SALIENT FEATURES

Name of the Project	**Pegu Khola Small Hydropower Project**
Source	**Pegu Khola**
Type of Development	**Run-of-River (ROR)**
Project District	**Dolakha**
Project Gaupalika /Municipality	**Bigu**
Accessibility	
Kathmandu to Charikot	133 km (Black topped Road)
Charikot to Singati (Powerhouse)	47.5 km (Gravel/Earthen Road)
Singati to Sorung	25 km (Gravel/Earthen Road)
Sorung to Project Site	5 km (Gravel/Earthen Road)
Transmission	
Length	13 km (from powerhouse of PKSHPP to NEA s/s at 132/33 kV Singati S/S)
Voltage	33 kV
Hydrology	
Catchment area at Intake side	34 km^2
Design flood Discharge	16 m^3/s
General Hydraulics	
Gross head	190.37 m
Design flow	1.950 m^3/s
Capacity	3 MW
Diversion Weir	
Type	Broad crested shaped Boulder and Concrete weir
Length	14 m (with undersluice)
Crest elevation	1987.37masl
Spillway type	Free flow
Undersluice Opening (W X H)	1 nos (1.5 X 1.5 m)
Undersluice Crest Level	1984.87 masl
Intake cum Gravel Trap	
Type	Sub-merged orifice type, Side intake
Size of opening	1.5 m x 1.25 m, 2 nos.
Intake Sill Level	1986.37 masl

Length of Gravel Trap	7.5 m
Width of Gravel Trap (Avg.)	2.55 m
Overall depth	3.10 m
Particle Size to be trapped	5 mm
Flushing Channel	20.15 m length (0.5 x 0.5 m)
Approach Canal	
Type	RCC, Box culvert
Length	46 m
Size	1.5 m x 1.30 m
Desanding basin	
Type/ No of bays	Gravity Flushing type Double chamber
Dimension (L x B x H)	43 m x 3.5 m x 3.2 m (2 chamber)
Inlet transition Length	8.0 m
Particle size to be settled	0.2 mm
Trapping efficiency	90%
Headrace Pipe	
Type	Mild Steel
Length	1300 m
Internal Diameter	1.10 m
Steel thickness	6 mm
Forebay	
Type	RCC Tank
Size	15 m x 5 m x 3 m (L x B x H)
Normal Operation Level	1984.241 masl
Steel Penstock Pipe	
Type	Mild Steel
Internal Diameter	1 m
Length	900 m
Steel Thickness	6 mm to 14 mm
Nos. of Anchor Blocks	10 nos.
Nos. of Saddle Support	85 nos.
Powerhouse	
Type	Surface
Size (L x W)	20 m x 10 m

Height	9 m
Turbine Axis Level	1797 masl
Tailrace	
Type	Box- Culvert
Size (W x D)	1.5 m x 1.2 m
Tailrace Water Level	1795.05 masl
Turbine	
Type/No. of units	Pelton / 2 Nos.
Rated output	1563 kW each
Net Head	182.22 m
Discharge per Unit	0.975 m^3/s
Efficiency	90 %
Governer	
Type	Digital Microprocessor Based
Adjustment for Speed Drop	0-10 %
Generator	
Type	Horizontal synchronous
Rated Capacity	1765 kVA each
Power Factor	0.85
Generation Voltage	6.3 kV
Frequency	50 Hz
No. of Units	2
Excitation System	Brushless Excitation
Efficiency	96 %
Transformer	
Type	Three Phase
Unit	1 No.
Rated capacity / Efficiency	3600 kVA / 99 %
Vector group	YNd11
Power factor / Frequency	0.85 / 50 Hz
Voltage ratio	6.3/33 kV
Energy output	
Annual energy	16.245 GWh
Dry energy	2.447 GWh

Wet energy	13.797 GWh
Financial parameters (based on 2024 price level, Economic life = 30 years)	
Assumptions	
Debt-Equity ratio	70:30
Interest rate	10%
Repayment period	12 Years
Before financing	**After financing**
Total Project cost, NRs. 54.28 Cr	NRs. 57.92 Cr
Cost per kW, NRs. 18.10 Cr.	NRs. 19.31 Cr.
Financial Indicators	
Project Internal Rate of Return (PIRR)	13.00%
Return on Equity (RoE)	15.62%
Net Present Value (NPV) '000	NRs. 135,665
B/C ratio	1.27
Average Debt Service Cover Ratios	1.47
Cost Per Unit Electricity Generation	NRs. 3.78