/1, AP 15/0, AP 16/0, AP 17/0, AP 22/0, AP 30A/0, AP 30A/2, AP 37/0, AP 40/0, AP 52A/0 and AP 53/0

In progress: - AP 4/0

4.7.5 Air, Water and Noise Quality

The major stretch of the TL traverses through rural setting with minimum settlements. The construction activities are limited to small area and the impact on the ambient air quality will be low in magnitude, site specific in terms of extent and short in duration. The main source of air pollution along the alignment is due to the vehicular movement along the earthen road and emission of dust during foundation activities, for which, contractor has been instructed to sprinkle the water.

There is possibility of water pollution especially in sections where tower pads are located nearby water bodies. Site specific and short duration permissible impacts on nearby river due to construction activities have found. The contractor has been instructed for proper disposal of solid waste, cement slurry, construction materials and human waste. The contractor is checking the pH level of drinking water of labor camp and has been instructed to test the other major drinking water quality parameters (Turbidity, Conductivity, Total Suspended Solids, Total Dissolved Solids, and

heavy metals such as As, Cd, Pb, Hg, Cu, Zn, Mg) of labor camp as per the standard of National Drinking Water Quality Standards and Directives, 2005. The contractor has taken 3 water samples from different labor camp and tested the water in the laboratory of Water Engineering and Training Center (P.) Ltd, Kathmandu. All of the major parameters were within the limit of NDWQSD which are attached in **Annex-13**.

Insignificant interruption in noise quality has found due to emission of noise and vibration during construction activities. Noise pollution is temporary and low in magnitude, site specific and for a short duration. The contractor has been prohibited for the construction work during night time. Similarly, air and noise quality monitoring are being conducted on quarterly basis and the test results obtained are disclosed accordingly. In New Khimti-Barhabise section, the contractor has measured the noise level during foundation work in two locations of Dolakha and Sindhupalchowk districts with the support of laboratory of Water Engineering and Training Center (P.) Ltd, Kathmandu and found that the noise level is within the permissible limit. Details are provided in **Annex-14**.

L&T CONSTRUCTION

POWER TRANSMISSION & DISTRIBUTION IC

Issue 2-Rev 00

Ref: IM-9.1.1.1-D

ENVIRONMENT MONITORING REGISTER

Name of the Project: 400 KV BKT
Date: 30.06.2022

Job Code: LE 170523

BU/Cluster: Delhi

Environmental Attributes	Relevant Parameters	Permissible Limit	Test results	Method of Monitoring	Periodicity of Monitoring	Record reference
Air Monitoring	Dust	150-160 PPM	150	Real-Time Air Quality Index	Quarterly	As per Nepal Govt. Data
	CO2	250-1000 PPM				
Water Monitoring	Drinking water- store		6.8	pH meter	Monthly	
	Drinking water- Guest house	6.5-8.5	7.1			
Noise Monitoring	At office		15 dB	Google app sound meter	Quarterly	
	Near security gate		62 dB			
	Near crane working area	90 dB	65 dB			
	Store premise		54 dB			
Other Factors						

(Name & Signature of HSO)

Figure 8: Air, Water & Noise Quality Monitoring Test Result

4.7.6 Debris Management

The debris and spoil due to excavation of tower foundation have been partially managed in the project areas. The contractors are regularly advised to manage safe spoil dumping site with no adverse environmental and social impacts. Also, they have been advised to put separate bins for degradable garbage, plastic, glass and metal to dispose properly in labor camps.

New Khimti-Barhabise TL section

In AP 37/1, excavated debris during foundation work has made an irrigation canal stagnant, for which, contractor restored the canal after the completion of the foundation work. The excavated spoils were stored safely near the tower foundation and later used for back filling. Similarly in AP 47/1, the excavated debris and earth materials have damaged the cultivated potato field and grassland and the contractor has been advised to compensate the loss of potato and reinstate the lands.

Barhabise-Changunarayan TL section

No issue/progress has been observed during this reporting period. However, few formal applications expressing their fear regarding erosion and mud flow in their land besides tower pad were received from the PAFs. All those applications were forwarded instantly to Project Office and even the issues were discussed with contractor and were advised for field visit/monitoring and take precautionary measures soonest.

4.7.7 Drainage Management

Since most of the tower pads are located at the top of subdued hillocks, on the ridges and on the flat agricultural land, the interference with drainage patterns due to the construction of the tower pads has minimal impact. The construction of tower foundation has not affected the natural drainage pattern yet. However, the contractors have been advised to store the excavated earth material without damaging the natural drainage pattern, if any. Also, they have been instructed to manage the solid waste generated within the temporary labor camp site so that it won't make stagnant the nearby drainage pattern.

New Khimti-Barhabise TL section

No issue/progress has been observed during this reporting period.

Barhabise-Changunarayan TL section

No issue/progress has been observed during this reporting period.

4.7.8 Firewood Use

Since the initiation of the construction activities the EMSU monitoring team is stationed at respective site office and is monitoring regularly. The contractors and labors are using liquid petroleum gas (LPG) for cooking purpose. Firewood has not been used.

No issue/progress has been seen in this reporting period.

4.7.9 Safety Gear

The compliance of safety gear or PPE is being monitored as the construction work is progressing. All of the contractors from New Khimti-Barhabise TL section and Barhabise – Changunarayan TL section have submitted their approved Environment Health and Safety (EHS) plan which includes health safety as well as PPE requirements. Also, the labors/staffs are following the SOP for COVID-19 during construction work issued by PMD. Also, the contractors have been advised to arrange and install waste management facility, barricade (Reflective and hard) the construction site, drainage system, safety sign and restriction zones/compartments etc. promptly when required.

No issue/progress has been observed during this reporting period.

4.7.10 Livelihood Restoration and Enhancement

For livelihood restoration and enhancement of PAFs, especially for those households who lose their residential structures and whose land losses more than 50%, the trainings are being focused. The duration of training will be as per the CTEVT standards.

New Khimti—Barhabise TL section

Following trainings have been started in New Khimti—Barhabise TL section.

The participants have been selected on recommendation of respective GRC concerning the above-mentioned criteria.

- a) Basic Computer Training: The Basic Computer Training is of 2 months contributing an hour each day. The training has been started in Charikot, Dolakha. Eleven participants (Male-7, Female-4) have started the training and the participants are from Melung Rural Municipality, Shailung Rural Municipality, and Bhimeshwar Municipality of Dolakha district.
- b) Driving Training: Driving training has been started in Charikot, Dolakha. The training is of a month duration contributing half an hour each day. Ten participants from Melung Rural Municipality, Shailung Rural Municipality, and Bhimeshwar municipality of Dolakha district are taking the training. All participants are male.

Barhabise—Changunarayan TL section

Skill Development Training has been started in Barhabise—Changunarayan TL section. At this stage following training has been started.

- a) **Basic Computer Course:** The basic computer course training has been completed in two different locations in this section with the total number of 33 participants (Male- 14, Female- 19). The duration of the course is of 2 months contributing 1 hour each day. The participants were selected as per the above-described criteria. There are 13 participants being participated in Barhabise municipality covering the 6993.4 m span of transmission line from gantry tower to AP 11/0, total coverage for 24 towers from Barhabise municipality ward no- 4, 3 and 9. Similarly, there are 20 participants being participated in Chautara Sangachowkgadi Municipality- 13, Thulosirubari covering the 8138.3 m span of transmission line from AP 30A/0 – AP 40/0, total coverage for 24 towers from Chautara Sangachowkgadi Municipality- 9, 8, 13, Indrawati RM- 10.
- b) **Driving Training and other soft skill training:** The participants are in process of selection and the selection process has been stopped due to the local election. Besides the PAFs are busy with their agricultural activities after the initiation of monsoon and are requesting to start the training programs after monsoon.

4.7.11 Environmental and Social Awareness

- a) Installation of Hoarding Boards: ESSD prepared and installed 60 hoarding boards in TKTL consisting public awareness messages including environmental protection, bio-diversity conservation, health & safety issues, project information and general rules and regulations.
- b) **Social Awareness Program:** ESMU team conducted one-day social awareness program in 3 different locations in New Khimti—Barhabise TL section and 3 different locations in Barhabise—Changunarayan TL section. The participants were mostly from the TL affected households and people living close to TL. The awareness program covered about mode of compensation payment, Compensation Determination Committee and process, economic opportunities due to TL, HIV AIDS and Gender Equality and Social Inclusion. Also, the ESMU team along with the Project officials from TKTL and Lapsipedi SS conducted 1 day presentation program at Changunarayan ward- 4, dated 2022/06/29. The major objective of the program were as follows:
- Information disclosure about the current progress status of TKTL
 - Sharing of IEE study and its report
 - Sharing of TKTL alignment along with google maps & coordinates
 - Aware about the socio-economic and environmental impact & benefits of TKTL
 - Process and procedures of compensation determination & distribution, Land acquisition and GRM
- c) **Occupational Safety Training:** ESMU team conducted occupational safety trainings to the labors in 3 different locations in Barhabise—Changunarayan TL section. The training was focused on occupational safety, use of PPEs, safely handling of equipment and other safety measures to be followed during construction activities. The training explained the importance of EHS plan submitted by the contractor and SOP guidelines provided by PMD.
- d) **Health and Sanitation Program:** The program was conducted to the labors in 3 different locations in Barhabise – Changunarayan TL section. The trainer emphasized the training cum orientation program on personal hygiene, sanitation at workplace, proper hydration during work, toilet, labor camp and proper diet. Also, the trainer explained about the current global COVID-19 pandemic and its situation in Nepal. She oriented the participants about proper hand washing, social distancing, isolation and other mitigation measures to stay from COVID-19.
- e) **Conservation Awareness Raising Program:** The program was conducted in 2 different locations of New Khimti—Barhabise TL section. Most of the participants were CFUG members, Foresters from Bhimeshwor Sub-division Forest Office, and locals. The program covered about the importance of biodiversity, forest, wildlife and bird conservation, plantation and economic importance of forest and its role in rural livelihood improvement.

4.7.12 Number of Grievances (Documented, resolved and under processing)

The grievances raised on the substation and transmission line are being received and recorded. The GRCs are in the process of formation in local levels. Since the beginning of the project, a total

of 67 grievances have been recorded till this reporting period. Among those recorded grievances, 52 grievances are being resolved and remaining 15 are under process. The recorded environmental related grievances are presented below in the **Table8:**

Table 8: List of Grievances and its status

SN	Location	Issues	Recorded (Type/Date)	Action
Tamakoshi-Kathmandu 220/400kV Transmission Line Project (TKTLP) – ETESIP				
New Khimti – Barhabise TL section				
1.	Bhimeshwar Municipality-7, Dolakha	Reconstruction of irrigation pipe damaged by access road	PAFs/Verbal (2022/01/29)	Resolved: Contractor installed the new set of pipes.
2.	Bhimeshwar Municipality-5, Dolakha	Protection of agricultural land impacted due to landslide near tower foundation	PAFs/Verbal (2022/01/29)	Resolving: Project office is planning of protection work with bioengineering.
3.	Melung RM-1, Dolakha	Construction of protection wall	PAFs/Verbal (2022/02/10)	Resolved: Gabion wall has been constructed.
4.	Melung RM-7, Dolakha	Construction of irrigation canal	PAFs/Verbal (2022/03/24)	Resolving: Construction of irrigation canal is being done.
5.	Bhimeshwar Municipality-9, Dolakha	<ul style="list-style-type: none"> Construction of protection wall Spoil management 	PAFs/Written (2022/03/27)	Resolving: Planning for protection work and spoil has been managed after the completion of foundation work.
6.	Bhadreswar, Shailung RM-7, Dolakha	Rehabilitation of irrigation canal and Chautara	PAFs/Written (2022/04/04)	Resolving: Rehabilitation will be done through CSR activities
7.	Kiraticthap, Bhimeshwar Municipality-5	Installation of Hume pipe to prevent water logging	PAFs/written (2022/04/27)	Resolving: Hume pipe has been purchased, installation will be done soon
8.	Ghyangsukathokar, Melung RM-2, Dolakha	Debris management on nearby of constructed tower	PAFs/Written (2022/05/20)	Resolving: Petty contractor has been instructed to reinstate the cultivated land after the completion of foundation work
9.	Boch, Bhimeshwar Municipality-8, Dolakha	Regarding management of excavated debris and earth materials during foundation work and Compensation of damaged potato by spoil	PAFs/Written (2022/06/14)	Resolving: A meeting was conducted with complainant, contractor, and petty contractor in presence of ESMU team and Ward chair. Contractor agreed to compensate the crop loss and reinstate the damage land.
10.	Okhrenei, Barhabise Municipality-4, Sindhupalchowk	Regarding maintenance of road degraded during foundation work	PAFs/Written (2022/06/18)	Resolving: A meeting was conducted with complainant, contractor in presence of ESMU and project team. An agreement was done on constructing two masonry walls for the protection of road.
Barhabise – Changunarayan TL section				
1.	Kavrepalanchowk Mandandeupur Municipality-9	Rate determination regarding loss of private trees and crops	PAFs/Verbal (2022/03/01)	Solved: Locals were explained about the process and procedures for rate determination
2.	Sindhupalchowk	Rate determination regarding loss of private trees and crops	PAFs/Verbal (2022/03/29)	Solved: Locals were explained about the process and procedures for rate determination and the steps achieved till date
3.	Ramche	Issue regarding management of excavated debris and maintenance of degraded land	PAFs/Written/Verbal (2022/06/24)	Solved/Under Process: The ESMU team had a discussion with Locals along with ward representative, project officials and contractor has come to the following decision;

SN	Location	Issues	Recorded (Type/Date)	Action
				<ul style="list-style-type: none">• Immediate management of debris will be done by contractor• Reinstatement of degraded land will be done immediately after completion of foundation work• Crop Compensation will be provided• Land protection wall will be constructed

(Source: Field visit)

4.7.15 Summary of Environmental Compliance Monitoring

The brief summary of the environmental compliance monitoring is presented below in Table-9.

Table-9: Brief Summary on Status of Environmental Compliance Monitoring

SN	Monitoring Indicators	Status	Action Taken	Recommendation
1	Assurance of EHS Plan submitted by Contractor (L&T- Package II, KEC, Package I)			
	Assignment of Health and Safety Officer	<ul style="list-style-type: none"> Appointed H&S Officer (Complied) and regular site visit has been started (Complied) (100%) Submitted updated EHS plan incorporating SOP guidelines by contractor 	<ul style="list-style-type: none"> Advised to be in regular touch with ESMU team Advised for the rotational field visit, in all the working sites Keep an updated accidental record, EHS and Campsite management report, follow EHS plan and SOP guidelines strictly 	<ul style="list-style-type: none"> Contractor should provide the full detail information of the H&S Officer prior to his assignment to ESSD/ESMU team Contractor should develop a provision for H&S Officer to be accountable to ESSD/ESMU team Contractor should update the information and related reports to the ESMU team every month A copy of updated EHS plan should be provided to ESMU team soon after the approval
	Occupational Health & Hygiene Inspection	Complied (90%)	<ul style="list-style-type: none"> Contractor has been advised to follow the plan strictly Advised for the measurement of body temperature before starting work every morning of all manpower Maintain enough social distancing 	
	Health Campaign	Complied (85%)		<ul style="list-style-type: none"> Contractor should inform about the program in advance to ESMU team
	First aid box	Installed & complied (85%)	<ul style="list-style-type: none"> Regular monitoring during site visit and the contractor is advised to keep all the necessary medicines and refill when used Advised to contact the nearby medical house for prompt response in case of accident Also advised to keep the ambulance standby, however, the contractors are using their own vehicle if in case needed 	
	Use of PPE	Complied (80%)	<ul style="list-style-type: none"> Advised contractor to provide PPE to all the staffs and labors before entering the working site Had been strictly advised "NO PPE NO ENTRY" Verbal warning was given to petty contractor, site in-charge of lead contractor if misuse and absence of use of PPE in site during monitoring was found by ESMU team several times in different locations Information has been shared to Project team during site visit 	<ul style="list-style-type: none"> Contractor should provide enough PPE sets in each location and should also advise their petty contractors to provide PPE to all the labors. Payment should be halted of petty contractors by contractors and lead contractor by project Office, in recommendation of ESMU teams in case of misuse, and absence of use of PPE in site

SN	Monitoring Indicators	Status	Action Taken	Recommendation
2	Assurance of Campsite Management Plan (Included in the approved EHS plan, section 14.10 of L&T)			
	Weekly Inspection	Complied (90%)	<ul style="list-style-type: none"> Advised site in-charge for regular inspection 	
	Supply of Drinking water	Complied (100%)		
	Toilet	Satisfactory (70%)	<ul style="list-style-type: none"> Advised site in-charge to provide mobile toilet facility, so that the labor can transfer in different construction site Advised site in-charge to arrange proper toilet facility in the temporary labor camp, however, most of the labor camps are in the rented house after COVID-19 	<ul style="list-style-type: none"> Project office should enforce contractor to provide mobile toilets for the temporary labor camps
	Disposal of waste materials	Partially complied (70%)	<ul style="list-style-type: none"> Advised site in-charge for regular inspection and provide proper orientation to labor on waste management Prohibited labors to throw kitchen garbage and other waste materials unattended 	<ul style="list-style-type: none"> Project office should enforce contractor to provide bins for waste collection and proper disposal
	Washing facilities	Complied (95%)	<ul style="list-style-type: none"> 	
	Pest control and insect repellent	Complied (90%)	<ul style="list-style-type: none"> Advised site in-charge to provide mosquito nets, however, most of the labor camps are in the rented house after COVID-19 	
	Adequate fire fighting	Not complied (15%)	<ul style="list-style-type: none"> Advised site in-charge to provide fire extinguisher, either for the temporary camps or for the rented house 	
	Use of LPG	Complied (100%)		
	Firewood	Not used/Nil	<ul style="list-style-type: none"> Prohibited to use forest woods 	
3	Bed sheets and mattress	Complied (75%)		
	Camps	Complied (75%)	<ul style="list-style-type: none"> Advised to provide water proof, leak proof camps, however most of the labors are stationed in nearby rented house after COVID-19 	
	Labor	36.32% till this reporting period (Marginalized- 49.86% - (Skilled- 1.89% & Unskilled- 11.65%))	<ul style="list-style-type: none"> Advised contractor to prioritize local labors for construction activities 	
	Use of Local Labor	Nil	<ul style="list-style-type: none"> Advised contractor to engage female labors too, however most female in current working sections are not interested to join the labor work 	
	Women labor	Nil		
4	Child Labor	Nil	<ul style="list-style-type: none"> Prohibited contractor in using child labor 	
	Tower Foundation and Erection			

