



## AN INDUSTRIAL VISIT REPORT

ON

## DAMANGANGA RESERVOIR PROJECT AT MADHUBAN VILLAGE



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

### *Organized By:*

*Department of Civil Engineering*

*Chhotubhai Gopalbhai Patel Institute of Technology,*

*Uka Tarsadia University, Maliba Campus, Bardoli.*

*(12<sup>th</sup> January, 2024, Friday)*

**Branch:** Diploma and B. Tech

**Course:** Civil Engineering

**Semester:** 4, 6, and 8

No of Students: Total 45 (Boys- 35 and Girls-10)

**Faculty Coordinator/Organizer:** Ms. Khyati Mistry and Dr. Manoj Gundalia

## *Detail Visit Report*

The department of Civil Engineering of Chhotubhai Gopalbhai Patel Institute of Technology organized a one day educational visit to Damanganga Reservoir Project at Madhuban Village, Ta: Dharampur, Dist: Valsad. The site visit was organized with the prior permission of Executive Engineer, Damanganga Project Division, Madhuban colony. The Damanganga Water Resources Project is an inter-state multipurpose project of the Govt. of Gujarat and Union Territory of Dadra and Nagar Haveli and Daman and Diu (DNHDD). The project has undertaken construction of Dam across Damanganga River near Madhuban village, Dharampur Taluka, Valsad District of Gujarat State in India. Madhuban Dam is located about 40 km on the downstream of the river Damini Ganga. It was built jointly by the Government of Gujarat and the Union Territories of Dadra and Nagar Haveli. The storage of this project is shared by the riparian state of Gujarat and Union Territory of DNHDD as the beneficiary region. The total volume of water to be shared is 516.63 MCM (million cubic metres) (420.50 MCM for irrigation and the balance 96.13 MCM for other uses, which is allotted to the riparian state and Union Territories; Gujarat has a share of 399.19 MCM, Dadra and Nagar Haveli's share is 83.33 MCM and of Daman is 34.20 MCM.[2] The Madhuban dam of 58.6 m height with an ogee shape and a roller bucket for energy dissipation was built from 1972 to 1998. It is a composite dam of masonry and earth-fill dams.

The entire visit is guided by Shri. Himanshu Naik Sir (Retired Dy. Executive Engineer) and Mr. Ankit Patel (Assistant Engineer, Madhuban Dam). Shri Naik sir performed his duty in construction of the Dam starting from the foundation to the completion of the dam and he is witness of all the hurdles that arose during constructions in the past and in the progress of the dam. He explained the how dam was constructed and reached to its current status and the structural features of Madhuban Dam. He explained how the dam is designed to rout a Probable Maximum Flood (PMF) discharge of 25,850 cumecs (cubic meters per second) controlled by 10 radial gates each of size 15.55 by 14.02 metres (51.0 ft × 46.0 ft)10 were fitted and how they worked during flood control. He also provided the information about small Hydropower project for river bed and Canal bed power house taken up under build-operate-transfer (B.O.T.) Basis. The project has the power generation capacity 2 Unit of 1.50 MW each at river bed and 1 Unit of 2.60 MW at canal bed. He also explained the infiltration gallery of the dam. Mr. Ankit Patel gave

the information of catchment and command area of the dam. He explained entire canal network and how the repairing work of gates was carried out. They have made this session interesting by asking basic questions to the students. At the end of dam visit, there was a technical interaction to strengthen the knowledge regarding Damanganga Reservoir Project.

At the end, Dr. Manoj Gundalia, Head of DCE and Ms. Khyati Mistry extended gratitude to Shri. Naik Sir and Mr. Ankit Patel for helping out in visit permission and sparing their valuable time with us. Without their support this visit would have not been possible. We had very good support and cooperation from all concern instructors available on the site who explained each and every section very interestingly and deeply.

### **Schedule of Visit:**

<b>TIMINGS (From – To)</b>		<b>LOCATION</b>
5:30	11:00	Surat to Madhuban Dam Site
11:00	12:00	Structural Features of Madhuban Dam Retired Ex. Engineer Shri. Himanshu Naik
12:00	12:45	Way to top of Dam
12:45	13:30	Working and repairing of Gates
13:30	14:15	Power Plant
14:15	15.15	Lunch Break
15.15	15:30	Taking Attendance of the Students
15:30	21:00	Back to Surat

### **SALIENT FEATURES OF DAMANGANGA RESERVOIR PROJECT**

<b>I. LOCATION</b>	
State	Gujarat
District	Valsad
Taluka	Dharampur
River	Damanganga
<b>II. DAM</b>	
Type	Composite
Length	2870.36 mt. Earth Dam-2518.00 mt Masonry Dam -352.36 mt
Maximum height	163.00 m
Top of dam	85.60 Mt. (Plus 1.0 mt. high

	solid parapet on U/S)
Crest	EL 65.83 mt
Spillways	Ogee shaped gated Spillway in Gorge
Crest gates	10
Type	Radial Gates
Size	15.55 x 14.02 mt
<b>III. Catchment area</b>	
Gross	1813 Sq. km.
Gujarat	376 Sq. km.
Maharashtra	1318 Sq. km.
U.T & D.N.H.	119 Sq. km.
<b>IV. Reservoir</b>	
Full Reservoir level	79.89 mt
H. F. L.	82.40 mt
Lowest Water level	61.60 mt
Dead Storage at R. L. 61.60	46.77 MCM
<b>V. Command area</b>	
Gross	77905 ha
C.C.A.	51138 ha
<b>VI. Power Generation</b>	
River bed	2 Unit of 1.50 MW each
Canal bed	1 Unit of 2.60 MW
<b>VII. Canal System</b>	
Main Canal RBMC	34.76 cumecs
Main Canal LBMC	11.46 cumecs.

## *Photo Gallery*



Dr. Manoj Gundalia and Students with Retired Dy. Executive Engineer Shri. Himanshu Naik



Shri. Himanshu Naik Sir Explaining the Structural Features of the Madhuban dam



Way to Power Generation Unit with Shri. Himanshu Naik Sir and Mr. Ankit Patel



Group Photo

## **Summary**

This visit helped students to enhance their collective theoretical and practical knowledge of Composite Masonry Dam, Power Generation Unit and Canal Network. They can identify their prospective study areas of future work in the overall organizational function. Students can also understand detailed design of dam and canal network system which will be covered in the subject. Physical observation of various structural features of the dam, power generation and canal network will definitely be enhanced the skill and understanding of students in the field of Water Resources and Irrigation Engineering.