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We are involved in over 5388MW of Hydropower Projects, 2141km of Transmission Line Projects ranging from 33kV to 400kV & 1745km distribution lines all over Nepal.

## We are the pioneer consulting firm in Nepal to work in:

- » High voltage (400 kV) transmission line in high altitude (2,716 m), Tamakoshi (Khimti) Kathmandu TL Project.
- » First major storage-type hydroelectric project, Budhigandaki HEP (1200 MW).
- » Detailed design of highest dam (263 m) in Nepal, Budhigandaki HEP.
- Supervision of construction of 400 kV Transmission line project, Hetauda-Dhalkebar-Inaruwa 400 kV TL Project.
- » Prepare the Resettlement Action Plan (RAP) of 400 kV Transmission Line, SJVN Arun-3 Power Development Company Pvt. Ltd.
- » Supervision of construction and commissioning of 220 kV Power Substation, Dhalkebar Substation.
- » Largest foreign direct investment (FDI) in the hydropower sector in Nepal till date, Upper Trishuli-1 HEP.
- » Supervision of construction and commissioning of 220 kV Transmission Line Project, Khimti Dhalkebar TL Project.
- » More than 2,100 km length of transmission line projects.



Jade Consult is a private consulting firm established in 2001 A.D., registered with the Department of Industries (reg. no.15037), Government of Nepal, under company Act 2053 with expertise in the field of hydropower, transmission lines, roads, water resources and irrigation and environmental & social studies of various infrastructure development projects.

The firm is certified with ISO 9001:2015, quality management system and ensures the owner to render its service with good quality within specified time frame.

Since 2001, our competent staffs have been providing comprehensive, integrated solutions in all segments of hydropower, transmission line and other infrastructure development projects. We offer our clients exceptionally detailed industry knowledge and engineering services.





WE PROVIDE CONSULTANCY SERVICES FOR DESIGN, CONSTRUCTION SUPERVISION, ENVIRONMENTAL & SOCIAL STUDIES OF HYDROPOWER, TRANSMISSION LINE, ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT PROJECTS.

## Hydropower & Dams

We are involved in over three dozen hydro power projects totaling up to 5388MW capacity at different stages of development. We provide all necessary technical support to hydropower developers.

## Transmission Line

We are the pioneers of transmission line consulting in Nepal, with nearly two decades of experience in high voltage transmission line systems of up to 400kV. At present, we are involved in a number of transmission line projects ranging 33kV/132kV/220kV/400kV across the country comprising a total length of about 2141km.

## Road/ Highways

We are involved in survey, feasibility study, detailed design and construction supervision of several road projects ranging from rural roads to highways in diverse and difficult geographical terrains of Nepal.

#### Environmental & Social Studies

We have sucessfully conducted the EIA, prepared the land acquisition, resettlement & rehabilitation action plan for prestigious projects like Budhigandaki Hydropower Project 1200MW and Upper Trishuil-I Hydropower Project 216MW and resettlement & rehabilitation action plan and supplementary IEE for 400kV D/C Transmission Line of Arun-3 HPP 900MW.



# Our Values



## Working with clients:

We're on a journey to devise ways to create positive impact through every decision, required every day to create value for our clients in helping them to navigate risks and opportunities that arise from solving sustainability challenges.





## More than just doing the right thing:

To us, being responsible in our business means managing our operations with ethics and integrity and recognizing that our responsibilities extend into our value chain. But more than that - we understand that the most significant societal contribution we make is through the work we do every day. It also means recognizing our responsibilities, and opportunity to influence for positive change.



## **Our Quality Policy**

We are committed to provide excellent consultancy services for hydropower, transmission line, road and civil structure projects in national as well as international market, ensuring best quality services, complying with statutory and regulatory norms as well as requirements of our quality management system based on ISO 9001:2015 standard so that we fulfill the expectations of our customers and to increase the satisfaction level our clients.

## Integrity:

Highest level of integrity in our work is fundamental to who we are. We give utmost importance to our reputation for which we follow ethical principles and are strongly committed to sustainable and responsible business practices.



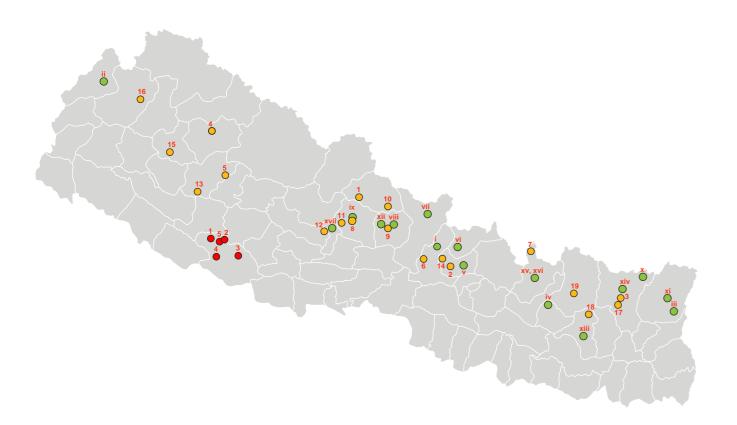


## Outstanding value to markets and clients:

We play a pivotal role in helping our clients operate more effectively in reaching their goals. We consider our part in their success as a privilege and are willing to provide constant vigilance and unrelenting commitment it requires.



# Hydropower & Dams



Feasibility Study of Dams in Dang Valley

1: Vitri Dam

2: Gwar Dam

3: Balim Dam

4: Vutiya Dam

5: Ranighat Dam

#### Ongoing Projects

- i: Ankhu Khola HPP (34 MW)
- ii: Upper Chameliya HPP (21.93MW) iii: Kabeli-3 HEP (21.93MW)
- iv Likhu-A HPP (24 2MW)
- v: Lower Tadi Khola HPP (5MW)
- vi: Upper Trishuli-1 HPP (216MW)
- vii: Budhi Gandaki Nadi HEP (91 17MW)
- viii: Nyadi HPP (30MW) ix: Upper Seti HPP (20MW)
- x: Chhujung Khola HPP (48MW)
- xi: Simbuwa Khola HPP (70 3 MW)
- xii: Upper Khudi HPP (21.21 MW) xiii · Sansun Khola Small HPP (6.6 MW)
- xiv: Isuwa Khola HPP (97.2 MW)
- xv: Kaligandaki Storage HPP (844MW)

### O Completed Projects

- 1: Manang Marsyangdi HPP (144 MW)
- 2: Saptang Khola Small HPP (2.5 MW)
- 3: Lower Barun Khola HPP (132 MW)
- 4: Jawa Khola HPP (17MW)
- 5. Rheri-1 HPP (270MW)
- 6: Budhi Gandaki HEP (1200MW)
- 7: Upper Lapche HPP (55MW)
- 8: Karuwa Seti HPP (32MW) 9: Upper Marshyangdi-III HEP
- 10: Upper Marshyangdi-II HEP
- 11: Upper Modi HPP
- 12: Low Head Kaligandaki HPP
- 13: Chere Khola HPP 14: Saptang Khola HPP
- 15: Tila HPP
- 16: Talkot Seti HEP
- 17: Lower Arun HPP 18: Rawa Khola HPP
- 19: Deku Khola HPP
- 20. BAP for Tamakoshi V HEP (99.8MW)
- 21. SESD for Tamakoshi V HEP (99.8MW)

Completed Projects

#### Five Dams in Dang Valley

Client- Mega Dang Valley Irrigation Project

- Works- Feasibility Study, IEE & Detailed Design of 5 Dams:
- 1. Dam at Vutiya Tal- 15m (Earthen Dam)
- 2. Dam at Ranighat Khola- 43m (Earthen Dam)
- 3. Dam at Balim Khola-70m (Clay Core Rockfill Dam)
- 4. Dam at Vitri Khola-29m (Earthen Dam)
- 5. Dam at Gwar Khola- 125m (Clay Core Rockfill Dam)

#### Upper Trishuli- 1 HEP (216MW)

Client - Nepal Water and Energy Development Company Pvt. Ltd.

