

SMALL HYDRO ELECTRIC POWER PROJECT

Biaras Drass



Introduction to Hydro Electric Power

- ▶ Potential energy of water is converted into electric energy.
- ▶ Hydro electric power depends on:
 - Head of water
 - Discharge of water
- ▶ Total power that can be generated is:

$$P = \eta \rho Q g h$$

P is the power {W}

η is the efficiency of the turbine {approx. 0.9}

ρ is the density of water {1000 kg/m³}

Q is the discharge rate {m³/s}

g is the acceleration due to gravity {9.8 m/s²}

h is the height difference between inlet and outlet {m}

The Renewable Way

Challenges of climate change and energy security at higher level can only be solved sustainably by putting all our efforts towards energy conservation and energy efficiency

BIARAS SHP DRASS



**Providing
Electricity to public
In Minus 37**



Biaras SHP was commissioned by KREDA on 20th of November 2017

Technical Features of the Project

- **Name of the Project** : **Small Hydro Power Project Biaras**
- **Capacity** : **2 x 750 KW**
- **Design Discharge** : **4.5 Cumecs**
- **Gross Head** : **46.5 Mtr.**
- **Net Head** : **45.0 Mtr.**
- **Type of Weir** : **Drop Type Trench Weir**
- **Length of Weir** : **12.0 Mtr.**
- **Water Conductor** : **710.0 Mtr. Long**
- **De-Silting Tank** : **25.0 Mtr. Long**
- **Fore-Bay Tank** : **57.00 Mtr. Long**
- **Spillway** : **13.00 Mtr. Long**
- **Penstock** : **85.00 Mtr. Long with 1.23 Mtr. Diameter**
- **Power House** : **24.5 x 7.5 x 10.4 Mtr. With RCC Frame Structure**
- **Tail Race Channel** : **35.0 Mtr. Long**
- **Turbine** : **2 Units of Francis Turbine**
- **Generator** : **2 Units of Synchronous Generator**
- **Transmission Line** : **10.0 KM Long of 11 kV Capacity**

Commissioning of SHP Biaras

Kargil Renewable Energy Development Agency (KREDA) has successfully commissioned a 1.5 MW (2x750 kW) Small Hydro Project in Biaras Drass, on 20th of November 2017.

The project is one of the seven SHPs being implemented under KREDA's supervision & control.

The project has played an important role in mitigating the power crisis in the region of Drass since 2017.

Providing power to public in the most uncomfortable winters.



Power Scenario on the Eve of the SHP Biaras and after

- In the year 2016-17 the district had an installed capacity of nearly 50 MW (excluding the DGs) but production stood below 30%.
- The people of Drass, like other people in the periphery blocks, were facing lot of power crisis especially during winters.
- KREDA is committed to reducing the reliance of people of Kargil on imported diesel.
- The agency has the dream target of producing 90% of the district's energy from renewable sources only.
- The Small Hydro Power Project, Biaras has been supplying electricity to the Drass town day and night since two years.
- The plant has benefited hundreds of rural folk by meeting their lighting requirements in an environmentally benign manner

Power Supply from the SHP Biaras

Beneficiary villages of SHP Biaras

- The project is of *1.5 MW* capacity with two units of *750kW* each.
- The project is supplying electricity to more than 10 villages in the region of Drass, including the Drass town. Some of the villages are *Mushko, Holiyal, Gyndial, Biaras, Muradbag, Pandrass, Ranbirpora* etc.
- *1600 households* and many hotels/shopping complexes are continuously supplied electricity through the project.
- Some of the other important beneficiaries are '*the sub district hospital*', with 20 kW load and '*Beacon*' with again 20 kW load.
- 26.60 lac units are generated annually from the project.

Benefits

- A great alternate for saving thousands of liters of diesel, resulting in saving of lacs of rupees annually and it will bring down the load in already running DG Sets.
- No adverse environmental impact. *(per 50,000 liters of diesel emits up to 128 ton of CO2).*
- Will provide stable electricity supply to the neighbouring villages in an otherwise unelectrified or partially electrified region.
- Will enhance the living standard of the people there. Power will primarily be used for the following uses:
 - ▣ *Electricity for lighting and appliances (cooking, heating, radio, TV, computer etc.) in homes and public buildings such as schools and clinics, in public places and collective events.*
 - ▣ *Electrical or mechanical power for lift irrigation, local service and cottage industries and for agricultural value adding industries and labour saving activities.*
- Improve and further promote tourism in the valley.
- Opportunities for sources of employment and income generation in the area are enhanced.



SHP
Biaras

Frozen
Biaras
Nallah

Thank You

