



DUDHKOSHI JALVIDYUT COMPANY LIMITED

(A Subsidiary Company of Nepal Electricity Authority)

DUDHKOSHI STORAGE HYDROELECTRIC PROJECT

INVITATION FOR CONSULTATIVE MEETING

with

**PROSPECTIVE INTERNATIONAL CONSULTING
FIRMS/COMPANIES/ORGANIZATIONS**

for

**Consultancy Services for Project Construction
Supervision of DKSHEP**

First Date of Publication:- 19 January 2024

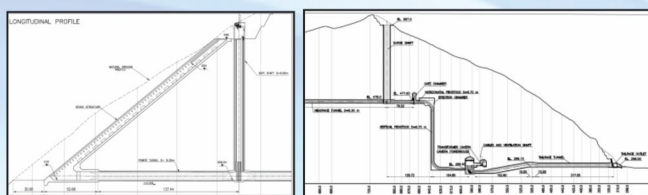
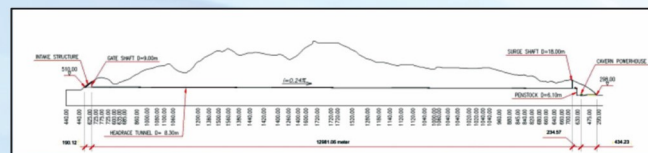
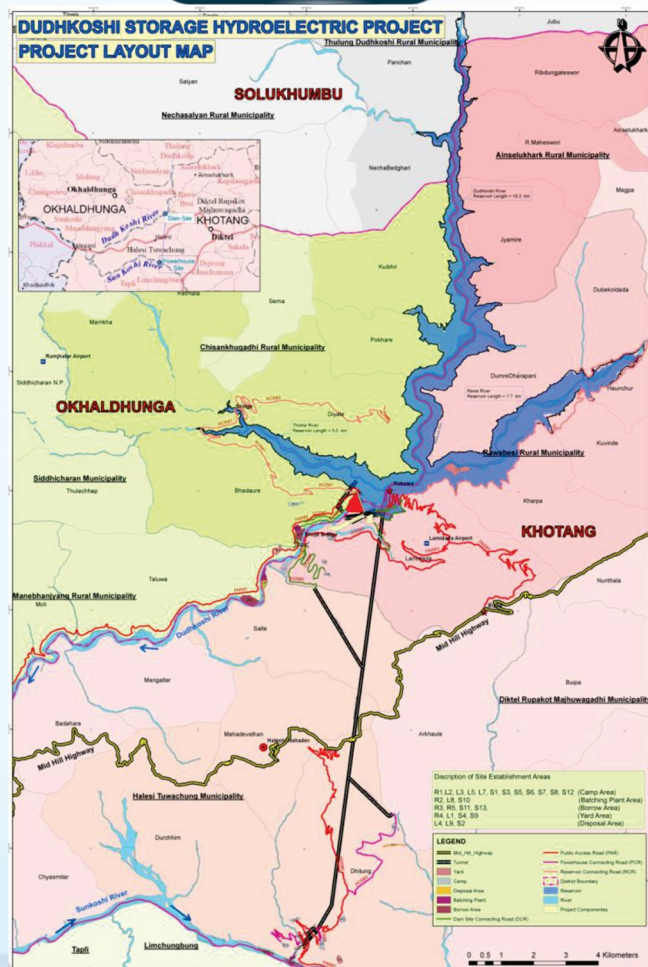
1. Dudhkoshi Storage Hydroelectric Project (DKSHEP) with capacity of 635 MW is a seasonal reservoir based project located in Khotang, Okhaldhunga and Solukhumbu Districts of Koshi Province, Nepal. It is a multi-billion dollar project and is highly prioritized by Government of Nepal (GoN). Dudhkoshi Jalvidyut Company Limited (DKJVCL) has been established on 03 March 2017 (2073/11/20 B.S.) as a subsidiary company of Nepal Electricity Authority (NEA) for the implementation of DKSHEP.
2. The Updated Feasibility Study and Detailed Design of the Project and preparation of Bidding Documents along with EIA Study are being carried out by ELC Electroconsult S.p.A. (Italy) in association with NEWJEC Inc. (Japan) since 2016 under Asian Development Bank (ADB)'s grant assistance through Project Preparatory Facility for Energy. These reports and documents are in the final stage of completion. The Government of Nepal (GoN) has requested ADB to be the Lead Financier of this Project and all procurement will follow ADB's Procurement Regulations once the financing arrangements are confirmed.
3. It is expected that Invitation for Expressions of Interest (EoI) for this consultancy services will be published in Q2-2024. The duration of the consultancy services is likely to be in the order of 9 years including 2 years of post commissioning period.
4. In this context, DKJVCL intends to organize a **Consultative Meeting** with interested international consulting firms/companies/organizations for "Consultancy Services for Project Construction Supervision of DKSHEP" with the primary objective of providing project information and interacting and seeking participants' feedbacks/suggestions on scopes of consultancy services for project construction supervision. Following are the main objectives of this meeting:

- a. inform the prospective international consulting firms about DKSHEP, project features and implementation plan,
 - b. share the proposed contract packaging options for civil, hydro-mechanical, electro-mechanical and transmission line and seek the advice from the consulting firms thereon,
 - c. share the requirements of team of specialists and experts having international experiences in relevant project components such as CFRD (Concrete Faced Rock-fill Dam), tunnels, underground powerhouse, hydro-mechanical & electro-mechanical works, 400 kV double circuit transmission line etc. similar to DKSHEP,
 - d. get feedbacks/suggestions on scopes of consultancy services, terms of reference (ToR), EoI, RFP, Conditions of Contract (CoC), including payment conditions, total requirements of team of specialists and experts, implementation plan, etc.
5. Meeting will be held both virtually and physically on following date, time and venue:
- a. **Date:- 07 February 2024, Wednesday**
 - b. **Time:- 15:00-17:00 hours, Nepal Standard Time (NST)**
 - c. Venue:- to be confirmed by email/phone
- It is strongly advised to international consulting firms or their representatives to attend the meeting physically. With a view to ensure effective participation and meaningful discussions, it is recommended that consulting firms may depute upto a maximum of three representatives for the physical meeting. Firms planning to attend virtually may please use one username only. The link for the meeting will be shared well in advance. Participants are requested to join the meeting physically / virtually at least 20 minutes before the scheduled time. Late admission will not be allowed.
6. In order to make the meeting productive, interested consulting firms / companies / organisations are requested to confirm their participations by 02 February 2024, Friday, 15:00 hours NST (Nepal Standard Time) and send any questions or queries to discuss or interact in the meeting in the following official email account within the same date and time (i.e., 02 February 2024).
7. Further information of the Project and proposed meeting may be obtained on the following web page or from following email on request.

Address

Dudhkoshi Jalvidyut Company Limited (DKJVCL)
Dudhkoshi Storage Hydroelectric Project (DKSHEP)
United World Trade Centre
Tripureshwor, Kathmandu, Nepal
Phone no: 01-5917089, 5917137
Web: www.nea.org.np
Email: dkoshi@nea.org.np

Project Layout



Brief Salient Features (Based on Detailed Design)

Installed Capacity	635 MW (600 + 35 = 635 MW)
Average Annual Energy	3,442 GWh (Dry Season = 1,358 GWh and Wet Season = 2,084 GWh)
Hydrology	
Catchment Area	3,857 Sq.km
Average Annual River Flow	209 Cumec
Design Flood (PMF)	12,638 Cumec
Reservoir	
Surface Area	19.7 Sq. km
Length	31.5 km
Gross Storage	1,581 Mm ³
Live Storage	1,342 Mm ³
Full Supply Level (FSL)	640 masl
Minimum Operating Level (MOL)	530 masl
Dam	
Type of Dam	Concrete Face Rockfill Dam (CFRD)
Height	220 m
Crest Length	630 m
Main Powerhouse	
Design Discharge	224.4 Cumec
Design Head (Rated)	294.0 m
Headrace Tunnel	Length = 13.2 km; (9.8 m dia.)
Penstock	Length = 410.5 m; (7.85 m dia.)
Underground Powerhouse	117 m x 24.75 m x 48 m
Turbine Type, Numbers	Francis, 4 x 150 = 600 MW
Dam Toe Powerhouse	
Design Discharge	21.3 Cumec
Design Head (Rated)	182 m
Headrace Tunnel	Length = 929.5 m (3.6 m x 3.6 m. D+Shape)
Penstock	Length = 345 m (3.6 m dia.)
Surface Powerhouse	35 m x 18.3 m x 39.0 m
Turbine Type, Number	Francis, 1 x 35 = 35 MW
Transmission Line	18 km 132 kV (from Dam Toe to Main Powerhouse at Dhitung) and 82 km long 400 kV Double Circuit (up to Dhalkebar Substation)
Estimated Cost	2.2 Billion USD (Including Interest of Construction Period) (Base Year 2020 A.D.)
Construction Period	7 years

Dudhkoshi Jalvidyut Company Limited

(A subsidiary of Nepal Electricity Authority)

Dudhkoshi Storage Hydroelectric Project



Brief Introduction

(September 2023)

Office Address

United World Trade Center, Tripureswor, Kathmandu, Nepal

Phone No. 01-5917089, 5917137

Email: dkoshi@nea.org.np



Brief Introduction of the Project

Dudhkoshi Storage Hydroelectric Project (DKSHEP) with capacity of 635 MW is a seasonal reservoir based project designed to utilize the water of the snow-fed perennial Dudhkoshi River and its other tributaries originating from the world's highest peak Mt. Everest and its surrounding himalayas. Dudhkoshi River is a tributary of Saptakoshi River System and it joins Sunkoshi River near Ghurmi and Harkapur Bazaar (markets). The main dam of this project will be built at about 1 km south-west of Rabuwa Bazaar, a small market located on the left bank of Dudhkoshi River at the border of Okhaldhunga and Khotang Districts. Of the two proposed power houses of the project, the main power house with 600 MW capacity is proposed to be underground on the left bank of Sunkoshi River near Dhitung village of Halesi Tuwachung Municipality, Ward No. 8, in Khotang District and the other Dam-Toe powerhouse with 35 MW capacity is proposed at Chisankhugadhi Municipality, Ward No. 6, in Okhaldhunga District. A total of 31.5 km long and of 1,581 Mm³ reservoir (lake) will be created with the construction of 220 m high concrete faced rock-fill dam (CFRD).