Works - Assistance in Preperation of Detailed Design, Drawings & Cost Estimates

#### Manang Marsyangdi Hydropower Project (144 MW)

Client - Marsvanadi Power Company P. Ltd

Works - Design review, Cost review, financial analysis, preparation of construction schedule, Power and Energy calculation for Peaking RoR, Power Evacuation Study, facilitation of Grid Connection Agreement and Power Purchase Agreement

#### Saptang Khola Small Hydropower Project (2.5 MW)

Client - Machhapuchhre Bank Limited

Works - Prepare Due Diligence Study Report, review and independent analysis of hydrology and geological study, review and independent assessment of installed capacity and energy generation, review and independent analysis of transmission plan, review of design parameters and criteria, verification of cost estimates, financial analysis

#### Lower Barun Khola Hydropower Project (132 MW)

Client - Ampik Energy Pvt. Ltd.

Works - Geotechnical investigation that includes 265 m of core drilling and associated laboratory tests

#### BudhiGandaki HPP (1200MW)

Client - Budhigandaki Hydropower Development Committee

Works - Feasibility study, Detailed Design Report & Tender documents preparation and EIA Studies

## Rawa Khola HEP (6.5MW)

Client - Dudh Koshi Power Company Pvt. Ltd.

Works - Detailed Engineering Design & Tender Documents Preparation

#### Upper Marsyangadi-III HEP (121MW)

Works -Investigation, Detailed Feasibility Study of the project, which includes Topographical survey, Geological mapping and investigation, Hydrological analysis EIA study etc.

#### Upper Marsyangadi-II HEP (125MW)

Works -Investigation, Design and Detailed Feasibility Study.

#### Upper Marsyangadi-II HEP, Optimization (250MW)

Client - Himtal Hydropower Co. Pvt. Ltd

Works -Investigation of optimal plant capacity. Detail analysis of the project alternatives. Preparation of optimization study report.

### Lower Arun HEP (400MW)

Client - Bras Power International, Brazil

Works - Hydrological gauging station establishment, Land Acquisition, Survey, Design and Drawing preparation for approximately 26km long access road Upper Modi HEP (14 MW)

Works - Upgrading and Detailed Feasibility Report and ACRP Report.

### Low Head Kaligandaki HEP (30MW)

Works -Inventory study & Preparation of Desk Study report

Talkot Seti HEP (75MW)

Works - Inventory study & Preparation of Desk Study report

#### Deku Khola (3.4MW)

Client - GCE Group Pvt. Ltd.

Works -Inventory study & Preparation of Desk Study report

#### Tila HEP (500MW)

Works -Inventory study & Preparation of Desk Study report

#### Chhere Khola (12MW)

Client - lade Power Pvt. Ltd.

Works -Inventory study & Preparation of Desk Study report

#### Phukot Karnali HEP (210MW)

Client - PES Engineers Pvt. Ltd.

Works - Preparation of Desk Study report

#### Upper Seti Hydropower Project (20MW)

Works - Feasibility Study including Field Investigation (Hydrological & Sedimentological Study, Geological Mapping, Topographical Survey)

#### Upper Lapche Khola (52MW)

Works - Review of Feasibility Study & Detail Project Report. Detail Engineering Design with reinforcement drawing. Preparation of Tender Documents

#### Upper Trishuli-I HEP (216MW)

Client - Nepal Water and Energy Development Company Pvt. Ltd Works - Project investigation, Design and Detailed Feasibility Study. Preparation of EIA, ToR Scoping and EIA report, Survey, Design and Drawing

preparation of access road

#### Karuwa Hydropower Project (36MW), Kaski

Client - Jhaymolonga Hydropower Company P. Ltd

Works - Detail design of all project structures including 3.5 Km HRT, preparation of tender documents, survey and design of access road and transmission line, hydrological and sedimentological studies, geological mapping.

#### Bheri-1 Hydropower Project (270MW)

Client - Gezhouba Group Power Investment Nepal Pvt. Ltd.

Works - Review of Feasibility Study

#### Jawa Khola HPP (17.2MW)

Client - Department of Electricity Development

Works - Feasibility Study and IEE Study

#### Preparation of Biodiversity Action Plan (BAP) for Tamakoshi V Hydroelectric Project (99.8 MW)

Client: Tamakoshi Jalvidyut Company Limited

(Funded by Asian Infrastructure Investment Bank)

Works - To conduct and prepare Critical Habitat Assessment, Consultation and Partnership Building Strategy, Mitigation Strategies and Biodiversity Action Plan

#### Preparation of Supplemental Environmental and Social Documentation (SESD) for Tamakoshi V Hydroelectric Project (99.8 MW)

Client - Tamakoshi Jalvidyut Company Limited

(Funded by Asian Infrastructure Investment Bank)

Works - Restructure Environmental Management Action Plan (EMAP), prepare Stakeholder Engagement Plan, prepare Monitoring Plan, conduct Cumulative Impacts Assessment, Climate Change Assessment, develop Pollution control strategy, develop Public Health and Safety Strategy, develop Local employment strategy, prepare Land acquisition and Livelihood Restoration Plan, Environmental Flows and Ecosystem Services Assessment, develop E&S actions to be implemented by the Developer, develop E&S specifications for the EPC contractor.



## Ongoing Projects

# Contract Management and Related Works for Construction of Sunkoshi Marin

Client: Department of Water Resources and Irrigation

Funding Agency: Government of Nepal

Diversion Multipurpose Project

Works: The work involves design review, construction supervision, quality control, project management, construction and contract management

#### Owner's Engineer Services for Upper Trishuli - I Hydroelectric Project (216 MW)

Client: Nepal Water and Energy Development Company Pvt. Ltd (Funded by IFC, ADB, AIIB, K-EXIM, KDB, CDC, FMO, PROPARCO and OFID.) Works: Design Review, Construction Supervision, Contract Administration, Environmental and Social Safeguards Implementation and Compliance Monitoring

#### Lower Kopili Hydroelectric Project (120 MW), Assam, India

Client: Assam Power Generation Corporation Limited (Funded by ADB)
Works: Independent monitoring of implementation of Social and Environment safeguards during design, construction and operation phases.

#### Lower Likhu HPP 28.1 MW

Client: Consortium led by Laxmi Bank Works: Due Diligence Study for Cost Overrun

#### Landruk Modi Hydropower Project (86.59 MW)

Client: Consortium led by Global IME Bank Ltd Works: Due Diligence Study

#### Mid Hongu Khola - A Hydropower Project (22 MW)

Client: Consortium led by Sanima Bank

Works: Technical Consultant for Bill Verification Work & Construction Monitoring

#### Upper Piluwa Khola 3 Hydropower Project (4.95 MW)

Client: Consortium led by Laxmi Bank Limited

 $Works: Technical \ Consultant \ for \ Bill \ Verification \ Work \ \& \ Progress \ Monitoring.$ 

#### Rele Khola Hydropower Project (6 MW)

Client: Consortium led by Himalayan Bank

Works: Technical Consultant for Bill Verification Work & Progress Monitoring

#### Khimti-2 Hydropower Project (48.8 MW)

Client: Consortium led by Sanima Bai

Works: Technical Consultant for Bill Verification Work & Progress Monitoring

#### Upper Jeuligad Small Hydroelectric Project (4 MW)

Client: Woonsun Energy & Construction Co. Ltd., Seoul, Korea Works: Feasibility study

#### Kaligandaki Storage Hydropower Project (844 MW), Parbat & Myagdi District

Client - Department of Electricity Development

 $Works-Feasibility\,Study\,and\,Environmental\,Impact\,Assessment\,Study.$ 

#### Upper Khudi Hydropower project (21.21 MW)

Developer: Super Khudi Hydropower Project

Client - Bank of Kathmandu Works - Due Diligence Study.

