

# TAPPAR RESERVOIR

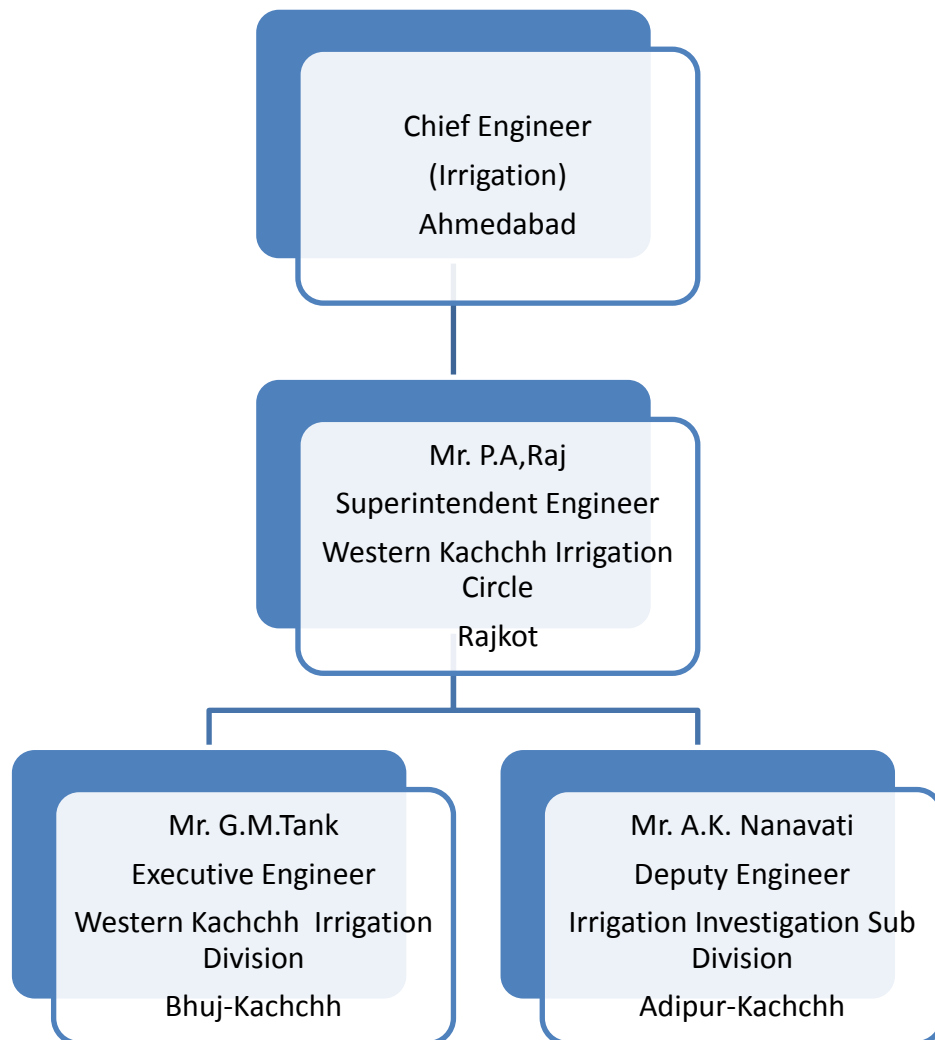
(A case study- 9 MLD to 180 MLD)

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## History:

- Gandhidham-Adipur, a twin township in this eastern part of Kutch District is one of the three new townships having come up in the Country after partition in 1947
- Maharao Shri made the allotment of about 15000 acres of land in the eastern part of Kachchh District for establishment of a new township
- The Sindhu Resettlement Corporation Ltd., Adipur under the able leadership of Bhai Pratap as its first Managing Director was established in 1948 for the development of the township. The Board of Directors of the Corporation was headed by Acharya Kripalani and many renowned personalities of that time.
- Karachi Port which was important port of Western Part of Undivided India was lost to Pakistan , hence Kandla Port was established.
- Kandla Port requested the then Government of Bombay for creation of project for Drinking water to Gandhidham township and Kandla Port
- Government of Bombay appointed Committee for the same purpose
- Report of Committee presented in the Office of the Chief Engineer ( Irrigation) on 11<sup>th</sup> September 1961 and decided that the priority should be given to the investigation of Tappar Reservoir Project
- Another decision taken in the meeting: To shift the Irrigation Investigation Sub Division from Bhavnagar to Adipur ( Kachchh). The new sub Division of Adipur shall have to work under Western Kachchh Irrigation Division Bhuj ( Kachchh)
- Project was submitted by the Deputy Engineer- Adipur in April 1962
- Administrative approval accorded on 25<sup>th</sup> February 1963
- Design prepared by Central Design Organization, Ahmedabad
- **Construction of Dam was carried out by Sindhu Resettlement Corporation Adipur**

