Millennium Challenge Account Nepal (MCA-Nepal)

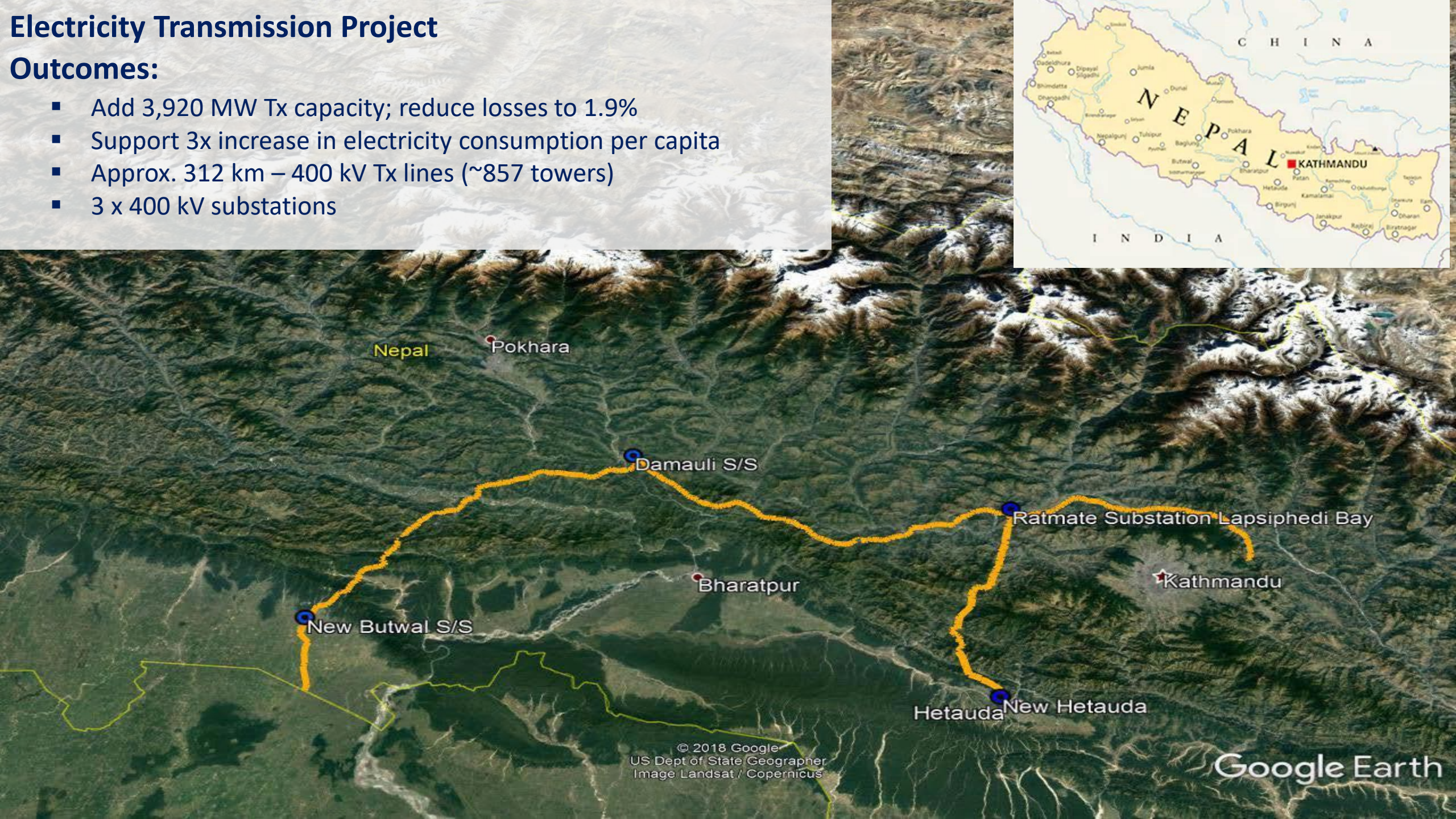
Electricity Transmission Project (ETP)

Transmission Line Activity Outreach Event, New Delhi

Electricity Transmission Project

Outcomes:

- Add 3,920 MW Tx capacity; reduce losses to 1.9%
- Support 3x increase in electricity consumption per capita
- Approx. 312 km – 400 kV Tx lines (~857 towers)
- 3 x 400 kV substations



Electricity Transmission Line Status

- Transmission Line Route Alignment frozen for all five segments
    - Lapsiphedi - Ratmate
    - Ratmate - New Hetauda
    - Ratmate - New Damauli
    - New Damauli - New Butwal
    - New Butwal - Nepal/India Border

- Geotechnical survey works completed
- Draft EIA document in advanced stage of preparation