#### Sapsup Khola Small Hydropower Project (6.6 MW)

Developer: Three Star Hydropower Pvt. Ltd.

Client - Himalayan Bank I td

 ${\it Works-Technical\,Bill\,Verification\,and\,Progress\,monitoring}$ 

#### Isuwa Khola Hydropower Project (97.2 MW)

Developer: KBNR Isuwa Power Ltd. Client - Sanima Bank Ltd

Works - Technical Bill Verification and Progress monitoring

#### Ankhu Khola Hydropower Project (34 MW)

Client - Consortium led by Sunrise Bank Ltd

Works - Technical Consultant for bill Verification Work & Progress Monitoring.

#### Upper Chameliya Hydropower Project (60 MW), Darchula District

lient - Department of Electricity Development

Works - Feasibility and Environmental Impact Assessment (EIA) study

#### Simbuwa Khola Hydroelectric Project, Taplejung District, Nepal (70.3 MW)

Client - Remit Hydro Ltd

Works - Updating Feasibility Study, Conducting Detailed Engineering Survey & Design and Preparation of Tender Documents

#### Budhi Gandaki Nadi HEP (91.17MW), Gorkha

lient - Surya Energ

Works - Detail Feasibility including field investigation (hydrological and sedimentological study, geological mapping, topographical survey) & EIA

#### Kabeli -3 HEP (21.93MW), Taplejung

Client - Kabeli HP Dev. Co. P Ltd

Works - Detail Design of all project structures such as headworks, headrace tunnel, penstock, powerhouse, camp facilities, access road including hydrological & sedimentological studies and geological mapping.

#### Likhu-A Hydropower Project (24.2MW)

Client - Consortium led by Laxmi Bank

Works - Technical Consultant for Bill Verification Work & Progress Monitoring

#### Nvadi Hvdropower Project (30MW)

Client - Consortium led by Everest Bank

Works - Technical Consultant for Bill Verification Work & Progress Monitoring

## Lower Tadi Khola HPP (5MW)

Client - Consortium led by Siddhartha Bank

Works - Technical Consultant for Bill Verification Work & Progress Monitoring

#### Likhu-IV Hydroelectric Project (52.4MW)

Client - Consortium led by Laxmi Bank

Works - Technical Consultant for Bill Verification Work & Progress Monitoring

#### Langtang Khola Hydroelectric Project (20MW)

Client - Consortium led hy Sunrise Re

Works - Technical Consultant for Bill Verification Work & Progress Monitoring

#### Chujung Khola Hydropower Project (48MW)

Client - Chujung Khola Hydropower Co. Ltd.

Works - Detail Feasibility Study including field investigation (Hydrological and sedimentological study, Geological mapping, Topographical survey)

#### Upper Seti Hydropower Project (20MW)

Client - Upper Seti Hydro Pyt Ttd

Works - Detail Design of all project structures including 2.51 Km HRT, preparation of Tender Documents, survey and design of access road and Transmission line, hydrological and sedimentological studies, geological mapping.

#### E&S Baseline Data Collection, Downstream Impact Assessment and E-flow Assessment Study, Rapid Cumulative Impact Assessment (CIA) for Upper Karnali Hydropower Project (HPP), Nepal

Client: EDF/GMI

Works: Collection of environmental and social baseline data, E-flow assessment study covering a downstream baseline and initial impact assessment, Rapid Cumulative Impact Assessment (Rapid CIA) on Karnali River

## Simbuwa Khola HEP (70.3 MW)

Simbuwa Khola Hydroelectric Project is a RoR type of hydropower project envisaged to be developed in Lelep and Tapethok VDCs (currently in Faktanglung Rural Municipality) of Taplejung district, utilizing the flow of Simbuwa Khola, a tributary of Tamor River. The scheme is a 70.34 MW (installed capacity) hydropower project with a gross head of 888.86 m and design discharge of 9.24 cumecs at 40% flow exceedence level. The major structures of the project are a 5 m high and 17 m long weir and two intakes (3.2 m x 2.5 m). A two chambered underground desanding basin of 80 m length is proposed. The headrace tunnel is 4.393 km long, which will lead to a 26m high underground surge shaft. The design flow will be directed towards the underground powerhouse through a 1.8 m diameter pressure shaft with vertical drop at three places of maximum drop of 300m and length of 2710.42 m. The annual energy generation from the project will be 378.96 GWh and the electricity generated will be evacuated through interconnection with the Dhunge Sangu substation via proposed Koshi corridor.

### Client

Remit Hydro Ltd.

Scope of Works

- Review and update of existing feasibility study
- Detailed Engineering Survey & Design
- Preparation of tender documents

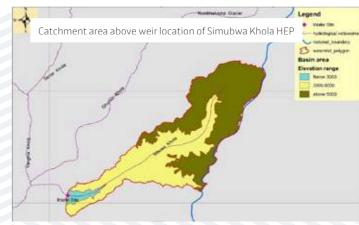
Genera

Project Location: Taplejung District

Nearest highway: Mechi Highway (Charali- Fungling Bazar)











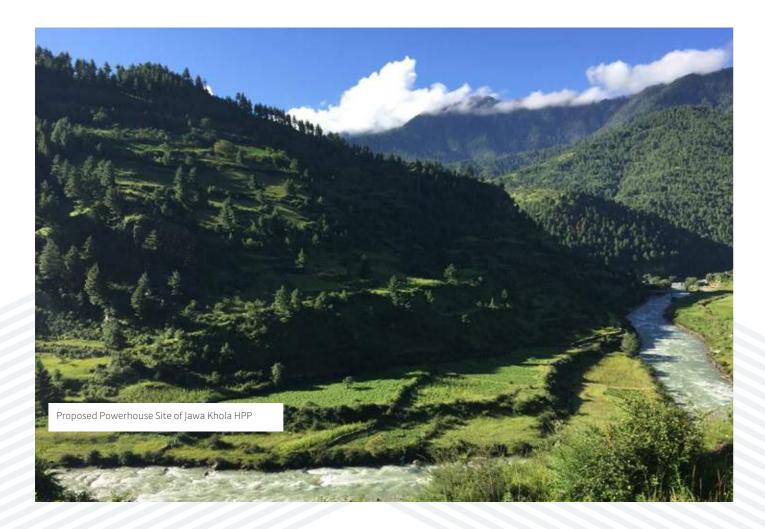
## Jawa Khola HPP (17.2MW)

Jawa Khola HPP (17.4 MW) is a Run-of-River (RoR) type project located in Jumla District, Karnali Zone, Mid-Western Development Region. At present, there is no grid electricity available in Jumla District and its nearby region. The power generated from the project will definitely help to electrify the region and expected to be interconnected into national grid through Karnali Corridor Transmission Line which could materialize in future. Jade is responsible to conduct Feasibility and Initial Environmental Examination Study of the project.

