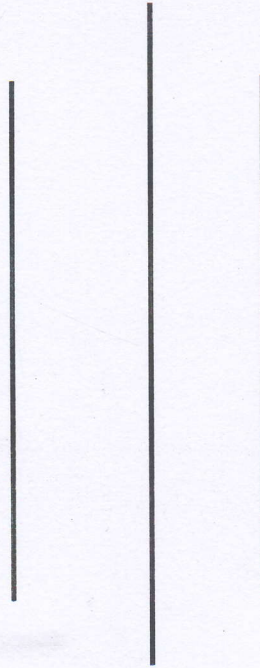




## Nepal Investment Summit-2024



Government of Nepal  
Ministry of Energy, Water Resources and Irrigation  
Department of Electricity Development



### Request for Expression of Interest (EOI)

for

**Project Name:** Kawadi Khola Hydropower Project

**Location:** Bajura and Humla, Nepal

EOI No.: NIS2024/DOED/EOI-04

EOI Issue Date: 28<sup>th</sup> April 2024



## ABBREVIATIONS

DOED	Department of Electricity Development
EOI	Expression of Interest
GoN	Government of Nepal
MoEWRI	Ministry of Energy Water Resources and Irrigation
NIS	Nepal Investment Summit
OIBN	Office of the Investment Board Nepal
PPP	Public-Private Partnership
RFP	Request for Proposal

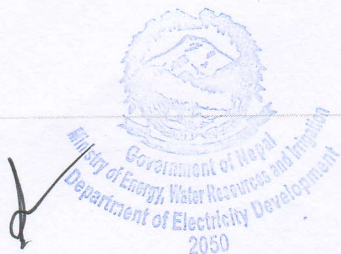


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## 1 BRIEF DESCRIPTION

Investment Board Nepal is a high-powered agency chaired by Rt. Hon. Prime Minister established as a nodal agency for Public Private Partnership (PPP) and investment promotion in Nepal. Since its establishment, IBN has played an instrumental role in implementing transformative infrastructure projects fundamental to bolstering socio-economic development of the country. IBN has provided investment approvals – for both Public-Private-Partnership and direct private investment projects. Being guided by the Long-term Vision (2043), the 15th Plan and other subsequent policies of the Government of Nepal; and international commitments such as Sustainable Development Goals, IBN has been developing credible and bankable projects to garner investment.

The Third Nepal Investment Summit is scheduled for 28<sup>th</sup> & 29<sup>th</sup> April 2024. The main objective of the Summit is to promote Nepal as a promising investment destination and to attract domestic and foreign direct investment in various sectors in Nepal. The summit is expected to bring together prominent national and international speakers, dignitaries, sector specific experts and high-level government officials. During the Summit, various projects shall also be showcased to existing and new investors and developers.

A rigorous exercise has been undertaken to collect, evaluate, screen, and prepare projects for solicitation through EoI, market sounding, and other projects in pipeline. This expression of interest is issued at the NIS 2024 as per the Clause 16 of the Public Private Partnership and Investment Regulation 2077. The summit will also be an opportune venue for developers to meet potential investors for equity and debt portions in projects.

DOED is responsible for assisting the Ministry in implementation of overall government policies related to power/electricity sector. The major functions of the Department are to ensure transparency of regulatory framework, accommodate, promote and facilitate private sector's participation in power sector by providing "One Window" service and license to power projects. DoED has a provision of project bank for the projects studied by itself. Department intends to develop these projects under PPP model by selecting a developer through the competitive bidding. For Nepal Investment Summit-2024, the Department in close coordination with Ministry and OIBN, has selected some projects for solicitation. Among them, Kawadi Khola Hydropower Project is also one of them. Kawadi Khola Hydropower Project of capacity 30 MW is identified at Kawadi Khola, a bordering river between two districts Bajura and Humla. The Headwork site is located near the Gumba village at downstream of the confluence of Chimdi Khola with Kawadi Khola. The powerhouse site is located at Phulai village and it takes about 5 hours to walk from powerhouse location to the intake location along the track beside Kawadi Khola, however a stretch in between appears to remain flooded during monsoon which increases the travelling time by more than 5 hours. Phulai Village is about one and half days walk from the nearest road head, Kawadi Bazar, a settlement along the highway under construction-Karnali Corridor. The feasibility and environmental study of the project has already been completed.