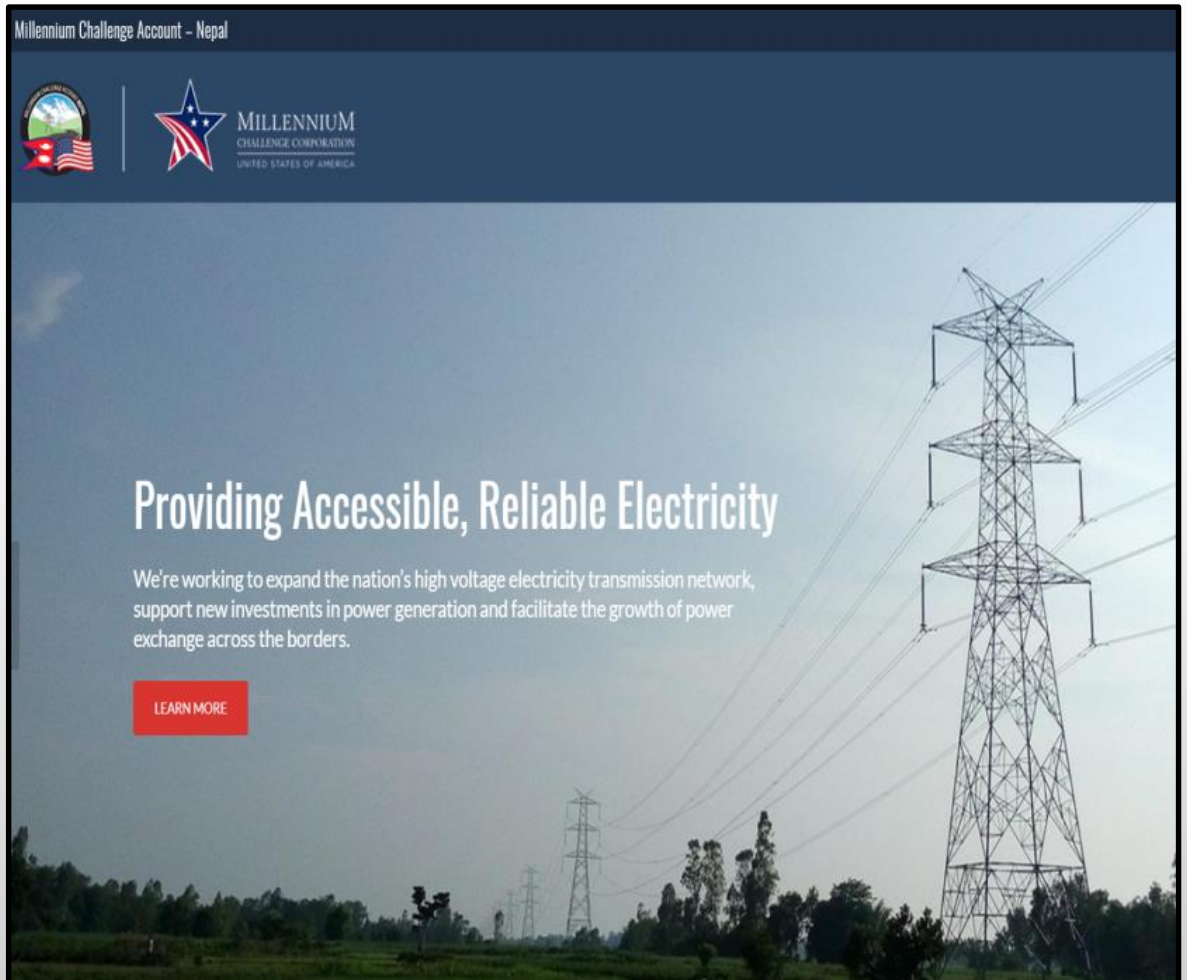
Electricity Transmission Line Status

Nepal Alignment_07-02-19.kmz

Electricity Transmission Line (Works)