## Officers involved in the Project Preparation :



## Population Projected:

- Population at the time of scheme preparation- 35,000
- Population projected for year 1966- 80,000

## Service level:

Service level:- 30 Gallons/ head/ day i.e 135 lpcd

### Water Demand:

- Domestic consumption 30 GPCD x 80000=2.4 Million Gallons per Day
- Water Demand for Industries and Ports= 2.6 Million Gallons per Day
- Total Water Demand = 5.0 Million Gallons per day

i.e 22.7 MLD

Population projected for year 1966- 80,000

### Water Availability:

Sr.No	Description	Water available in MGD
1	Existing source of Viri-Nagalpur area	1.5
2	Tube wells proposed in Dudhai area- 4 Nos, Size 18" till 125' and 10" for 225'	1.5
3	Proposed Tappar Reservoir	2.0
	<b>Total</b>	<b>5.0</b>

### Hydrology:

- River-Sakra- Length-36 Miles- Catchment length-20 Miles
- Catchment area-130 Square Miles- flood discharge-79800 cusecs

### Capacity:-

- At Crest level-520 Mcft
- At FSL- 1724 Mcft

### Cost of Project:-

Sr.No	Description	Cost in Rs
1	Tappar Reservoir	1,35,10,650
2	Filtration Plant	92,28,755
3	Tube wells in Dudhai area	92,28,755
	Total	2,45,91,309
	I.e	Rs 2.45 Crores

### Cost of Water: ( For cost of reservoir only)

- For phase-1- up to crest level- Rs 20752/ Mcft
- For phase-2 up to FSL- Rs 7837/ Mcft
- Rate of water( Tappar reservoir): Rs 1/ 1000 Gallons
- Rates for water ( Tube wells): Rs 1.26/ 1000 Gallons

Completion of work: Works were started in Year 1968 and completed in year 1974

Phase-II: Raising height and installation of gates:

Administrative Approval: Rs 9.70 Crores accorded on 24<sup>th</sup> September 1997.

Number of gates: 14 Nos, size 30'x15'

Works were started in Year 1998 and Completed in Year 2001-02

## Damage caused due to Earthquake:

The 2001 Gujarat earthquake, also known as the Bhuj earthquake, occurred on 26 January, India's 51st Republic Day, at 08:46 AM IST and lasted for over 2 minutes. The epicenter was about 9 km south-southwest of the village of Chobari in Bhachau Taluka of Kutch District.

Work Phase-II: Raising height of Tappar dam & Installation of Gates was almost completed at the time of earthquake, hence commissioning was delayed as works of retrofitting were required to be carried out.



( Damage to Old Intake Structure and approach bridge)



( Damage to Earthen Bund)

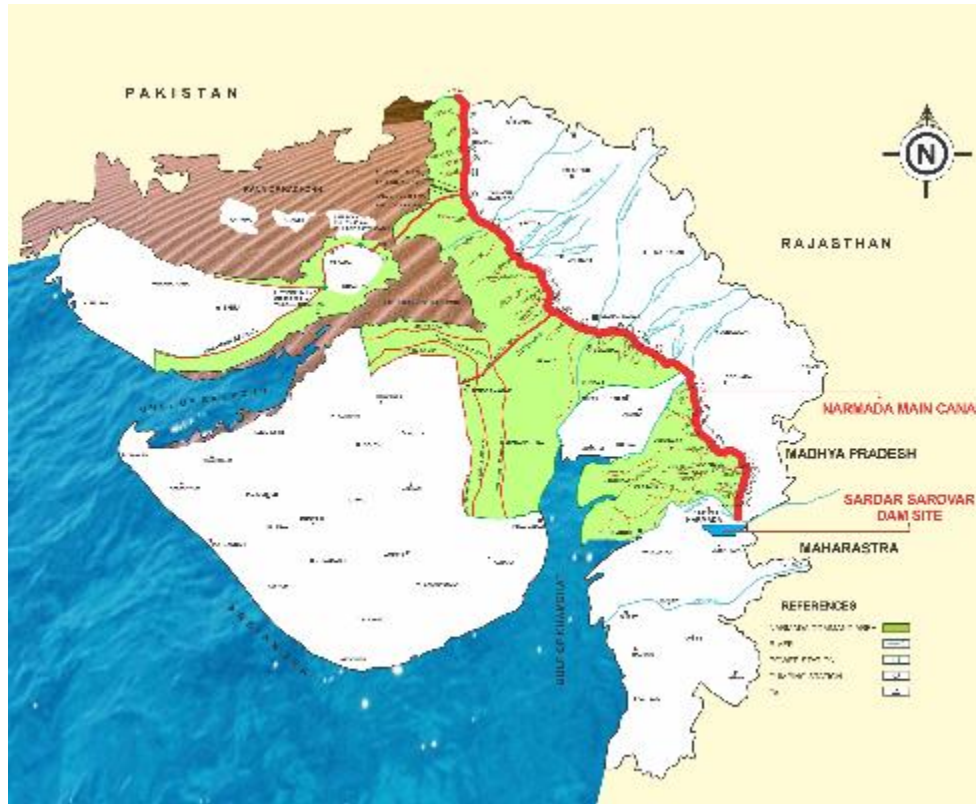
#### Other works under Earthquake Relief and Rehabilitation :

