

D.A.DEGREE.ENGINEERING & TECHNOLOGY

MAHEMADABAD



INDUSTRIAL VISIT REPORT

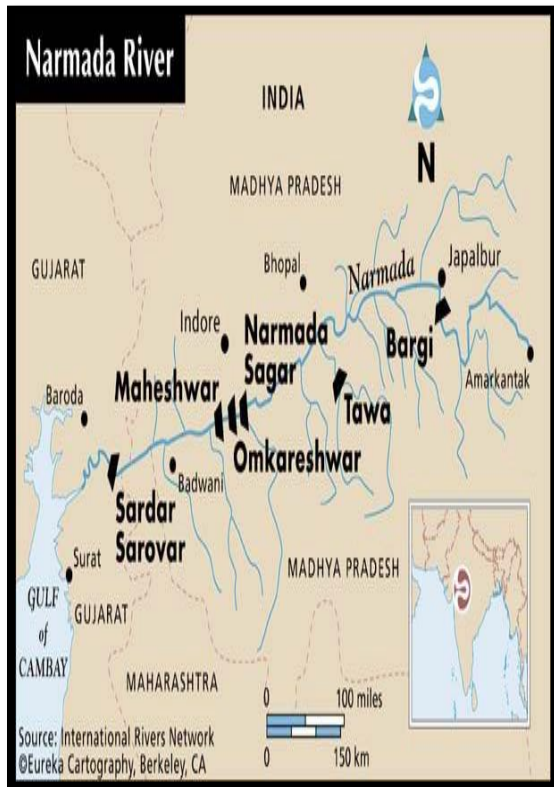


1	Name of the industry	Sardar Sarovar Dam
2	Location	Kevadiya Colony Bharuch , Gujarat
3	Date	18-7-2017
4	Time	11:00AM
5	Semester	7 th
6	Name of department	Mechanical
7	Number of students visited	120
8	Number of faculties accompanied	5

Objective of Visit:

Technical exposure of dam & appurtenant works, power generation unit (Tunnel), canals reservoir, aqueduct etc. of engineering subject.

SARDAR SAROVAR DAM



- The first of the dams to be built is the Sardar Sarovar.
- It is considered to be one of the most important dams in the project and the biggest water development project in India.
- The Sardar Sarovar Project is one of the largest water resources projects of India covering four major states - Maharashtra, Madhya Pradesh, Gujarat and Rajasthan.



Need for Sardar Sarovar Project:

- Post 2nd World War 20th Century is marked by end of colonial era.
- Countries -small and big, after attaining political freedom, embarked on ambitious programme of economic development.
- The twin problem of under employment and poverty has been the most difficult challenge they have been facing.
- They are no doubt endowed with diverse natural resources, which have remained unharnessed.
- Burgeoning population has thrown up army of unemployed young people who are asset if gainfully used, but an explosive liability if kept idle.
- The crucial task for the planners and leaders of these countries is to channelise the unharnessed natural resources -land, water, minerals, forests, sea wealth and so 7 on and the idle manpower so as to transform them into productive wealth for the people.



Sardar Sarovar Project Profile:

- Dam's spillway discharging capacity (30.7 lakhs cusecs) would be third highest in the world.
- With 1133 cumecs (40000 cusecs) capacity at the head regulator, and 532 km. length, the Narmada Main Canal would be the largest irrigation canal in the world.
- The dam will be the third highest concrete dam (163 meters) in India, the first two being Bhakra (226 metres) in Himachal Pradesh and Lakhwar (192 meters) in Uttar Pradesh.
- In terms of the volume of concrete involved for gravity dams, this dam will be ranking as the second largest in the world with an aggregate volume of 6.82 million cu.m. The first is Grand Coule Dam in USA with a total volume of 8.0 million cu.m.
- This dam with its spillway discharging capacity of 85,000 cumecs (30 lakh cusec), will be the third in the world, Gazenba (1.13 lac cumecs) in China and Tucurri (1.0 lac cumecs) in Brazil being the first two.

Features of Narmada Project:

❖ Dam:

- 1.Length of main concrete gravity dam: 1210.00 m
- 2.Maximum height above deepest foundation level: 163.00 m
- 3.Top R.L. of dam: 146.50 m
4. Catchments area of river above dam site: 88,000 Sq. km
- 5.Live storage capacity 0.5860M.Ha.m: (4.75 MAF)
- 6.Length of reservoir:214.00 km, Maximum width:16.10 km, Average Width: 1.77 km
- 7.Spillway gates 8.Spillway Capacity: 85000 cumecs (30 lakh cusecs)

❖ Power Houses:

- River Bed Power House: 1200MW
- Canal Head Power House: 250 MW

• Power Generation units of Sardar Sarovar Hydropower plant:-

- At Sardar Sarovar Dam there are two types of power houses are built up for generate electricity.