SN	Monitoring Indicators	Status	Action Taken	Recommendation
	Procedural Guideline	Prepared and complied (100%)	<ul style="list-style-type: none"> Advised contractor and petty contractors to follow the guidelines strictly 	<ul style="list-style-type: none"> Contractor should provide the approved Procedural Guideline to ESMU team soon after the approval Payment should be halted of petty contractors by contractors and lead contractor by project Office, in recommendation of ESMU teams incase found not following the guideline and working haphazardly
	Barricading of the area	Partially Complied (75%)	<ul style="list-style-type: none"> Advised contractor to barricade the area properly before starting of excavation and other construction activities 	<ul style="list-style-type: none"> Payment should be halted of petty contractors by contractors in recommendation of ESMU teams
	Construction Signboards	Not Complied (0%)	<ul style="list-style-type: none"> Advised contractor several times to keep proper signboards indicating construction activities going on in each location Shared information along with the project team too and even they have advised contractor several times to keep proper signboards prior to construction activities 	<ul style="list-style-type: none"> Project should not allow to start the construction activities without proper barricading and proper signboard installed in the proposed construction site
	Safety Instruction Board	80%	<ul style="list-style-type: none"> Advised contractor to provide safety training, instruction on each site before initiation of construction activities 	<ul style="list-style-type: none"> Project should not allow to start the construction activities without proper safety instruction each morning in the proposed construction site
	Stacking of construction materials	Partially Complied(60%) (Cements and other equipment are stored renting a house in most of the site, whereas other aggregates, sand and reinforcement bars are kept in open air	<ul style="list-style-type: none"> Advised contractor to stack the material with proper coverage, protection and maintaining the distance from the excavated pit Advised site in-charge to check the condition of materials before using those materials Advised site in-charge not to provide and supply materials from the company warehouse if the petty contractor is missing the proper maintenance and proper stacking of materials in the field/site 	
	Inspection of excavated pit	Complied (90%)	<ul style="list-style-type: none"> Advised contractor to inspect the pit before concreting and other works Advised contractor to inform project technical team for inspection before concreting and other works Advised contractor to stop the further works in case of sliding, water sprouting before mitigating those hazards 	
	Placing of concreting mixer	Partially Complied (70%)	<ul style="list-style-type: none"> Advised contractor not to keep those machines near the pit and use proper canal to transfer the concreting mixture 	

SN	Monitoring Indicators	Status	Action Taken	Recommendation
	Lone worker	Restricted to enter alone, Complied (100%)	<ul style="list-style-type: none"> Advised contractor not to entertain lone workers in the excavated pit 	
	Spoils	Partially managed (75%)	<ul style="list-style-type: none"> Advised contractor for safe dumping of spoils and use the same material for backfilling Advised contractor to provide spoil management plan in the sensitize site Advised contractor to use hard barrier to stop slipping/flowing of excavated material 	<ul style="list-style-type: none"> It is hard to maintain the erosion and slipping of spoils in the hilly terrain thus the contractor should provide the spoil management plan of each sensitize site before excavation work.
	Lunch and refreshment breaks	Partially Complied (75%)	<ul style="list-style-type: none"> Advised contractor to give proper breaks to labors during construction works Advised contractor to provide/construct proper well sanitized toilets in each site 	<ul style="list-style-type: none"> Contractor should provide mobile toilets in each site wherever necessary
5	Vegetation Clearance	<ul style="list-style-type: none"> Tree enumeration completed (Total trees 35231, however, will be felled only the needed one, thus the number is expected to be reduced) Tree felled in 48 locations of 27 CFs (Total 4959 trees) 	<ul style="list-style-type: none"> Project Office has done an agreement with ministry to provide funds in three installments for compensatory plantation 	
6	Public Consultation	Complied (mostly verbally, though PAFs are happy with the compensation rate, they are unwilling to sign minutes as their high demand and expectation are not fulfilled, however photo of each meetings being captured and included in the respective months report)	<ul style="list-style-type: none"> Consultation since Jan 2022- 68 (total participant- 822/832, M- 703/708, F- 119/124) Regularly conducted following SOP guideline Telephonic discussion when needed 	<ul style="list-style-type: none"> It seemed all of the public consultation meeting should not be minute as the local's expectation and demands are beyond the project scope and once the minuting is done, they started halting the work demanding those demanded projects to be completed first. Eg. Demand of swimming pool in Barhabise area, drinking water lifting project Some demands are beyond the project scope eg. Sub grading and black topping of rural road, cabling of distribution system, internet wi-fi facility to the whole village
7	GRC formation	Complied (82%)	<ul style="list-style-type: none"> 37 out of 45 (82.22%) GRCs formed Letter dispatched in almost all the respective wards and municipalities 	
8	Impacts and Safety Measures for COVID-19			
	Opening of Contractor's Office	Complied (100%)	<ul style="list-style-type: none"> Contractors are advised to follow the SOP strictly Regular cleaning and sanitizing, installation of hand washing and sanitizing stations along with pictures & signs 	

SN	Monitoring Indicators	Status	Action Taken	Recommendation
			<ul style="list-style-type: none"> • Maintain distancing, body temperature screening, avoiding handshakes, hugging or any physical contact • Always wear mask, isolation of person with symptoms 	
	Resuming work in the field	Complied (100%)	<ul style="list-style-type: none"> • Barricading of the worksite, maintain record of the workers, installation of hand washing station • Labor screening, COVID-19 test, regular medical checkup, daily body temperature measurement before work • Avoid crowding and use of PPEs • Minimize workers movement outside the camp, manage proper condition for workers accommodation • Well ventilated and cleaned kitchen and toilet 	
	Emergency Protocols	Complied (100%)	<ul style="list-style-type: none"> • Establish medical center with immediate access of Health worker and regular health checkup • Establish mandatory health screening of all staffs and labors • Establish enough number of quarantine and isolation shelters • Establish dedicated vehicle for emergency 	
	SOP Implementation, Monitoring and Reporting	Complied (100%)	<ul style="list-style-type: none"> • Established immediate access of certified health worker, assigned EHSO • Maintained SOP compliance monitoring checklist and health screening register • Regular inspection 	
9	Awareness and Training	Complied (80%)	<ul style="list-style-type: none"> • EHSO regular field inspection and awareness program • Pep talks, daily orientation conducted 	<ul style="list-style-type: none"> • ESMU team also conducted Health and sanitation Programs and public awareness campaign

5.0 SAFETY ASSURANCE AS PER THE CONTRACTOR'S SAFETY PLAN

The contractors from both the sections have submitted their EHS plan to NEA incorporating SOP regarding COVID-19, and are following their respective plans during construction. Similarly, they have submitted the updated EHS plan incorporating the government guidelines, protocols and regulations in context of COVID-19 Pandemic. The objectives of the contractor's safety plan are as follow:

- To identify certain critical activities, assess the risk associated therein and suggest precautionary measures to avoid accidents
- To integrate Health, Safety and Environmentally friendly work practice
- To create EHS awareness to every individual associated with the project
- To provide the necessary EHS inputs
- To formulate and effectively maintain the accident prevention program of the project
- To achieve the prime objective of **"ZERO ACCIDENT"**

The contractor is committed to above mentioned objectives and in achieving the EHS performance standards by implementing and obeying following policies

- Compliance with applicable organizations Environmental, Occupational Health and Safety policies, guidelines and regulations
- Providing safe and healthy environment to all the staffs and labors being employed
- Establishing proper procedures in recognizing, implementing, maintaining, evaluating and monitoring EHS performances
- Continual improvement and periodical review of EHS performances and guidelines
- Providing appropriate health and safety training and awareness

6.0 IMPACT AND SAFETY MEASURES FOR COVID-19

The implementation of TKTL was also been affected due COVID-19 especially in field which includes construction activities, public consultation, GRC formation, GRC meetings, compensation distribution, CDC meetings, letter issuance from governmental bodies, tree marking/hammer seal, tree cutting, etc. Although the progress was halted to some extent, the virtual consultation meetings were conducted regularly and after the government loose down the construction activities had been initiated and progressed accordingly with the support and permission from local government bodies and District Administration Office. The contractors' regular staffs are vaccinated too. Still, there is no complete eradication or control of COVID and everyday a new variant is being spreading around the globe, all the activities are being carried out taking safety precautions, using PPEs, maintaining social distances and following the Standard Operating procedure. The **Table-10** below briefly describes the working procedure adopted and current status:

Table-10: Compliance Status for Impacts and Safety Measures Adopted in COVID-19

SN	Description	Indicators/Parameters	Compliance Status
1.	Opening of Contractors Office	<ul style="list-style-type: none"> • Cleaning, sanitizing and disinfecting before opening office • Installation of hand washing and sanitizing station, informative posters • Health screening, body temperature measurement of all the staffs • Arrange workstation maintaining proper physical distancing • Minimizing face to face meetings, avoiding hugging, handshakes & social gathering • Frequent hand washing and use of sanitizer and mandatory use of mask • Avoid touching eyes, noses, mouth with hands, sharing water bottles, coffee mug • Cover mouth, nose with tissues or elbow while coughing or sneezing • Providing hot water frequently • Immediate isolation of staff with cold and cough symptoms, information sharing with other staffs and immediate access to health worker 	Complied with
2.	Construction activities at site	<ul style="list-style-type: none"> • Barricading of construction site, entry allowed only of authorized person • Labor health screening, regular medical checkup, COVID-19 test & record keeping • Thermal screening, use of PPEs, mandatory use of face mask • Installation of hand washing station, cleaned toilets, proper drinking/hot water • Establishment of medical center with immediate access to health worker • Prohibit consumption of liquor and other tobacco related products • Avoid manual handling of the material, disinfect before handling • Minimize workers movement outside the camp and restrict outsiders to enter • Keep accommodation area clean, well-drained, dry, ventilated and hygienic • Emergency procedure and immediate contact to medical center in case of any symptoms 	Complied with
3.	Emergency Protocols	<ul style="list-style-type: none"> • Establish medical center with immediate access to certified health worker, arrange dedicated vehicle • Supply medical PPEs to health worker, guards and waste handling staffs • Enough number of clean and well-ventilated isolation and quarantine shelters being established • Tracing of all the persons in contact with the sick person and keep them quarantined 	Complied with
4.	SOP Implementation, Monitoring and Reporting	<ul style="list-style-type: none"> • Assignment of ESHO, certified health worker and conduct regular inspection • Prepare standard SOP compliance monitoring checklist and health screening register 	Complied with
5.	Awareness and Training	<ul style="list-style-type: none"> • Conduct regular awareness program on Health and Sanitation, Personal hygiene • Daily program on personal and occupational safety before initiation of work • Distribution of pamphlets and posters 	Complied with
6.	Infection and Recovery status	<ul style="list-style-type: none"> • No casualties recorded so far • 13 got infected and all recovered 	

7.0 ISSUES AND FOLLOW UP ACTIONS

The **Table-11** below shows the main environmental issues and follow up actions for the effective implementation of environmental safeguard measures.

Table-11: Major Issues and Follow up actions

SN	Major Issues	Action Taken
1.	Temporary labor camp improvement	Contractor, safety officer has been advised to take action for proper management of toilet, drinking water supply, mosquito nets and insect repellent
2.	Use of PPEs	Contractor has been advised to provide enough PPEs to the labors and all labors/staffs are instructed to use PPEs in site
3.	Proper management of excavated materials/spoils dumping	Contractor and sub-contractors have been regularly advised to prevent spoils leakage, haphazard dumping and excavation without proper precautions.
4.	Safe tipping site	Contractor has been advised to manage safe tipping site
5.	Noise, air and water pollution	Contractor has been advised not to work at night producing noise and to sprinkle water in sensitive areas. The contractor has also advised to test the drinking water quality of labor camp.
6.	OSH plan to abide the Protocols and Circulars issued by GoN to safeguard workers/direct stakeholders from the virulence of COVID-19 pandemic	The contractor has prepared, updated and submitted the Occupational Health and Safety Measures, and is working following the appropriate guidelines
7.	Following of SOP for COVID-19	All the labors/staffs are advised to follow the SOP for COVID-19 issued and circulated by PMD during construction work.
8.	Use of sign and signage	The contractors are strictly advised to use proper sign and signage in local language or the language used by the labors.

(Source: Field visit)

8.0 ACHIEVEMENT ON MAJOR ITEMS OF FOCUS ON PREVIOUS REPORT

The detail status of the items and activities focused in previous report are presented in the **Table-12** below along with the suggested corrective actions.

Table-12: Achievement on Major Items of Focus on Previous Report

SN	Location	Item of Focus	Status	Description	Corrective action plan
A. Tamakoshi-Kathmandu 220/400kV Transmission Line Project (TKTLP) – ETESIP					
1.	New Khimti – Barhabise TL section	Tree clearance in tower footings of Dolakha district	Completed	Tree cutting in 15 tower foundations have been completed.	
		Tree cutting in Sindhupalchowk district	Ongoing	Tree cutting in tower foundations are ongoing. Some trees are yet to hammer seal in tower foundations.	
		Tree cutting on RoW of Dolakha district	Ongoing	Tree cutting in some CFUGs has been started. Some trees are yet to hammer seal.	
		Consultation meeting with contractor, PAFs, and project authorities as per requirement	Ongoing		
		Regular monitoring on Environmental safeguard, OSH of labors and labor camp management compliance monitoring	Ongoing		
		Conducting of Social Awareness Program and Conservation Awareness Raising Program	Completed		

SN	Location	Item of Focus	Status	Description	Corrective action plan
		Formation of GRCs and record of grievances	Completed		
2.	Barhabise – Changunarayan TL section	Consultation meeting with PAFs, contractors, community and project authorities whenever required	Ongoing		
		Monitoring of environmental components regarding landslide, debris fall, soil loss, health and safety of labors, sanitation, PPE, first aid and labor site conditions etc	Ongoing		
		Compliance monitoring	Ongoing		
		Follow-up & Formation of GRC in the areas where the letter has already been dispatched	Ongoing	Completed in 400KV TL section and waiting for approval of cadastral report and final verification of land in 132KV TL section	
		Tree cutting in the tower pads	Completed except 1 location (AP47/3)	The respective location tree counting was missed during IEE.	The report has been submitted to ministry requesting for approval.
		Tree cutting in RoW	Ongoing	Waiting for the tree cutting approval letter	Regular follow up is going on in respective Division Forest Office

9.0 PROPOSED MAJOR ITEM OF FOCUS FOR NEXT REPORT

The following activities presented in **Table 13** below are proposed for the next month monitoring in the project sites:

Table-13: Major Items of Focus for Next Report

SN	Location	Activities
A. Tamakoshi-Kathmandu 220/400kV Transmission Line Project (TKTLP) – ETESIP		
1.	New Khimti – Barhabise TL section	<ul style="list-style-type: none"> • Hammer seal and tree cutting in remaining CFs of Dolakha and Sindhupalchowk district • Conducting of livelihood restoration and enhancement trainings • Consultation meeting with contractors and project authorities whenever required • Environmental safeguard compliance monitoring • Implementation of CSR activities • Compensation distribution to PAFs
2.	Barhabise – Changunarayan TL section	<ul style="list-style-type: none"> • Consultation meeting with PAFs, contractors, community and project authorities whenever required • Monitoring of environmental components regarding landslide, debris fall, soil loss, health and safety of labors, sanitation, PPE, first aid and labor site conditions etc • Compliance monitoring • Follow-up & Formation of GRC in the areas where the letter has already been dispatched (132 KV TL section) • Speeding up the tree cutting process in RoW in coordination with respective Division Forest Office

ANNEXES

Annex- 1 Regulatory Compliance Requirements

SN	Legal Requirements	Applicable Attributes	Project's Compliance Status
1.	Forest Act 1993	<ul style="list-style-type: none"> This act is applicable when a project requires a national forest area. Prior approval has to be received before the construction of the project. In addition to this it provides insights on prohibitive activities 	<ul style="list-style-type: none"> Cabinet and DoF has approved and granted permission for tree cutting and the letter has been dispatched to respective DFOs. Tree cutting approval has granted in Dolakha, Sindhupalchowk and Kavrepalanchowk from respective DFOs.
2.	Plant protection Act 1973	<ul style="list-style-type: none"> This act lists protected plant species name which needs to be protected during any intervention work in forest areas 	<ul style="list-style-type: none"> No such protected plant species has been cut.
3.	Forest Rules 1995	<ul style="list-style-type: none"> Government has enlisted 13 plant species in protection list of which it has banned felling, transportation and export of tree species Provides procedure of marking trees, measuring timber, and firewood and calculating their volume, determination of value and transportation of timber 	<ul style="list-style-type: none"> Agreement for compensatory plantation has been done with Department of Forest and Soil Conservation Fund has been released for felled trees in respective DFO
4.	Then Environmental Protection Act, 1997	<ul style="list-style-type: none"> This Act provides details of compensation in section 17 of the act in case of not abiding by the rules of the acts. Also, it directs a compensatory ratio of 1:25 for trees to be felled 	<ul style="list-style-type: none"> IEE done accordingly
5.	EPA, 2019 and EPR, 2020 has repealed EPA, 1996 and EPR, 1997 respectively	<ul style="list-style-type: none"> This Act provides details of compensation in section 35 of the act in case of not abiding by the rules of the acts. Also, it directs a compensatory ratio of 1:10 for trees to be felled. 	<ul style="list-style-type: none"> Incorporated the latest EPA rules and guidelines
6.	Use of National Forest area for National Priority Projects 2076 BS	<ul style="list-style-type: none"> Requirement of IEE along with mitigation measures in EMP for utilization of National Forest area Permission letter from DoF, CFUG Provision for providing compensatory land, compensatory plantation at the ratio of 1:10 and protection cost for five years or enough fund as per CPP incorporating all those activities 	<ul style="list-style-type: none"> IEE completed before initiation of project Permission and approval of tree cutting from cabinet and DoF obtained
7.	Bill for construction and development of National Priority Projects in Fast track, 2075	<ul style="list-style-type: none"> Preparation of report in coordination with respective forest office incorporating tree enumeration list to be cut during construction National Priority projects Responsibility for compensatory plantation and its protection cost for five years or equivalent fund to respective forest office Hammer seal process before tree cutting, stacking and handing over Conducting IEE before initiation of project, consultation with environmental experts and environmental protection and bio-engineering during construction phase 	<ul style="list-style-type: none"> IEE completed before initiation of project Permission and approval of tree cutting from cabinet and DoF obtained Environmental expert consultation and environmental team in field

Annex- 2 Environmental Compliance Status with Loan and Grant Covenants

Schedule	Para No	Description	Compliance Status	Type	Responsibility
5	17	The Beneficiary shall ensure, and cause of NEA to ensure that preparation, design, construction, implementation, operation and decommissioning of the project, the subprojects and all project facilities comply with (a) all applicable laws and regulations of the beneficiary relating to environment, health and safety; (b) the Environmental Safeguards; and (c) all measures and requirements set forth in the IEE, the EMP and any corrective of preventative actions set forth in a Safeguards Monitoring report.	Complied with:		NEA, Contractor
5	18	The Beneficiary's environmental laws, regulations and procedures shall apply in addition to the Safeguards Policy Statement. The Beneficiary shall ensure through NEA that no construction work of any kind under the project (including any subprojects) shall be commenced until all applicable environmental clearances have been obtained and that all the above requirements are incorporated in the bidding documents and civil works contracts to ensure compliance.	Complied with:		NEA
5	19	The Beneficiary shall ensure, or cause NEA to ensure that all the land and all rights of way required for the subproject are made available to the works contractor in accordance with the schedule agreed under the related Works contract and all land acquisition and resettlement activities are implemented in compliance with (a) all applicable laws and regulations of the beneficiary relating to the land acquisition and involuntary resettlement; (b) the Involuntary Resettlement Safeguards; and (c) all the measures and requirements set forth in the relevant RP, and any corrective or preventive measures set forth in a Safeguards Monitoring report.	Complied with:		NEA
5	20	Without limiting the applicable of the Involuntary Resettlement Safeguards or the relevant RP, the Beneficiary shall ensure or cause of NEA to ensure that no physical or economic displacement takes place in connection with the subprojects until: (a) compensation and other entitlements have been provided to the affected people in accordance with RP; and (b) a comprehensive income and livelihood restoration program have been established, where relevant, commensurate with the size, scale and significance of the project impacts, in accordance with RP.	Complied with:		NEA
5	21	The Beneficiary shall ensure that the Project does not have any impact on Indigenous Peoples within the meaning of the Safeguard Policy Statement. In the event that the Project does not have any such impact, the Beneficiary shall ensure or cause of NEA to ensure that preparation, design construction, implementation and operation of the relevant Subprojects comply with (a) all applicable laws and regulations of the Beneficiary relating to Indigenous peoples;(b) the Indigenous Peoples	Complied with:		NEA

