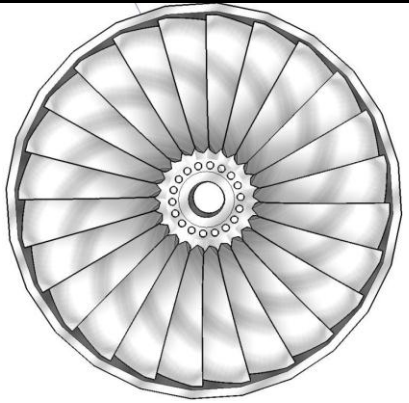


Turubalá Hydro Power Plant

Case History



Francis runner

Turubalá Hydro Power Plant Zunil in Quetzaltenango Guatemala

Project owner
Fuerza de Gravedad SA



Status:

- Licence issued

Key Figures:

- Head: 103 m
- Qm 6,0 m³/s
- Qt : 5,8 m³/s
- Penstock ductile 1800m
- Turbine 5 MW (2*2,5 MW)
- Annual generation : 32 GWh
- Estimated cost– 15 mUSD
- Specific cost 0,47 USd/GWh

Construction time:

Abt. 24 months

Year :

10/2013 - 2015

Commissioning:

2015



Intake area left



Penstock & plant area



Turubalá at Zunil waterfall on Rio Samalá

Brief project description

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The surrounding land was bought by Fuerza de Gravedad SA from the local owners who are of indigenous Mayan Quiché origin. The local community support the project, and previous owners have been paid for the land they sold. The project does not need more than 3 da of arable land, the rest is gorge and cliffs. To the left is a picture of the previous owner and his family.

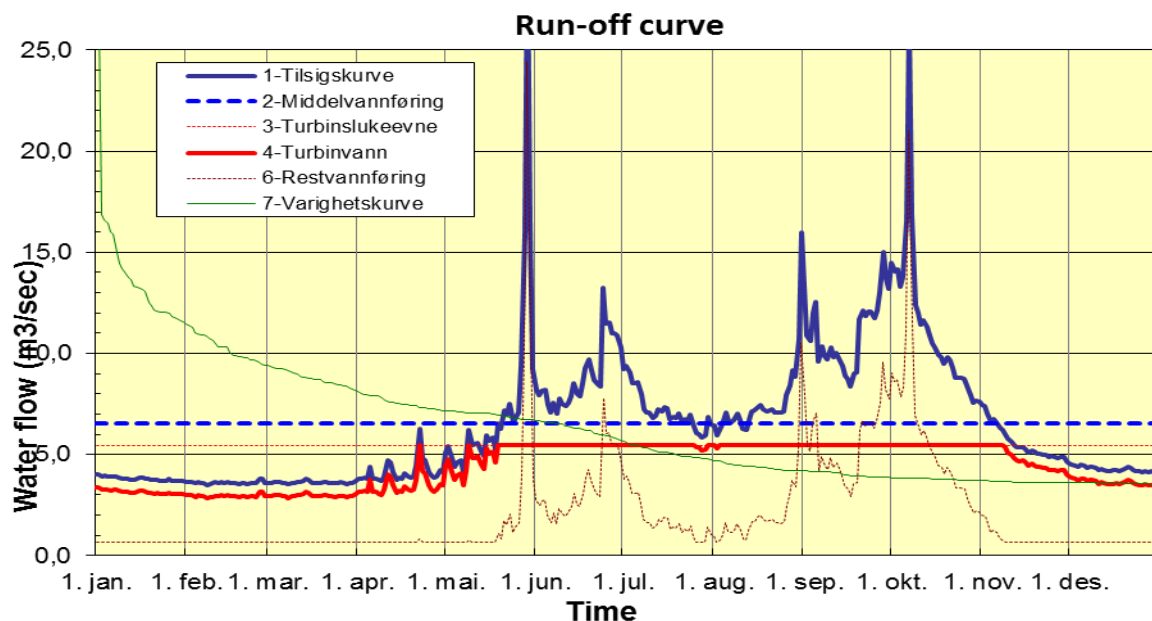
The project has undertaken a full sociological, biological and environmental investigation and scrutiny and has been declared sound and feasible without any major remarks.

The project will be a run of the river project located on the highland plateau of Quetzaltenango in the western part of Guatemala on the Pacific approximately 5 hours drive from the Capitol Guatemala City.

Location of Turubalá in Zunil



The river Rio Samalá has a catchment area of about 770 km² and has been gauged for more than 30 years during the period of 1978 to 2010. The gauging station is located about 3 km upstream the planned intake consequently of hydrological records are substantial and proves an average annual flow of about 6,0 m³/s at Cantel.



The project includes a combined intake and dam construction in concrete just downstream of the Zunil road bridge. The intake has exposed solid rock all across the river and no particular problems should be

encountered. The next 110 m will be a water tunnel in rock lined with concrete before a 450 m section down to the power house.



The access road to the power house has to be from the rear part of this picture as indicated in yellow.

The powerhouse needs a solid foundation of concrete and preferably anchored and cast directly on solid rock. The top housing construction will also be made of a pre-manufactured steel structure. The power plant will be water-level controlled as all run-of-the-river plants.

Considering the location and work load, however, the project will probably be sub-contracted as an EPC contract for the following main items such as:

- a) Local contracts: construction works of access roads, intake, powerhouse foundation, tailrace channel and high voltage transmission line.
- b) Complete electro-mechanical works including high voltage 6.6/34 kV switch gear and transformers, power house with an overhead crane, drilling of the penstock including lining with GRP-pipes, intake structures with trash racks and hatches etc.

Project team:

Project manager	Einar Sofienlund,
Engineer	Technohidros, Guatemala
Civil Engineer	Ricardo Bonilla, Guatemala
Mechanical engineer	Bjorn Undrum,
Electrical engineer	Einar Sofienlund,
Local project manager and Site engineer	José Luis Chacón, Guatemala

Turubalá Hydro Power Plant

Case History



Project Office and residence area which is now the property of Fuerza de Gravedad