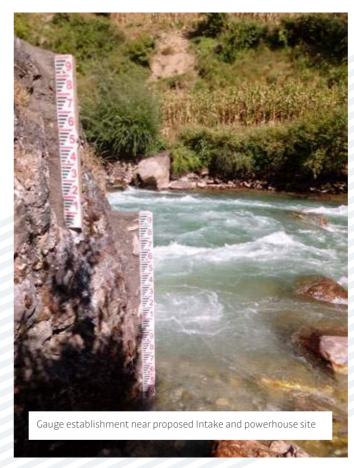
Department of Electricity

Scope of Works
- Feasibility Study
- IEE Study

Project Location: Jumla District
Nearest highway: Karnali Highway















## Budhigandaki HPP (1200MW)

Budhigandaki Hydropower Project is a large seasonal storage-type project located in Dhading & Gorkha district. Tractabel Engineering S. A. France in association with Jade Consult P. Ltd. prepared the Feasibility study, Detailed design report and Tender documents of the project. Main highlight of this project is the 263m high Double Curvature Arch Concrete Dam with a gross reservoir capacity of 4467mm3. This project responds perfectly to the urgent need of power regulation in the country. The study of the project has concluded that the project has a high energy potential, large storage volume, and favorable location and access to Central Nepal, near the main load center. The power generated by the project is expected to be interconnected to the national grid via New Hetauda Substation and proposed Naubise Substation.

#### Client

Budhigandaki Hydropower Development Committee

#### Scope of works

- Feasibility study
- Detailed Design Report-submitted on February 2016
- EIA Studies Approved

#### General

Project Location: Dhading & Gorkha District,

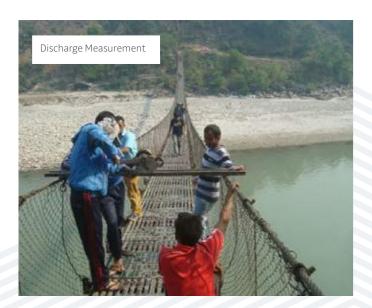
Latitude 26° 22' to 30° 22' N & longitude 80° 4' to 88° 12' E **Nearest highway:** Prithvi Highway

#### Reservoi

Gross capacity at FSL: 4467Mm<sup>3</sup>

Effective/Active storage capacity: 2226Mm3

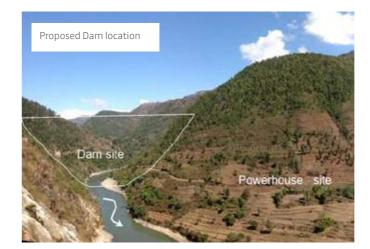
Surface area at FSL: 63km<sup>2</sup>









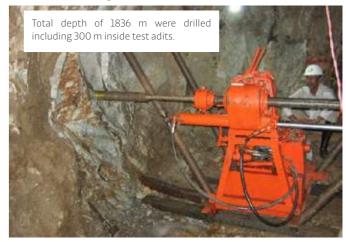








## Core Drilling:



## Plate Jacking Test:





## **Upper Trishuli-I HEP** (216MW)

Upper Trishuli- 1 HEP is located in Rasuwa district, Bagmati zone. UT-1 HEP is financed by International Finance Corporation (IFC) along with other eight international financing institutions namely ADB, AIIB, K-EXIM, KDB, CDC, FMO, PROPARCO and OFID. The power generated from this project is expected to be interconnected into the national grid through Trishuli 3B Hub station.

### Client

Nepal Water and Energy Development Company Pvt. Ltd.

- Scope of Works
   Feasibility Study
   EIA Study
   Detailed Design
  -Owner's Engineer

General
Project Location: Rasuwa district Haku, Gogane and VDCs
Nearest highway: Pasang Lahmu Highway





















## **Upper Lapche HPP** (52 MW)

Upper Lapche Khola hydropower project (52 MW) is a Run-of-River (RoR) type project located in Dolakha district, Janakpur Zone, Central Development Region of Nepal. The electricity generated from this project has been planned to evacuate at Singati sub-station which is about 36km from powerhouse of the project. This medium sized hydropower project will be highly beneficial to support the government's plan to make Nepal a load shedding free country." Jade is responsible to prepare Detailed Design report and Tender Documents of the project.

### Client

Energy Venture Pvt. Ltd.

- Scope of Works
   Review of Feasibility Study and detail project report
- Detail Engineering Design with reinforcement drawing
   Preparation of Tender Documents

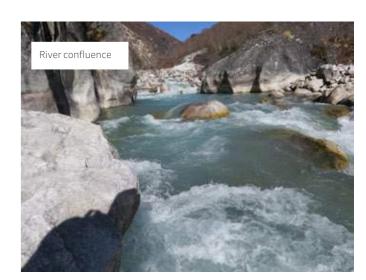
**Project Location:** Janakpur zone, Dolakha district, Lamabagar VDC Nearest highway: Kathmandu-Charikot

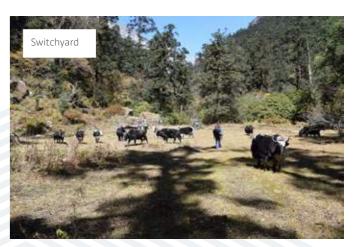








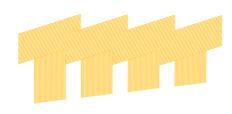


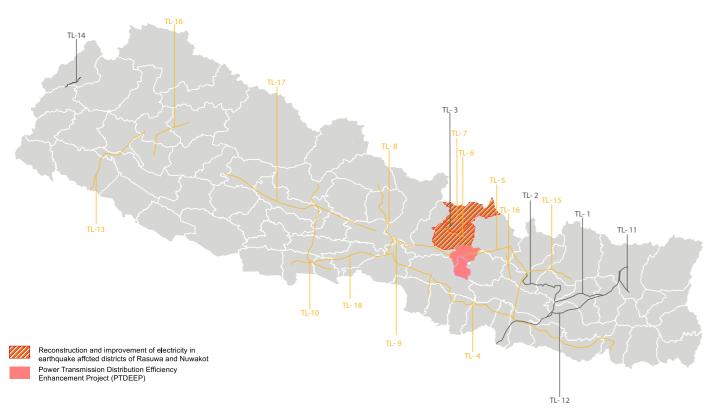






# Transmission Lines





#### **Ongoing Projects**

TL-4: Hetauda-Dhalkebar-Duhabi 400 kV

Tamakoshi (Khimti)-Kathmandu 220 kV/400 kV

TL-6: Samundratar-Trishuli 3B Hub 132 kV (SASEC-PSC)

TL-7: Chilime- Trishuli 220 kV

TL-8: Marshyangdi Corridor 220 kV (SASEC-PSC)

TL-9: Marshyangdi- Kathmandu 220 kV (SASEC-PSC)

TL-13: Kamadev- Phukot 400 kV

TL-15: Tingla Hub- Likhu Hub- New Khimti- Sunkoshi Hub- Dhalkebar 400 kV TL and Associated Substations (CP-1)

TL-16: Budhigandaki Corridor (Phillim- Gunda- Ratemate) 400 kV TL and 123 kV Dailekh- Kalikot- Jumla and Lamoshangu- Kavre/ Ramecchap TL and Associated Substation (CP-2)

TL-17: Damauli- Kusma- Burtibang- Bafikot 400 kV TL and Assiciated Substations (CP-3)

#### **Completed Projects**

TL-1: Lower Arun- Dhalkebar 400 kV

Khimti- Dhalkebar 220 kV Upper Trishuli-1 220 kV

TL-10 Kaligandaki Corridor 220 kV (SASEC-PSC)

TL-11: Arun-3 33kV

TL-14: Makarigad Gaun- Balanch 33 kV

TL-12: Arun-3 400 kV Double Circuit (R&R)

## Completed Projects



#### SASEC (South Asia Sub regional Economic Cooperation) Power System Expansion Project-PPS

· 220kV Kaligandaki Corridor TL Project

· 220kV Marsvangdi Corridor TI project

· 220kV Marsyangdi-Kathmandu TL Project

Client - Asian Development Bank (Implementing Agency-NEA) Scope: Assist NEA in preparing designs, technical specifications and bidding documents. · Assist NEA in the bidding process and bid evaluation including preparation of technical and financial evaluation reports. · Assist NEA in contract negotiation with the contractor until contract awarded and advance payment paid.