ESSD

III

NEA

Schedule	Para No	Description	Compliance Status	Type	Responsibility
		Safeguards; and (c) any corrective of preventative actions set forth in a Safeguards Monitoring Report. Where impacts on IPs groups are identified a foreseen during the planning, preparation or construction phases of the project development, an IPP will be prepared, implemented and monitored in alignment with the SPS and the requirements set forth in PAM			
5	22	The Government shall make available or case of NEA to make available necessary budgetary and human resources to fully implement the EMP and RPs.	Complied with:		NEA
5	23	The Beneficiary and NEA shall ensure that Works contracts and bidding documents under the project include specific provisions requiring contractors to comply with all (a) applicable labor laws and core labor standards on (i) prohibition of child labor as defined in national legislation for construction and maintenance activities,(ii) equal pay for equal works of equal value regardless of gender ,ethnicity, or caste and (iii) elimination of forced labor, and (b) the requirement to disseminate information on sexually transmitted diseases including HIV/AIDS to employees and communities surrounding the Facility sites. Such contracts shall also include clauses of termination by NEA in case of any breach of the stated provisions by the contractors.	Complied with:		NEA
5	24	The Beneficiary shall ensure that NEA implements the GESI in a timely manner over the entire project implementation period, and that adequate resources are allocated for this purpose. In particular, the Beneficiary and NEA shall ensure that the targets stated in the GESI are achieved. NEA shall conduct training on GESI implementation for all staff involved in the project. The Beneficiary and NEA shall ensure that implementation of GESI is closely monitored, and progress is prepared to ADB in accordance with GESI and the PAM	Complied with:		NEA

Annex-3 Compliance Status in terms of General Conditions of Contract Clauses

Contract Clause	Sub-Clause	Specification	TKTL	
			Current Status	Action Taken By
Volume-1, Section-7, General Conditions of Contract				
22.2 Labor	22.2.1 Engagement of Staff and Labor	a. Except as otherwise stated in the specification, the Contractor shall make arrangements for the engagement of all staff and labor, local or otherwise, and for their payment, housing, feeding and transport.	Complied with:	
		b. The Contractor shall provide and employ on the Site in the installation of the Facilities such skilled, semi-skilled and unskilled labor as necessary for the proper and timely execution of the Contract. The Contractor is encouraged to use local labor that has the necessary skills.	Complied with:	
		c. The Contractor shall be responsible for obtaining all necessary permit (s) and/or visa (s) from the appropriate authorities for the entry of all labor and personnel to be employed on the Site into the country where the site is located. The employer will, if requested by the Contractor, use his best endeavors in a timely and expeditious manner to assist the Contractor in obtaining any local, state, and national or government permission required for bringing in the Contractor's personnel.	Complied with:	
		d. The Contractor shall at its own expense provide the means of repatriation to all of its and its sub contractor's personnel employed on the Contract at the Site to the place where they were recruited or to their domicile. It shall also provide suitable temporary maintenance of all such persons from the cessation of their employment on the Contract to the date programmed for their departure. In the event that the Contractor defaults in providing such means of transportation and temporary maintenance, the Employer may provide the same to such personnel and recover the cost of doing so from the Contractor.	Complied with:	
	22.2.2 Person in the Service of Employer	The contractor shall not recruit, or attempt to recruit, staff and labor from amongst the Employer's Personnel.	Complied with:	
	22.2.3 Labor Laws	a. The Contractor shall comply with all the relevant labor Laws applicable to the Contractor's Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.	Complied with:	
		b. The contractors shall, in all times during the progress of the Contract use its best endeavors to prevent any unlawful, riotous or disorderly conduct or behavior by or amongst its employees and the labor of its Subcontractors.	Complied with:	
c. The Contractor shall, in all dealings with its labor and the connected with the Contract, pay due regard to all recognized festivals, official holidays, religious or other customs and all local laws and regulations pertaining to the employment of labor.		Complied with:		

Contract Clause	Sub-Clause	Specification	TKTL	
			Current Status	Action Taken By
Volume-1, Section-7, General Conditions of Contract				
	22.2.4 Rates of Wages and Condition of Labor	a. The contractor shall pay rates of wages and observe conditions of labor, which are not lower than those established for the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by employers whose trade or industry is similar to that of the Contractor.	Complied with:	
		b. The Contractor shall inform the Contractor's Personnel about their liability to pay personal income taxes in the Country in respect of such of their salaries, wages and allowances as are chargeable under the Laws for the time being in force, and the Contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such laws.	Complied with:	
	22.2.5 Working Hours	a. No work shall be carried out on the Site on locally recognized days of rest, or outside the normal working hours stated in the SCC, unless i. Otherwise stated in the Contract, ii. The Project Manager gives consent, or, iii. The work is unavoidable or necessary for the protection of life or property or for the safety or the Works, in which case the Contractor shall immediately advise the Project Manager	Complied with:	
		b. If and when the contractor considers it necessary to carry out work at night or on public holidays so as to meet the Time for Completion and requests the Project Manager's consent thereto the Project Manager shall not unreasonably without such consent.	Complied with:	
	22.2.6 Facilities for the Staffs and Labor	c. This Sub-Clause shall not apply to any work which is customarily carried out by rotary or double-shifts.	Complied with:	
		a. Except as otherwise stated in the Specification, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel. The Contractor shall also provide facilities for the Employer's Personnel as stated in the Specification.	Complied with:	
	22.2.7 Health and Safety	b. The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.	Complied with:	
		a. The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractors and Employer's Personnel and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.	Partially Complied with: Although the first aid kit has been provided it need to be replaced if losses, broken or medicine are expired	The contractor needs to ensure the availability of properly dated medicine in safety box.
		b. The Contractor shall appoint an accident prevention officer at the site, responsible for maintaining safety and protection against accidents. This	Complied with:	

Contract Clause	Sub-Clause	Specification	TKTL	
			Current Status	Action Taken By
Volume-1, Section-7, General Conditions of Contract				
		person shall be qualified for this responsibility, and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the performance of the Contract, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.		
		c. The Contractor shall send, to the Project Manager, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Project Manager may reasonably require.	Complied with:	
	22.2.8 Funeral Arrangement	In the event of the death of any of the Contractor's personnel or accompanying members of their families, the Contractor shall be responsible for making the appropriate arrangements for their return or burial, unless otherwise specified in the SCC.	Complied with:	
	22.2.9 Record of the Contractor's Personnel	The Contractor shall keep accurate records of the Contractor's personnel on the Site and the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis in a form approved by the Project Manager and shall be available for inspection by the Project Manager. Until the Contractor has completed all work.	Complied with:	
	22.2.10 Supply of Foodstuffs	The Contractor shall arrange for the provision of a sufficient supply of suitable food as may be stated in the Specification at reasonable prices for the Contractor's Personnel for the purposes of or in connection with Contract.	Complied with:	
	22.2.11 Supply of Water	The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel.	Complied with:	
	22.2.12 Measures against Insect and Pest Nuisance	The Contractor shall at all times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce their danger to health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.	Complied with:	
	22.2.13 Alcoholic Liquor or Drugs	The Contractor shall not, otherwise than in accordance with the Laws of the Country, import, sell, give barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift barter or disposal by Contractor's Personnel.	Complied with:	
	22.2.14 Arms and Ammunition	The Contractor shall not give, barter or otherwise dispose of, of any person, any arms or ammunition of any kind, or allow Contractor's Personnel to do so.	Complied with:	
	22.2.15 Prohibition of All Forms of Forced	The Contractor shall not employ "forced or compulsory labor" in any form "Forced or compulsory labor" consists of all work or service, not voluntarily performed, that is extracted from an individual under threat of force or penalty.	Complied with:	

Contract Clause	Sub-Clause	Specification	TKTL	
			Current Status	Action Taken By
Volume-1, Section-7, General Conditions of Contract				
33. Loss of or Damage to Property; Accident or injury to Workers; Indemnification:	or Compulsory Labor			
	22.2.16 Prohibition or Harmful Child Labor	The Contractor shall not employ any child to perform any work that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, Spiritual, moral, or social development.	Complied with:	
	33.1	Subject to GCC Sub-Clause 33.3, the Contractor shall indemnify and hold harmless the Employer and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, in respect of the death or injury of any person or loss of or damage to any property other than the Facilities whether accepted or not, arising in connection with the supply and installation of the Facilities and by reason of the negligence of the Contractor or its Subcontractors, or their employees, officers or agents, except any injury, death or property damage caused by the negligence of the Employer, its contractors, employees, officers or agents.	Complied with:	
34. Insurance	34.1 (c) Third Party Liability Insurance:	Covering bodily injury or death suffered by third parties including the Employer's personnel, and loss of or damage to property occurring in connection with the supply and installation of the Facilities.	Complied with:	
	34.1 (e) Workers' Compensation:	In accordance with the statutory requirements applicable in any country where the Contract or any part thereof is executed.	Complied with:	
38. War Risks	38.2	Notwithstanding anything contained in the Contract, the Contractor shall have no liability whatsoever for or with respect to a) Destruction of or damage to Facilities, Plant, or any part thereof; b) Destruction of or damage to property of the Employer or any third party; or c) Injury or loss of life If such destruction, damage, injury or loss of life is caused by any War Risks, and the Employer shall indemnify and hold the Contractor harmless from and against any and all claims, liabilities, actions, lawsuits, damages, costs, charges or expenses arising in consequence of or in connection with the same.	Complied with:	

Annex-4: Compliance Status in terms of Special Conditions of Contract Clauses

Contract Clause		Sub-Clause	Specification	TKTL	
Volume-1, Section-8, Special Conditions of Contract				Current Status	Action Taken By
22.2 Labor	22.2.1 Engagement of Staff and Labor	a)	The Contractor shall comply with (i) the measures and requirements set forth in the resettlement plan to the extent it concerns impacts on affected people during construction; and (ii) any corrective or preventive actions set out in safeguards monitoring reports that the Employer will prepare from time to time to monitor implementation of the resettlement plan. The Contractor shall allocate a budget for compliance with these measures, requirements and actions.	Complied with:	
		d)	The Contractor shall not make employment decisions based upon personal characteristics unrelated to job requirements. The Contractor shall base the employment relationship upon equal opportunity and fair treatment, and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment or retirement, and discipline. The Contractor shall provide equal wages and benefits to men and women for work of equal value or type.	Complied with:	
	22.2.3 Labor Laws				
	22.2.4 Rates of wages and Conditions of Labor		c)	The Contractor shall follow all applicable labor laws of Nepal. The Contractor shall	Complied with:
i.			Not use children as labor;	Partially with:	Field Officers - Contractor was frequently awakened for the issues.
ii.			Follow legally mandated provisions of labor, health, safety, sanitation, and welfare and working conditions; and	Complied	Contractor was unable to comply with minimum PPE's requirements, timely health checkup, sanitary working environment and their accommodation standards.
		iii.	Take steps to ensure priority employment for female headed households. Breach of these provisions by the Contractor shall cause termination of the contract.	Not Complied with: No any local women labor has shown any interest for work	Contractor was advised to hire local labors, when needed.
		d)	The Contractor shall throughout the contract (including the Defect Liability Period):	Partially with:	The contractors are advised to disseminate information and
22.2.7 Health and Safety		(i)	Conduct Information, Education and Consultation Communication (IEC) campaigns, at least every other month, addressed to all the Site	Complied	and

Contract Clause	Sub-Clause	Specification	TKTL	
			Current Status	Action Taken By
Volume-1, Section-8, Special Conditions of Contract		staff and labor (including all the Contractor's employees, all Sub-Contractors and Employer's and Project Managers' employees, and all truck drivers and crew making deliveries to site for construction activities) and to the immediate local communities, concerning the risks, dangers and impact, and appropriate avoidance behavior with respect to of Sexually Transmitted Diseases (STD)—or Sexually Transmitted Infections (STI) in general and HIV/AIDS in particular;		conduct campaigns.
		(ii) Provide male or female condoms for all Site staff and labor as appropriate; and	Complied with:	
		(iii) Provide for STI and HIV/AIDS screening, diagnosis, counseling and referral to a dedicated national STI and HIV/AIDS program, (unless otherwise agreed) of all Site staff and labor. The Contractor shall include in the program to be submitted for the execution of the Facilities under Sub-Clause 18.2 an alleviation program for Site staff and labor and their families in respect of Sexually Transmitted Infections (STI) and Sexually Transmitted Diseases (STD) including HIV/AIDS. The STI, STD and HIV/AIDS alleviation program shall indicate when, how and at what cost the Contractor plans to satisfy the requirements of this Sub-Clause and the related specification. For each component, the program shall detail the resources to be provided or utilized and any related sub-contracting proposed. The program shall also include provision of a detailed cost estimate with supporting documentation. Payment to the Contractor for preparation and implementation this program shall not exceed the Provisional Sum dedicated for this purpose.	Partially Complied with:	The contractors are advised to conduct program as per the contract clause.
		(iv) The Contractor shall disseminate information on the risks of socially and sexually transmitted diseases, including HIV/AIDS and malaria, to its employees during Project implementation and shall implement the HIV/AIDS and Human Trafficking Prevention and Sensitization Program among its employees for the duration of the Contract.	Complied with:	
		22.2.16 Prohibition of Harmful Child Labor	"Child" means a child below the statutory minimum age specified under applicable national, provincial or local law of Nepal. • The Contractor shall comply with all applicable national, provincial, and local environmental laws and regulations. • The Contractor shall (a) establish an operational system for managing environmental impacts, (b) carry out all of the monitoring and mitigation measures set forth in the Initial Environmental Examination ("IEE") and Environmental Management Plan ("EMP") and (c) allocate the budget required to ensure that such measures are	Complied with:
	46.		Complied with:	

Contract Clause	Sub-Clause	Specification	TKTL	
			Current Status	Action Taken By
Volume-1, Section-8, Special Conditions of Contract				
		carried out. The Contractor shall submit semi-annual reports on the carrying out of such measures to the Employer.		
		<ul style="list-style-type: none">• More particularly, the Contractor shall comply with (i) the measures and requirements set forth in the IEE and the EMP and (ii) any corrective or preventative actions set out in safeguards monitoring reports that the Employer will prepare from time to time to monitor implementation of the IEE and the EMP.	Complied with:	
		<ul style="list-style-type: none">• The Contractor shall allocate a budget for compliance with these measures, requirements and actions.	Complied with:	

Annex- 5: Environmental Safeguard Planning Status

S. N.	Name of Project / Subproject	Environmental screening is carried out? (Yes or No)	Environment category of the project / subproject (A/B/C/FI)	EIA/IEE/DDR with EMP is prepared (Yes/No)	ADB approved EIA/IEE with EMP (Yes / Under Review / Not Yet Due/Over Due)	Government approved EIA/IEE with EMP (Yes / Under Review / Not Yet Submitted)	Safeguard monitoring and coordination mechanism established (Yes/No)	GRC is established (Yes/No)	Automated safeguard monitoring system customized (Yes/No)	EMP cost in approved document is included in BOQ as an individual item (Yes/No)	Remarks
A. Tamakoshi – Kathmandu 220/400kV Transmission Line Project (TKTLP) – ETESIP											
1.	New Khimti- Barhabise 220/400 kV TL section	Yes	B	Yes	Yes	Yes	Yes	Yes (15- GRCs (100%) formed till this reporting period)	Yes	Yes	
2.	Barhabise- Changunarayan 220/400 kV TL section	Yes	B	Yes	Yes	Yes	Yes	Yes (22- GRCs formed till this reporting period)	Yes	Yes	
Note: EIA- Environmental Impact Assessment; IEE- Initial Environmental Examination; DDR- Due Diligence Report; EMP- Environmental Management Plan; GRC- Grievance Redress Committee; BOQ- Bill of Quantity											

(Source: Field visit)

Annex- 6: Compliance Monitoring Status of Safety Facilities available to Labors

S.N.	Project Components	Availability of Safety Kits					Presence/ Absence Status of Other Facilities				
		Helmet	Boots/ Shoes	Gloves	Belts	Glass	Mask	First Aid Kit	Toilet	Drinking Water facility	Child Labor
A.	Tamakoshi – Kathmandu 220/400kV Transmission Line Project (TKTLP) – ETESIP										
1.	New Khimti-Barhabise TL section	S	S	S (Partially complied)	S	NP	S	S	P	S	A
2.	Barhabise- Changunarayan TL section	S	S	S (Partially complied)	S	NP	S	S	P	S	A
Remarks: Safety shoes/gloves have been provided to the Contractor's personnel; however, they were found to be used partially during the monitoring. NA*- No workers are present Action: Safety shoes/gloves and mask, glass need to wear during the work time and same is notified during the monitoring to the worker, supervisor of contractor and project too. Note **: S: Satisfactory, NA: Not applicable, U: Unsatisfactory, NP: Not Provided, P: Present, A: Absent											

Annex-7: Safety Assurance as per the Contractor's Plan

SN	Activity	Current Status	Action Taken By
I. Tamakoshi – Kathmandu 220/400 kV Transmission Line (TKTL) – ETESIP			
1. New Khimti – Barhabise TL section (Package I)			
A. Health Plan			
1.	EHS officer shall conduct safety training programs on different topics on regular basis	Complied with:	
2.	The significance of personal protective equipment shall be impressed up on the workmen and their use ensured by all concerned.	Complied with:	
3.	Safety induction programs shall be conducted for the new workmen and refresher programs for the existing gangs on routine basis.	Complied with:	
4.	In case of accident and emergency, safety personnel and first aider should be responsible for evacuation and first aid treatment	Complied with:	
5.	Safe drinking water facilities with proper storage and kept clean and free from contamination	Complied with:	
6.	Mitigation measures shall be adopted during the work producing 'Criteria Air Pollutants'.	Complied with:	
7.	A record of all hazardous materials will be maintained and updated, EHS officer must train personnel in the use of MSDS ensuring Employees are fully conversant with them.	Complied with:	
8.	Only trained and experienced personnel will be allowed to handle hazardous substance.	Complied with:	
B. Personal Protective Equipment (PPE) “Safety starts with me; I am responsible for safety”			
PPE Matrix			
Activity	Workmen Category	PPEs Recommended	
Entry into work premises	All employees and workers	Safety helmet, safety shoes and Reflective jacket	Complied with:
Excavation and Foundation work	All employees and workers	Gum boots and hand gloves of rubber	Complied with:
Working at height above 1.8 m	All employees and workers	Safety harness	Complied with:
Tower Erection	Riggers	Hand gloves, double lanyard safety belt	Complied with:
Stringing	Stringing team	Helmet, boot, gloves and reflective jacket	The work has not been started yet.
DG operators and Noise prone area	Operators	Ear muffler	Complied with:
Scaffolding	Scaffolders	Cotton hand gloves	Complied with:
Electrical maintenance and repairs	Electricians	HV rubber hand gloves	Complied with:
Welding and Gas Cutting	Welders and cutters	Leather gloves, apron and face shield with tinted lens	Complied with:
Shut down of power line	Workmen	Leather gloves, boots, Reflective jacket and Helmet	Complied with:
Hand tools	Workmen	Safety glasses and gloves	Complied with:
Power tools	Workmen	Safety glasses and gloves	Complied with:
Concrete Batching plant	Operators and loaders	Nose mask	Complied with:
Quarry work	Loaders	Hand gloves, safety shoes	Complied with:

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SN	Activity	Current Status	Action Taken By
C. Checklist for Tower Foundation			
1.	Excavated area will be appropriately identified with signs, warnings and barricades.	Complied with:	
2.	Work area shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavated pit. Concrete mixer machine should be placed 5 m away from the excavated pit's edge.	Complied with:	
3.	Rotating parts of the concrete mixer machine should be covered and fenced.	Complied with:	
4.	Connecting chute should be tied and supported properly to avoid its fall at the time of concreting.	Complied with:	
5.	Heavy construction equipment should be kept away from the edge of the pit at least 2 meters.	Complied with:	
6.	The slope or protective system should be constructed sufficiently to accommodate the safe handling of material adjacent to the utility structure.	Complied with:	
7.	A stairway, ladder or ramp shall be used as a means of access or egress in pit excavations that are four feet or more depth.	Complied with:	
8.	Employees are protected from loose soil or rock falling from excavation face.	Complied with:	
9.	Emergency rescue equipment such as a safety harness and line shall be readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation.	Complied with:	
10.	Gumboots, hand gloves and safety helmet and other safety equipment should be during the work.	Complied with:	
11.	First Aid box, first-aid trained personnel and first aid medicine should be available at site.	Complied with:	
12.	Unauthorized persons should not be allowed to enter in to the hazard zone, keep working area clear from obstruction.	Complied with:	
D. Checklist for Tower Erection			
1.	All construction personnel must wear minimum requirements of PPE as Helmet, safety shoes, hand gloves etc.	Complied with:	
2.	Personnel working or traveling near the unprotected/open sided must use safety belt with its lanyard attached to any permanent structure, fall protection appliances shall be worn while erecting structure	Complied with:	
3.	No work should be allowed by standing over wooden boxes, empty barrels and other make shift arrangements	Complied with:	
4.	Ensure whether any live lines (HT or LT) are not running in the vicinity of 10 m of the pole to be erected, if "YES" the shutdown procedure is to be adopted along with safe procedures	Complied with:	
5.	Check back filling done and housekeeping should be maintained at site prior to erection activity	Complied with:	
6.	All fitters in work at height should bind the spanner to hand with rope to avoid fall of tools, proper size spanner should be use	Complied with:	
7.	Ensure incomplete tower has not left behind, do not leave any bolt hole empty, use step bolt for climbing, barricade the working area	Complied with:	
8.	Ensure sufficient numbers of people are made available while lifting the assembled structure/heavy loads and also avoiding use of single sheave pulley, ensure ropes/wires are secured properly	Complied with:	
9.	Before commencement of work, safety belt/harness, ropes and pulleys should be checked for quality	Complied with:	
10.	Ensure the availability of proper communication facilities i.e., walky-talky or mobile phone, first aid facility, drinking water, emergency vehicle with appropriate aid	Complied with:	

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SN	Activity	Current Status	Action Taken By
11.	Ensure the trained workers to adopt safe working method and safe movement technique on tower i.e., proper use of spanner, tightening method and members assembling or joining method	Complied with	
12.	Ensure the firmness of crowbar for loose soil, sandy soil hard surface	Complied with	
13.	Ensure the tower erection not allowed in case of heavy wind, storm, lightning, rain, too hot, too cold weather.	Complied with	
E. Checklist for Conductor Stringing			
1.	Check the forecast of weather for the entire period of work	Complied	
2.	Ensure effective communication facility among the workers are available via walkie-talkie	Complied	
3.	Ensure adequate barricading/caution tape displaying of danger sign, warning sign/protection to public/children moving nearby	Partially complied	Contractor has been advised to put proper sign and signage in local language
4.	Check the availability of full-time emergency vehicle with appropriate first aid box deployed for stringing	Complied	
5.	Ensure the deputation of flagman at road crossing on both sides with sufficient distance	Complied	
6.	Ensure the use of safety Personal Protective Equipment and availability of First Aid box with required medicine at site	Complied	
7.	Check tower completeness and slope management	Complied	
8.	Check workers are trained to adopt the safe working method and safe movement technique on tower	Complied	
9.	Ensure the conducting of safety awareness training program	Complied	
10.	Ensure all the height workers have undergone medical fitness test	Complied	
11.	Ensure height pass is available to all the workers who are working for stringing activity	Complied	
12.	Ensure the adherence of safety at height work	Complied	
13.	Check whether everybody has given proper job assignment and supervised properly while hoisting insulators, paying out of earth wire and conductor	Complied	
14.	Ensure all workers are familiarized with electrical hazard and fall hazard	Complied	
15.	Ensure necessary protection/scaffolding/warning signals are provided for road/power line/P&T line	Complied	
16.	Ensure that a proper application is given to the section in-charge of electricity distribution division to obtain a shut-down where stringing work encounters live lines	Complied	
17.	Ensure the approval of authorized department/person before the commencement of tree cutting	Complied	
18.	Ensure trees and tall scrubs are cleared on either side of the center line of the route	Complied	
19.	Ensure tall trees outside the area of such height that they could fall within three meters of conductors shall be cut down after obtaining necessary permission	Complied	
20.	Ensure towers are tightened properly and all the members, nut/bolts are provided	Complied	
21.	Ensure that every tool and tackle that is required to carry out the work is available and in good working condition	Complied	
22.	Ensure the equipment (puller, tensioner etc.) are in good condition and with a valid test certificate and properly placed, firmly anchored and earthed	Complied	

SN	Activity	Current Status	Action Taken By
23.	Ensure skilled manpower is available and only a competent and authorized person is operating the equipment	Complied	
24.	Ensure availability of stringing material (Conductor, crimper, traveler etc.)	Complied	
25.	Check whether double stays are provided on all cross arms and single stay is provided on the peak of the angle/section towers	Complied	
26.	Ensure conductor drums are placed properly to avoid bird caging	Complied	
27.	Ensure the device used to measure the temperature is calibrated and in good working condition	Complied	
28.	Check whether working on insulator, ladder or a safe arrangement for descending and ascending is used	Complied	
29.	Ensure roller grooves are rubber coating	Complied	
30.	Ensure scaffolding is provided at road/railway and powerline crossing	NA	
31.	Check whether practice of ascending on and descending from the tower through the tower members were strictly disallowed	Complied	
32.	Ensure the ascending and descending the tower is done through the steps bolts with usage of fall arrestor rope and clamp	Complied	
33.	Check whether visual inspection of wire rope slings before use like sling not corrosion, bend without cracking, no wire cut is done	Complied	
34.	Check whether only tested lifting equipment, tools and tackles are being used for stringing work and record is available	Complied	
35.	Check whether only stringing team members are allowed to stand near the tower while stringing is in progress	Complied	
36.	Ensure the use of ground roller to avoid rubbing of conductor on ground	Complied	
37.	Ensure towers vulnerable for one side load are guyed properly	Complied	
38.	Check whether backfilling of soil and revetment/benching wherever required is done	Partially complied	
F. Checklist for General (General points common for all activities during Excavation, Casting of foundation, Erection of tower and stringing of conductor)			
1.	Availability of required quantity of PPEs	Complied with:	
2.	Availability of First Aid box with required medicines and fire extinguishers at site	Partially complied:	The contractor has been advised to make available of a fire extinguisher
3.	Availability of work instruction register at site	Complied with:	
4.	Ensure of labors aware of their job and safety requirements	Complied with:	
5.	Ensure safety personnel and first aider are deployed in the site	Complied with:	
6.	Availability of rescue vehicle to nearby hospital/doctor in case of emergency	Complied with:	
7.	All driver and plant operators are holding valid driving license	Complied with:	
2. Barhabise – Changunarayan TL section (Package II)			
A. Health Plan			
1.	Occupational Health & Hygiene Inspection, frequency shall be minimum once in a month	Partially Complied with:	Contractor has been advised to follow the plan strictly
2.	Health Campaign, at least once in six months	Complied with:	Contractor has been advised to follow the plan strictly

SN	Activity		Current Status	Action Taken By
3.	Drinking water, available in accommodation facilities with clearly marked “Drinking Water Only”, have tight fitting lids and be equipped with a tap, kept clean and free of contamination		Complied with:	
4.	Pest Control, EHS engineer disseminated the knowledge of handling, transporting, precautionary measures to be adopted for the chemical		Complied with:	
5.	First Aid, provided in prominent places, evacuation & action plan in case of accident, contingency plan formulated after the mobilization, only first aider will provide the first aid treatment		Complied with:	
6.	Hazardous Materials, information contained in the MSDS shall be incorporated, supervised by a qualified person		Complied with:	
B. Personnel Protective Equipment (PPE) “NO PPE, NO ENTRY”				
PPE MATRIX			Complied with: (but is not in satisfactory condition, Contractor’s H&S Officer has been advised for proper implementation and regulation)	
Activity	Workmen Category	PPEs Recommended		
General-Entry into work premises	All Employees	Safety Helmet & Safety Shoe	Partially Complied with:	
Working at Height/ Tower- More than 2.0 meters	All	Safety belt with Double lanyard	Complied with:	
Involved with cement lime and line mortars	All	Gum Boots & Rubber Hand Gloves	Partially Complied with:	
Breaking of ceramics & Agglomerate materials	Chippers	Eye protection – Clear Goggles	Complied with:	
Welding & Gas Cutting	Welders & Cutters	Leather gloves, Safety shoe, Welding shield with proper number	Complied with:	
Working with slush	Unskilled & Excavation gang	Gum Boots	Complied with:	
Forming and Making shuttering materials	Carpenters and Wood workers	Face shield & Nose mask	Complied with:	
Rebars handling & working	Bar benders	Cotton/Leather Gloves	Complied with:	
Scaffolding	Scaffolders	Cotton hand gloves	Complied with:	
Painting	Painters	Clear goggles		Construction not begun
Rock Drilling	Rock Drillers	Nose mask of appropriate type	Not Complied with:	
Erection	Riggers	Hand gloves, Double Lanyard Safety Belt	Complied with:	
DG Operators & Other Noise prone areas	Operators	Ear muff	Complied with:	
Electrical Maintenance & Repairs	Electricians	HV Rubber hand gloves		Construction not begun
Concrete Batching Plant	Operators & Loaders	Nose mask	Complied with:	
Handling of Boulders with sharp edges (Quarry)	Loaders	Hand gloves, Safety shoes	Complied with:	
C. Checklist for Tower Foundation				

SN	Activity	Current Status	Action Taken By
1.	Check construction materials are stacked at safe place and also does not cause any danger. (Away from pit 105m or half the depth of the pit, whichever is more)	Complied with:	
2.	Check arrangement of illumination at construction site. (If required)	Complied with:	
3.	Ensure life saver arrangements has been made during construction of well foundation in river bed. (When necessary)	Complied with:	
4.	Check that the concreting mixer machine is placed at safe place. (Not very near to pit)	Complied with:	
5.	Check proper/adequate arrangement is made for extension of electricity supply. (Proper size of cable, use of fuse, no loose connection for dewatering pumps/illumination/electric compressors active applicable)	Complied with:	
6.	Ensure lying of temporary cable used during construction should not cause any danger for electrocution of workmen.	Complied with:	
7.	Inspection of excavation shall be made by a competent person every day. In case possible cave in/slide in is apparent, all working in the excavation shall cease until the necessary precautions have been taken to safeguard the possible cave-in/slide.	Complied with:	
8.	Jacks and vertical supports shall be positioned in such a manner that the vertical loads are distributed equally and do not exceed the capacity of the jacks and the jacks are placed away from pit edge etc.	Complied with:	
9.	Proper jacking arrangement is made to take the entire load of template.	Complied with:	
10.	In case of long template in stub setting more jacks has been provided and to check that the jacks are placed on levelled and hard surface to avoid the unbalancing and fallen.	Complied with:	
11.	Wire mesh rolls shall be secured in order to prevent dangerous recoiling action.	Complied with:	
12.	Lone worker should not be allowed to work in the excavated area.	Complied with:	
13.	Check that sufficient strong ladder of suitable length is available for ingress/outgress of persons in the pit.	Complied with:	
D. Checklist for Tower Erection			
1.	Check proper communication facility is available at site during tower erection (if required)	Complied with:	
2.	Check damages or uneven settlement of foundation.	Complied with:	
3.	Ensure the derrick used before tower erection has been checked for adequate strength/ size. Ensure for copy of test certificate for all lifting machines and tackles.	Complied with:	
4.	Ensure that the pulleys used before tower erection has been checked for adequate strength / proper size (diameter), also in case of open type pulleys proper locking arrangements like providing of safety pin is made, Ensure for copy of test certificate for all lifting machines and tackles.	Complied with:	
5.	Ensure the ropes used before tower erection has been checked for adequate strength /physical condition (free from break of strands and knots etc.)	Complied with:	
6.	Check that the lifting tools and tackles i.e., Winch machine, Chain Pulley Block, Trifor, D-Shackle etc. are in healthy condition and has been tested periodically. (Attach a copy of test certificate)	Complied with:	
7.	Ensure permission has been obtained from Aviation Authority for erection of special towers. (Where Necessary)	Complied with:	
8.	Ensure permission has been obtained from Aviation Authority for erection of special towers which comes in the vicinity of flying zone (Where necessary)	Complied with:	

SN	Activity	Current Status	Action Taken By
9.	Check that the safety measures have been taken before undertaking for the road /Rail / River Crossing jobs involving likewise stretches.	Complied with:	
10.	For rail or road crossing check whether written working plan is available at site with specific reference to safety eg. Local earthlings, skilled and experienced manpower, proper T&P, strength and height of scaffolding to maintain the required clearance etc.	Complied with:	
11.	Ensure that all the members and proper size of nuts and bolts of lower section are fitted properly before erection of the upper section of tower is taken up.	Complied with:	
12.	Check that the anti-climbing devices are provided in the tower after erection job.	Complied with:	
13.	Check that the danger plates have been provided.	Complied with:	
14.	Check only erection team members are allowed to stand near the tower while the erection is in progress and should wear the safety helmet / Safety shoes.	Complied with:	
15.	Working area of the tower has been demarcated during erection.	Complied with:	
16.	Check proper guying arrangement has been made. And also, to see that proper size of the crowbars has been used which has been fixed at hard surface in case of sandy or loose soil.	Complied with:	
17.	Check that the proper arrangement is made while lifting tower members and fixing them at height i.e. proper size and strength of the hook used for lifting the tower members.	Complied with:	
18.	Check sufficient members of guys are made while lifting the assembled cross arm and also avoiding use of single sheave pulleys while lifting the assembled cross arm / heavy load.	Complied with:	
E. Checklist for Conductor Stringing			
1.	All drivers and plant operators are holding the valid driving license.	Complied with:	
2.	Check the permit has been obtained from the competent Authority for stringing of conductor while crossing through Road /Rail /River / Vulnerable areas etc. (Where necessary)	Complied with:	
3.	Check that required painting has been made on tower falling in the vicinity of aviation zones. (Where necessary)	NA	
4.	Check that all the safety measures have been taken during string of conductor crossing the EHV / HV / LT lines (Earthing of existing)	Complied with:	
5.	Ensure proper size of nuts and bolts are rigidly tightened and punching /tacking /tack welding is done in towers before undertaking stringing job.	Complied with:	
6.	Ensure proper scaffolding arrangements made during stringing of conductor (While road crossing /power line crossing etc.	Complied with:	
7.	Ensure that all members are fitted in tower before undertaking conductor stringing work.	Complied with:	
8.	Check that the back filling of the foundation has been done as per specifications.	Complied with:	
9.	Ensure that the discharge rod is electrically tested before use.	Complied with:	
10.	Stringing machine / Tension puller machine is properly earthed.	Complied with:	
11.	Check the brake arrangement of the TSE Machines is working.	Complied with:	
12.	Ensure that the pulleys used before conductor stringing is been checked for adequate strength /proper size (diameter) also in case of open type pulleys proper locking arrangements like providing of safety pin is made. Ensure for copy of test certificate for all the lifting machines and tackles.	Complied with:	
13.	Ensure the ropes used before conductor stringing has been checked for adequate strength /physical condition (Free from break of strands and knots etc.,)	Complied with:	

SN	Activity	Current Status	Action Taken By
14.	Check that the lifting tools and tackles i. e. Winch machine, Chain pulley Block, Trifor, D-Shackle etc. are in healthy condition and has been tested periodically. (Attach a copy of test certificate)	Completed with:	
15.	Check for the brake arrangement of the Drum reel of conductor during laying / paying out of conductor.	Completed with:	
16.	Check proper communication facility is available at site during stringing of conductor (if required)	Completed with:	
17.	Whether tower has been permanently earthed.	Completed with:	
18.	Check that Sag Board is provided at two locations.	Completed with:	
19.	Check that the Sag Board arrangement is made by the experienced / trained persons.	Completed with:	
20.	Check approved Sag tension chart is available and followed at site.	Completed with:	
21.	While clamping of conductor / Earth Wire to be done, check for earthing.	Completed with:	
22.	Ensure sending signal to puller to stop when last layer of conductor /EW being pulled.	Completed with:	
23.	Check tension applied on the dynamometer dial and check values with approved data.	Completed with:	
24.	Before stringing starts check that the villagers do not come underneath the job of the concerned section	Completed with:	
25.	Only nylon or polypropylene ropes should be used during conductor stringing in vicinity of live overhead lines.	Completed with:	
26.	Ensure that PTW has been taken from the concerned authority.	Completed with:	
27.	Ensure that Winch, Pulleys etc. are properly earthed.	Completed with:	
28.	For LT lines, whether special persons are posted at each point of isolation till return of permit (PTW)	Completed with:	
29.	Whether the network of LT lines has been thoroughly checked and precautions taken Against inadvertent charging.	Completed with:	
30.	Check that proper arrangement is made / available for development and use of portable Earthing and Short-circuiting Devices which can be engaged and disengaged to and from the LT lines, keeping away from LT lines until all operations on the same are completed and all men and materials are removed from LT lines.	Completed with:	
31.	Check the provision and proper positioning for the guying and back staying (Where necessary)	Completed with:	
32.	Check demarcation of feeder is done for D /C Line	Completed with:	
33.	Ensure that all the insulator strings are thoroughly checked for availability and proper fixing of cotter / split pins before hoisting the same.	Completed with:	
F. Checklist for General (General points common for all activities during Excavation, casting of foundation, Erection of tower and stringing of conductor)			
1.	Check whether the contractor has procured required quantity of PPE considering maximum numbers of erection gangs deployed at site.	Partially Completed with:	The contractor has been advised to provide enough PPEs for all labors.
2.	Supervisors/Workmen have been provided with required healthy PPEs like (Safety helmet/ Safety shoes/ Gum boots as applicable)	Partially Completed with:	
3.	Availability of First Aid box with required medicines at site.	Partially Completed with:	
4.	Instruction register is available at site.	Completed with:	
5.	Ensure Supervisor/ Gang leader always issues instruction to the workmen before start of work.	Completed with:	
6.	All driver and plant operators are holding valid driving license.	Completed with:	
7.	Check the vehicle for rescue is available at site.	Completed with:	
8.	Ensure engaged labor are aware of the job.	Completed with:	
9.	Check that the unskilled laborers are not engaged in skilled job.	Completed with:	