River Bed Power House (RBPH):

- The RBPH is an underground power house stationed on the right bank of the river located about 165 meters downstream of the dam.
- In RBPH installed SIX 200 MW to generate electricity.
- The Turbine-Generator sets are supplied by M/S Sumitomo Corporation, Japan.
- These units can operate at minimum reservoir water level of 110.64 meters.
- These six units have been commissioned in a phase manner during Feb-05 to June-06.
- The generation of energy depends upon inflow of water from upstream projects and need of water for irrigation in Gujarat.



[fig. River Bed Power House (RBPH)]

Canal Head Power House (CHPH):

- The RBPH is an underground power house stationed on the right bank of the river located about 165 meters downstream of the dam.
- In RBPH installed SIX 200 MW to generate electricity.
- The Turbine-Generator sets are supplied by M/S Sumitomo Corporation, Japan.
- These units can operate at minimum reservoir water level of 110.64 meters.
- These six units have been commissioned in a phase manner during Feb-05 to June-06. The generation of energy depends upon inflow of water from upstream projects and need of water for irrigation in Gujarat.



[fig.Canal Head Power House (CHPH)]

Advantages of Hydro Power Plant:-

- No fuel charges. Running cost almost nil. No stand by losses.
- Highly reliable. Efficiency does not decrease with time. Construction and operation wise very simple. Maintenance cost very less.
- Starts quickly and synchronizes fast. Minimum staff when plant is operational.
- No ash problems thus pollution free. Also useful in flood control and irrigation and drinking water purpose. Comparatively quiet long life.

❖ Canal System: Main Canal

- Full supply level (F.S.L.) at H.R. 91.44 m (300ft)
- Length upto Gujarat -Rajasthan border 458.318 km
- Base width in head reach 73.01 m
- Full supply depth (F.S.D.) in head reach 7.60 m
- Design discharge capacity
- (1) In head reach 1133 cumecs(40,000 cusecs)
- (2) At Gujarat Rajasthan border 74.55 cumecs(2,600 cusecs)

❖ Distribution System:

- Numbers of Branches 38
- Length of distribution system network 74626.00 km
- Culturable Command Area 18.45 lakh hectares



Reservoir :

- The reservoir formed by the main dam will have a gross storage capacity of 0.95 million hectare meters (7.70 MAF) and a live storage of 0.58 million hectare meters (4.73 MAF) to provide irrigation to about 1.80 million hectares in about 3400 villages in Gujarat and in the arid areas of the Barmer and Jalore districts of Rajasthan, apart from providing drinking water to about 8215 villages and 135 urban centers of Gujarat.
- The annual power generation at the project is estimated at 5469 GWH in initial years.



❖ Specific Observation about Hydro Power Plant:

- By sardar sarovar hydro power plant we produce maximum 1450 MW electricity.
- As decided by the government out of them 16% electricity given to the Gujarat.
- In this power plant we can produce electricity by two way.
- One is RIVER BED POWER HOUSE(RBPH) and another is CANAL HEAD POWER PLANT HOUSE(CHPH).
- By RBPH we can produce 1200 MW electricity and by CHPH we can produce 250 MW electricity.



References:

- The Sardar Sarovar Dam Project website- www.sardarsarovardam.org
- SSCAC's website- www.sscac.gov.in
- www.wikipedia.org URL- [http://en.wikipedia.org/wiki/Sardar Sarovar Dam](http://en.wikipedia.org/wiki/Sardar_Sarovar_Dam)
- Google Images- <http://www.google.co.in/imghp?hl=en&tab=wi>

QUESTIONS

Que. 1 -When locate sardar sarovar Dam?

Ans: Sardar sarovar Dam Located Kevadiya Colony Bharuch , Gujarat.

Que. 2- The sardar sarovar associated with?

Ans: Narmada River

Que. 3- Which Energy produce capacity of River Bed Power House?

Ans: River Bed Power House produced installed SIX 200 MW to generate electricity.

Que. 4 Which Area cover Sardar sarovar Dam?

Ans. Sardar sarovar Dam covered 4 states Maharashtra, Madhya Pradesh, Gujarat and Rajasthan.

Que. 5- What is discharge capacity of Sardar sarovar Dam?

Ans: Sardar sarovar Dam discharge capacity of 30.7 lakhs cusecs will be the third in the world

Que. 6- Write down Narmada Dam features.

Ans: 1.Length of main concrete gravity dam: 1210.00 m
2.Maximum height above deepest foundation level: 163.00 m
3.Top R.L. of dam: 146.50 m
4. Catchments area of river above dam site: 88,000 Sq. km
5.Live storage capacity 0.5860M.Ha.m: (4.75 MAF)
6.Length of reservoir:214.00 km, Maximum width:16.10 km, Average Width: 1.77 km
7.Spillway gates 8.Spillway Capacity: 85000 cumecs (30 lakh cusecs)

Que. 7- How much produces electricity of Sardar sarovar dam?

Ans: Sardar sarovar hydro power plant we produce maximum 1450 MW electricity.

Que. 8- What is the ratio of energy distribution of Sardar Sarovar Dam?

Ans: A Government decided Gujarat - 16%, Madhyapradesh-57%, Maharastra-27%.