#### Upper Trishuli-I HEP 220kV Transmission Line Project

Client - Nepal Water and Energy Development Co. Pvt. Ltd (NWEDC) Scope: Detail TL Survey and Design, and IEE Study

#### Khimti Dhalkebar 220kV Transmission Line Project

Client - Nepal Electricity Authority (NEA) (World Bank Fund) Scope: Consultancy for planning design, preparation of bidding document with detail specification, bid evaluation and contact negotiation, design review, quality assurance, construction supervision, contract management and knowledge transfer etc. (In association with Power Grid INDIA)

#### Lower Arun-Dhalkebar 400kV Transmission Line Project

Scope: Desk Study

#### Arun-3 HPP-33kV TL Project

Client - SJVN Arun-3 Power Development Company P. Ltd. Scope: Survey & Investigation for Proposed 33kV transmission line. · Preparation of IEE Report

#### Makarigad Gaun - Balanch 33 kV Transmission Line Project in Darchula district, Nepal.

Client - Hydro Vision Pvt. Ltd.

Scope: Feasibility Study of 27 km, 33 kV Transmission Line including Topographic survey, Cost Estimation, Geographical and Geological Survey, Design and Project Component Optimization.

#### Resettlement and Rehabilitation (R & R) Plan preparation of 400 kV Double Circuit Transmission Line (length - 210 km)

Client - SJVN Arun-3 HPP Power Development Company (SAPDC) Scope: Cadastral Map Verification, Social and Environmental Survey, Preparation of Resettlement and Rehabilitation plan, Supplementary IEE , Detailed survey and Design of Changed Portion of the 400 kV Transmission Line.

## Ongoing Projects

#### Study for Environmental and Social Considerations for "The Project for Construction of Transmission and Distribution Network Development in Nepal

Client: NEWJEC Inc, Japan (Funded by JICA)

Works: Environmental and social assessment for the construction of 132/11 kV Birauta S/S including underground transmission line, Preparation of IEE report including RAP.

## Assessment for Private Sector Involvement in Power Transmission in The Asia Pacific Region

Works: Identify specific domestic and cross-horder transmission projects that could be considered for possible private sector investment, and prepare and propose amendments to already available tools, documents, and templates for supporting the structuring of these projects.

#### Feasibility Study and Design of 132kV Transmission Line of Langtang Khola Hydroelectric Project (20 MW), Rasuwa District

Works: Feasibility study and design of about 4.5km, Single circuit 132 kV transmission line

#### Tingla Hub - Likhu Hub - New Khimti - Sunkoshi Hub - Dhalkebar 400 kV Transmission Line and Associated Substations

Client - Nepal Electricity Authority (Funded by ADB)

Works: Engineering and Environmental Study

#### Budhigandaki Corridor (Philim-Gumda-Ratamate) 400 kV Transmission Line and 132 kV Dailekh-Kalikot-Jumla and Lamoshangu-Kavre/Ramechhap Transmission Line and Associated Substations

Client - Nepal Electricity Authority (Funded by ADB) Works: Engineering and Environmental Study

#### Damauli - Kusma - Burtibang - Bafikot 400 kV Transmission Line and Associated Substations

Client - Nepal Electricity Authority (Funded by ADB) Works: Engineering and Environmental Study

#### SASEC (South Asia Sub regional Economic Cooperation) Power System Expansion Project-PSC

- · 220kV Kaligandaki Corridor TL Project
- · 220kV Marsyangdi Corridor TL project
- · 220kV Marsyangdi-Kathmandu TL Project
- · 132kV Samudratar Trishuli 3B Hub TL Project
- · Distribution System Expansion in Eastern, Central, Western Nepal

Client - Asian Development Bank (Implementing Agency-NEA) Scope: Grid Substation Reinforcement Sub Project · Construction Supervision of Transmission Line & Substation

#### Chilime - Trishuli 220 Kv Transmission Line Project

Client - Nepal Electricity Authority (NEA), Nepal, funded by KfW, Germany Scope: Survey, Geotechnical Investigation • Preparation of technical specifications and bidding documents · Support in Bidding process · Supervision during construction, testing and commissioning

#### Tamakoshi (Khimti) - Kathmandu 220 kV/400 kV Transmission Line Project

Client - Nepal Electricity Authority (NEA) (World Bank Fund)

Scope: Preparation of technical specifications and bidding documents

· Support in bidding process · Supervision during construction, testing and commissioning

#### Hetauda-Dhalkebar-Duhabi 400kV Transmission Line Project

Client - Nepal Electricity Authority (NEA) (World Bank Fund, Scope: Construction Supervision and Substation Design.

#### Power Transmission and Distribution Efficiency Enhancement Project (PTDEEP)

Client - Nepal Electricity Authority (Funded by ADB)

Scope: Bidding Document Preparation, Project Management & Construction Supervision of distribution networks and underground cabling works.

#### Reconstruction and Improvement of Electricity in Earth-quake affected Districts of Rasuwa & Nuwakot.

Client - Nepal Electricity Authority (Funded by KfW and EIB)

Scope: Engineering Design, Bidding Document Preparation, Environmental and Social Studies & Construction Supervision.

#### Karmadev - Phukot 400 kV Double Circuit Karnali Corridor Transmission Line Project

Client - Rastriva Prasaran Grid Company Limited

Scope: Detailed Engineering Design and Enviornmental Study of Transmission Line and Substations. Preparation of Technical Specifications and Tender Documents. Karmadev (Indo - Nepal Boarder) - Phukot (Kalikot) is a 130 km double circuit line project, which also includes two 400 kV GIS substations at Phukot and Betan.

#### Consulting Services for Project Supervision Consultant (Phase II) - Electricity Transmission Expansion & Supply Improvement Project for 400 kV Tamakoshi (Khimti) - Kathmandu Transmission Line and associated Substations

Funding Agency: ADB

Works: Design review, quality monitoring, and construction supervision





## Power Transmission and Distribution Efficiency Enhancement Project (PTDEEP)

The project consists of following sub projects:

- a. 220 kV Substation at Lapsiphedi and 132 kV Substation at Changunarayan
- b. 132 kV Substations at Kathmandu Valley
- c. Enhancement of Distribution Network in Kathmandu
- d. Delivery of Distribution Transformers
- e. Enhancement of Distribution Networks in Major Urban Centers of Nepal

These projects lies on the Kathmandu, Bhaktapur, Lalitpur, Kailali, Banke, Dang, Rupandehi, Kaski, Chitwan, Makwanpur, Parsa, Bara, Dhanusha, Sunsari and Morang Districts of Nepal. The above transmission/Substation projects lies on majorly terai and hilly region of the Nepal. ThWe scope of consulting services include the Demand forecast and load flow studies of the distribution networks, preparation of the tender documents of the Distribution Networks in Major Urban Centers of Nepal, Assistance in tendering and awarding for the Enhancement of Distribution Networks in Major Urban Centers of Nepal, Project Management, Construction Supervision and testing and commissioning of the 220 kV Substation at Lapsiphedi, 132 kV GIS Substation at Chagunarayan, 132 kV GIS Substations at Kathmandu Valley and Enhancement of Distribution Networks in Major Urban Centers of Nepal.