- Transmission Lines

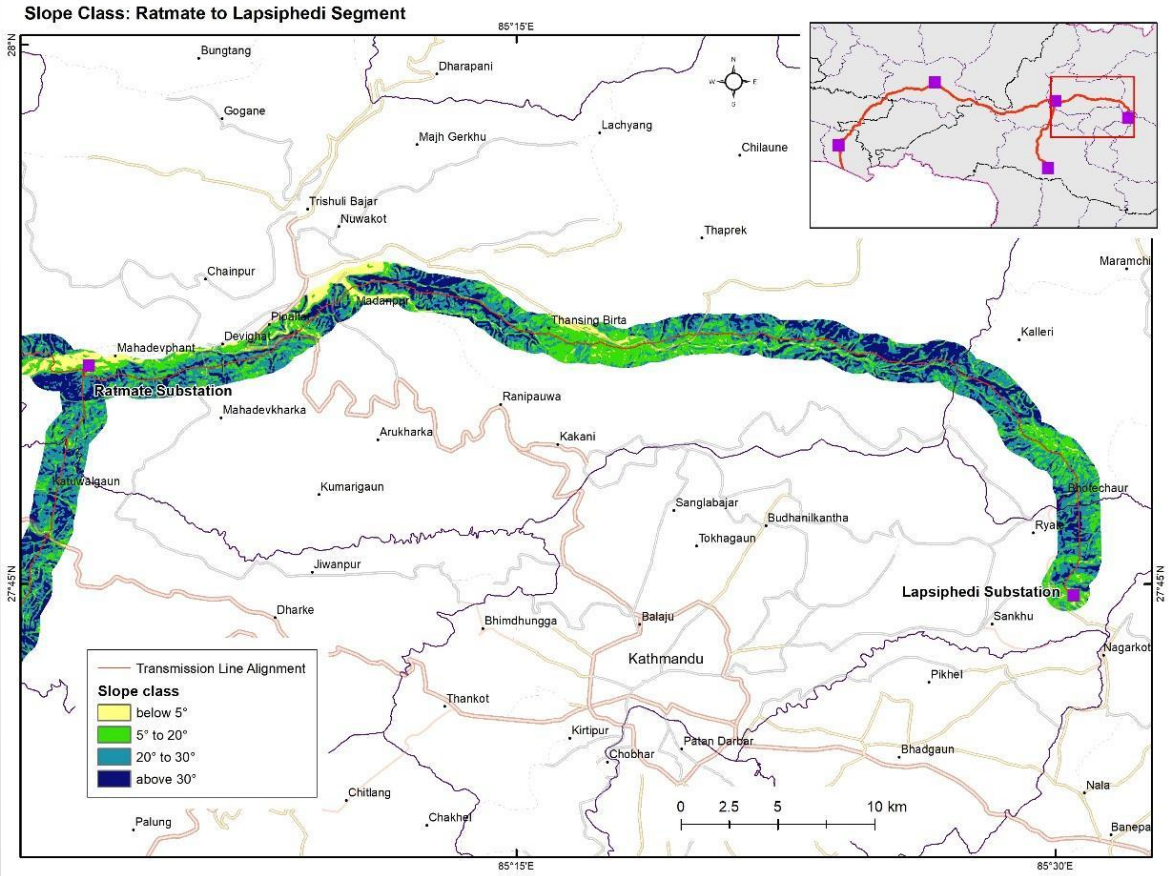
- 400 kV D/C; lots 90-115 km each
- 3.5 year execution
- Design-Build (FIDIC Yellow Book)
- Expected launch: Jan 2020
- Quality-Price Based Selection
- Expected contract sign: Sep 2020



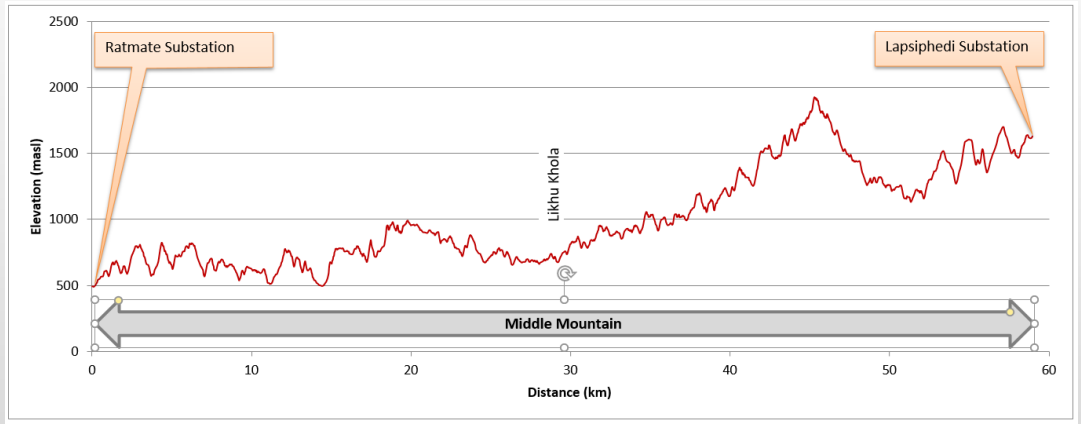
Segment Wise Physical Information

TL Segments	Physiographic Zone (Length Percentile)			Elevation (MASL)	
	Terai	Siwalik	Middle Mountain	Minimum	Maximum
India Border to New Butwal Substation	100%			100	120
New Butwal to New Damauli Substation	7%	21%	72%	115	1380
New Damauli to Ratmate Substation			100%	220	1780
Ratmate to New Hetauda Substation		25%	75%	410	1840
Ratmate to Lapsiphedi Substation			100%	490	1918

