

Run-of-river hydro power projects, *Indonesia*

Indonesia has enormous potential for the sustainable development of hydropower energy production. That potential has, however, not been fully exploited. According to the national energy policy, the potential capacity of hydro resources in Indonesia is 75,000 MW of which only 4,200 MW has been used to generate electricity (including captive power and private entities). Run-of-river hydropower plants generate electricity without the need for retaining dams.

Locations



Two projects are located in the province of North Sumatra, about 100 km and 350 km respectively from Medan, the capital city of the province. The water is taken from several sources: Lau Renun River, Haporas River, Bargout River, Tapian Nauli River, and other small rivers in North Sumatra. Most of the local people earn their living from fishing and farming. The region produces rice, palm oil, rubber liquid, Robusta and Arabica coffee beans, and various spices.

Projects



The project consists of two new reservoir hydropower plants. Both plants are run-of-river systems. Each consists of standard parts: intake structure, water conveyance system, power station, settling tank, penstock, and powerhouse. The plants use a natural height difference of up to 500 meters to generate sustainable hydropower.

To protect the unique landscape, most of the pipelines were built underground. One power plant has a total installed capacity equal to 2x41 MW. The other has a total installed capacity equal to 210 MW.



Benefits



Environmental:

- Supports catchment area reforestation

Social:

- Generates part-time and full-time employment for locals during the construction and operational phases
- Provides health care for employees
- Fosters donations to the local school (in the form of renovation materials, drainage piping, and electricity supply)
- Assists local church and mosque communities
- Lends aid to local Ulos weavers
- Promotes public facility development (public toilet, installation of piping for clean water)
- Improves public health services

Economic:

- Diversifies the national energy supply (today dominated by conventional fuel-based generating units)
- Contributes to economic sustainability around the plant sites
- Encourages economic power decentralization



Details

South Pole Projects 300 354 / 300 358
 DOE: RINA
 Estimated annual emission reductions: 250,000 tCO₂e / project
 Standard: VCS 2007 and Social Carbon



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