

Project Summary

Location:

District : Asadabad
District Centre : Asadabad
Centre Location
North: ° ' ''
East : ° ' ''
Height : 820 meters from sea level

Water resources:

? river. The lowest flow is meter cubic/sec.

Area Accessibility :

Existing Civil Structures and Mechanical components:

Canal Length: 1km (686 underground, 314 on ground)
Tailrace width: 14m, including 3 valves gates, 4.5m, 3.4m, 3m.
Gross head: 9.4 m
Power house dimension: 12x16x7
Intake Gate: 2 , each 3.15m
2 Units of Cross flow turbines (Germany), 350kW each

Problems:

- Some parts of the diversion weir and intake are destroyed. Therefore, enough water couldn't enter the canal at the time of dehydration and water is wasted.
- Sediments and boulders were entered and existed in the canal.
- Trash racks are installed in a way that's difficult to clean it normally.
- Some parts of canal were destroyed and needed reconstruction.
- Sediments were gathered in Forebay, making the water difficult to be filtered.
- The station is without a penstock pipe and the water is entering the power house through an open air structure.
- Inside the powerhouse, there are two cross flow turbines, each capacity is 350kW and they have been active for 31 years without any maintenance work.

Asadabad 700 kW Hydropower Project in Kunar Province, Aghanistan

Project Name

Reactivating Asadabad 700kW Hydropower project

Beneficiaries Numbers

Cost Estimation

USA \$/ person
USA \$/ KWA

Technical Information

700 kW	Capacity
meter	Height
m3/sec	Current

Site Photos



Turbine blades have been damaged and became inefficient.

- The automatic hydro mechanical governor for controlling the water flow was destroyed. Only, with hands it could be controlled.
- For stopping the machine there wasn't any automatic system and a long wood used for this purpose.
- There were no defence system for over current, overloading, and over voltage situations.
- The transmission and distribution systems were not standard. In most cases, the lines were merged together. The transmission poles were also at risk of falling down.
- The two generators operated separately. One, provided the load around the power house without using transformer, and the other generated electricity and transmitting this using 0.4:20 Transformer to 10 km distance.



Recommendations for reactivating:

- The diversion weir parts should be reconstructed. Moreover, 15 to 20 cm of RCC layer should be built in order to make enough water flow inside the canal, and also prevent it from destruction in the future.
- The diversion weir and intake parts should be cleaned from sediments and boulders so that enough water could enter the canal.
- New and suitable trash rack should be installed in order to make sure that large stones and boulders don't enter the canal.
- The control gates should be replaced.
- The canal that contains 40-70 cm of sediments and boulders should be cleaned.
- Some parts of the canal should be reconstructed.
- MS or Concrete penstock should be installed.
- The current cross flow turbines should be replaced with Kaplan turbines (each 450kW).
- Current generators should be replaced with synchronous generators (450kW/562 kVA).



Contact:

Eng. Abdul Jamil Musleh
Eng. Gholam Naqib "Rasoli"

MHP Unit
Renewable Energy Department (RED)
Ministry of Energy and Water of Afghanistan (MEW)
Website: www.mew.gov.af