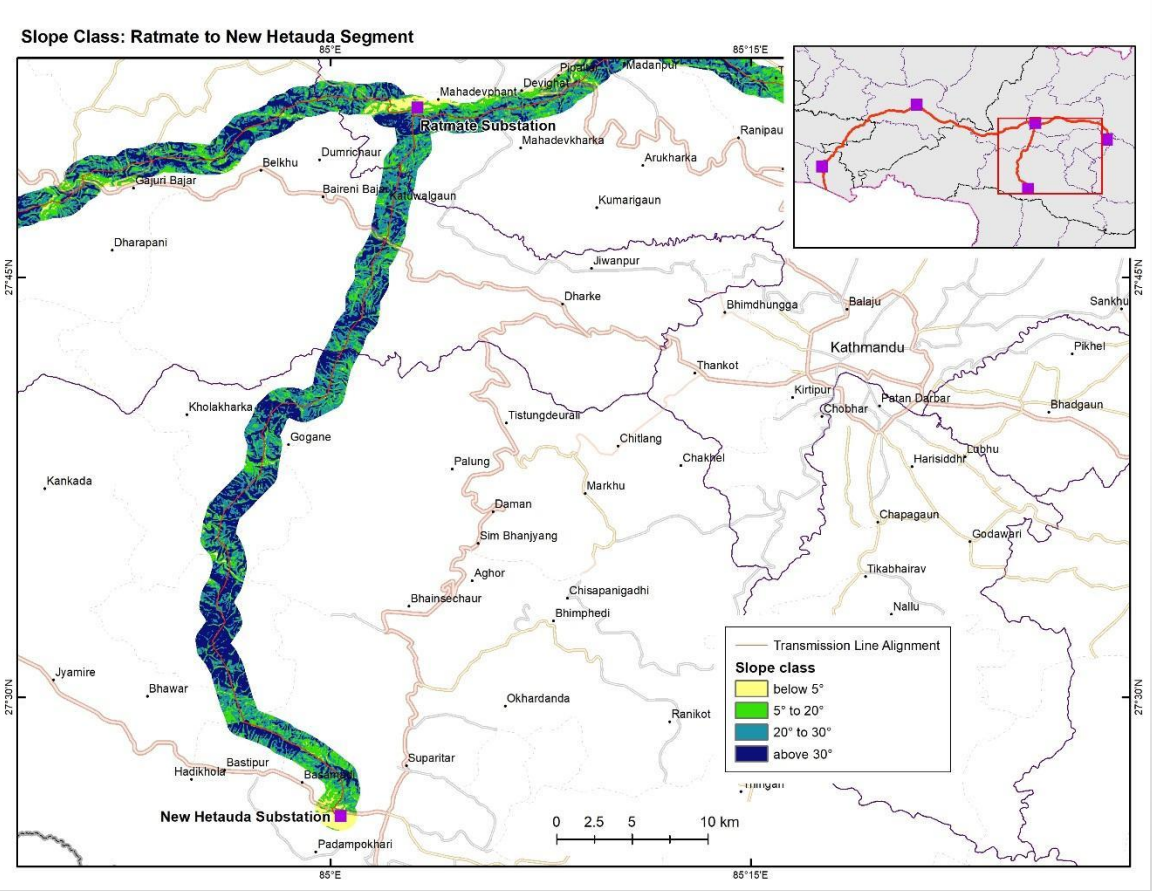
Lapsiphedi-Ratmate-New Hetauda 400kV D/C Transmission Line



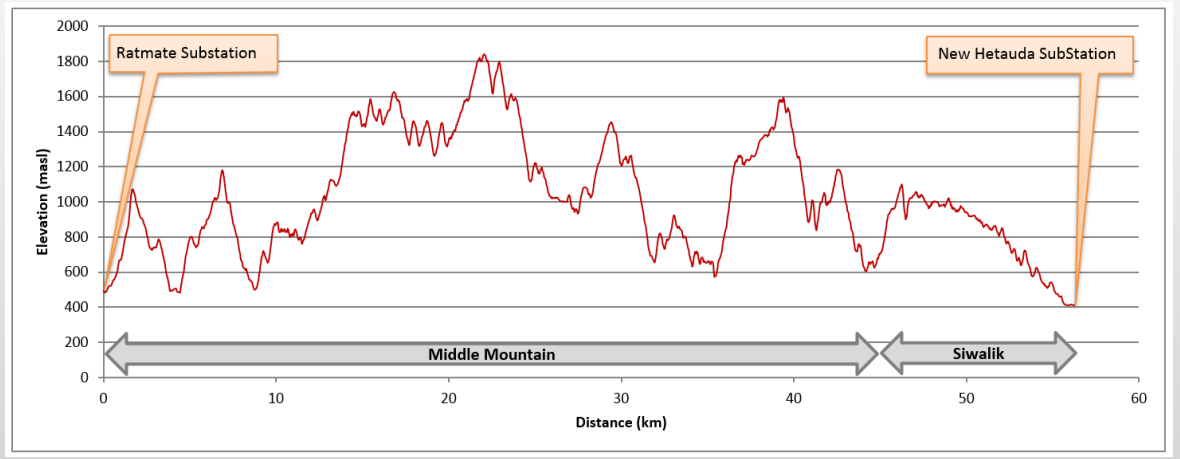
- Lapsiphedi – Ratmate
- Middle Mountain physiographic zone (Ratmate to Lapsiphedi)
- Section Length : Approx. 59 km
- No. of towers: Approx. 163
- 400 kV Quad Moose Double Circuit