Work of construction of New Intake well- 18 MLD Capacity with conveyance mains from Tappar- Rambagh head works

Existing 9 MLD of Tappar was retrofitted and 31 MLD was allocation for Kandla Water Supply Scheme from Narmada Bulk Pipeline.

Additional 9 MLD from Tappar and 31 MLD form Narmada pipeline was the additional source of Kandla Water Supply Scheme, for which 40 MLD Water Treatment Plant was constructed at Rambagh Head works site near Adipur Town.

## Linkage of Tappar reservoir with Kachchh Branch Canal



Kachchh Branch canal offtakes from Narmada Main Canal ch 385.814 km. Kachchh Branch Canal enters in Kachchh district at ch 82.30 km.

Design capacity of KBC upto Tappar includes the distribution of 1 Million Acre Feet. Alignment of Kachchh Branch Canal is through Tappar reservoir and there is provision of filling of reservoir

Concept of Drinking Water Supply Scheme of 180 MLD based on Tappar Reservoir

Drinking water supply scheme of 180 MLD based on Tappar reservoir was conceived in the Year 2010 and works were started in year 2011 and completed in year 2012.- **Cost of works Rs 35 crores**

As per the scheme 180 MLD could be drawn in case of no supply or less water supply from Narmada Bulk pipeline.



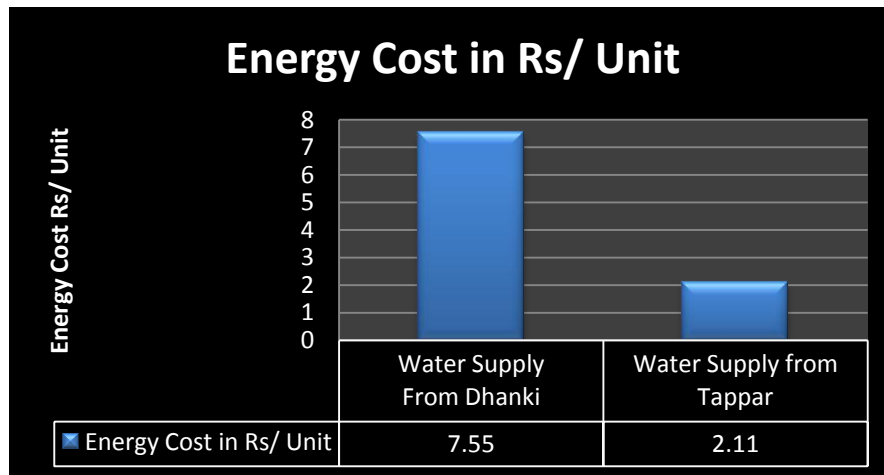
## Filling of Narmada water in Tappar reservoir:

The Prime Minister, Shri Narendra Modi unveiling the plaque to mark the inauguration of pumping station for releasing Narmada waters into Tappar Dam, in Bhachau, Gujarat on May 22, 2017.





## Energy Saving:



## Pumping head from Dhanki- Varsamedi

Dhanki-Maliya	100 mt.
Maliya- Bhachau	110 mt
Bhachau- Varsamedi	80 mt
<b>Total</b>	<b>290 mt</b>

- Pumping head Kachchh Branch Canal up to Tappar is 45 Mts
- Pumping head required from Tappar – Varsamedi is 40 mts, hence saving in energy shall be 250 mt of head
- Cost saving worked out per ML is Rs 243.75 at the unit price of Rs 7.5/ unit, considering 32.5 units per hour

## Annual Saving :

- For 165 days-  $165 \times 270 \text{ ML} \times 243.75 \times 24 \text{ hrs} = 26,06,70,500$
- For 200 days-  $200 \times 170 \times 243.75 \times 24 \text{ hrs} = 19,89,00,000$ 
  - $200 \times 100 \times 170 \times 24 \text{ hrs} = 8,16,00,000$
- Total: 54,11,70,500, i.e 5411.70 lakhs, ie **Rs 54.11 crores/ annum.**

## Energy cost :

- 1) From Tappar: Rs 2.21/ KL
- 2) From Dhanki: Rs 7.55/ KL

Summary Chart:-