SN	Activity	Current Status	Action Taken By
10.	Ensure supervisor/ workmen engaged in the field are aware of First Aid Techniques (such as in case of Electric shock, fall from the height, Snake bite and the person rescued from buried under the debris etc)	Complied with:	
11.	Check for nearby Hospital/ Doctor in case of emergencies arises.	Complied with:	
12.	While transporting heavy consignment of conductor or earth wire drums from central stores to site by the use of Cranes, Trucks, Tractors, the safety aspect for construction and failure of brake system of moving machinery is to be checked.	Complied with:	
13.	At least one dry powder type of portable fire extinguisher shall be provided especially where explosive or blasting agents are used for excavation.	Complied with:	
14.	Check the competence (Qualification /experience) of supervisor / gang leader of contractor.	Complied with:	

Annex-8: Status of Environmental Compliance

S.N.	Name of Subproject	Compliance to Environmental Management Plan*										Remarks
		Physical				Biological		Socio-economic				
1.	New Khimti-Barhabise 200/400 kV TL	Spoil Management compliance in %)**		70	Landslide protection with Bio-engineering (compliance in %)**		80	Drainage Management (compliance in %)**		100	Others as per EMP (specify)	
2.	Barhabise – Changunarayan 220/400 kV TL											

Note: * Add field as guided by EMP in EIA/IEE/DDR; ** Write percentage of compliance in a scale of 100%; *** mention type of community structures

Annex- 9 Impact Mitigation Compliance on Environmental Issues




S.N.	Construction Stage and Impact	Mitigation Measures	Tamakoshi–Kathmandu 220/400 kV TL	
			New Khimti -Barhabise TL section	Barhabise - Changunarayan TL section
1	Surveys, Alternative Analysis, enumeration of trees.	Better Route Alignment	Complied with:	Complied with:
2	Adverse effect on topography from development of Quarry Site and stacking of construction materials	Restoration of exposed areas	Complied with:	Complied with:
3	Tagging of Trees and clearance causing erosion, effect other utility lines, wildlife habitat and corridors during clearing of Right of Way (RoW)	Compensation, restoration and consultation with forest stakeholders on wildlife habitat and corridors	Complied with:	Complied with:
4	Environmental Investigations	Soil investigations to avoid adverse effects on project	Complied with:	Complied with:
5	Pollution of aquatic environment and adverse impact as poaching and felling of tree from temporary workers camp	Adequate cleaning facilities, toilets with soak pits and use of liquefied petroleum gas. Ensure the camp site is cleaned and restored while relocating. Solid waste disposal on pits minimum 500m away from water sources.	Complied with:	Complied with:
6	Soil erosion, wastes and pollution temporarily from unloading of material, storage and workshop in local environment	Avoiding sensitive sites. Recyclable materials such as cement bags, plastics and scrap metals to be segregated and sold for recycling. While decomposable wastes to put in a pit and covered away from surrounding water sources.	Complied with:	Complied with:
7	Adverse impact on local aquatic environment, soil erosion and loss of agricultural land while pit marking and digging of foundation	Compensation, restoration of site and proper maintenance of vehicles used	Complied with:	Complied with:
8	Contamination of Surface and Ground Water, Soil Erosion while construction of foundation and revetment	Restoration of exposed areas, adequate maintenance of engines to prevent oil leakage. Sensitive Sites include AP 9, AP 11 and AP 12	Complied with:	Complied with:
9	Disturbance to existing utilities and population during erection process	Rerouting the utility lines, installation of warning signboards, traffic management and use of safety equipment or Personal Protective Equipment (PPE). Construction activities to be carried out during dry season when farming activities are minimal	Complied with:	Complied with:
10	Accidents at tower site and soil run off from exposed surface while installing earth wire or optical ground wire	PPE are worn and exposed surface are covered. Safe Distance are maintained from other power lines as well as power is temporarily cut off scaffolding is used in areas crossing rivers, roads, telecom lines, overhead power lines and other similar structure. The vegetation to be lopped to be quantified	Complied with:	Complied with:
11	Snapping of stringing blocks or loose hanging of wires and excessive lopping of vegetation while stringing, final sagging and tensioning earth wire as well as power conductor	Adequate tension is maintained scaffolding is used in areas crossing rivers, roads, telecom lines, overhead power lines and other similar structure. The vegetation to be lopped to be quantified	Construction has not begun yet	Complied with:

Annex 10: Location wise Tree Cutting Status in Tower Footings of TKTLP

S N	District	Location		Name of Community Forest	Number of trees felled		Remarks
		Tower Foundation	RoW		Tower Foundation	RoW	
New Khimti – Barhabise TL section							
1.	Dolakha	AP 10/1		Paleko Sajheko Salkhoriya CF	67		
		AP 12/2		Bhyakure Dhokebhir CF	28		
		AP 16/1		Baluwa Bhumethan CF	50		
		AP 17/1		Khahare Bhadaure CF	22		
		AP 18/0			50		
		AP 19/1		Mulpani CF	64		
		AP 21/0	AP 21/0 – AP 22/0	Charnawati CF	102	317	
		AP 22/0			87		
		AP 24/1	92				
		AP 25/0	AP 25/0 – AP 26/0	Sitakunda CF	41	25	
		AP 26/0			24		
		AP 36/0	AP 34/0 – AP 36/0	Amale Kharka CF	22	28	
		AP 37/0		Kupri Salleri CF	41		
Total		13	3	9	690	370	
2.	Sindhupalchowk	AP 53/0		Dadar CF	2		
		AP 57/0		Manthala CF	195		
		AP 57/2			213		
		AP 58/0			169		
		AP 58/1			207		
		AP 58/2			183		
		AP 58/4		100			
Total		7	0	2	1069	0	
Total (400 kV NKBTL)		20	3	11	1759	370	
Barhabise – Lapsipedi TL section							
1	Sindhupalchowk	AP 13/1		Salghari CF	21		
		AP 13A/0			192		
		AP 19/0		Jure Thumka CF	215		
		AP 20/0		Devisthan CF	80		
		AP 21/0		Dharam Pani CF	50		
		AP 22/0		Falate Kalika CF	151		
		AP 23/0			82		
			AP 23/0 - AP 24/0	Falate Kalika CF,		407	
			AP 24/0 – AP 25/0	Harrebhir LF		54	
		Ambote CF			142		
		AP 26/0		Chipchipe CF	15		
		AP 27/0		Rani Pokhari CF	52		
		AP 27/1			24		

S N	District	Location		Name of Community Forest	Number of trees felled		Remarks
		Tower Foundation	RoW		Tower Foundation	RoW	
			AP 26/0 – AP 27/1	Rani Pokhari CF		103	
		AP 34/0		Tamakhani CF	111		
		AP 36/0			46		
		AP 36/1		Rol Pakha CF	249		
		AP 36A/0			228		
		AP 37A/1		Teenpakhe CF	90		
		AP 38/0			31		
		AP 38/1		Thulitar CF	33		
		AP38/2			120		
Total		18	3	13	1,790	706	
2	Kavrepalanchow k	AP 46/0		Dhaitar Dundhe Pakha CF	128		
		AP 47/1		Nauledanda CF	271		
		AP 50/1		Government Managed Forest	51		
		AP 52/0		Batase CF	26		
Total		4	0	4	476	0	
Total (400 kV BKTL)		22	3	17	2,266	706	
Total (400 kV TKTL)		42	6	28	4,025	1,076	
Lapsiphedhi – Changunarayan TL section							
Total (TKTL)		42	6	28	4,025	1,076	
		48			5,101		

Annex 11: Tree cutting approval for tower foundations from DFO, Sindhupalchowk

प्रदेश सरकार
 वन तथा वातावरण मन्त्रालय
 वन निर्देशनालय

डिभिजन वन कार्यालय सिन्धुपाल्चोक
 बागमती प्रदेश, नेपाल

वीतरा, सिन्धुपाल्चोक

प.सं. :- २०७८/०७९
 प.नं. :- ४४५

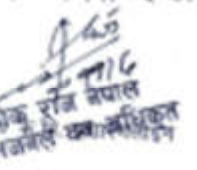
मिति :- २०७८/११/०६

विषय :- कटान इजाजत सम्बन्धमा ।

श्री नेपाल विद्युत प्राधिकरण
 तामाकोशी-काठमाण्डौ २२०/४०० के.भि. प्रसारण लाईन आयोजना ।
 उपरोक्त सम्बन्धमा श्री तामाकोशी-काठमाण्डौ २२०/४०० के.भि. प्रसारण लाईन आयोजनाको सिन्धुपाल्चोक
 खण्डको टावर प्याड (Tower Pad) र रो (ROW) भित्र पर्ने रुख विरुवाहरू हटाउने सम्बन्धमा सम्पूर्ण कार्यहरू गर्न
 नेपाल सरकार मन्त्रिपरिषदबाट मिति २०७६/०९/२८ मा निर्णय भैसकेको र नेपाल विद्युत प्राधिकरण तथा वन
 विभाग बिच मिति २०७६/११/२१ मा आयोजना निर्माणको लागि वन क्षेत्र प्रयोग गर्न दिने र सोमा रहेका
 रुखविरुवाहरू हटाउन स्वीकृत दिने सम्बन्धमा भएको सम्झौता अनुसार विभिन्न चरणमा गर्नुपर्ने प्रक्रिया अगडि
 बढिरहेको जानकारी गराउँदै अब दोस्रो चरणमा प्रसारण लाइनको दायोबाधौ २३।२३ मिटर अन्तर्गतमा पर्ने आवश्यक
 रुखविरुवा छुट्याउनुपर्ने भनि तामाकोशी-काठमाण्डौ २२०/४०० के.भि.प्रसारण लाईन आयोजनाको पत्र
 संख्या २०७७/०७८, प.नं. १७९, मिति २०७७/०६/११ गते पत्र पेश भएको रहेछ । सोही बमोजिम यस
 कार्यालयको प. न. ७२५ मिति २०७७/१०/०७ गतेको पत्रद्वारा प्रहरी सचिवालय वन कार्यालयले
 विपुलसुन्दरी गा. पा. वडा नं. २ मा पर्ने दादर सा. व. रातोचौर हिलेठुलोइने सा. व. र मानबल सानेनी सा. व.को
 Tower pad भित्र पर्ने रुखविरुवाको सम्बन्धित सामुदायिक वन उपभोक्ता समिति र आयोजना प्रतिनिधि रोहवरमा
 नम्बरी सहित नपत्रीय गरी छुट्याउनु तयारी गरी मिति २०७८/०८/२३ गते पेश भई यस कार्यालयको
 मिति २०७८/१०/१७ गतेको पत्रद्वारा प्रहरी सचिवालय हुर्दी निधमनुसार भएको भनी स. व. ज. ड. कृष्ण
 व. बापा र भक्त व. रेहको प्रतिवेदन समेत प्राप्त भएकोले वन तथा भु-संरक्षण विभाग र तामाकोशी-काठमाण्डौ
 २२०/४०० के.भि. प्रसारण लाईन आयोजना बिच मिति २०७६/११/२१ मा भएको सम्झौतामा उल्लेख भएका
 शर्तहरूका हकमा सोहि बमोजिम गर्ने र सो सम्झौतामा उल्लेख नभएका शर्तहरूको हकमा निम्नानुसार गर्ने गरि सब-
 डिभिजन वन कार्यालय, बाह्रबिसेको प्रविधिक सहयोग र सम्बन्धित सामुदायिक वन उपभोक्ता, सब-डिभिजन, आयोजना
 प्रतिनिधिको रोहवरमा छुट्याउनु भएका रुख/बेल माथ कटान गरि सोहि स्थानमा घाटगडि गजिहुर र लट विवरण
 सहितको कागजात सब-डिभिजन वन कार्यालय, बाह्रबिसे मार्फत यस कार्यालयमा पेश गर्ने गरि तामाकोशी-काठमाण्डौ
 २२०/४०० के.भि. प्रसारण लाईन आयोजनालाई कटान सहमति दिन यस कार्यालयको मिति २०७८/११/०६ को
 निर्णयानुसार यो कटान आदेश दिइएको छ ।

तपसिता

१) रुख विरुवा कटान तथा घाटगडि गर्ने कार्यमा लाग्ने सम्पूर्ण खर्च तामाकोशी-काठमाण्डौ २२०/४०० के.भि.प्रसारण लाईन आयोजनाको हुने छ ।
 २) कटान भई घाटगडिमा रहेको कट राउत वन उपभोक्ता समुहलाई हस्तान्तरण गर्नुकायम सोको मुरझाउने विषय
 तामाकोशी-काठमाण्डौ २२०/४०० के.भि.प्रसारण लाईन आयोजनाको हुने छ ।
 ३) कटानी कार्यमा वन सम्बन्धि कानूनी तथा प्रविधिक सहयोग गर्ने कार्य सब-डिभिजन वन कार्यालय बाह्रबिसेका वन
 प्रविधिकहरूले गर्ने छन् ।


 वी.स.स. ०१३/६२०३४४, ईमेल : sdfo@sindhupalchowk.gov.np



प्रदेश सरकार

वन तथा वातावरण मन्त्रालय

वन निर्देशनालय

डिभिजन वन कार्यालय सिन्धुपाल्चोक

बागमती प्रदेश, नेपाल



सिन्धुपाल्चोक

४। कटान कार्यमा कुनै किसिमको अनियमितता भए गरेमा सो को विम्वेकन तत्कालिन-काठमाण्डौ २२०/४०० कै.ई.प्रमाण लाईन आखोजन हुने छ ।

५। कटान गरिने रुख/पोल निम्न अनुसारका सखहडिजन वन कार्यालय बाह्रबिसेले पठा गरेको तालिम लेटर नम्बर ३५ बमोजिम हुनेछ ।

तथ्यांक

क्र.सं.	वनको नाम	जात	पोल/रुख			कैफियत
			संख्या	नेट आयतन कु. मिटर	दाउरा पट्टा	
१	दाहर सा. व. विपुलकुन्दरी गा.पा. २	विभिन्न	२	०.००	०.१०१२	टावर APX ३/०, APX ५/०, APX ५/१, APX ५/२, APX ५/४, APX ५/० APX ५/१, APX ५/२ र APX ५/४ Tower Pad बिचको थुप्रै साथ संलग्न लागत पला ३५ मान बमोजिमको प्रमाणी र रुख पान मान ।
२	रातोपौर हिलेडुलोडुने सा. व. विपुलकुन्दरी गा.पा. २	विभिन्न	१२२	१८६१.६८	२.१२२	
३	मानवला सल्लेनी सा. व. विपुलकुन्दरी गा.पा. २	विभिन्न	१०६७	१६४४०.४८	१८.८६१	
जम्मा			१२२१	१८४४०.१६	२०.९९८	

सिन्धुपाल्चोक
१९९६

सोह्र राज भण्डारी
डिभिजन वन अधिकृत

सोपान


वी सखहडिजन वन कार्यालय बाह्रबिसे: उपरोक्त बमोजिमको रुख कटान सुझान तथा घाटगडि गर्ने र सँगित तयार गर्ने कार्यमा आवश्यक प्राविधिक सहयोग तथा समन्वय गर्नुहुन ।

वी दाहर सा. व. उ.व. विपुलकुन्दरी गा.पा. २: छपान गरिएका रुखहरूको कटान गर्ने कार्यमा आवश्यक सहयोग तथा समन्वयको लागि अनुरोध छ ।


वी रातोपौर हिलेडुलोडुने सा. व. उ. स. विपुलकुन्दरी गा.पा. २: छपान गरिएका रुखहरूको कटान गर्ने कार्यमा आवश्यक सहयोग तथा समन्वयको लागि अनुरोध छ ।

वी मानवला सल्लेनी सा. व. उ. स. विपुलकुन्दरी गा.पा. २: छपान गरिएका रुखहरूको कटान गर्ने कार्यमा आवश्यक सहयोग तथा समन्वयको लागि अनुरोध छ ।

Annex 12: Tree cutting approval for RoW from DFO, Dolakha



बागमती प्रदेश सरकार
वन तथा वातावरण मन्त्रालय
वन निर्देशनालय
डिभिजन वन कार्यालय, दोलखा



चरिकोट, नेपाल

पत्र संख्या: ०६८१६३
 बसानी नं.: २७६०

मिति: २०७९/११/२३

कटान सहमति सम्बन्धमा ।

विषय :
 श्री नेपाल विद्युत प्राधिकरण
 तामाकोशी काठमाण्डौ २२०/४०० के.भि. प्रसारण लाइन आयोजना
 खरिपाटी, भक्तपुर

प्रस्तुत सन्ध्यामा नेपाल विद्युत प्राधिकरणद्वारा प्रस्तावित तामाकोशी काठमाण्डौ २२०/४०० के.भि. प्रसारण लाइन आयोजना निर्माणका लागि वन क्षेत्र प्रयोग गर्ने र रुख विरुद्ध हटाउन स्वीकृति दिने सम्बन्धमा श्री वन तथा मृ. संरक्षण विभाग र नेपाल विद्युत प्राधिकरण, तामाकोशी काठमाण्डौ २२०/४०० के.भि. प्रसारण लाइन आयोजना बीच मिति २०७६/११/२१ गतेको सम्झौता अनुसार तारमुनी (RoW) का रुखहरू हटाउने प्रयोजनका लागि भिमेश्वर सब डिभिजन वन कार्यालय दोलखा थ.नं. ३१३ मिति २०७८/१२/२० को पञ्चानुसार अमलेखक सामुदायिक वन उपनोक्ता समूह, भिमेश्वर न.पा. वडा नं. ७ को वन क्षेत्रको रुखहरूमा डिभिजन वन कार्यालय, दोलखाको व. वि. १५४ टाँचाबाट छपान, मुल्यांकन गर्दै पैठा भएको तथा सामुदायिक वनको वन पैदावार विहारी वितरण निर्देशिका २०७१ को दफा १० बमोजिम छपान चैकजाँच गर्दा नियमानुसार पाइएको प्रतिवेदन प्राप्त भएको हुँदा उक्त छपान तैरिज अनुसारका विभिन्न जातका तपसिल बमोजिम सामुदायिक वनका रुखहरू सम्झौता एवं प्रचलित कानून बमोजिम कटान गर्नका लागि यो कटान सहमति दिइएको छ । छपान तैरिजमा उल्लेखित बाहेकका अन्य रुखहरू कटान गरी अभियमित भए गरेमा सोको जिम्मेवारी सम्बन्धीत आयोजना नै हुने तथा प्रचलित कानून अनुसार कारवाही हुने व्यहोरा अनुरोध छ ।

तपसिल

सि.नं.	जात	थान	घस परिमाण (क्यू.फिट)	कैफियत
१	खोटेसल्ला	६९	१६२१.३९	
२	उत्तिस	९०	२१५९.८	
३	धिलाउने	२४	२७८.२६	
४	अन्य	२४	३९६.७५	
	जम्मा	१९९	४४४८.१२	

बोधार्थ
 श्री अमलेखक सा.च.उ.स., भि.न.पा. ७, दोलखा उल्लेखित बाहेकका अन्य वन पैदावार हानी नोक्सानी मिलाउनु हुन ।
 श्री भिमेश्वर सब डिभिजन वन कार्यालय, दोलखा कर्मचारीको रोहबरमा नियमानुसार कटान मुद्दान कार्य गराउन र सकलन कार्यमा अनियमितता हुन नदिन आवश्यक व्यवस्था मिलाउनु हुन ।

फोन नं. ०४२-८२९९३५

इमेल: doldfo.mofe@bagmati.gov.np

Annex 13: Drinking water quality test report of labor camp

NS Lab Accreditation No.: 08/065-66
VAT/PAN No.: 300124309
Regd. No. 5180/052/053

"Training For Success"

Water
Engineering & Training Centre (P.) Ltd.