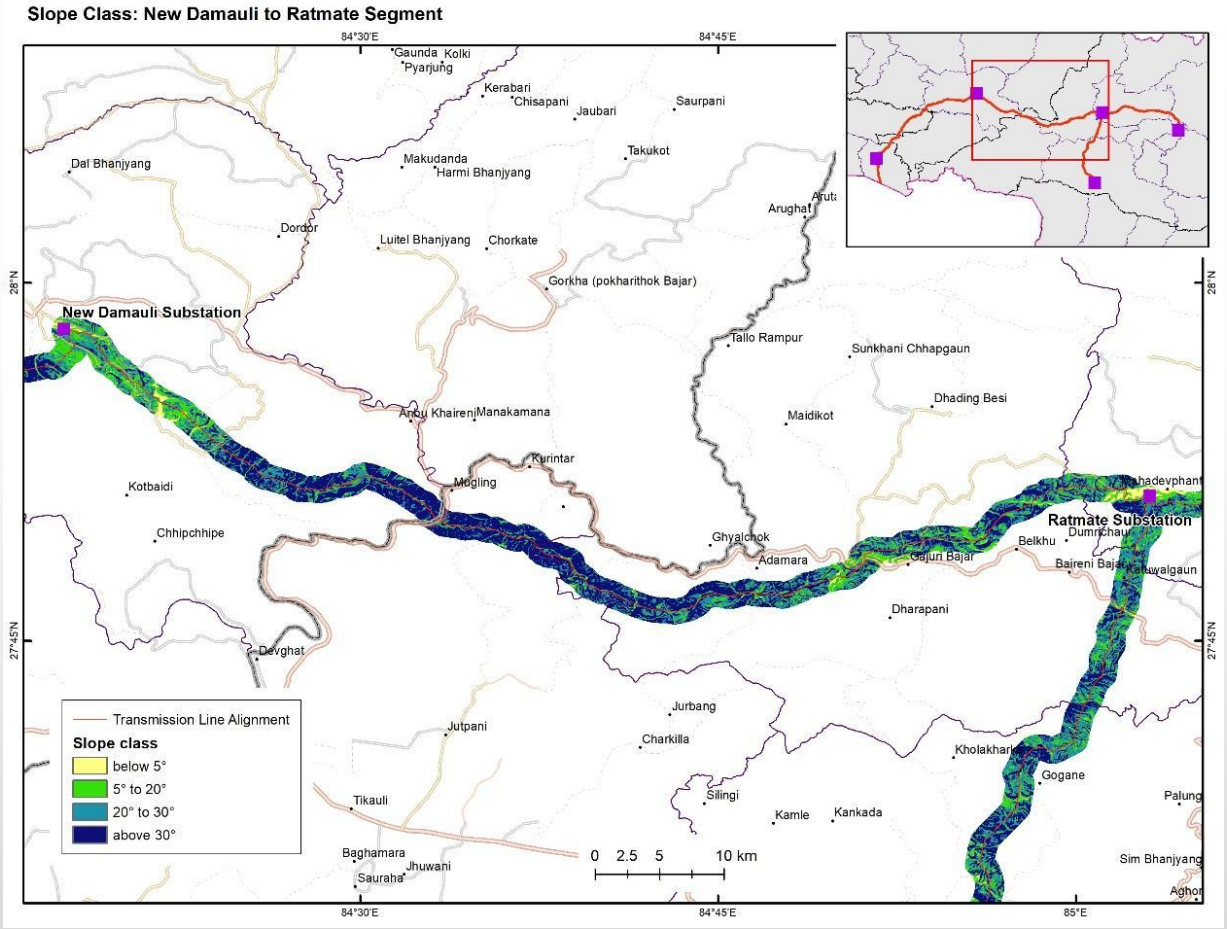
Lapsiphedi-Ratmate-New Hetauda 400kV D/C Transmission Line (contd...)



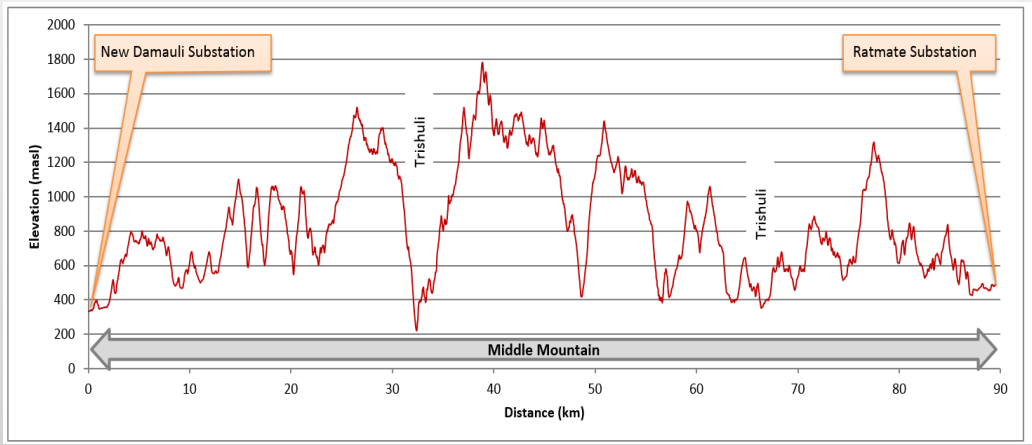
- Ratmate to New Hetauda
- Middle Mountain zone and partly in Siwalik zone
- Section Length : Approx. 56 km
- No. of towers: Approx. 142
- 400 kV Quad Moose Double Circuit
- Possibility of few Quad Moose Quad Circuit towers