A brief introductory description [Salient feature] of the project is attached to this document.

## 2 BIDDING PROCESS SCHEDULE



The NIS 2024 Secretariat/OIBN shall endeavor to adhere to the following schedule to evaluate and shortlist from the EOI for the Request for Proposal.

EOI issue Date: 28<sup>th</sup> April 2024

Last date of submission of EOI: 2<sup>nd</sup> June 2024, 12:00PM (NST)

Opening of EOI Proposal: 2<sup>nd</sup> June 2024, 12:00PM (NST), at DoED Meeting Hall

Application Evaluation Result: 7<sup>th</sup> July 2024

Interested party(ies) can submit their EOI along with all necessary documents online at [www.eoi.investinnepal.gov.np](http://www.eoi.investinnepal.gov.np).

Contact Details:

Name of the Agency: Department of Electricity Development

Address: Sano Gaucharan, Kathmandu

Post Box No.: 2507

Phone No: (977-1-) 4534119, Fax: (977-1-) 5244257

Email address: [info@doed.gov.np](mailto:info@doed.gov.np), Website: <https://www.doed.gov.np>

The department holds the right to cancel this Eoi process at any time.

### 3 PRE-QUALIFYING CRITERIA

The applicants must meet the following pre-qualifying criteria to be considered for further evaluation and shortlisting.

- a) Minimum THREE years of experience of the applicant or lead partner (in case of JV/consortium) in Development of Hydropower Projects in Public Private Partnership (PPP) model.
- b) Must have completed development of at least one Hydropower Projects in past 5 years whose power capacity should not be less than 6 MW. (*Completed development projects means:*
  - (i) *For domestic developer, At least EM works-initiated projects; for which letter issued from DOED regarding the custom facilities is required,*
  - (ii) *For International Developer, project completion/operation certificate is required )*
- c) Net worth of the applicant or lead partner (in case of JV/consortium) should be equivalent to at least NPR 640.9 Millions [or Equivalent USD, *Note: the exchange rate of date of issue of EOI Noticw will be taken for currency conversion.*] as per the last fiscal year's audited balance sheet/report. In case of JV/Consortium, the net worth will be calculated based on the percentage share as mentioned in the JV agreement of MOU.

### 4 APPLICATION PROCEDURE



The developer/investor who meets the above pre-qualifying criteria can make the application for the project. Following are the guidelines for the application procedure.

- a) Application can be made by a single entity or a group of entities (Consortium or JV) comprising up to three different companies/parties including a lead member
- b) A consortium/JV may fulfil the pre-qualifying criteria in a joint /cumulative manner, except for the number of years of work experience.
- c) A fee of NPR 150,000 shall be payable for each application (PPPIR 2077, Clause 17 (3)).
- d) The fee must be paid to the following account of DOED and the proof document (voucher) should be submitted along with EOI:

Bank Name: Rastriya Banijya Bank Limited, Teku Branch

Account Number: 1000200010000

Office Code: 308013501

Revenue Heading: 14229

Office Name: Department of Electricity Development (DOED)

Swift Code: RBBANPKA

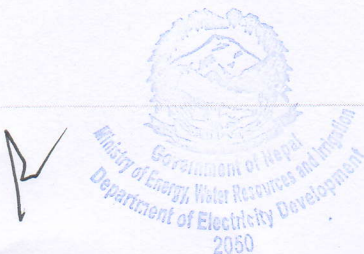
- e) Please use "Company Name\_Project Name" as the reference code for the payment made in the case of the online payment.
- f) After payment of the fee is made, the DOED shall assign an engagement manager and may provide additional documents or information relevant to the project (if available).
- g) Applicants should submit the EOI with all required documents by 2<sup>nd</sup> June 2024.
- h) The Government of Nepal (OIBN or MOEWRI or DOED or relevant government organization) shall review the proposal and ask additional information if required.
- i) The Government of Nepal shall shortlist the qualified applicants by 7<sup>th</sup> July 2024. The applicants will be notified accordingly.



