

## Salient Features

### **General**

Name of the Project	Kaligandaki Gorge Hydropower Project
Name of the River	Kaligandaki
Type of Scheme	Peaking Run of River (PROR)
Peaking Hours	Six Hours Daily
Project Location	Thasang and Annapurna Rural Municipality
District	Mustang and Myagdi
Zone	Dhaulagiri
Province	Gandaki
Latitude	28 <sup>0</sup> 31' 15" N to 28 <sup>0</sup> 36' 15" N
Longitude	83 <sup>0</sup> 37' 15" E to 83 <sup>0</sup> 40' 00" E
Nearest Town	Beni Bazaar
Construction Period	5 Years

### **Hydrology**

Catchment Area	3,625 sq km
Average Precipitation	704.04 mm
Long Term Average Flow	64.33 m <sup>3</sup> /s
Minimum Monthly Flow	15.76 m <sup>3</sup> /s
Design Discharge (Q <sub>40</sub> )	43.19 m <sup>3</sup> /s
Design Flood Discharge at Intake (1:100)	1596.0 m <sup>3</sup> /s
Design Flood Discharge at Powerhouse (1:100)	2344.0 m <sup>3</sup> /s

### **Cofferdam**

Height above River Bed	5.00 m
First Phase Cofferdam Length	467.00 m
Second Phase Cofferdam Length	277 m

### **Dam Spillway**

Type	Ogee Shaped with Radial Gate
Nos of Spillway	3
Width of Each Spillway	12.00 m
Length of Each Spillway	43 m

Full Reservoir Level	1848.91 masl
Live Storage capacity	841,794 m <sup>3</sup>

#### **Undersluice**

Type	Rectangular with Radial Gate
Nos of Gate	2
Width of Undersluice	6.00 m

#### **Flap Gate**

Height of Gate	4.15 m
Width of Gate	3.00 m
Crest Level of Spillway	1845.91 masl

#### **Intake**

Type	Side Intake with Vertical Lift Gate
No of units	6
Size of Each Waterway	5.7 m x 1.5 m
Intake Sill Level	1838.72 masl

#### **Settling Basin**

Type	Hopper Shaped
No of Units	2
Dimension (Length x Width)	116.0 m x 42.0 m
Normal Water Depth	22.60 m
Particle Size to be settled	> 0.2 mm
Length of Flushing Canal	3 x 60 m
Size of Flushing Canal	2.5 m x 1.0 m
Normal Water Level	1848.72 masl

#### **Forebay**

Length	42.00 m
Width	7.00 m
Full Supply Level	1848.54 masl

#### **Headrace Tunnel**

Shape	Excavation (Horse Shoe), Lining (circular)
Type of Lining	Shotcrete, Concrete

Diameter	5.00 m
Length	5363.91 m
Invert level of Tunnel Inlet	1827.48 masl
Invert Level at Surge Tank	1814.55 masl

#### **Adit I, II & III**

Shape	Inverted D Shaped
Diameter	5.00 m
Total Length	522.45 m

#### **Surge Tank**

Diameter	12.0 m
Height	50.35 m
Crown Level of Surge Tank	1873.22 masl
Invert Level of Surge Tank	1819.55 masl
Steady State Level	1844.68 masl
Upsurge Level	1863.62 masl
Downsurge Level	1830.97 masl

#### **Penstock**

Size	4.0 m Diameter and 1390 m Length
Thickness	20 mm – 100 mm

#### **Powerhouse**

Type	Semi-Underground
Dimension	74 m x 22 m x 35 m

#### **Turbine**

Type of Turbine	Vertical Axis, Pelton
Number of Units	4
Turbine Axis Level	1350.43 masl
Turbine Efficiency	91.0 %

#### **Tailrace Canal**

Type	Rectangular
Size	4.5 m x 3.65 m
Length	730 m

Normal Water Level at Tailrace Outlet	1339.42 masl
Design Flood Level at Tailrace (1:100)	1332.00 masl

### **Switchyard**

Size	93 m x 67 m
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### **Transmission Line**

Transmission Voltage	220 kV Double circuit
Line Length	1.5 km
Connection Point	Dana Substation, NEA

### **Generator**

No. of Units	4
Rating	53 MVA
Speed	750 rpm
Frequency	50 Hz
Rated Voltage	11 kV
Generator Efficiency	96.0 %

### **Transformer**

Type	3 Phase, Oil Immersed
No. of Units	4
Rating	53 MVA
Frequency	50 Hz
Transformer Efficiency	99 %

### **Power and Energy**

Installed Capacity	180.00 MW
Gross Head	498.48 m
Net Head	491.20 m
Dry Season Peak Energy	186.92 GWh
Dry Season Non Peak Energy	136.76 GWh
Wet Season Energy	712.53 GWh
Total Energy	1036.21 GWh
Overall Efficiency	86.49 %