Tel : 977-1-4475674, 4418156
Fax No: 977-1-4479642

Laboratory. R & D on Total Water Management, Treatment & Consultancy

Test Report/Certificate


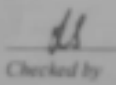
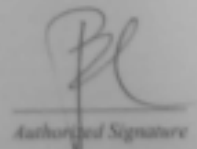
Name of Sender: KEC International Limited
Project Name: New Khimti Barhabise 400 KV Transmission Line
Sample No: 3046/078/079
Date of Receipt: 10/02/2022
Sampled by: Client

Source: Work Man Camp
Analyzed date : 10/02/2022-13/02/2022
No. of Samples: 01
Location : Dolakha

Parameters	Units	WHO GV	NDWQS	Result	Methods used
PHYSICAL					
Color	Hazen	15	5 (15) (Max)	5.0	2120 B., APHA, 23 rd EDITION
Turbidity	NTU	5	5 (10)	4.0	2130 B., APHA, 23 rd EDITION
Conductivity	µS/cm	-	1500 (Max)	266.0	2510 B., APHA, 23 rd EDITION
Lab Temperature	°C	-	-	14.5	2550 B., APHA, 23 rd EDITION
pH	-	6.5 - 8.5	6.5-8.5*	7.0	4500-H ⁺ B., APHA, 23 rd EDITION
CHEMICAL					
Total Hardness	mg/l as CaCO ₃	500	500 (Max)	130.0	2340 C., APHA, 23 rd EDITION
Total Alkalinity	mg/l as CaCO ₃	500	-	62.0	2320 B., APHA, 23 rd EDITION
Chloride	mg/l	250	250 (Max)	36.6	4500-CT B., APHA, 23 rd EDITION
Ammonia	mg/l	1.5	1.5 (Max)	1.4	4500-NH ₃ F., APHA, 23 rd EDITION
Iron	mg/l	0.3	0.3 (3)	0.2	3111 C., APHA, 23 rd EDITION
Arsenic	mg/l	0.01	0.05 (Max)	<0.005	3111 C., APHA, 23 rd EDITION
BIOLOGICAL					
Total Coliform	CFU/100ml	Nil	Nil	Nil	9222 B., APHA, 23 rd EDITION
E. coli	CFU/100ml	Nil	Nil	Nil	9222 D., APHA, 23 rd EDITION

APHA: American Public Health Association, Standard Methods for the Examination of Water & Waste Water.
WHO GV: World Health Organization Guideline Value, 2006 Update, NDWQS: National Drinking Water Quality Standard, 2062 (Nepal).
* These values show lower and upper limits, () Values in the parenthesis refers the acceptable values only when alternative is not available

NS Lab Accreditation Scheme

ANALYZED BY:  CHECKED BY:  AUTHORIZED SIGNATURE: 

Note: 1. The result refers only to the parameters tested of the samples provided to our laboratory or collected by us for analysis as specified. Endorsement of the product is neither inferred nor implied.
2. Any duplication of this report can not be used as evidence in the court of law and should not be used in any advertising media without prior written permission to us.
3. The total liability of our company for the product is limited to the involved amount only.

Annex 14: Noise level monitoring test report during foundation work

NS Lab Accreditation No.: 08005-05
 VAT/PAN No.: 300124329
 Regd. No. 0180/052/033



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Water
 Engineering & Training Centre (P.) Ltd.

Tel : 977-1-4475674, 4418166
 Fax No: 977-1-4479642

Laboratory, R & D on Total Water Management, Treatment & Consultancy

Test Report/Certificate

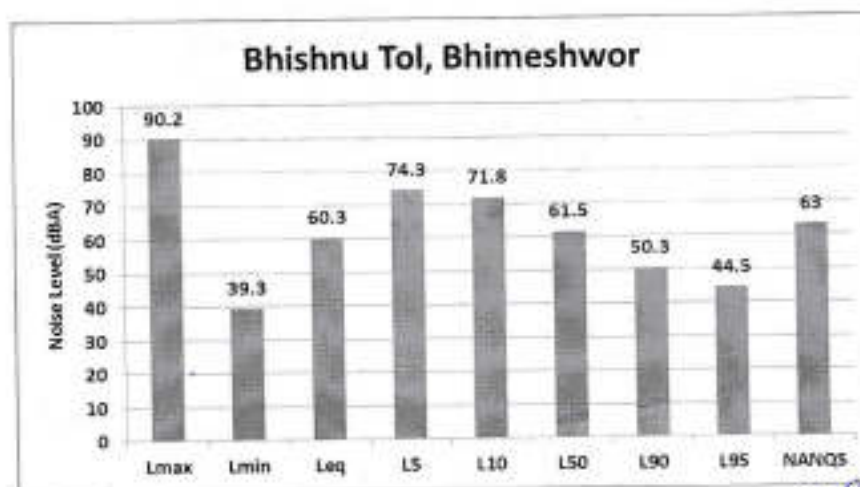


Name of Client: KEC International
 Name of Project: Bahubise Khimti High Tension Transmission Line, 400 KVA
 Monitoring Location: Bhishnu tol, Bhimeshwar
 Lab No.: 3546 A-078-079
 Date of Noise Recording: 14/03/2022
 Date of Analysis: 14-17/03/2022
 Date of Reporting: 18/03/2022

SN	Location	L _{max}	L _{min}	L _{eq}	L ₅	L ₁₀	L ₅₀	L ₉₀	L ₉₅	Remarks
1	Bhishnu tol, Bhimeshwar	90.2	39.3	69.3	74.3	71.8	61.5	50.3	44.5	Normal
	National Ambient Noise Quality Standard (NANQS)			63.0						

Comments:

The observed noise levels are within the National Ambient Noise Quality Standard for Mixed Residential Area.



Analysed by

Checked by

Authorized Signature

Notes: 1. The result refers only to the parameters tested of the samples provided to our Laboratory or collected by us for analysis as specified. Endorsement of the product is neither intended nor implied.
 2. Any duplication of this report can not be used as evidence in the court of law and should not be used in any advertising media without prior written permission to us.
 3. The total liability of our company for the product is limited to the involved amount only.

132, Ratopul, P O Box # 8975 EPC 5205, Kathmandu, Nepal. E-mail : info@wetcpl.com.np, wetcpl@gmail.com

Annex 15: Tie up with hospital in case of emergency and for regular checkup

KEC

KEC INTERNATIONAL LTD.
8th Floor, Building No 98, DLF Cyber City
Phase III, Gurgaon
Pin: +91-124-6757644
Fax: +91-124-6757617
www.kecpg.com
For Nepal: subrota@kecpg.com +9779644955280

To

Date: 10/08/2021

Dolakha Samudayik Hospital Pvt Ltd
Charikot, Dolakha
Rural Municipality-05, Dolakha

SUB :- Tie Up Letter With Hospital

This is kindly informed you that we Ms. KEC International Limited awarded from 400KV D/C New Khimti-Barhabise, Nepal Electricity Authority Transmission line projects.

We need to tie-up with your hospital-the purpose of tie-up is that in Emergency case, our Staff or Workers could be hospitalized easily without getting delayed. As we know that your hospital is well equipped and there are 24hrsemergency facility are available.


All medical treatment expenses of our Staff/workers will be borne by KEC INTERNATIONAL LIMITED during the discharge with all medical original bills with reports.

So, Therefore, we requested you to kindly provide your acceptance for tie-up with your hospital.


Thanking You

For KEC International Limited
Amit Poonia
Project Manager





Registered Office: 87th Street, 8th Fl, New Nepal Bazar
Nepal, Kathmandu, 22400. Tel: +977144444444 / 44444444

An  Company

Annex 16: Shield App monitoring report



Unsafe Observation

Form ID	1038224	Location	42A/0
Activity	Tower erection	Sub Activity	Erection of tower parts
Job Code	LE170523	Job Name	400KV BKTL
Submission Date & Time	26-03-2022 10:02	Current Status	Approved By EHS Incharge
Submitted By	R RAGURAJ	Pending with	

EHS Observations

Qn. 1	Sub-activity/Category
Response:	Violation of tower erection SOP
Qn. 2	Type of observation (UA/UC)
Response:	Violation of erection methodology
Qn. 3	Observations
Response:	Diagonal being not completed
Qn. 4	Location Name
Response:	42A/0
Qn. 5	Subcontractor name
Response:	Tajfaj
Qn. 6	Date & Time of Observation
Response:	26/03/2022 09:00 AM
Qn. 7	Corrective / Preventive Actions proposed
Response:	All the center Diagonal & bottom Diagonal to be fixed before installing X-arm
Qn. 8	Category of Observation
Response:	Unsafe Act, Unsafe Condition
Qn. 9	Observation Frequency
Response:	First time
Qn. 10	Observation Potential
Response:	Low
Qn. 11	Remarks
Response:	-
Qn. 12	Section in charge name
Response:	244458-R RAGURAJ
Qn. 13	Compliance report
Response:	All center diagonal and bottom diagonal fixed.
Comment(s):	
Username	User Role
Date & Time of Comment	Comment
Attachment	

4/1/2022 11:04:23 AM

Page: 1 of 3

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Annex 17: Hazard Identification and Risk Assessment for stringing works

L&T CONSTRUCTION
POWER TRANSMISSION & DISTRIBUTION

Ref: IM 6.1.2 A Rev 05

HAZARD IDENTIFICATION AND RISK ASSESSMENT

Cluster : Delhi

Name of the project: 400kV D/C BKTL Project - Kathmandu

Date: 23/02/2022

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
					Probability	Severity	Risk Level		Probability	Severity	Risk Level		
		B	C	D	E	F	G= E x F	H	I	J	K= I x J	L	
01	Pre stringing checking	Fall of hand tools & Tackles	NR	Fatal /RLTI	04	02	08	1. Height work location should be barricaded, 2. Unauthorized entry should be restricted. 3. Hand tools to be tying with the fitter's hand by pp rope (14 mm), 4. J pulley should be used with hook latch. Discard the damage tools. 5. Materials/tools should not be allowed to throw from height. 6. Tools bag should be used. 7. Restrict person movement in lifting area.	01	03	03	1. Use of safety nets.	Site Supervisor/ Site Engineer
		Fall of person	NR	Fatal /RLTI	05	04	20	1. EHS Induction is given to workers, supervisors. 2. Trained and Medically fit persons only allowed working at height. 3. Double lanyard safety belt should be ensured. 4. Ensure Rope grab fall arrestor while ascending and descending on the tower 5. Ensure Retractable fall arrestor for horizontal Movement.	01	04	04	1. Vertigo testing required for height workers.	Site Supervisor/ Site Engineer / EHS Supervisor

Sl. No.	Activity	Hazard	Routine/ Non- Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
					Probability	Severity	Risk Level		Probability	Severity	Risk Level		
	A	B	C	D	E	F	G= E x F	H	I	J	K= I x J	L	
								6. Ensure continuous supervisor and job should be briefed to engaging workmen.					
02	Guying arrangement of towers.	Collapse of Tower structure and fixing	NR	Fatal/RLTI	05	03	15	1. Wooden anchor should be of 6.0 feet length of 1.5 feet dia. or suitable steel section to be buried at 1.8m from ground level. 2. Ensure wire rope (16-20mm) for backstay, 3. Bulldog clamps should be tied after knotting of wire rope. 4. Back stay should be provided all towers. 5. Ensured slope cutting at 45* to avoid direct uplift load on anchor. 6. The earth should be well compacted. Depth should be checked by the line supervisor	01	03	03	1. Small bucket should be used in excavator. 2. Compaction of soils should be done in steps.	Site supervisor / Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non- Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
					Probability	Severity	Risk Level		Probability	Severity	Risk Level		
					E	F	G= E x F	H	I	J	K= I x J	L	
03	Hoisting of Insulators with rollers on towers.	Damage/bending of cross arm during lifting of insulator. Fall of person, fall of insulator string	NR	Fatal /RLTI	05	03	15	1. Ensure the insulators free from damages. 2. Ensured split pins/R pin of insulators had fixed correct manner before lifting.	02	04	08	1. Ensure retractable fall arrestor while removing the tag line	Site supervisor / Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
					Probability	Severity	Risk Level		Probability	Severity	Risk Level		
	A	B	C	D	E	F	G=ExF	H	I	J	K=I x J	L	
		due to improper assembly, fall of tools & tackles due to improper handling						3. Load should be distributed by pulley through the body of the tower. 4. Direct load should not be allowed on cross arm. 5. Tag line should be used to control the swinging of insulator string.				from the insulator.	
		Rolling of drums	NR	RLTI /LTI	05	01	05	1. Physical condition of stacking to be checked.	02	02	04	1. Ensure stacking on plain surface.	Site Supervisor/ Site Engineer
		Person caught between drums	NR	RLTI /LTI	03	02	06	1. Block the movement of drums using wooden stoppers.	01	02	02	1. Barricading and sign boards should be used.	Site Supervisor/ Site Engineer
04	Loading & unloading of conductor drums to site	Fall of cable drum while loading	NR	Fatal / RLTI /Material damage	03	04	12	1. Shaft should be used for lifting cable drum. 2. Use slings of correct capacity and capacity of crane/hydra to be checked	01	02	02	1. Restrict the movement of people under hanging load	Site Supervisor/ Site Engineer
		Toppling of crane	NR	Fatal /RLTI	02	04	08	1. Soil stability or unevenness of area shall be checked before lifting load. 2. Single person signaling shall be ensured. 3. Operator should ensure the load capacity.	01	03	03	1. Webbing should be used to lift materials.	Site Supervisor/ Site Engineer
		Fall of cable drum from the truck	NR	Fatal /RLTI	01	04	04	1. Ensure whether the drums are properly secured with polypropylene ropes. 2. Speed limit of the truck must be 30 Km/hr.	01	04	04	1. Drum stoppers should be used.	Site Supervisor/ Site Engineer / EHS Supervisor

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
					Probability	Severity	Risk Level		Probability	Severity	Risk Level		
		B	C	D	E	F	G= Ex F	H	I	J	K= I x J	L	
05	Shifting of stringing tools & tackles to site	Fall of materials	NR	Injury to workmen /RLTI	04	03	12	1. 1. Overload of materials to be avoided 2. Ensure rigid stacking & tying of materials, 3. Engage sufficient manpower for unloading of materials. 4. Workmen should not allow on loaded vehicle (i.e. with materials).	02	02	04	1. Ergonomics training for tools handling should be given for workmen.	Site Supervisor/ Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
					Probability	Severity	Risk Level		Probability	Severity	Risk Level		
	A	B	C	D	E	F	G= E x F	H	I	J	K= I x J	L	
06	Fixing of Pulleys & Lefties on towers	Fall of person, Fall of materials	NR	Injury to workmen /RLTI	04	03	04	1. Unauthorized person entry should be restricted in the height work area. 2. Ensure Helmet, Full body Harness while working at height.	02	02	04	1. Ensure load testing for pulleys before every location.	Site Supervisor/ Site Engineer / EHS Supervisor
07	Paying out of conductors on Hilly terrain & End cone pressing	Fall of person, Fall of materials	NR	Injury to workmen /RLTI	04	02	08	1. Effective communication should be ensured through, walkie-talkie. 2. Posting a person with red flag, 3. Ensure the approach way is free from obstruction. 4. Caution Boards should be displayed. 5. One/ Two persons give the warning through Mega phone to restrict unauthorized entry. 6. Spreading of carabolic acid & one first aider with first aid kit to be deployed in gang during paying. 7. Ensure Helmet, Full body Harness while working at height. 8. Scaffolding should be provided in case of HT line etc. 9. Paying out of the conductor with winch machine. 10. Use of adequate fall protection wherever required at hill section and steep area. 11. Regular maintenance of winch machine. 12. Caution board with reflective tape should be displayed.	02	02	04	1. Trained first aider should be available at site.	Site Supervisor/ Site Engineer
08	EHT/HT/ LT shut down activities	Electrocution.	NR	Fatal /RLTI	05	04	20	1. The authorized person should receive & return the LC.	01	04	04	1. Usage of JG cables	Site Supervisor/ Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non- Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
					Probability	Severity	Risk Level		Probability	Severity	Risk Level		
	A	B	C	D	E	F	G= E x F	H	I	J	K=I x J	L	
	wherever if required							2. Job brief should be given to workmen before engaging the job. 3. Deployed continuous and competent supervisor till activity complete. 4. EHT line shutdowns client should receive and possess the LC at the working place. 5. Prepare and implement the PTP, 6. Ensure earth Switch should be closed at both the ends, checking with Electronic Multi Tester, Providing discharge rods at both In & Out ends with isolation.				where ever required.	

