

SEWA DAM SPILLWAY, JAMMU & KASHMIR



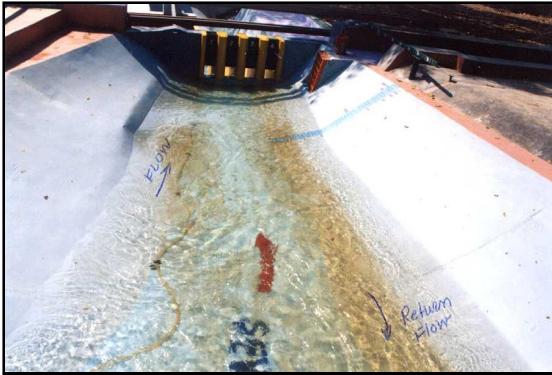
SALIENT FEATURES

Location	: Dist. Kathua ,
State	: Jammu and Kashmir
River	: Sewa (a tributary of Ravi River)
Power Generation	: 120 MW
Maximum Discharge	: 4,020 m ³ /s
Type of dam	: Concrete Gravity Dam Height 53.0 m
Spillway	: 4 Spans of 7.0 m wide X 10.8 m high with breast wall
Energy dissipator	: Stilling basin

MAJOR STUDIES

Comprehensive model scale 1: 50

- ❖ Discharging capacity of the spillway for free flow and gated operation
- ❖ Pressures on the spillway surface
- ❖ Efficacy of the energy dissipation arrangement for entire range of discharges
- ❖ Flow conditions downstream of spillway
- ❖ Flow conditions in the reservoir in the vicinity of power intake



RESULTS

- ☐ The maximum design discharge of 4,020 m³/s can be passed with a reservoir water level (El. 1188.8 m), lower than the maximum water level El. 1197.50 m. A discharge of 5260 m³/s could be passed at FRL El. 1197.5 m
- ☐ Forward flows were observed upstream of the spillway and in the vicinity of power intake.
- ☐ No negative pressures observed along the centre line of span. However, a negative pressure of 0.9 m was observed along the side of pier at a distance of 7.8 m downstream of dam axis while passing Q = 1005 m³/s under partial gate operation.
- ☐ Height of training wall to be sized suitably based on water surface profiles observed in the stilling basin.
- ☐ A 15 m wide concrete apron of suitable thickness recommended at downstream of stilling basin



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

AREAS OF ACTIVITIES AT THE CWPRS

- * HYDROLOGY AND WATER RESOURCES ANALYSIS
- * RIVER ENGINEERING
- * 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)

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), Khaliikan (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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