

A  
Report  
on  
**Industrial Visit**  
At  
**Sardar Sarovar Dam, Nava gam, Gujarat**



**Organized By**

**DEPARTMENT OF ELECTRICAL ENGINEERING**



**छोटुभाई गोपालभाई पटेल प्रौद्योगिकी संस्थान, वारडोली**  
**Chhotubhai Gopalbhai Patel Institute of Technology, Bardoli**

## **Details of Visit:**

Department of Electrical Engineering organized the visit to Sardar Sarovar Dam and Hydropower Plant for the student of 5<sup>th</sup> sem B. Tech (EE – A) on 14<sup>th</sup> and 5<sup>th</sup> sem B. Tech (EE – B) and 5<sup>th</sup> Sem Diploma (EE) on 15<sup>th</sup> July 2017.

<b>Date of Visit</b>	<b>Branch and Semester</b>	<b>No. of Students</b>	<b>Accompanied Faculties</b>
14/07/2017	Electrical 5 <sup>th</sup> - A	46	Mr. Ranjit Rajak Mr. Arjun Jariwala Ms. Arpita Patel
15/07/2017	Electrical 5 <sup>th</sup> – B and Diploma 5 <sup>th</sup>	43	Mr. Lokesh Shah Mr. Bhargav D. Patel Ms. Yashvi Parmar

The visit has started around at 6:00 AM from L.P. Savani circle, Surat and we reached at Sardar Sarovar Narmada dam, Nava gam at 11:00 AM.

We entered in to the RBPH plant with the guide, Mr. Arvind Bhai, at RBPH we saw that there was 6 Francis Turbine for production of electricity and capacity of each generator is 200 MW. In the Plant out of 6 turbines 4 were in operation and 2 were in maintenance. Then the plant engineer gave us a brief idea about control room and explained the working of different panels. It was a very nice experience with the interaction of plant engineer. Then we went to CHPH where we saw 5 Kaplan turbines and capacity of each generator is 50 MW.

After visiting RBPH and CHPH students also visited statue of iron man Sardar Patel and also had look of water outlet of RBPH from view point. On the way back from view point we also had a look over canals and water outlet of CHPH.

## **About Sardar Sarovar Dam:**

The **Sardar Sarovar Dam** is a gravity dam on the Narmada river near Nava

gam, Gujarat in India. It is the largest dam and part of the Narmada Valley Project, a large hydraulic engineering project involving the construction of a series of large irrigation and hydroelectric multi-purpose dams on the Narmada river. The project took form in 1979 as part of a development scheme to increase irrigation and produce hydroelectricity.



One of the 30 dams planned on river Narmada, Sardar Sarovar Dam (SSD) is the largest structure to be built. Following a number of controversial cases before the Supreme Court of India (1999, 2000, 2003), by 2014 the Narmada Control Authority had approved a series of changes in the final height – and the associated displacement caused by the increased reservoir, from the original 80 m (260 ft.) to a final 163 m (535 ft.) from foundation. The project will irrigate more than 18,000 km<sup>2</sup> (6,900 sq. mi), most of it in drought prone areas of Kutch and Saurashtra. The dam's main power plant houses six 200 MW Francis pump-turbines to generate electricity and include a pumped-storage capability. Additionally, a power plant on the intake for the main canal contains five 50 MW Kaplan turbine-generators. The total installed capacity of the power facilities is 1,450 MW. Its final configuration is the second largest concrete gravity dam (by volume) after Grand Coulee Dam in the US and has the world's third largest spillway discharging capacity.

➤ **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. It has six number of Francis type reversible turbine generators each of 200 MW installed capacity. The T.G. Sets are supplied by M/S Sumitomo Corporation, Japan and M/S BHEL.

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.

➤ **Canal Head Power House (CHPH):**

The CHPH is a surface power station in a saddle dam on right bank of the reservoir having total installed capacity of 250 MW (5 x 50 MW). These five units have been commissioned in a phased manner during Aug-04 to Dec-04. These units can be operated with minimum reservoir water level of 110.18 meters.

The energy generated from both the power houses is to be evacuated through 400 KV level through interconnecting transformers at GIS, situated in RBPH switch yard. The 400 KV Switchyard is indoor type having Gas Insulated Switch Gear and Bus bars. The energy is transmitted to party states i.e. Gujarat, Maharashtra and Madhya Pradesh in the proportion of 16:27:57 respectively through 400 KV double circuit transmission lines, namely SSP-Kasor, SSP-Asoj, SSP-Dhule and SSP-Nagda respectively.

➤ **Features of Sardar Sarovar Project:**

- The dam's main power plant houses six 200 MW Francis pump-turbines to generate electricity and include a pumped-storage capability. Additionally, a power plant on the intake for the main canal contains five 50 MW Kaplan turbine-generators. The total installed capacity of the power facilities is 1,450 MW.
- Main Dam - 1,210 m long, 163 m high from the deepest foundation level.
- Designed Live Storage Capacity of the Reservoir 5860 MCM (4.75 million acre feet).
- Irrigation - 1.905 million Ha (1.8 million Hecter in Gujarat benefitting 1 million farmers).
- Drinking Water - 9633 villages and 131 towns (29 million people).
- Hydropower - 1,450 MW installed capacity (1 billion kWh every year).
- Canal Network - Approximately 75,000 km length within Gujarat.

## Glimpses of Visit



**Group Photo at Sardar Sarovar Dam**



**Group Photo at Sardar Sarovar Dam**

We heartiest thanks to Sardar Sarovar Dam, Navagam to give an opportunity to visit such an esteem organisation and we also want to thank our director Dr. N. C. Shah sir, Head of the Department Mr. Rakesh Gajre and all the faculties for coordinating the visit.