#### Client

Nepal Electricity Authority

Funding Agency
Asian Development Bank

Scope of Works

Jade Consult is working in this project with Power Grid Corporation of India Limited, India and providing assistance in;

- 1. preparation of technical specification and bidding documents;
- 2. support in bidding process;
  - ensuring quality in project implementation
  - ii. supervision during construction
- testing and commissioning of the different sub projects
- 4. capacity Building of the NEA staff.













## **Hetauda-Dhalkebar-Duhabi** (400kV)

Transmission Line Project

This is the first 400kV voltage level TL-Project of Nepal that is in construction phase. Once it gets commissioned, this line will be the backbone of INPS (Integrated Nepal Power System) for at least the next 10 years. Jade Consult is working in association with POWERGRID Corporation of India Ltd. in this project.







#### Nepal Electricity Authority (NEA)

#### Scope of Works:

- (In association with POWERGRID India)

   Owner's Engineer for Hetauda-Dhalkebar-Duhabi 400kV TL Project

   Design Check and Construction Supervision
- Quality assurance and inspection
- Supervision of installation
- Testing & commissioning of Transmission Line works & Substation works

Project Features

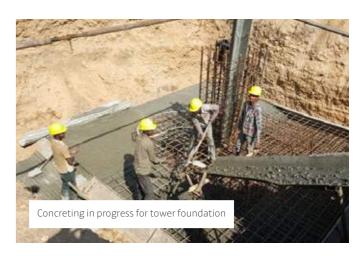
Route: Hetauda to Inaruwa via Dhalkebar (400kv line) Length: 285 Km

No. of Substations: 3 (220kV of substations at Hetauda, Dhalkebar & Inaruwa)

- · Highest Voltage Level TL Project of Nepal till date · Route Alignment passes through Makawanpur, Bara, Rautahat, Sarlahi, Mahottari, Dhanusa, Siraha, Saptari, Udayapur and Sunsari Districts
- · Voltage Level 400kV (initially will be charged at 220kV)
- Total quantity of 400kV double circuit towers: 792 nos.
   Conductor − ACSR Moose (Quad)

















# SASEC (South Asia Subregional Economic Cooperation) Power System Expansion Project

The transmission line under this project, are going to strengthen the INPS (Integrated Nepal Power System) in the areas of Marsyangdi, Kaligandaki and Trishuli River Basins, & the distribution system expansion projects under this project are going to strengthen the distribution system network all over the nation. Jade Consult is working in association with POWERGRID Corporation of India Ltd. in this project.



#### Client

Asian Development Bank

Implementing Agency

Nepal Electricity Authority (NEA)

#### Scope of Works

(In association with POWERGRID India)

- Assist NEA in preparing designs, technical specifications and bidding documents
- Assist NEA in the bidding process and bid evaluation including preparation of technical and financial evaluation reports
- Assist NEA in contract negotiation with the contractor until contract awarded and advance payment paid.

#### Project Features

Dana – Kusma 220kV transmission line (40 km length), and substations at Dana & Kusma

Kusma – New Butwal 220kV transmission line (88 km length), and substation at New Butwal

New Butwal – Bardaghat 400kV transmission line (45 km length), and LILO of 132kV Double Circuit Butwal – Bardaghat Transmission Line at New Butwal Substation.

Markichowk- Matatirtha 220kV transmission line (82 km length), and associated substation at Markichowk extension at Matatirtha.

New Bharatpur- Markichowk- Udipur 220kV transmission line (64 km length), and substation at Udipur, bay extension at New Bharatpur and Markichowk

**Udipur -Khudi-Manang 220kV** transmission line (50 km length), and associated substations at Manang and bay extension at Udipur

























## **CHILIME - TRISHULI** (220kV)

Transmission Line Project

This line passes through high altitude of 2635m, one of the most difficult terrain faced till date for higher voltage transmission line. Once this line is commissioned, it will help to tap a good amount of electric power from the Trishuli and Chilime river basins and supply bulk power to different major load centers of Nepal including Kathmandu. Jade Consult is working on this  $project in \, association \, with \, POWERGRID \, Corporation \, of \, India \, Ltd.$ 



Nepal Electricity Authority (NEA), Nepal, funded by KfW, EIB

Scope of Works

(In association with POWERGRID India)

- Survey, Geotechnical Investigation
- Preparation of technical specifications and bidding documents
- Support in Bidding process
   Supervision during construction, testing and commissioning

Project Features

Chilime - Trishuli 220 kV Double Circuit Transmission Line (26.5 Km)

Number of Substation: 2 (220 kV Chilime Hub Substation and 220 kV Trishuli

Rural Electrification (Neighborhood Support Program)
33/11 kV Substation at Dhunche VDC and/or Kaule VDC

33 kV Line and 11 kV Distribution lines







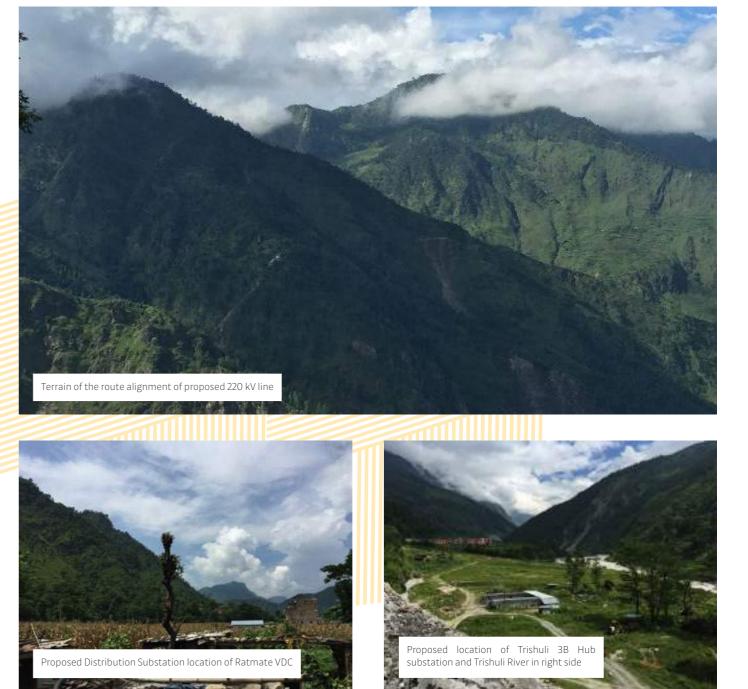
















## **ARUN -3 HPP** (400 kV) Transmission Line

Resettlement & Rehabilitation (R&R) plan for the Nepal portion (Diding-Dhalkebar-Indo Nepal International border at Bathanaha) of 400kV D/C Diding (Nepal)-Muzzafarpur (India) Transmission line system for evacuation of power from Arun-3 Hydropower Project.