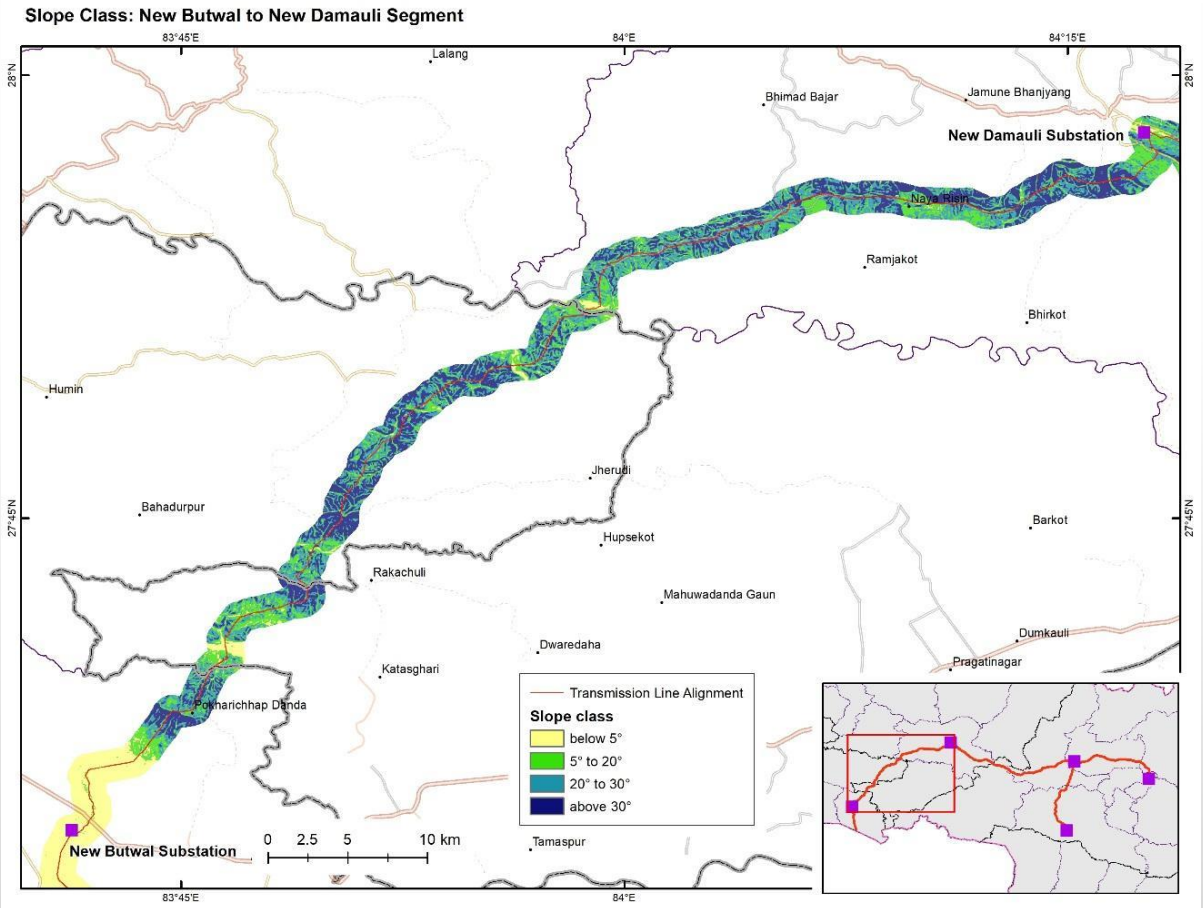
Ratmate-New Damauli 400kV D/C Transmission Line



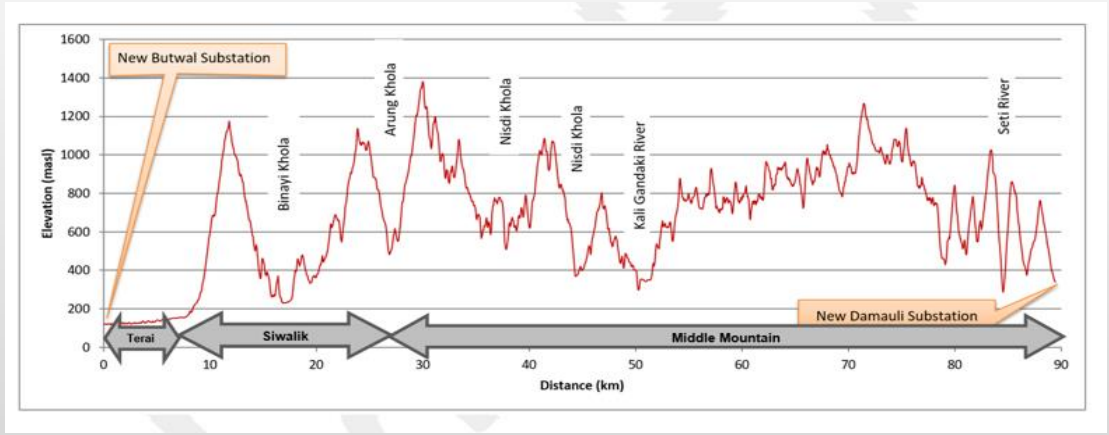
- Middle Mountain physiographic zone (Ratmate to New Damauli)
- Section Length : Approx. 89 km
- No. of towers: Approx. 251
- 400 kV Quad Moose Double Circuit



