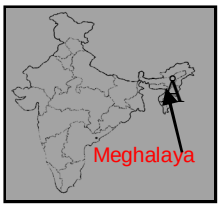
अनुसंधान के माध्यम से सेवा
Service Through Research

CENTRAL WATER AND POWER RESEARCH STATION
PUNE - 411 024 , INDIA.

MYNTDU DAM SPILLWAY, MEGHALAYA.



SALIENT FEATURES

Location	**: District Jaintia Hills**
State	**: Meghalaya**
River	**: Myntdu**
Power Generation	**: 84 MW**
Design Discharge	**: 10,440 m^3/s**
Type of dam	**: Concrete Gravity Dam Height 59 m**
Spillway	**: 7 Spans of 8.0 m wide x 12.0 m high (sluice spillway)**
Energy dissipator	**: Ski-jump bucket with pre-formed plunge pool**

MAJOR STUDIES

Comprehensive model scale 1: 60

- ☺ Approach flow conditions upstream of spillway and power intake
- ☺ Assessment of discharging capacity and pressures on spillway profile
- ☺ Performance of spillway and energy dissipator
- ☺ Scour studies and Layout of plunge pool

RESULTS

- ❖ The design of spillway was revised based on model studies by lowering the bucket invert by 4 m and sluice bottom profile was made flatter to improve the pressures on the spillway surface during partial gate operation.
- ❖ The discharging capacity of the sluice spillway was adequate. However, with one sluice closed, the discharging capacity of spillway was deficient by 3% which is acceptable.
- ❖ The performance of ski-jump bucket was satisfactory. It is recommended to provide pre-formed plunge pool to avoid uncontrolled scour of river bed and banks.
- ❖ Height of the training walls is adequate to contain the flow. It was recommended to reduce the height of divide walls.
- ❖ The concrete apron should be designed to withstand impact forces caused due to cascading flows falling from a height of about 18m.
- ❖ The flow conditions in the vicinity of power intake were found satisfactory for entire range of reservoir water levels.

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AREAS OF ACTIVITIES AT THE CWPRS

* HYDROLOGY AND WATER RESOURCES ANALYSIS
* RIVER ENINGEERING
* RESERVOIR AND APPURTENANT STRUCTURES
* COASTAL AND OFFSHORE ENGINEERING
* SHIP HYDRODYNAMICS
* HYDRAULIC MACHINERY
* APPLIED EARTH SCIENCES
* MATHEMATICAL MODELLING
* INSTRUMENTATION AND CONTROL ENGINEERING
* FOUNDATION AND STRUCTURES
* INFORMATION SYSTEM (WATER AND POWER)

CENTRAL WATER AND POWER RESEARCH STATION, PUNE - 411 024, INDIA.

RESERVOIR AND APPURTENANT STRUCTURES

FACILITIES

Large size covered and open model trays, Glass sided and Tilting flumes for hydraulic model studies. Precision Equipment for measurement of hydraulic parameters with data acquisition system. Workshop facilities for fabrication models Equipment for Field data Collection, Computer Center Numerical models for aeration devices and water hammer analysis.

AREAS OF SPECIALIZATION AND MAJOR STUDIES

STORAGE AND DIVERSION STRUCTURES

The study of storage and diversion structures include spillways, energy dissipators and appurtenant structures such as training walls, divide walls, downstream protection works.

❖ Spillway and Energy Dissipators : Bhakra, Salal, Sardar Sarovar, Chamera, Srilsailam, Nathpa Jahakri, Dhauliganga, Tala (Bhutan), Kurichu (Bhutan), Chukha (Bhutan), Bekhme (Iraq), Bakurman (Iraq), Khalilkan (Iraq), Sedwagyi (Myanmar), Ukai, Kadana, Dharoi, Baira-Siul, Mahi Bajaj Sagar, Matrikundai, Ranjitsagar, Icha, Rajghat, Khandong, Thoubal, Doyang.

❖ Appurtenant Structures : Assessment of hydrodynamic pressures/forces and bending moments on divide walls, chute, baffle blocks, breast walls, stilling basin apron and plunge pool lining for Sardar Sarovar, Salal, Bekhme (Iraq), Icha, Ranjitsagar, Ranganadi and Koyna Projects.

CONTROL STRUCTURES

The study of structures controlling and guiding high velocity flows include gate, tunnels and outlets. The major studies include assessment of hydrodynamic uplift and downpull and estimating air demand of gated outlets. CWPRS is the only laboratory in India using the state-of-art equipments for studies with the help of hydraulic models.

❖ Gates : Sardar Sarovar, Tala, Chamera, Supa, Beas, Mahanadi, Malaprabha, Cheruthoni, Kadana, Ukai, Idukki, Bhira.

CONVEYANCE STRUCTURES

The studies include intakes, penstocks, surge shafts, tunnels.

❖ Projects : Sardar Sarovar, Bhira Surge Tank, Indira Sarovar, Kakkad, Indravati, Doyang, Baira-Siul, Beas P3R, T1, T2 Tunnels, Pandoh Baggi, Koyna and Salal Tail Race Systems, Koyna Lake Tape, Srisailam Intake, Kalinadi Surge Shaft.

❖ Mathematical Modelling for water hammer analysis for Ghatghar and Kal Projects.

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