Arun-3 HPP (900MW) is situated in Sankhuwasabha District. A 400kV D/C transmission line has been proposed to evacuate the power from the switchyard of the project at Diding to Muzzafarpur Substation in India. Nepal portion of the transmission line length is 210km and the total 310km D/C line will connect to Dhalkebar Substation via LILO arrangement and eventually connect to Muzzafarpur Substation in India after passing through 7 Gaunpalikas (Rural Municipalities) of Nepal. More than half of the route alignment passes through hilly trunk region and the altitude goes up to 2400m. It also covers plain/terai regions of Nepal.



## **ARUN-3 HPP** (33 kV) Transmission Line





#### Client

SJVN Arun-3 Power Development Company (P.) Ltd., India

#### ope of Works

(i) Preparation of Resettlement & Rehabilitation Plan (Resettlement Action Plan) for Nepal portion of the 400 kV D/C Transmission Line System (ii) Detailed survey and detailed engineering of the changed portion of TL (iii) Supplementary IEE of the changed portion of TL alignment (iv) Cadastral map verification.





#### Client

SJVN Arun-3 Power Development Company (P.) Ltd., India

#### Scope of Works

Detailed Survey and Investigation and Preparation of IEE Report & its Subsequent Approval from Government of Nepal for Proposed 33 kV Transmission Line for Arun-3 HPP

#### Project Features

- ength 57 km
- $\,\cdot$  Line passes through the 7 VDCs (Village Development Committees) of Sankhuwasabha District
- · Line connects Dam Site and Powerhouse Site of Arun-3 HPP with 33 kV NEA Substation at Tirtire



# TAMAKOSHI (KHIMTI) - KATHMANDU

(220 kV/400 kV) Transmission Line Project

This is the second 400kV transmission line project of Nepal that is in implementation phase. Once this line is commissioned, it will act like a bridge between Kathmandu and Dhalkebar (Major Hub of Nepal for import & export of power with India). Jade Consult is working in association with POWERGRID Corporation of India Ltd. on this project.





#### Client

Nepal Electricity Authority

#### Scope of Works

(In association with POWERGRID India)

- Preparation of technical specifications and bidding documents
- Support in bidding process
- Supervision during construction, testing and commissioning

#### Project Features

- Khimti Barhabise -Haledi 400kV/220 kV
- Double Circuit transmission line (90 km length)
- · Haledi-Changunarayan 132kV

Double Circuit Transmission Line (10km Length)

#### Number of Substations: 3

(new 220 kV substations at Barhabise & Haledi), bay extension at Khimti and 1 new 132 kV substation at Changunaravan

#### · LILO (Loop-in Loop-out)

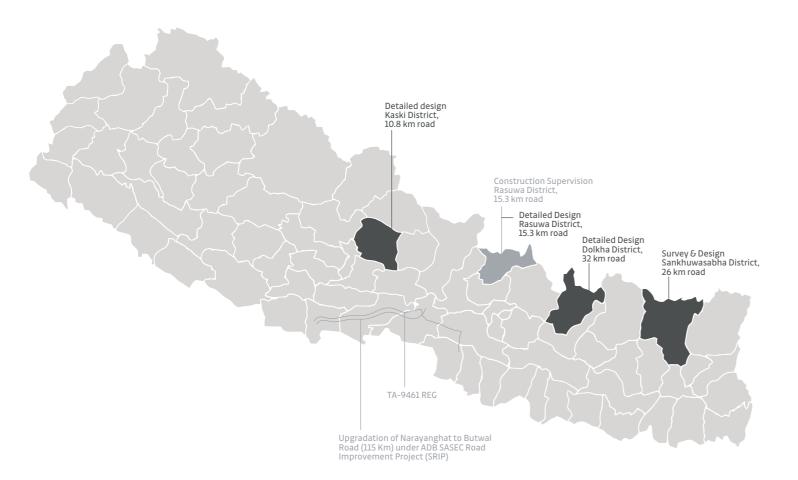
arrangement at proposed 132 kV Chagunarayan Substation for 132 kV Bhaktapur - Chapali Line





# Road/Highways





Jade Consult has been involved in the survey, feasibility study, detailed design and construction supervision of several roads ranging from rural roads to highways in diverse geographical terrain such as mountainous, hilly and terai region of Nepal.

## **Completed Projects**



#### Detailed Design of Road in Dolakha District, Nepal

Road Length: 32 km Works - Detailed Designing

#### Detailed Design of Road in Rasuwa District, Nepal

Finance - International Finance Corporation (IFC)
Road Length - 15.3 Km
Works - Detailed Designing

#### Detailed Design of Road in Kaski District, Nepal

Road Length: 10.8 km Works - Detailed Designing

#### Detailed Design of Road in Sankhuwasabha District, Nepal

Road Length: 26 km Works- Survey and Design

## Ongoing Projects

#### Consultancy Services for Green and Resilient Strategy for Nepal's Selected Highway Corridors

lient: World Bank

Works: Carry out a comprehensive strategic environmental and social assessment of both East West Highway and North South trade corridors and develop a Green and Resilient Strategy for Selected Highway Corridors in Nepal

#### Construction Supervision of Road in Rasuwa District, Nepal

Finance - International Finance Corporation (IFC) Road Length - 15.3 Km

Works - Construction Supervision

Upgradation of Narayanghat-Butwal Road (115 Km) under ADB SASEC Road Improvement Project (SRIP)

Finance - Asian Development Bank (ADB)

Works-Technical, legal, environmental and social advisory services

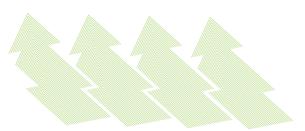
TA-9461 REG: Protecting and Investing in Natural Capital in Asia and the Pacific - Smart Infrastructure Planning and Design (Nepal)

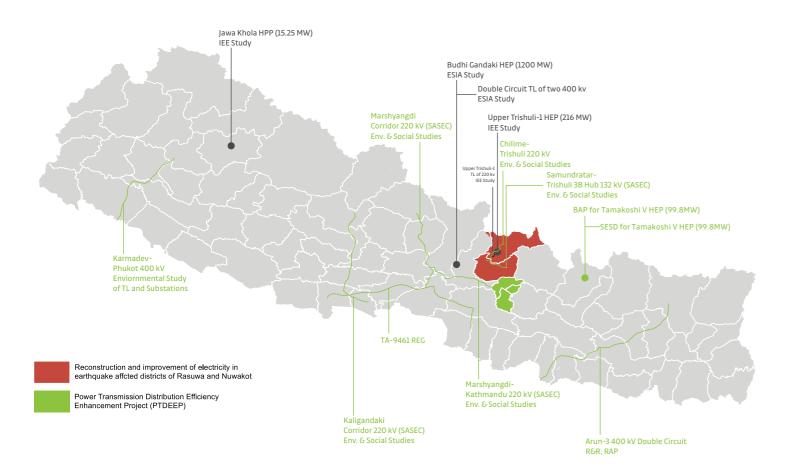
Client - Asian Development Bank

Works – To conduct comprehensive and in-depth ecological studies in and around the project area for the Narayanghat–Hetauda–Pathlaiya road and to provide technical support and guidance for design and implementation of the wildlife mitigation measures and biodiversity conservation plan for the Narayanghat–Butwal road under the SASEC Road Improvement Project (SRIP) project as necessary.



# Environmental & Social Studies





Jade Consult has been involved in over a dozen projects related to the environmental and social studies of various infrastructure development projects. Such studies consists of ESIA, EIA & IEE studies, preparation of Biodiversity Action Plan (BAP), Indigenous Peoples Development Plan (IPDP), Vulnerable Community Development Plans (VCDP) Resettlement Action Plan (RAP), Land Acquisition & Compensation Plan (LACP), Stakeholder Engagement Plan (SEP), Environment & Social Management Plan (ESMP) etc.

