INDEX MAP OF NARMADA VALLEY

- Narmada, the largest west flowing river length 1312 km, meets Gulf of Kambhat
- 19 tributaries, 8 on right, 11 on left bank
- The Irrigation potential 4.45 million hectares
- Power potential more than 2000 MW
- 30 major projects under construction/proposed

LAYOUT PLAN OF THE PROJECT

- Sardar Sarovar Project
- Sardar Sarovar Reservoir
- Main canal
- Kevadia colony
- Main spillway
- River Narmada
- Largest water resources project in India in terms of concrete volume
- Third highest concrete dam (163 m)
- Length of dam 1.21 km
- Two Power Houses -
  - Main Power House 1200 MW
  - Canal Power House 250 MW
- Largest Irrigation Canal Length 468 km, carrying capacity 1133 m³/s, 35 branches

- Project under consideration
- Auxiliary spillway completed
- Main spillway completed upto El. 90 m
- Canal Power House completed
- Main Power House under construction

- Max. spillway discharge 1,41,000 m³/s (50 lakh cfs)
- Design construction stage discharge 69,376 m³/s (24 lakh cfs)
- Maximum flood passed in 1994 Q = 69,000 m³/s

- Main Spillway 23 Spans: Energy dissipator sloping - cum - horizontal hydraulic jump stilling basin
- Auxiliary Spillway 7 Spans: Long chutes Energy dissipator ski-jump bucket
Studies conducted at CWPRS since 1978

- Two comprehensive models
- Two sectional models
- Finalised the arrangement of main and auxiliary spillway

Finalised the design of appurtenances like training and divide walls in the stilling basin and aeration grooves

Most interesting studies for estimation of hydrodynamic bending moments on divide walls, pullout forces on right training wall, uplift forces on stilling basin aprons.

Hydrodynamic parameters measured using sophisticated electronic transducers connected with PC based data acquisition system.

Significant contribution revealed the fact that the conventional design may be unsafe.

Various stages of construction studied on comprehensive and sectional model

Evolved suitable design of low level hump through model studies
**SALIENT FEATURES**

**MAIN DAM**

- Length of main concrete gravity dam: 1210.00 m
- Max. height above deepest foundation level: 163.00 m
- Top elevation of dam: 146.50 m
- Catchment area of river above dam site: 88,000 sq.km
- Gross storage capacity: 9497.07 M.cum
- Live storage capacity: 5859.80 M.cum
- Length of reservoir: 214 km
- Maximum width: 16.10 km
- Average width: 1.77 km
- Spillway
  - Chute spillway: 7 Nos. 18.30 m x 18.00 m
  - Service Spillway: 23 Nos. 18.30 m x 16.75 m

**DISTRIBUTION SYSTEMS**

- No. of branches (Gujarat): 42
- Length of distribution system network: 75,000 km
- Annual irrigation:
  - Gujarat: 1.792 Mha.
  - Rajasthan: 0.073 Mha.

**POWER GENERATION**

- River bed power house (6 x 200 MW): 1200 MW
- Canal head power house (5 x 50 MW): 250 MW

**MAIN CANAL**

- Full capacity level (FSL) at H.R.: 91.44 m
- Length upto Gujarat i Rajasthan border: 458.00 km
- Length in Rajasthan: 74.00 km
- Base width in head reach: 73.01 m
- Full supply depth (FSD) in head reach: 7.60 m
- Design discharge capacity:
  - In head reach: 1133 m³/s (40,000 ft³/s)
  - At Gujarat i Rajasthan border: 71 m³/s (2,500 ft³/s)