Sl. No.	Activity	Hazard	Routine/ Non- Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
					Probability	Severity	Risk Level		Probability	Severity	Risk Level		
	A	B	C	D	E	F	G= E x F	H	I	J	K=I x J	L	
								7. Ensure LOTO procedure before engaging the workmen to work. 8. Ensure FRP ladders while working at height 9. Ensure identification token for LC workmen & recollect the token before return the LC.					
09	Rough sag	Fall of material and	NR	Injury to the workmen, staff,	03	05	15	1. Conductor should be in overhead condition during rough sag.	02	02	04	1. Ensure use of ISMC for anchoring.	Site Supervisor/ Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
					Probability	Severity	Risk Level		Probability	Severity	Risk Level		
	A	B	C	D	E	F	G= E x F	H	I	J	K=I x J	L	
		fall of person from height		villagers - Fatal/RLTI				2. Ensured engaging winch machine or sufficient manpower 3. Effective communication should be ensuring through walkie-talkie between operator of winch machine and signaler. 4. Competent person should be deployed to monitor the job closely.					
10	Fixing of sag boards on towers.	Fall of person & material	NR	Injury to the workmen, staff, villagers - Fatal/RLTI	04	03	12	1. Rope grate type fall arrester with 14mm polyamide rope & FBH during ascending/ descending on tower. 2. Material/sag board should be lifted by separate rope. 3. Height work area to be barricaded & displayed the caution board.	02	02	04	1. Ensure 3 point contact while climbing on tower.	Site Supervisor/ Site Engineer
11	Marking of conductors & Fixing of Dead end cones with the insulator string	Collapse of cross arm, Fall of person, Fall of materials	NR	Injury to the workmen, staff, villagers - Fatal/RLTI	04	03	12	1. Person should not be allowed on cross arm during pulling of conductor. 2. Ensure all the lifting tools & tackles physical condition and Test certificates before engaging to job. 3. Experienced workmen only engaging for work with adequate good condition PPES. 4. Competent supervisor should be deployed continuously till the activity completed.	02	02	04	1. Ensure use of clipping ladders.	Site Supervisor/ Site Engineer
12	Lifting the other end of the conductor using lefties & Safety clamps	Twisting of four sheave pulley wires.	R	First aid injury	03	02	06	1. Ensure the wire rope condition of lefties', clamps, slings & D-shackle before in use. 2. The lefty wires should not kink twist; Tag line rope should be supported well. 3. Ensure tightening of Safety clamp.	02	02	04	1. Ensure the use of winch machines.	Site Supervisor/ Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
					Probability	Severity	Risk Level		Probability	Severity	Risk Level		
	A	B	C	D	E	F	G= E x F	H	I	J	K= I x J	L	
13	Final Sag	Collapse of tower, cross arm and communication error.	NR	Injury to the workmen - Fatal/RLTI	05	04	20	1. Workers should not be allowed on cross-arm during releasing of lefty. 2. Four sheave pulley should not to be released suddenly. 3. It should be lowered with tag line to avoid sudden jerk on tower or person.	01	03	03		Section In charge/ Site Engineer/ Site Supervisor
14	Removal of lefty	Collapse of cross-arm of tower. Fall of person & Fall of removed tools & tackles	NR	Injury to the workmen - Fatal/RLTI	05	04	20	1. Workers should not be allowed on cross-arm during releasing of lefty. 2. Four sheave pulley should not to be released suddenly. 3. It should be lowered with tag line to avoid sudden jerk on tower or person.	01	03	03		Section In charge/ Site Engineer/ Site Supervisor
15	Removal of come-along clamps	Fall of person during crawling on conductor & descending from conductor. Not using of fall protection arrangement. Failure and detachment of the insulator disc.	NR	Injury to the workmen - Fatal/RLTI	05	03	15	1. Worker should go with rock chair arrangement on the conductor with full body harness (D/L) & safety helmet to remove the come along clamp. 2. The fitter must fasten the full body harness lanyard hook on conductor and after removal of come along clamp fitter should anchor two no's fall arrester to polyamide rope (14mm) and sat on J hole during getting down from conductor. 3. Ensure fall arrestor, Full body harness and helmets with chinstrap while coming down.	02	02	04		Supervisor/ Gang leader/ fitter
		Failure of split/cotter pin of insulator string,	NR	Injury to the workmen - Fatal/RLTI	05	02	10	1. Fabricated material should not be used in place of cotter pin and cotter pin should be expanded.	02	02	04	1. Work should be done under supervision.	Section In charge/ Site Engineer/ Site Supervisor

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
					Probability	Severity	Risk Level		Probability	Severity	Risk Level		
A		B	C	D	E	F	G=ExF	H	I	J	K=I x J	L	
		manufacturing defects of discs and associated fittings.						2. Visual inspection of insulators and fittings before use. 3. Retractable fall arrestor should be ensuring while removing the tag line from insulator.					
		Sudden releasing of four sheave pulley	NR	Injury to the workmen & staff – Fatal/RLTI	04	03	12	Separate tag line to be fixed during releasing of four sheave pulley Sudden releasing of 4-sheave pulley should be avoided.	02	02	04	1. Work should be done under supervision.	Site Engineer/ Site Supervisor

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
					Probability	Severity	Risk Level		Probability	Severity	Risk Level		
16	Restraining of removed HT / LT lines on the tower	Fall of person, Fall of materials	NR	Injury to the workmen & staff - Fatal/RLTI	04	04	16	1. Earth Switch should be closed at both the ends, 2. Only FRP ladder to be used during climbing on PSC pole. 3. The experienced fitter should engage for this activity. 4. Checking with Electronic Multi Tester, 5. Barricading and caution Board should be in place before start the work.	02	02	04	1. Ensure the power is cut-off through helmet mounted Electronic multi testers.	Section In charge /Site Engineer/ Site Supervisor
17	Returning of LC to the concerned authority	Ensuring no men & materials on live connect with pole/conductor.	NR	Injury to the workmen & staff - Fatal/RLTI	05	03	15	1. Ensure removal of discharge rod wherever provided. 2. Ensure thought LC line any materials or tools are left out.	02	02	04	1. Implementing token system for LC work	Section In charge /Site Engineer/ Site Supervisor

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
					Probability	Severity	Risk Level		Probability	Severity	Risk Level		
	A	B	C	D	F	G	H= F x G	I	I	J	K= I x J	L	
								3. All the person should assembled one location. 4. Collect the token from fitters. 5. Ensuring one supervisor to watch the workmen to disband from the location until the power resume. 6. Authorized person should return the LC					

PM / CM / Section Head

EHSO

E=Elimination
S=Substitution
EC=Engineering controls
AC=Administrative controls
PPE=Personal Protective Equipment

Guide for Hazard Identification and Risk Assessment				
Value	Probability	Severity		
		Safety	Heath	Noise Generation
5	Daily / Frequently at site	Single or multiple Fatality	Terminal illness	An incurable disease that cannot be adequately treated and is reasonably expected to result on death within a short period of time 101 dB and above

Guide for Hazard Identification and Risk Assessment				
Value	Probability	Severity		
		Safety	Health	Noise Generation
4	Weekly / Occurrence in our IC	Serious Injury requiring hospitalization	Unemployable due to illness	Major Health impact requiring doctor's attention returning back to work after a month or non-ionic radiations / tolerable residual risk with medication
3	Monthly / accordance in other ICs	Lost Time Injury	Intense health effect	Moderate health impact / requiring doctors' attention. Person can return back to work within a week E.g.. Viral Fever, fewer due to water contamination etc.
2	Yearly / Occurrence in construction Industry	Injury requiring Medical Treatment but not Lost Time	Minor health effect	Minor health impact / requiring nurse /doctors attention and person can return back to work next day hours Eg. Diabrea, vomiting, Constipation
1	Very rare occurrence in construction industry	First Aid treatment only	Slight health effect	Momentary discomfort / Nuisance E.g.. Head ache, Burning of eyes, Giddiness, person can return back to work immediately after rest

Annex 18 Hazard Identification and Risk Assessment for Erection works

L&T CONSTRUCTION
POWER TRANSMISSION & DISTRIBUTION

Ref: IM 6.1.2 A

HAZARD IDENTIFICATION AND RISK ASSESSMENT

Cluster : Delhi

Name of the project: 400KV D/C BKTL Project- Kathmandu

Date: 25.02.2022

Sl. No.	Activity	Hazard	Routine/ Non- Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level H= Fx G		Probability	Severity	Risk Level L= J x K		
01	Material Handling / Shifting	Fall of material	NR	Fata/RLTI	Construction Business Act – 2055	F	G	15	1. Correct capacity sling to be used to lift material. 2. Persons are strictly instructed not to stand below the lifted load. 3. Loose materials are removed before lifting. 4. Stability of the packing should be ensured. 5. Correctly assure the center of gravity of the load before put the sling. 6. Periodic examination of the slings& lifting tools. 7. Ensure use of Safety Shoe, Hand gloves & Shoulder pad during shifting Tower materials. 8. Ensure that vehicle should not be overloaded when material loaded in pickup /vehicle at site. 9. Materials should be tied properly before leaving the vehicle from store.	01	03	03	Undulation in access path should be cleared. Engagement of correct type of tools in work.	Site Engineer/ Store In-charge/ P&M

Sl. No.	Activity	Hazard	Routine/ Non- Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level H= Fx G		Probability	Severity	Risk Level L= J x K		
	A	B	C	D	E	F	G	H= Fx G	I	J	K	L= J x K	M	
		Toppling of crane	NR	Injury to person, material and machinery damage	Construction Business Act – 2055 & Motor Vehicles and Transport management Act – 2049 and Rules-2054	02	03	06	1. Soil stability or unevenness of area shall be checked before lifting load. 2. Signal person signaling shall be ensured. 3. Guide rope to be used to handle the material. 4. Operator should ensure the load capacity. 5. Ensure periodic load testing of cranes.	01	02	02	Banks-man should be engaged. New generation cranes should be engaged.	Site Engineer/ Store In-charge
	Material Handling / Shifting	Vehicle / Tractor collapse	NR	Fatal / RLTI. Equipment damage	Motor Vehicles and Transport management Act – 2049 and Rules-2054	03	05	15	1. Experienced, Trained & Authorized (valid License holder) drivers only engage for work. 2. Vehicle having fitness report (IM-09.1.1-B- Rev 05). 3. Vehicle to be driven on the assigned path. 4. Speed limit of the vehicle should not be exceeding 25 - 30 Km/hrs. 5. None of the workmen should allow traveling along with material vehicle. 6. We will use winch only for pulling.	01	02	02	Undulation in access path should be cleared.	Site Engineer / P&M

Sl. No.	Activity	Hazard	Routine/ Non- Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level H= F x G		Probability	Severity	Risk Level L= J x K		
	A	B	C	D	E	F	G	H= F x G	I	J	K	L= J x K	M	
		Electrocution	NR	Fatal/ RLTI	Electricity Act – 2049 & Nepal Electricity Authority Act-2041	02	05	10	Ensured electrical lines are away from the Passage and Stacking area,	02	02	04	LOTO should be ensured.	Site Engineer / EHSO
		Collision with vehicles during crossing-road crossing	NR	Injury to workmen- Fatal/RLTI	Motor Vehicles and Transport management Act – 2049 and Rules- 2054	03	05	15	1. Alternate approach to be identified if possible. 2. Substitute approach road to be found to way in location to avoid railway crossing & construction & raw materials should be shifted by vehicle.	01	02	02	Signal man should be engaged.	Site Engineer
		Persons are using tractor's engine & trailer with or without materials.	NR	Injury to the Supervisor, workmen - Fatal/RLT	Motor Vehicles and Transport management Act – 2049 and Rules- 2054	03	05	15	1. Person should not allow traveling on tractor's engine & trolley except driver. Ensure that driver should hold valid driving license issued by licensing authority. Ensure condition of transported vehicle, safety locking should be checked in junction of tractor's trolley & engine. 2. Loading and Unloading gang to be different. 3. To prevent tractor toppling, hitch type rotation coupler should be installed in tractor. 4. Competency of tractor driver and tractor fitness should be ensuring on regular basis.	01	02	02	Passenger vehicles should be engaged.	Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non- Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level H= F x G		Probability	Severity	Risk Level L= J x K		
	A	B	C	D	E	F	G	H= F x G	I	J	K	L= J x K	M	
		Person may be trapped by fall of materials and may fall in valley during Manual Head loading	NR	Fatal/ RLTI	Construction Business Act – 2055 & Motor Vehicles and Transport Management Act – 2049 and Rules- 2054	03	05	15	1. Approach road to be prepared as far as possible for carrying the materials by vehicle to eliminate manual head loading. 2. Use trolley in narrow road for shifting tower leg to location. 3. Tower leg weight should not be exceeding 50Kgs for two workmen during manual head loading. 4. Ensure barricade to be done	01	04	04	Ergonomics training should be given for manual loading.	Site Engineer
		Tripping hazards due to unwanted obstacles	R	LTI/ RLTI	Construction Business Act – 2055 & Motor Vehicles and Transport management Act – 2049 and Rules- 2054	04	04	16	1. Ensure access/egress should be made clear for movement of workers. 2. Unwanted materials should be removed from tower footing locations prior to erection activity.	02	02	04	Materials should be stacked 2m away from tower.	Site Engineer
	Material Handling /Shifting	Electrocution due to HT/ LT line & any adjacent structure or obstacles.	NR	Fatal /RLTI	Electricity Act – 2049 & Nepal Electricity Authority Act- 2041	03	05	15	1. Inspect the location thoroughly & ensure safe clearance from obstacle during tower erection to avoid any unwanted hazards. 2. The authorized person should receive & return the LC. 3. Ensure continuous supervisor & job should be	01	03	03	Earthing shall be done where ever required.	Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level H= F x G		Probability	Severity	Risk Level L= J x K		
	A	B	C	D	E	F	G	H= F x G	I	J	K	L= J x K	M	
									briefed to engaging workmen. 4. LC procedure (i.e.) PTP should be followed. 5. Ensure discharge Rods, Induction tester (helmet mounted), LOTO system & posting a person near the cut point are followed, 6. Effective line survey shall be done. 7.					

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level H= F x G		Probability	Severity	Risk Level L= J x K		
	A	B	C	D	E	F	G	H= F x G	I	J	K	L= J x K	M	
									8. Ensure LC given by authorized person only in the form of written format. 9. Assemble all the engaging workmen after confirming; return the shutdown permit to authorized person.					
		Fall of materials from height due to failure of tools & tackles due to wrong work	NR	Fatal /RLTI	Construction Business Act – 2055 & Motor Vehicles and Transport	03	05	15	1. All lifting tools should have a valid test certificate. 2. Only "I-type" close pulley should be used on derrick	02	02	04	Use of safety nets in towers.	Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level H= F x G		Probability	Severity	Risk Level L= J x K		
					E	F	G	H= F x G	I	J	K	L= J x K	M	
		method. Fall of material due to improper communication.			management Act – 2049 and Rules- 2054				by D-shackle & frequently check tightness of D-shackle. 3. Open type pulley should not be allowed on height (tower) for lifting of materials. 4. Inspection of tools & tackles i.e. winch m/c, derrick, "S" hook, pp rope/wire rope should be done before starting of activity. 5. Ensuring proper communication during the tower erection activity. 6. Small nut shall be welded in tommy bar for tying the rope to prevent it from falling. 7. All T&P must be inspected by site engineer, site supervisor and P&M personnel before using at site. 8. Wire rope should be lubricated at least once in a week. 9. Ensure fuel shall be bought from authorized petrol pump station.					
2	Erection of Tower	Fall of materials due to slip or fatigue of workmen.	R	Fatal /RLTI	Construction Business Act – 2055 & Motor Vehicles and	03	05	15	1. Height work location should be barricaded 2. Unauthorized entry should be restricted	02	02	04	Sufficient rest should be given for workmen	Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level H= F x G		Probability	Severity	Risk Level L= J x K		
	A	B	C	D	E	F	G	H= F x G	I	J	K	L= J x K	M	
					Transport management Act – 2049 and Rules-2054				3. Hand tools to be tied with the fitter's hand by pp rope (4mm), 4. Materials/tools should not be allowed to throw from height. 5. Tools bag to be used. 6. Restrict person movement in lifting area. 7. An additional supporting wall rope at bottom bracing portion should be given for better positioning of the bracing member for raised chimney.				in-between work by rotation of height fitters.	
		Fall of Person from height	NR	Fatal /RLTI	Construction Business Act – 2055 & Motor Vehicles and Transport management Act – 2049 and Rules-2054	03	05	15	1. EHS Induction is given to workers, supervisors. 2. Trained & medically fit persons only allowed working at height.	01	04	04	Ensure continuous hooking & clamping at height.	Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level H= F x G		Probability	Severity	Risk Level L= J x K		
	A	B	C	D	E	F	G	H= F x G	I	J	K	L= J x K	M	
									3. Workmen should use the retractable fall arrestor and both					

Sl. No.	Activity	Hazard	Routine/ Non- Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level H= F x G		Probability	Severity	Risk Level L= J x K		
	A	B	C	D	E	F	G	H= F x G	I	J	K	L= J x K	M	
									lanyard of safety belt while lifting the derrick pole (or) ensure step by step lifting the derrick pole. 4. Use of double lanyard safety belt should be ensured. 5. Ensure use of Rope grab fall arrestor while ascending & descending on the tower 6. Ensure use of horizontal life line rope for horizontal Movement. 7. Ensure continuous supervision & job should be briefed to engaged workmen. 8. Ensure tool bag while working at height. 9. Workmen should not climb on the derrick pole. 10. Height token system and Height work permit should be implemented. 11. Cardinal Safety rules to be followed strictly. 12. Ladder should be fixed in opposite direction of panel lifting.					

Sl. No.	Activity	Hazard	Routine/ Non- Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level H= F x G		Probability	Severity	Risk Level L= J x K		
	A	B	C	D	E	F	G	H= F x G	I	J	K	L= J x K	M	
									13. Precaution shall be taken while uses of ladder.					
		Collapse of Tower structure and fixing & lifting of three no's tower leg members Abnormal	NR	Fatal /RLTI	Construction Business Act – 2055 & Motor Vehicles and Transport management Act – 2049 and Rules-2054	03	05	15	1. After completion of one section only next section will be allowed to lift. 2. Also ensured that no tower member, nut & bolt should be left out during erection process. 3. Respective section diagonals should be fixed prior to proceed further in height. 4. Only one or two main leg section at a time should be erected.	02	02	04	Approved Work methodology should be followed	Site Engineer
		Fire hazard	NR	LTI	Explosives Act 2018	01	04	04	1. Barricading shall be ensured to avoid unauthorized entry. 2. Fire extinguisher or fire bucket shall keep at the bottom of tower.	01	03	03	Cleaning of dry bushes below the tower.	Site Engineer
3	Welding of Bolts & Nuts & applying Zinc Rich paint	Electrocution	NR	Fatal / RLTI	Electricity Act – 2049 & Nepal Electricity Authority Act- 2041	01	05	05	1. Welding cable should be free from damage and unprotected joint, 2. Return current cable shall be connected without loose. 3. Ensure Body earthing of welding machine. 4. Power cable free from damage & open joints.	01	04	04	Double insulated cable should be used with proper fasteners.	Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non- Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level H= F x G		Probability	Severity	Risk Level L= J x K		
	A	B	C	D	E	F	G	H= F x G	I	J	K	L= J x K	M	
4	Covid-19	Health Hazard	R	Fatal	Public health service act- 2075 (2018)	04	04	16	5. Emergency on off switch shall be provided nearest to welding machine. 6. Use of hand gloves, Full body harness, safety helmet, Grab fall arrestor, face shield, safety shoe shall be ensured	02	02	04	Emergency number & administrative assistance to the infected person	Site Administrative team

PM / CM / Section Head

EHSO

E=Elimination
 S=Substitution
 EC=Engineering controls
 AC=Administrative controls
 PPE=Personal Protective Equipment

ESSD

LV

NEA

Guide for Hazard Identification and Risk Assessment					
Value	Probability	Severity			
		Safety	Health	Noise Generation	
5	Daily / Frequently at site	Single or multiple Fatality	Terminal illness	An incurable disease that cannot be adequately treated and is reasonably expected to result on death within a short period of time	101 dB and above
4	Weekly / Occurrence in our IC	Serious Injury requiring hospitalization	Unemployable due to illness	Major Health impact requiring doctor's attention returning back to work after a month or non-ionic radiations / tolerable residual risk with medication	91 to 100 dB
3	Monthly / accordance in other ICs	Lost Time Injury	Intense health effect	Moderate health impact / requiring doctors' attention. Person can return back to work within a week E.g.. Viral Fever, fewer due to water contamination etc.	81 to 90 dB
2	Yearly / Occurrence in construction Industry	Injury requiring Medical Treatment but not Lost Time	Minor health effect	Minor health impact / requiring nurse /doctors attention and person can return back to work next day hours Eg. Diabrea, vomiting, Constipation	71 to 80 dB
1	Very rare occurrence in construction industry	First Aid treatment only	Slight health effect	Momentary discomfort / Nuisance E.g.. Head ache, Burning of eyes, Giddiness, person can return back to work immediately after rest	60- 70 dB

Annex 19 Hazard Identification and Risk Assessment for Foundation works

L&T CONSTRUCTION
POWER TRANSMISSION & DISTRIBUTION

Ref: IM 6.1.2-A

HAZARD IDENTIFICATION AND RISK ASSESSMENT

Cluster : Delhi

Name of the project: 400kV BKTL Project, Nepal.