## 5 CHECKLIST

The clause 17 of the PPPIR 2077 mentions that the interested investor shall acquire the request for expression of interest from the concerned agency or website and submit the documents as mentioned in the request for proposal document. Following documents and information should be submitted while submitting the EoI.

1. Notarized copy/ies of VAT/PAN registration certificate (for national developer) and official company registration certificate (for international developer).
2. Detailed profile of the developers/investors, including profile of senior management team, and annual report audited financial statements for at least past three years, latest tax clearance certificate.
3. In case of a consortium or JV an intent to form a JV or consortium, or consortium agreement or JV agreement or MoU.
4. Evidence of power of attorney.
5. Project concept, plan, and information on financial, economic, social, technical, and environmental feasibility.
6. Method of project implementation, project development modality and work schedule.
7. Business plan with basic financial statements
8. Financial arrangement and source of investment
9. Socio-economic contribution to Nepal
10. Expected support from GoN
11. All the documents need to be properly signed and stamped and sealed (in case of hard copy submitted).  
Other relevant information, if any.



**Attachment [Salient Features of the Project (Based on the Final Report from the Consultant)]**

**GENERAL**

Name of the Project : Kawadi Khola Hydropower Project

Name of the River : Kawadi Khola (Downstream to the confluence of Chimdi Khola with Kawadi Khola)

Type of Scheme : Run-off River

**PROJECT LOCATION**

Project Location : Himali Gaupalika wards no 3 Sudur Pachim province of Bajura district and Tajakot Gaupalika ward no 1 Karnali province of Humla district

Project boundary coordinates (Latitude, Longitude) : 29°48'18" N to 29°45'00" N, 81°43'00" E to 81°45'00" E.

Nearest settlement : Gumba village at intake site and Phulai village at powerhouse site

Access road name : Project area is not connected by any kind of road at the present. 1 and half day walk from nearest road head- Kawadi bazar

**HYDROLOGY**

Catchment area at intake site (sq. km) : 394.44 sq. km

Catchment area at powerhouse site : 424.55 sq. km

Design Discharge (40% exceedance) : 9.23 m<sup>3</sup>/s

Average annual discharge (m<sup>3</sup>/s) : 19.87 m<sup>3</sup>/s

Minimum monthly discharge (m<sup>3</sup>/s) : 3.50 m<sup>3</sup>/s

Maximum monthly discharge (m<sup>3</sup>/s) : 37.60 m<sup>3</sup>/s

Minimum environmental release; 10% of minimum flow (m<sup>3</sup>/s) : 0.35 m<sup>3</sup>/s

Flood discharge for headworks design (100 years) : 154.51 m<sup>3</sup>/s (CAR method)

Flood discharge for powerhouse/tailrace design (100 years) : 162 m<sup>3</sup>/s (CAR method)

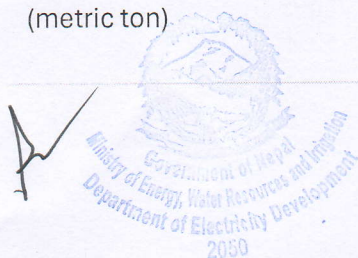
**SEDIMENT STUDY**

Average annual sediment load (metric ton) : 998 metric ton

Maximum sediment load (kg/m<sup>3</sup>) : 8 kg/m<sup>3</sup>

Design suspended sediment load (ppm) : 10,000 ppm

Estimated annual sediment yield (metric ton) : 422,413 metric ton



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## GEOLOGY

Regional Geology	:	Chail Nappe within (Lesser Himalaya). It is sandwiched between the MCT and MBT, thin to thick bedded, brownish white quartzites alternating with thinly foliated greenish grey phyllite, rock exposed around headwork site, tunnel alignment, Surge shaft area, penstock area and powerhouse area is dominated by quartzite. In addition to this, the alternating bands of grey phyllite and partings of phyllite in quartzite
Major rock types in headworks	:	Quartzite and Phyllite
Major rock type in waterways	:	Quartzite and Phyllite
Major rock type in powerhouse	:	Quartzite and Phyllite