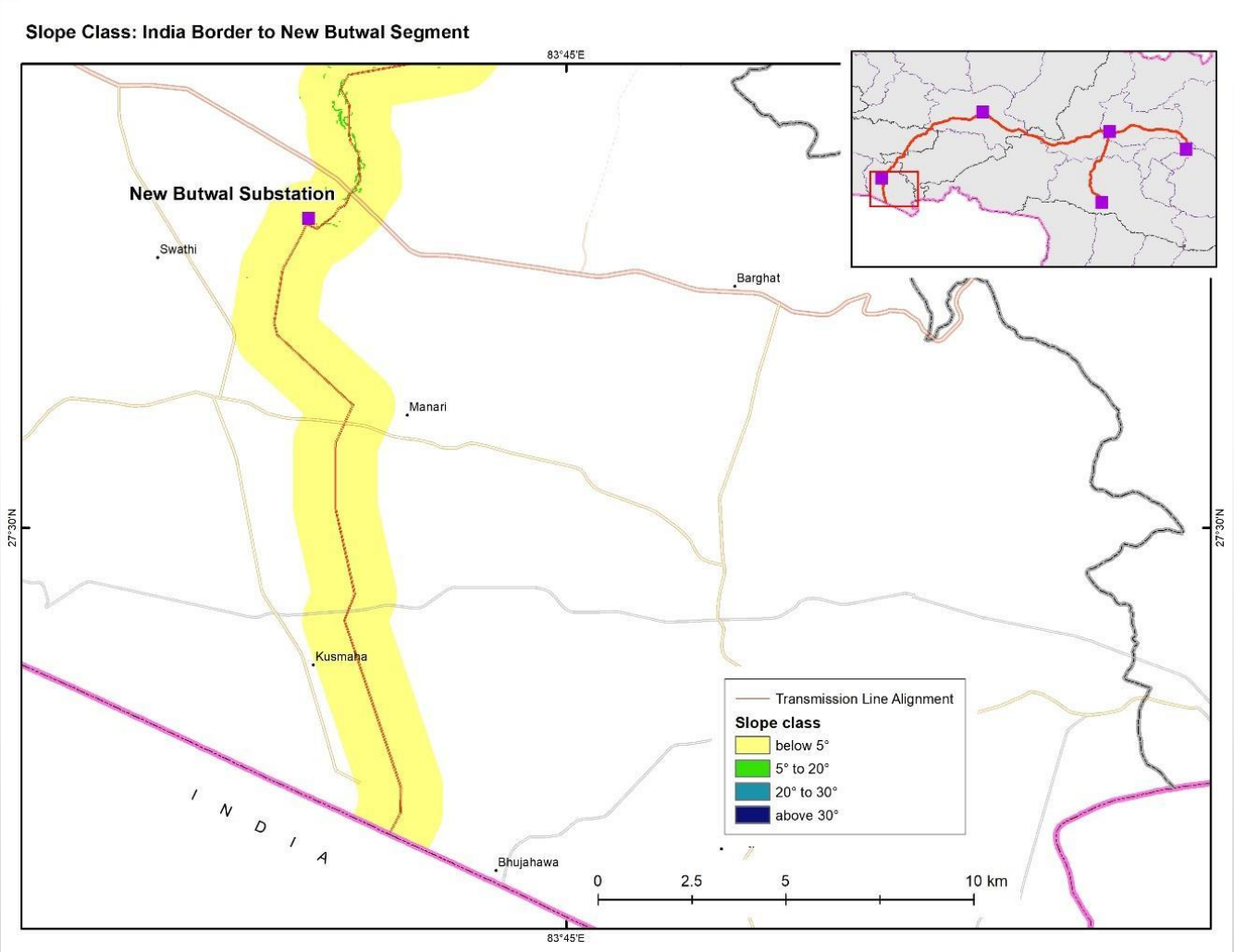
New Damauli-New Butwal-Indo Nepal Border 400kV D/C Transmission Line



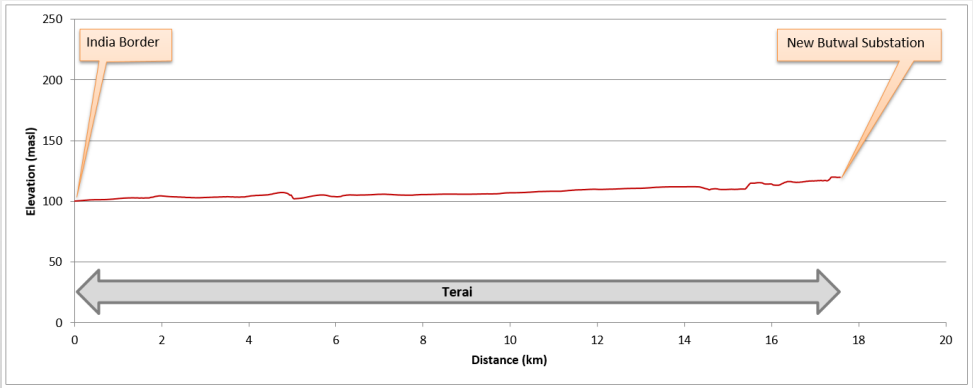
- New Damauli to New Butwal
- Cuts across three physiographic zones - Terai, Siwalik, and Middle Mountains.
- Section Length : Approx. 90 km
- No. of towers: Approx. 248
- 400 kV Quad Moose Double Circuit
- Few Quad Moose Quad Circuit towers near New Butwal substation