## Ongoing Projects

## Owner's Engineer Services for Upper Trishuli - I Hydroelectric Project (216 MW)

Client: Nepal Water and Energy Development Company Pvt. Ltd (Funded by IFC, ADB, AIIB, K-EXIM, KDB, CDC, FMO, PROPARCO and OFID.) Works: Environmental and Social Safeguards Implementation and Compliance Monitoring

#### Lower Kopili Hydroelectric Project (120 MW), Assam, India

Client: Assam Power Generation Corporation Limited (Funded by ADB)
Works: Independent monitoring of implementation of Social and Environment safeguards during design, construction and operation phases.

## Study for Environmental and Social Considerations for "The Project for Construction of Transmission and Distribution Network Development in Nepal

Client: NEWJEC Inc, Japan (Funded by JICA)

Works: Environmental and social assessment for the construction of 132/11 kV Birauta S/S including underground transmission line, Preparation of IEE report including RAP.

## Consultancy Services for Green and Resilient Strategy for Nepal's Selected Highway Corridors

Client: World Bar

Works: Carry out a comprehensive strategic environmental and social assessment of both East West Highway and North South trade corridors and develop a Green and Resilient Strategy for Selected Highway Corridors in Nepal

# TA-9461 REG: Protecting and Investing in Natural Capital in Asia and the Pacific - Smart Infrastructure Planning and Design (Nepal)

Client - Asian Development Bank

Works – To conduct comprehensive and in-depth ecological studies in and around the project area for the Narayanghat–Hetauda–Pathlaiya road and to provide technical support and guidance for design and implementation of the wildlife mitigation measures and biodiversity conservation plan for the Narayanghat–Butwal road under the SASEC Road Improvement Project (SRIP) project as necessary.

#### Karmadev - Phukot 400 kV Double Circuit Karnali Corridor Transmission Line Project

Client - Rastriya Prasaran Grid Company Limited

Works – Initial Environmental Examination of 400kV Transmission Line and associated substations, Resettlement Plan, Indigenous People Plan, Social Impact Assessment, Tree Cutting Plan for 400kV transmission line and associated substations

## Diding (Nepal) - Muzzafarpur (India) 400 kV D/C Transmission line system for evacuation of power from Arun -3 HPP (Nepal) (PCD-83)

Client - SJVN Arun-3 HPP Power Development Company (SAPDC)
Works - Resettlement & Rehabilitation (R&R) plan (RAP i.e. Resetllement
Action Plan) for the Nepal portion (Diding - Dhalkebar - Indo Nepal
International border at Bathanaha)

## Reconstruction and Improvement of Electricity in Earthquake Affected Districts of Rasuwa and Nuwakot

Client - Nepal Electricity Authority (Funded by KfW and EIB)

Works – Bidding Document of Social Infrastructure Development Component, Environmental and Social Impact Assessment of transmission line (33kV) and substation (33/11 kV), Environmental Impact Assessment of 33kV TL and associated substation 33/11 kV

#### Power Transmission and Distribution Efficiency Enhancement Project

Client - Nepal Electricity Authority (Funded by ADB)

Works -Preparation of Environmental Management Plan, Updated Resettlement Plan Report, Social Impact Assessment, and Indigenous People Plan, Periodic Safeguard Monitoring Report (semi-annual)

# SASEC (South Asian Sub Regional Economic Cooperation) Power System Expansion Project (Total Project Cost: USD 440.5 Million)

Client - Asian Development Bank (Implementing Agency-NEA)
Works -Site inspection to monitor compliances (Environmental and Social),
Review/update Environmental, Health Safety Plan, Prepare/review of Periodic
Safeguard Monitoring Report (monthly, quarterly, semi-annual), Preparation of
updated Resettlement and Indigenous Peoples' Plan

#### Chilime - Trishuli Transmission System Project (220 kV)

Client - Nepal Electricity Authority (NEA), Nepal, funded by KfW, Germany Works - Prepare updated Land Acquisition and Compensation Plan for 220kV Chilime-Trishuli Transmission Line Project, Environmental and Social Impact Assessment for Neighborhood Electrification Component, Updated Stakeholder Engagement Plan for 220kV Chilime-Trishuli Transmission Line Project, Environmental and Social Management Plan for 220kV Chilime-Trishuli Transmission Line Project

#### Upper Marsyangdi - 2 HEP (125MW)

Client: Himtal Hydropower Company P. Ltd.

Works: Preparation of scoping document and TOR for Environmental Impact Assessment (EIA) Study.

#### E&S Baseline Data Collection, Downstream Impact Assessment and E-flow Assessment Study, Rapid Cumulative Impact Assessment (CIA) for Upper Karnali Hydropower Project (HPP), Nepal

Client: EDF/GMR

Works: Collection of environmental and social baseline data, E-flow assessment study covering a downstream baseline and initial impact assessment, Rapid Cumulative Impact Assessment (Rapid CIA) on Karnali River

## Completed Projects

#### Preparation of Biodiversity Action Plan (BAP) for Tamakoshi V Hydroelectric Project (99.8 MW)

Client - Tamakoshi Jalvidyut Company Limited

(Funded by Asian Infrastructure Investment Bank)

Works - To conduct and prepare Critical Habitat Assessment, Consultation and Partnership Building Strategy, Mitigation Strategies and Biodiversity Action Plan

## Preparation of Supplemental Environmental and Social Documentation (SESD) for Tamakoshi V HEP (99.8 MW)

Client - Tamakoshi Jalvidyut Company Limited

(Funded by Asian Infrastructure Investment Bank)

Works - Restructure Environmental Management Action Plan (EMAP), prepare Stakeholder Engagement Plan, prepare Monitoring Plan, conduct Cumulative Impacts Assessment, Climate Change Assessment, develop Pollution control strategy, develop Public Health and Safety Strategy, develop Local employment strategy, prepare Land acquisition and Livelihood Restoration Plan, Environmental Flows and Ecosystem Services Assessment, develop E&S actions to be implemented by the Developer, develop E&S specifications for the EPC contractor.

## Resettlement and Rehabilitation (R & R) Plan Preparation of 400kV Double Circuit Transmission Line

Client- SJVN Arun-3 HPP Power Development Company (SAPDC)
Works-Identification of land ownership detail, Social and Environmental Survey,
Preparation of Supplementary Initial Environmental Examination of Changed
Portion, Preparation of Resettlement Action Plan for the affected seven districts

#### Jawa Khola HPP (15.25 MW)

Client - Department of Electricity Development Works - Initial Environment Examination (IEE) Study

#### Budhi Gandaki Hydroelectric Project (1200 MW)

Client - Budhigandaki Hydropower Development Committee
Works - Environmental and Social Impact Assessment (ESIA) Studies

## Two double circuit transmission lines of 400 kV to evacuate the power from Budhi Gandaki Hydroelectric Project

Works -Environmental and Social Impact Assessment (ESIA) Studies

#### Upper Trishuli-1 HEP (216 MW)

Client - Nepal Water and Energy Development Company Pvt. Ltd Works - Initial Environment Examination (IEE) Study

#### Transmission Line of 220 kV for 216 MW Upper Trishuli - 1 HEP

Client - Nepal Water and Energy Development Company Pvt. Ltd Works- Initial Environment Examination (IEE) Study

#### 33kV Transmission line for Arun -3 HPP (900 MW)

Client - SJVN Arun-3 HPP Power Development Company (SAPDC)
Works-Initial Environment Examination (IEE) Study