## STRUCTURE

Dam/ Weir	:	Diversion Weir
Crest Level (masl)	:	2504 masl
Type	:	Ogee shaped concrete weir (overflow Spillway)
Length (m)	:	21.3 m
Lowest River Bed Level at Weir Axis (masl)	:	2499 masl
Foundation type	:	Shallow foundation
Provision of Stilling basin	:	Horizontal stilling basin with end sill, 23m in length
Water level in stilling basin for design flood (masl)	:	2500.13 masl

## DIVERSION DURING CONSTRUCTION

Construction flood	:	34 m <sup>3</sup> /s (1 in 20 dry year return period)
Diversion type	:	Coffer Dam
Top width of Dam	:	1.5m
Bottom width of Dam	:	3 m
Height of Dam	:	3 m

## INTAKE

Intake type	:	Side intake
Number of orifices	:	2
Size (B* H, m)	:	2.8m x 2.5m
Top sill level (masl)	:	2503.5 masl
Invert Sill level (masl)	:	2501.0 masl
Gate type	:	2 nos. Vertical gates
Clear opening of trash rack (mm)	:	16 mm

**UNDERSLUICE**

Number of Bays	:	2
Dimension (B x H, m)	:	1.5m x 1.5m
Undersluice Invert level (masl)	:	2499.00 masl
Gate type	:	2 nos. Vertical gates

**GRAVEL TRAP AND GRAVEL FLUSHING**

Number of Basin	:	1
Gravel Trap Size (L x B x H, m)	:	5m x 6.4m x 3.98m
Size of Flushing Canal (L x B x H, m)	:	25m x 1.5m x 1.8m
Settling Criteria	:	5mm size to be trapped

**APPROACH CULVERT**

Type	:	Rectangular Culvert
Number	:	1
Culvert size (B x H, m)	:	3m x 2.6m
Length (m)	:	100.84m
Bed slope (V:H)	:	1:750

**SETTLING BASIN**

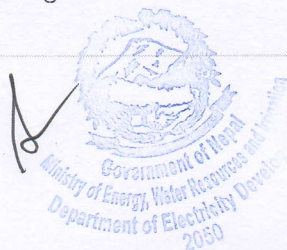
Type	:	Hopper bottom settling basin
Size of particle to settle (mm)	:	0.15 mm
Settling design temperature (°C)	:	10
Settling efficiency (%)	:	90% (Camp efficiency)
Number of Bays	:	2
Inlet Transition Length (m)	:	28.5m
Settling Basin Size (L x B, m)	:	64m x 7.5(each Bay) m
Depth of Hopper	:	3.30 m
Longitudinal Slope (V:H)	:	1:40

**WATER CONVEYANCE**

Type	:	D-shaped tunnel
Material	:	Fiber reinforced shotcrete
Length (m)	:	5176.65m
Diameter (m)	:	3m (excavation diameter), 2.7m finishing diameter
Thickness (mm)	:	70mm thick fiber reinforced shotcrete
Support type	:	25mm dia, 2m long rock bolt @ 1.5m c/c along both direction.

**ADIT TUNNEL**

Length	:	808.22m
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Type, Size : D-shaped, 3m excavation Diameter  
 Slope : Upward slope of 1:17 from the portal towards headrace tunnel.

**SURGE SHAFT**

Type : Restricted orifice offset Surge Shaft  
 Diameter (m) : 5m  
 Up surge level (masl) : 2510.035 masl  
 Down surge level (masl) : 2484.854 masl  
 Invert level (masl) : 2478.70 masl  
 Support type : 25mm dia, 3m long rock bolt @ 2m c/c along both direction

**VENTILATION TUNNEL**

Length : 85.83m  
 Diameter : 3m excavation diameter at elevation 23511.84 masl from surge shaft

**PENSTOCK**

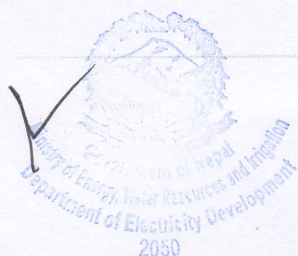
Material : IS 2062: 2011 E350 BR  
 Length (m) : 693.80m  
 Internal Diameter (m) : 1.7m  
 Thickness(mm) : 8mm- 45mm  
 Maximum surge pressure (m) : 118m  
 Number of anchor block : 9  
 Number of saddle support : 87  
 Saddle spacing : 8m  
 Support type : 25mm Dia. 4m long anchor bolt, @ 1.5m c/c along both directions.

