Humla Karnali Hydropower Project (61.02 MW)



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



Background

The Humla Karnali Hydropower Project is a Run of River (RoR) scheme Hydropower designed to harness energy from Humla Karnali river. The project capacity is 61 MW and produces an annual energy of 390.29 GWh. The project lies is in Humla district, Namkha rural municipality, which is not connected with any vehicular road from Nepal side. However, Hilsa-Simikot road section has been built from the Tibet Autonomous Region border crossing at Hilsa. The project area can be accessed through Simikot, the headquarter of Humla District, which is to be accessed from Kathmandu by about 1-hour flight to Nepalgunj followed by another 50-minute fight to Simikot or 601 km drive to Surkhet followed by 50-minute flight to Simikot.





Location: Namkha Rural Municipality, Humla District, Karnali province



Land Required: 21.73 hectares

Wet Energy: 247.39 GWh

Dry Energy: 142.90 GWh

Salient Feature:

- Scheme: Run-of-the-River (RoR)
- Power generation: 61.02 MW
- Total Energy: 390.29 GWh

Features/Components

- Catchment area at intake site: 4430.66 km²
- Design discharge: 44.50 m³/s
- Net Head: 156.51 m
- Headworks arrangement: 34m long, 10m high ogee type concrete wier (crest elevation: 3066 masl), 2 bays of under sluice 3m x 4m radial gates, side intake with 4 openings of 4.3m x 4.5m
- Design Flood (1 in 100 year flood): 727 m³/s
- Approach tunnel: Three D-shaped pressurized
 approach tunnel of length 176.86 m
- Settling basin: underground, double hopperr, and 3 bays (100m x 12.3m each)

Headrace tunnel: Pressurized, D-shaped, 5.5 m diameter and length 6.94 Km

36.62%

63.38%

- Surge Tank: 10 m diameter, 67m high simple cylindrical type
- Penstocks: surfaced, 491.4m long, 3.5m diameter, 14-36mm thick, 7 numbers of anchor block
- Powerhouse: surface, dimensions 53 x 15.6 x 37.7 m
- Turbine: 3 units of vertical axis Francis turbine with rated head 156.51m and discharge 14.83m³/s each
- A 31.6 km, 132 KV transmission line connected to the switchyard of Humla Karnali cascade hydropower project - 914 MW, (under study by DoED)

Project Outcome



Increased electricity generation capacity



Enhanced regional connectivity and access to remote areas



Revenue generation for central, provincial, and local governments

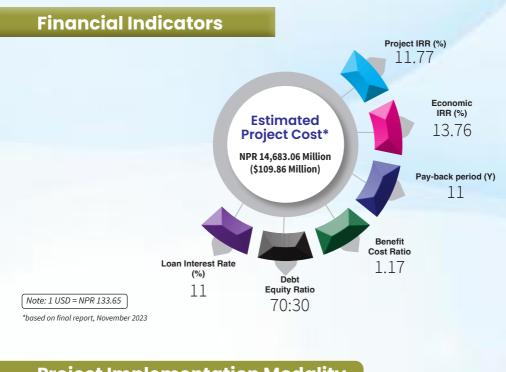
Contribution to sustainable development and environmental conservation



Water resource management



Job creation during construction and operation



Project Implementation Modality



Build Own Operate Transfer (BOOT)

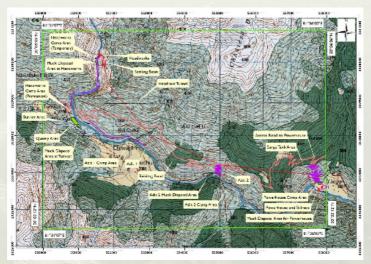
Public Private Partnership (PPP model)

Project Implementation Timeline



Additional Information

The Humla Karnali Hydropower Project necessitates the construction of approximately 11.06 km of roads, including an access road from Yangar to the Proposed Powerhouse Area and another from Tumkot to the Proposed Headworks Option I Area, all built to a width of 5.25m and meeting Nepal Rural Road Standards.



Pic 1: Project Layout

Relevant Agencies

- Ministry of Energy, Water Resources, and Irrigation (MOEWRI)
- Department of Electricity Development (DoED)

About the Agency

Department of Electricity Development (DOED), Government of Nepal

The Department of Electricity Development (DOED), part of Nepal's Ministry of Energy, Water Resources, and Irrigation, envisions facilitating efficient and sustainable hydropower projects to meet the nation's growing energy demands, thereby contributing to economic growth and energy security. Its mission involves promoting private sector involvement and local investment in large, medium, and small hydropower projects, fostering an environment conducive to hydropower development, and ensuring efficient water resource utilization. The agency's objectives include incentivizing private sector participation, developing implementable hydropower projects to address energy needs, conducting feasibility studies and environmental assessments, and enhancing the overall capacity and efficiency of Nepal's electricity sector. The DOED aims to achieve these goals by promoting PPPs, adhering to environmental and social standards, and ensuring equitable electricity distribution.

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