Date: 25.02.2022

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level		Probability	Severity	Risk Level		
	A	B	C	D	E	F	G	H= F x G	I	J	K	L= J x K	M	
		Vehicle / Tractor collapse	R	Fatal / RLTI. Equipment damage	Motor Vehicles and Transport management Act – 2049 and Rules-2054	03	05	15	1. Experienced, Trained and valid license holder drivers only engaged for work. 2. Vehicle having fitness report (IM-9.1.1-B. 3. Vehicle to be driven on the assigned path. 4. Competent rigger to be deployed.	02	02	04	Wheel stopper shall be used.	Site Engineer/ P&M/ EHS
	Approach to the work place	Flash over incident	NR	Fatal / RLTI. Equipment damage	Construction Business Act – 2055	02	05	10	1. Competent excavator operator. 2. Height barrier shall be erected below the overhead line	01	02	03	supervisor shall be deployed.	Site Engineer/ P&M/ EHS
		Insect & Snake bit	NR	Injury to the Supervisor, workmen - Fatal/RLTS	Construction Business Act – 2055	03	05	15	1. Carbollic acid should be used. 2. Goggle, Gumboot & shoe to be used in the bushy areas. 3. Identify the hospitals which is nearest to the sites and facilities are	01	03	03	Trained first aider should be available at site.	All Concern

Sl. No.	Activity	Hazard	Routine/ Non- Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability F	Severity G	Risk Level H= F x G		Probability J	Severity K	Risk Level L= J x K		
	A	B	C	D	E				I				M	
									available regarding snake bite.					
02	Pit marking	Slips, trips and falls	NR	Injury to the person	Construction Business Act – 2055	03	04	12	1. First aid box and necessary PPE's should be maintained at site. 2. Don't use of short cuts, especially in hilly terrains. 3. Barricade the danger zone to restrict the entry of anyone.	02	02	04	Trained first aider should be available at site.	All Concern
03	Excavation	Insects bite	NR	Injury to the person	Construction Business Act – 2055	03	05	15	1. Carbolic acid should be used. 2. Necessary PPE's	01	03	03	Trained first aider should be avail at site.	Site Engineer
		Earth collapse	NR	Fatal /RLTI	Construction Business Act – 2055	04	05	20	1. Slope cutting is being done. 2. Shoring is provided to resist the back pressure. 3. Barricading & Warning sign should be provided. 4. Equipment movement should be restricted to 2.5m away from the pit. 5. Excavated soil must be kept away from edge of the pit at least half of the depth of pit.	02	02	04	1. Step cutting shall be done. 2. Stacking of materials should be done away from edges of pit.	Site Engineer
		Collapse of Adjacent structure, trees, building electrocuted by HT/LT line	NR	Injury to workmen, supervisor, villagers.	Construction Business Act – 2055	02	05	10	Ensure that adjacent structure trees, building, machines, HT/LT are should be in safe distance prior to start of work.	02	02	04	Back stays shall be provided if required to trees and poles.	Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non-Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level H= F x G		Probability	Severity	Risk Level L= J x K		
	A	B	C	D	E	F	G	H= F x G	I	J	K	L= J x K	M	
									Shutdown to be organized if required,					
04	Excavation	Slip, Trip and hit by excavator, boulders fell down on road during excavation	R	RLTI		02	03	06	1. Passage and swinging zone must be identified and mark it. 2. Materials should be stack away from the passage. 3. No one shall stand or come into the vicinity of moving object. 4. Identify the effected road & block it from both the end while excavator is being operation.	01	01	01	1. Sign boards should place 2. Anti-slippery shoes should be provided. 3. Deploy the workers for blocking the road with flag, helmet, reflective jacket, whistle & barricading tape.	Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non- Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level		Probability	Severity	Risk Level		
	A	B	C	D	E	F	G	H= F x G	I	J	K	L= J x K	M	
		Vehicle / Tractor collapse	NR	Fatal / RLTI. Equipment damage	Motor Vehicles and Transport management Act – 2049 and Rules-2054	02	05	10	1. Experienced & Trained drivers only engaging for work. 2. Vehicle having fitness report (IM- 9.1.1-B- Rev 05). 3. Vehicle to be driven on the assigned path.	01	03	03	Wheel stopper and sign boards shall be used.	Site Engineer / P&M / EHS
		Fall of rod / caught in- between the rods while handling	R	Injury to person	Constructio n Business Act – 2055	05	02	10	1. Physical condition of packing strips to be checked before lifting the rod pack. 2. Banks man shall be engaged along with crane. 3. Banks man must be use guide rope to avoid the unwanted swing of hanging material during shifting, loading or unloading of material by hydra.	02	02	04	Guide rope is being used to handle the material.	Site Engineer
06	Material Handling/ Shifting (Manual/Mechanical)	Slips, trips and falls	R	Injury to person	Constructio n Business Act – 2055	04	05	20	1. Nearly same heights of worker shall be engaged in manual material handling. 2. During manual shifting of rods or stubs ensure that sufficient number of shall be engaged and every engaged	02	02	04	Trained first aider should be available. Manual material handling shall be conducted to workers on regular interval.	Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non- Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level		Probability	Severity	Risk Level		
	A	B	C	D	E	F	G	H= F x G	I	J	K	L=J x K	M	
									worker must be use same side of shoulder. 3. No one shall make fun during material handling. 4. Don't take short cuts especially in hilly terrains during material handling. 5. Everyone should use safe approach path from road to site. 6. Don't carry on the material handloading in rainy time and muddy path. 7. First aid box 8. Necessary PPE's.					
		Persons are using tractor's engine & trailer with or without materials.	R	Injury to the Supervisor , workmen - Fatal/RLT		04	05	20	1. Person should not allow traveling on tractor's engine except driver. Ensure that driver should hold valid driving license	02	02	04	Passenger vehicle should be used for transportation of work man.	Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non- Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level		Probability	Severity	Risk Level		
	A	B	C	D	E	F	G	H= F x G	I	J	K	L= J x K	M	
									issued by licensing authority. Ensure condition of transported vehicle, safety locking should be checked in junction of tractor's trolley & engine. 2. Loading and Unloading gang to be different. 3. Vehicle should not overload. 4. No any worker should sit over the loaded trolley. 5. To prevent tractor toppling, hitch type rotation coupler					

Sl. No.	Activity	Hazard	Routine/ Non- Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level		Probability	Severity	Risk Level		
	A	B	C	D	E	F	G	H= F x G	I	J	K	L=J x K	M	
									should be installed in tractor. 6. Competency of tractor driver and tractor fitness should be ensuring on regular basis.					
07	Stacking	Collapse of Adjacent structure, trees, building & electrocuted by HT/LT line	NR	Fatal / RLTi	Construction Business Act – 2055	03	05	15	1. Ensured that adjacent structure trees, building, machines, HT/LT are should be in safe distance prior to stack the material. 2. Shutdown to be organized if required follow EHS risk assessment of shut down.	02	02	04	Additional support in the form of back stays shall be given for poles.	Site Engineer
08	Foundation	Collapse of excavated pit	NR	Fatal / RLTi	Construction Business Act – 2055	03	05	15	1. Suitable slope is given for WET, PS, and FS type of foundation. 2. Loose boulder/cracked mass of earth to be removed, 3. Excavation work permit to be obtained for	02	02	04	1. Step cutting shall be done. 2. Shoring need to done. Soil	Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non- Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level		Probability	Severity	Risk Level		
	A	B	C	D	E	F	G	H= F x G	I	J	K	L= J x K	M	
									multiple authority area. 4. Stacking of soil minimum keep away from the edge of the pit at least half of the depth of the pit. 5. Under cutting is not allowed, 6. Equipment moment should be 2.5m away from the pit. 7. Excavated area shall be barricaded.					

Sl. No.	Activity	Hazard	Routine/ Non- Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level		Probability	Severity	Risk Level		
		B	C	D	E	F	G	H= F x G	I	J	K	L= J x K	M	
	Undercutting for DFR soil.	NR		Injury to the workmen - RLTI		03	04	12	1. Dimension of undercutting at bottom of the pit should not be exceedingly as per drawing.	02	02	04	1. In case of collapsible type soil open cut excavation to be made.	Site Engineer
	Fall of mixer M/c, vibrator etc.	NR		Injury to the Supervisor,	Construction Business Act – 2055	04	03	12	1. All machines should be kept at least 1.5m away	01	02	02	1. Wheel stoppers should be used.	Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level H= F x G		Probability	Severity	Risk Level L= J x K		
	A	B	C	D	E	F	G	H= F x G	I	J	K	L= J x K	M	
									3. Condition of ladder must be 4. Walkway platform shall be provided on the raft.					
									8. Anchoring points of the prop should be at sufficient clearance from edge of the pit. 9. A type ladder should be used while align the prop. 10. Proper and good condition of guide rope shall be provided to stub during setting of it. 11. Person who will fix the nut bolt of stub and prop must be opposite direction of inclination of stub. 12. The base plate of prop adequately anchored by spike rods. 13. Fixation point of base plate of prop must not be on loose soil.					
09	Prop & Stub-setting	Fall from height person or Material	NR	RLTI	Construction Business Act – 2055	03	05	12		02	01	02	1. Backstay should be provided for the stub.	Site Engineer / P&M / EHS r

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level H= F x G		Probability	Severity	Risk Level L= J x K		
	A	B	C	D	E	F	G	H= F x G	I	J	K	L= J x K	M	
									14. Spike rods properly inserted in the earth. 15. The opening end of spike rods must be fully covered by sand or soil bags. 16. Precaution shall be taken while uses of ladder.					
10	Handling of chute during concreting	Concrete mixer, loose materials may fall on workers available inside the pit.	NR	Injury to the Supervisor, workmen - Fatal/RLTI	Construction Business Act – 2055	05	02	10	1. Concrete mixer should be stop 1.5 m away from the pit edge. 2. Adequate chute should be used and make with MS sheet. 3. Hand gloves should be used during handling of materials. 4. Appropriate Personal Protective equipment's (Gum Boots, Safety Helmets) to be used. 5. Rotating parts of Mixture machine shall be covered.	02	02	04	1. Chute should be supported by pipes and logs where ever required.	Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level H= F x G		Probability	Severity	Risk Level L= J x K		
11	Shifting of reinforcement in pit	Trip hazard	R	D	E	F	G	12	1. Adequate manpower to be deployed during shifting of rod. 2. TMT should be kept 1.5m from the edge of the pit. 3. Approach should be free from unwanted materials. 4. Pit edges strengthen should be ensured before shifting the rod. 5. Shuttering should be provided to strengthening the side wall of the Pit.	01	03	03	1. End caps should be used in rods. 2. Pulley arrangements shall be used for shifting the rods into the pit.	Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
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	A	B	C	D	E	F	G	H= F x G	I	J	K	L=J x K	M	
12	Chimney concreting	Fall of person & Fall of material	NR	Fatal / LTI	Construction Business Act – 2055	04	03	12	1. Platform to be made for safely standing & L-Rod & Ring Binding of raise chimney. 2. Platform to be made for safely standing & pouring the concrete into chimney. 3. Empty drum should not be allowed to use as working platform for height work.	02	02	04	1.Sit & stand work poisoning FBH should be used and anchor lanyard hook at firm structure	Site Engineer
13	Back Filling the Pit	Fall of person	NR	Fatal /RLTI	Construction Business Act – 2055	04	03	12	1. Pit edge should be clear from obstruction 2. Excavated pit to be backfilled with adequate lighting.	01	04	04	1. Banks man should be engaged.	Site Engineer
14.	Empty Cement Bags	Environmental Garbage	R	Pollute the soil & water sources	Environment Protection Act, 1986 and Rules 2009, 2012	04	03	12	1. Return all empty cement bags to the store. 2. Don't through cement bags anywhere at site.	01	02	02		Site Engineer

Sl. No.	Activity	Hazard	Routine/ Non-Routine/ Emergency Situation (R/NR/E)	Consequence / Risk	Legal Requirements	Evaluation of Hazard			Existing Control Measures	After existing control measure			Additional Control	Responsibility
						Probability	Severity	Risk Level		Probability	Severity	Risk Level		
15.	Covid-19	Health Hazard	R	Fatal	Public health service act- 2075 (2018)	F	G	H= F x G	1. Proper health declaration of new worker/staff/visitors 2. isolate the person who infected 3. use masks & sanitizers. 4. 2 meters distance must be followed 5. provide the covid-19 vaccination among the all. 6. symptoms found then immediate isolate and test RTPCR.	02	02	04	Emergency number & administrative assistance to the infected person	Site Administrative team

PM / CM / Section Head

EHSO

E=Elimination

S=Substitution

EC=Engineering controls

AC=Administrative controls

PPE=Personal Protective Equipment

Guide for Hazard Identification and Risk Assessment				
Value	Probability	Severity		
		Safety	Health	Noise Generation
5	Daily / Frequently at site	Single or multiple Fatality	Terminal illness	An incurable disease that cannot be adequately treated and is reasonably expected to result on death within a short period of time
				101 dB and above

ESSD

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Guide for Hazard Identification and Risk Assessment					
Value	Probability	Severity			
		Safety	Health		Noise Generation
4	Weekly / Occurrence in our IC	Serious Injury requiring hospitalization	Unemployable due to illness	Major Health impact requiring doctor's attention returning back to work after a month or non-ionic radiations / tolerable residual risk with medication	91 to 100 dB
3	Monthly / accordance in other ICs	Lost Time Injury	Intense health effect	Moderate health impact / requiring doctors' attention. Person can return back to work within a week E.g.. Viral Fever, fewer due to water contamination etc.	81 to 90 dB
2	Yearly / Occurrence in construction Industry	Injury requiring Medical Treatment but not Lost Time	Minor health effect	Minor health impact / requiring nurse /doctors attention and person can return back to work next day hours Eg. Diaphrea, vomiting, Constipation	71 to 80 dB
1	Very rare occurrence in construction industry	First Aid treatment only	Slight health effect	Momentary discomfort / Nuisance E.g.. Head ache, Burning of eyes, Giddiness, person can return back to work immediately after rest	60- 70 dB

PHOTOGRAPHS

A. New Khimti – Barhabise TL section

Plate 1: Divisional Forest Officer of Dolakha verifying the hammer seal of trees



Plate 2: Consultation with Sitakunda CFUG of Dolakha regarding tree cutting of RoW



Plate 3: Safety sign, provision of sanitizer and hand facility at site



Plate 4: Measuring noise level during foundation work



Plate 5: EHSO displaying First Aid Box



Plate 6: Field visit by ADB team



Plate 7: Meeting with PAFs of Shittali and Manthali at Shittali, Dolakha



Plate 8: Consultation by ADB teams, project team and ESMU with PAFs of Bhedpu, Dolakha



Plate 9: Field monitoring for protection work at Melung RM, Dolakha



Plate 10: Meeting with PAFs regarding protection work at AP 47/1



Plate 11: Consultation with land owners for protection work in AP 32/1



Plate 12: Consultation with ward chair regarding demand letter collection for compensation



Plate 15: Consultation with ward chair and PAFs at Project Office, Charikot



Plate 16: Inspection of foundation concreting at AP 19/1



Plate 17: Site inspection for protection work at AP 33/0



Plate 18: Consultation with PAFs for protection work at AP 20/0



Plate 19: Meeting with PAFs and local at Bhimeshwar Municipality-5 regarding protection work



Plate 20: Inspection of landslide occurred at AP 32/1



Plate 21: Consultation with locals at AP 42/2



Plate 22: Consultation with PAFs of Bhedpu, Dolakha



Plate 23: RRM constructed at AP 47/1



Plate 24: Stringing at AP 23/0



Plate 25: Waste bins installed in storage yard at Kiratichhap



Plate 26: Safety signs and instruction board installed in storage yard



Plate 27: Consultation with locals at AP 47/1 regarding debris management



Plate 28: Meeting at Okhreni, Sindhupalchowk regarding maintenance of road



Plate 29: Use of safety net during erection



Plate 30: Work at height using safety belt



Plate 31: Consultation with CFUGs before tree cutting of RoW



Plate 32: Protection work at AP 34/1



Plate 33: Basic Computer Training ongoing in Charikot, Dolakha



Plate 34: Driving Training ongoing in Charikot, Dolakha

B. Barhabise – Changunarayan TL section



Plate 1: Consultation with PAFs in Barhabise- 9



Plate 2: Public consultation in Irkhu



Plate 3: Discussion with PAFs in Barhabise- 4



Plate 4: Addressing PAFs issue in Mandan Deupur



Plate 5: Consultation with ward officials, PAFs in Barhabise



Plate 6: Discussion with locals from Ramche



Plate 7: Humepipe handing over, Ramche



Plate 8: Humepipe handover in Ramche



Plate 9: CSR support to Thulosirubari



Plate 10: Consultation with ADB, SSEMD, ESSD, Project and ESMU Officials



Plate 11: Orientation for Basic Computer Course



Plate 12: Basic computer course ongoing



Plate 13: Basic Computer Course certificate distribution



Plate 14: Contractor's Medical camp ongoing



Plate 15: Pep talks ongoing



Plate 16: Safety orientation & pep talks ongoing



Plate 17: First Aid Box in site



Plate 18: Fire drill practice



Plate 19: Labor camp inspection



Plate 20: Barricading of equipments

Sl. No.	Name	Date	Signature
1	Mr. A. A. A.	15/01/2022	
2	Mr. B. B. B.	15/01/2022	
3	Mr. C. C. C.	15/01/2022	
4	Mr. D. D. D.	15/01/2022	
5	Mr. E. E. E.	15/01/2022	
6	Mr. F. F. F.	15/01/2022	
7	Mr. G. G. G.	15/01/2022	
8	Mr. H. H. H.	15/01/2022	
9	Mr. I. I. I.	15/01/2022	
10	Mr. J. J. J.	15/01/2022	
11	Mr. K. K. K.	15/01/2022	
12	Mr. L. L. L.	15/01/2022	
13	Mr. M. M. M.	15/01/2022	
14	Mr. N. N. N.	15/01/2022	
15	Mr. O. O. O.	15/01/2022	
16	Mr. P. P. P.	15/01/2022	
17	Mr. Q. Q. Q.	15/01/2022	
18	Mr. R. R. R.	15/01/2022	
19	Mr. S. S. S.	15/01/2022	
20	Mr. T. T. T.	15/01/2022	
21	Mr. U. U. U.	15/01/2022	
22	Mr. V. V. V.	15/01/2022	
23	Mr. W. W. W.	15/01/2022	
24	Mr. X. X. X.	15/01/2022	
25	Mr. Y. Y. Y.	15/01/2022	
26	Mr. Z. Z. Z.	15/01/2022	

Plate 21: Labor attendance for safety orientation



Plate 22: EHS induction and vertigo test



Plate 23: Tools inspection before work



Plate 24: Tools inspection before initiation of work



Plate 25: Monitoring and safety check



Plate 26: Tree plantation activity with ADB mission team, Project team & contractor



Plate 27: June 5 Plantation activity



Plate 28: Tree marking ongoing in RoW



Plate 29: Private tree marking at AP35/0 – AP35/1



Plate 30: Tree cutting in RoW



Plate 31: District Forest Staff field verification



Plate 32: Field verification by DFO staff



Plate 35: AP 34/0 erection completed



Plate 36: Stringing work in progress, Irkhu



Plate 37: Jumper work in progress



Plate 38: Stringing work in Progress, Mandan Deupur



Plate 39: Insulator hosting, AP 42/2



Plate 40: AP 25/1 – AP 25/2 spacer fixing completed & AP 25/2 jumper fixing completed



Plate 41: AP45/0 – AP46/0 stringing and space fixing completed



Plate 42: AP46/0- AP46/1 final sag completed