For the main power house (600 MW), the natural head of 132 meter to be available by constructing about 13.15 km long main water tunnel and an additional head of 210 meter artificial head to be available by construction of the reservoir will be utilized. The design discharge of the main power house is 224.4 m³/s. The power generated from the project will be connected to the National Grid via 82 km long 400 kV double circuit Transmission Line up to Dhalkebar Substation while 18 km long 132 kV double circuit Transmission Line will connect Dam Toe power house to the substation located near the main power house. The dam site of the project is located at a road distance of about 210 km from Kathmandu towards east.

Project Identification and Previous Studies:

In 1985, JICA had identified this project during Master Plan Study on Koshi River Basin, and Nepal Electricity Authority (NEA) had conducted a feasibility study through Canadian Consultant CIWEC in 1998. Thereafter in 2013, NEA itself had further reviewed the feasibility study of this project with its own technical resources. In the report of "Nationwide Master Plan Study on Storage-type Hydroelectric Power Development in Nepal" prepared by JICA in 2014, this project was ranked at the top priority among the storage projects to be implemented.

Detailed Design and Financial Arrangement:

Since 2016 Updated Feasibility Study and Detailed Design of the Project and preparation of Bidding Documents along with EIA Study are being carried out by ELC Electroconsult S.p.A. (Italy) in association with NEWJEC Inc. (Japan), under the grant

assistance of Asian Development Bank (ADB) and this is in the final stage of completion. Upon the request from the Ministry of Finance, Government of Nepal (GoN), ADB has been taking lead role to coordinate external financiers for this project. The substantial proportion of the local investment is expected to be fulfilled through local financial institutions and banks. It is expected that financial arrangement will be accomplished by the end of 2024 and the main construction will be started from early of 2025.

Relevance of the Project:

At present, the proportion of Run-of-River type projects in Nepal's national power system is higher, and even in upcoming decade, the gap of internal power production in rainy and winter seasons is seemed to be increased due to addition of similar types of projects in the system. In order to reduce this gap and make up the deficit of electricity in winter (from December to May), to balance the national power system and also considering the energy security of the country, this storage project is initiated by GoN and NEA giving top priority for implementation. A company has been incorporated by the name "Dudhkoshi Jalvidyut Company Limited (DKJVCL)", as a subsidiary company of NEA, to implement the project. In terms of live storage capacity, the storage volume of this project will be about 22 times larger than the existing Kulekhani reservoir and 7 times larger than the under-construction Tanahu hydropower reservoir.

The positive aspects, but not limited to, of this project are:

- Since it produces clean energy, greenhouse gas emissions are very low compared to thermal plants and will play a significant role in reducing global warming,
- By the construction of the project, it will significantly increase the economic activities in the project area and the country, therefore more employment opportunities will be created,
- The construction of roads, bridges and other infrastructures will significantly improve transport, communication and other physical facilities around the project area,
- The project is located close to industrial areas (load centers) with high electricity demand,
- Dam/Reservoir will control possible high floods in the Dudhkoshi River,
- The internal and external tourism will be enhanced due to the reservoir,
- Fishing and water transportation may be done in the reservoir and potentiality for solar farming in the future.
- The number of displaced houses will be very less in comparison to other reservoir projects, etc.

Access Road:

About 91 km long access roads are required to reach the main structures of the project, the dam and the power house, from the national highway network. Out of 91 km access roads, the track roads of about 70 km have already been constructed by federal, provincial and local governments. Construction of remaining track roads and upgrading of all the access roads along with construction of additional 65 km connecting roads and four bridges have been included in the project execution plan.

Environmental and Social Studies:

The environmental impact assessment report of the project has been prepared by the consultant ELC Electroconsult and submitted to the Department of Electricity Development (DoED) in February 2023 for approval. Currently, the environmental and social safeguard studies are being carried out with proper action-plan in order to comply with Safeguard Policies of ADB and it is expected to accomplish within a year.

Project Impacts:

13 wards of two rural municipalities (Rawabesi and Aiselukharka) and one municipality (Halesi Tuwachung) of Khotang District, 5 wards of one rural municipality (Chisankhugadhi) of Okhaldhunga District and 3 wards of two rural municipalities (Nechasalyan and Thulung Dudhkoshi) of Solukhumbu District are seemed to be affected by the project. A total of 3,139 households will be affected by the construction of the project, out of which 238 households will be fully affected and 2,901 households will be partially affected. Similarly, around 52 households will be affected by the construction of transmission line. Out of about 65,000 ropanis (3,307 hectare) of land to be affected by the project including access roads, about 30,000 ropanis (1,526 hectare) of land seems necessary to be acquired.

Main Dam Cross-Section