**POWERHOUSE**

Type : Surface Powerhouse  
 Plan Dimension (L x B x H, m) : 35.5m x 18.45m x29m  
 Machine floor level (masl) : 2118.15 masl  
 Minimum foundation level (masl) : 2105.07 masl  
 Foundation type: : Mat foundation

**TAILRACE**

Type : Culvert  
 Number : 1  
 Size (B x H, m): : 3.2 m x3.1 m  
 Length : 125.5m



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Outlet water level at river	:	2107.00 masl
Minimum tail water level	:	2106.17 masl
Normal tail water level	:	2107.57 masl
High Flood Level	:	2108.00 masl (100-year return period)
Invert level of tailrace at outlet	:	2105.02 masl

#### TURBINE

Type	:	Vertical Axis Pelton turbine
Number of unit	:	2
Maximum head	:	395 m
Minimum head	:	384 m
Rated net head/ Design head	:	384.14 m
Rated Capacity per unit	:	15.646 MW
Discharge per Unit	:	4.62 m <sup>3</sup> /s
Turbine Axis Elevation	:	2109.00 masl
Turbine efficiency	:	90%

#### GOVERNOR

Type	:	Digital Electronic with PID type
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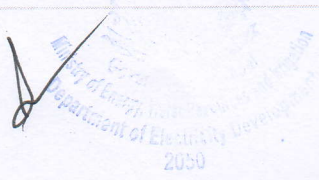
#### GENERATOR

Type	:	Three Phase Salient Pole, Synchronous generator
Capacity	:	18.06 MVA
Number of units	:	2 (Two)
Power factor	:	0.85
Generating Output Voltage	:	11 kV
Frequency	:	50 Hz
Cooling	:	Totally Enclosed Water to Air Cooling (TEWAC)
Efficiency	:	96.5%
Synchronous Speed	:	600 RPM

#### TRANSFORMER

Type	:	Outdoor, oil immersed, ONAN
Number of Phases	:	Three (3)
Number of Unit	:	2
Rating	:	18MVA
Rated Voltage	:	Primary side – 12 kV and Secondary Side -145 kV
Frequency	:	50Hz
Vector Group Reference	:	YNd11

#### SWITCHYARD



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Type : Outdoor  
Dimensions (Lx B, m) : 35m x30m

#### TRANSMISSION LINE

Transmission voltage : 132 Kv  
Length : 30 km  
Connection point (location) : Mugu-Karnali Hub

#### POWER AND ENERGY

Installed Capacity : 30,000 KW  
Gross head : 395m  
Dry season Energy : 66.62 GWh  
Wet season Energy : 118.67 GWh  
Total Annual Energy : 185.30 GWh

#### FINANCIAL PARAMETERS

Total Cost of project : NRs. 6,409,021,219.25  
Cost per kW : NRs. 213,634.04  
Dry energy rate : NRs. 8.40/kWh  
Wet energy rate : NRs. 4.80/kWh  
Equity/Debt ratio : 30:70  
Project life : 30 year from the day of operation  
B/C ratio on project : 1.23  
B/C ration on equity : 1.54  
IRR on project : 12.21%  
IRR on equity : 12.83%  
Payabck Period : 10 years

#### ECONOMICAL PARAMETERS

Total Cost of project : NRs. 5,851,570,096.00  
Cost per kW : NRs.195,052.34  
Dry energy rate : NRs. 8.40/kWh  
Wet energy rate : NRs. 4.80/kWh  
Equity/Debt ratio : 30:70  
Project life : 50 year from the day of operation  
B/C ratio on project : 1.49  
B/C ration on equity : 2.30  
IRR on project : 14.17%  
IRR on equity : 16.13%



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