
**BASIYA SMALL HYDRO POWER PROJECT
SALIENT FEATURES**

Location

State	Jharkhand
District	Gumla
River/Tributary	Brahmani/South Koel river
Diversion Barrage	22° 50' 51" N, 84° 50' 07" E
Power House Site	22° 50' 12" N, 84° 50' 12" E

Hydrology

Catchment Area At Intake Site	3160 km ²
Design Discharge	53.25 m ³ /s
Design Flood	3300 m ³ /s
Diversion Flood	230 m ³ /s

Diversion Structure

Type	Barrage
Length Of weir	195 m
Maximum Height From RBL	507 m
Top elevation of weir	EL. 507 m
Average River Bed Level	EL. 500 m
FRL	EL. 505 m

Intake

Sill Level	EL. 499 m
Gate size	3.5 m X 1.6 m
Gate type	Vertical lift fixed wheel
Design discharge	53.25 cumecs

Forebay

Type	Rectangular tank
Size	25 m (L) X 22 m (W) X 10 m (H)
Invert Level	EL. 495.5 m
Top Level	EL. 505.5 m
Spill level	EL. 505.0 m

Main Penstock

Type	Steel lined circular-surface
Size	3.5 m diameter
Length	73 m

Branch penstocks

No. and size	3 no.
Branch 1	2.3 m dia. and 35 m long
Branch 2	2.3 m dia. and 30 m long
Branch 3	1.15 m dia. and 25 m long

Power House

Location	
Type	Surface
Total Installed Capacity	9 MW
No. of Units	3
Capacity of Units	2 X 4 MW and 1 X 1 MW
Size Of power house	34 m (L) X 20 m (W)
Type Of Turbine	Vertical Francis
Speed Of Turbine	333 rpm
Gross Head	23 m
Net Operating Head Design Discharge	19.74 m

Tail Race Channel

Max. Tail Water Level	EL.486.0 m
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Min. Tail Water Level	EL 481.5 m
Normal Tail Water Level	EL 482 m
Shape of channel	Trapezoidal
Size	9.71 m (top W) X 4.5 m (H)
Length	96 m

Power Generation

Installed Capacity	9 MW
75% Dependable Energy	29.6 GWh
Plant Load factor	37.6 %

COST ESTIMATE

INR (Crores)

Civil & HM Works	81.43
Electro Mechanical Works	16.20
Transmission Works	0.75
Total Hard Cost	98.38
IDC and Financing Charges	7.79
TOTAL COST OF THE PROJECT	106.17