New Damauli-New Butwal-Indo Nepal Border 400kV D/C Transmission Line



- New Butwal to India Border
- Terai physiographic zone
- Section Length : Approx. 18 km
- No. of towers: Approx. 52
- 400 kV Quad Moose Double Circuit



Transmission Line Towers

Probable Tower Types

- Suspension
- Tension (mostly)
- Special Tower (for long spans)
- Multi Circuit (for corridor issues)

Access Road Classification

Category	Width	Turn radius	Slope percent	Remarks
1	~5m	min. 90 ft	0 to 15	Generally paved or unpaved and well maintained
2	~3m	Min. 45 ft	0 to 30	Unpaved road in fair condition
3	~2.5m	Min. 20 ft	0 to 45	Unpaved narrow road in poor condition
4	~1.5m	Min. 15 ft	0 to 45	Wide trail in fair condition
5	~0.5m-1m	Min. 6ft	0 to 24	Narrow trail.
6				Aerial access in the only option

Transmission Line Preliminary Assessment of Road Access

Length of Access Roads per Category in each Segment					
Segment	Road Category (in km)				
	1	2	3	4	5
New Butwal to India Border	49.0	22.2	12.4	8.8	
New Butwal to New Damauli	216.2	86.0	115.1	41.1	45.2
New Damauli to Ratmate	201.5	32.4	156.7	126.8	61.2
Ratmate to Lapsephedi	21.1	65.6	97.3	57.3	25.9
Ratmate to New Hetauda	187.6	96.6	52.9	29.7	28.5

Resettlement and Land Acquisition

- Resettlement policy framework completed
- Entitlement Matrix completed
- RAP of Transmission lines will be completed by June 2020
- Land compensation payment to be completed by December 2020

Challenges

- Difficult Terrain, Transportation of materials: Elevations vary from 100 meters (330 ft.) to around 2000 meters (6563 ft.)
- Land acquisition and securing right of way
- Heavy monsoon season of 3 months (9 months effective in a year)
- Forest clearance
- Major river crossing
  - Trishuli
  - Kali Gandaki
  - Seti

Expected Timeline

Activities	2020												21	22	23	24		25
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec				Jun	Jul	Jun
Bid Release (in web & Newspaper)	■																	
Site visit		■																
Pre-bid meeting		■																
Bid Submission					■													
Technical Bid opening					■													
Financial Bid Opening							■											
Award of contract									■									
Construction Period											■	■	■	■	■	■		
Defect Notification Period																	■	■

MCA Partnership program

- A benefit sharing component of ETP

- Intent: Benefits from infrastructure development are equitably shared with people directly and indirectly affected by the project which goes beyond compensation and mitigation measures

Thematic Areas

- Thematic Area 1: Extension and upgrading of grid-based electricity distribution system
- Thematic Area 2: Provision of off-grid electricity solutions
- Thematic Area 3: Provision of capacity building support to increase benefits of electricity

MCA Partnership program Status

- Framework developed
- Sub-activity consultation to be done by December 2019
- Expected date for construction bid release for thematic area 1 by August 2020
- Expected date for Request for proposal for Thematic area 2 and 3 by March 2020

Environmental and Social Issues in Transmission Line

Environmental and Social Impacts of TL

- Land needs to be acquired for transmission towers – private land or forest.
- Restriction on the use of row land – 46m, 23m on each side.
- Landslides/soil erosion
- Health and safety issues
- Trafficking in person

MCA - Nepal / MCC Policies

- Follow GoN rules and regulations including Land Acquisition Act, Environment Protection Act, and Regulations, Forest Acts.

- Follow MCC Environmental Guidelines and International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability.

- Follow MCC Gender Policy and Social and Gender Integration Guidelines.

Additional Employer's Requirements of Note

Avoidance (Examples)

- Avoid biodiversity hotspots
- Avoid settlements
- Avoid cultural heritages

Minimize (Examples)

- Minimize forest clearance by appropriate tower designs, use of pilot wire, drones, etc. for stringing.

- Minimize the need for access roads by use of porters and other methods.

Mitigate (Examples)

- Use of bird diverters
- Reforestation
- Slope stabilization/rehabilitation works

For more Information

- MCC-funded business opportunities, please visit: www.mcc.gov/work-with-us
- For MCA-Nepal business opportunities, please visit: www.mcanp.org
- For Q&A regarding the procurement, please contact: info@mcanp.org

Thank you.