

A
REPORT
OF

Industrial Visit

At

***“Wanakbori Weir, Wanakbori Thermal Power
Plant and Mahi River Aqueduct”***

July 19th, 2017



In Association with
Indian Society of Technical Education



ISTE Student Chapter
No. GJ 024

Organized By
Department of Civil Engineering
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Industrial Visit to “Wanakbori Weir, Wanakbori Thermal Power Plant and Mahi River Aqueduct”

Department of Civil Engineering of G H Patel college of Engineering & Technology, Vallabh Vidyanagar (A Charutar Vidhya Mandal Institution) has organized Industrial Visit to Wanakbori Weir, Wanakbori Thermal Power Plant and Mahi River Aqueduct for the Final Year students on Wednesday July 19th, 2017.

There were 35 Students, 2 Faculty Members and 1 Lab Assistant who took part in this visit. The whole visit was carried out in different phases as Visit of Wanakbori Weir first, followed by Visit of Wanakbori Thermal Power Plant and Mahi River Aqueduct. The main aim behind this visit was to teach students about different Diversion Head Works and Cross Drainage Works available as one of the topics of final year subject namely Irrigation Engineering. The details of different phases of visit are discussed below in detail.

➤ ***Wanakbori Weir***

The visit was commenced from G H Pate College of Engineering & Technology campus at 8:30 a.m. and was reached at Wanakbori Weir at 11:00 a.m.

The Weir was inaugurated in 1958 by Dr. Jivraj Mehta, the finance minister of Bombay state. The project is owned by Narmada, Water Resources, Water Supply and Kalpsar Department. It consists of a Random Rubble Masonary dam of 122 m. length and having 20.60 m. height from its lowest bed. It has canal head regulator with 7 nos. of radial gate known as sluice gate, open up-to 12 ft. height. The Dam is having capacity of 32.2 million m³, and is solely satisfying the irrigation purpose. It consist of storage pond on U/S side & nos. of dam such as Mahi dam & Amba dam in Rajasthan, Bajaj sagar Dam in M.P., Kadana Dam & Panam Dam in Gujarat.

On D/S side, Hydroelectric Power house is there operated by OREVA having capacity of generating electricity of 1 MW. In Power house Kaplan Turbine is installed as it can work with low discharge. Daily target production is approximately 25-30 MW. It supplies electricity to G.E.B Balasinor & some other village.

Mahi main canal provides irrigation water for 12 months to Kheda, Anand & Mahisagar district. Its irrigation capacity is around 2 lakhs hector of above mentioned region. It also provides drinking water to Ahmedabad city. It also supply the water for some well-known industries i.e. I.P.C.L., G.S.F.C., Wanakbori Thermal Power Plant, Sevaliya rail.

➤ ***Wanakbori Thermal Power Plant***

After the visit of Wanakbori Weir is completed we have proceed for the visit of Wanakbori Thermal Power Plant at 12:00 p.m. Before starting the visit of Thermal Power Plant everyone took lunch in Canteen of Thermal Power Plant. After completing the Lunch session visit of Thermal Power Plant has started at 1:30 p.m.

Wanakbori Thermal Power Station is a coal-fired power station in Gujarat, India. It is located on the bank of Mahi River in Kheda district. There are seven units of each 210 MW capacity. All units together, producing its total nameplate capacity of 1470 MW. It consists of 7 nos. of cooling towers. Each tower has height of 180 m. The Chimneys were under construction, and present Chimney was having a height of 150 m and the proposed height of under construction Chimney is 250 m.

➤ ***Mahi River Aqueduct***

Finally we arrived at our last phase of visit that was Mahi River Aqueduct at 5:00 p.m.

Narmada Main Canal crosses Mahi, a perennial river, between km 142.86 & km 143.46. The discharge of the canal through the Mahi aqueduct will be 1008 cumecs. The flow through the aqueduct will be carried through two monoliths, each comprising of 4 rectangular ducts of 6.1 m width & 7.6 m height. The monoliths are supported by abutments and piers. There are 24 spans having 25 m spacing c/c. The piers are founded in hard rock with open pit foundations upto 8 m depth below the rocky river bed.

The piers are constructed by slip forming the entire section measuring 64 M length, 3.3 m width and 20 to 25 M height from the foundation raft operating 84 hydraulic

jacks simultaneously. The monoliths are cast with specially designed rolling girder false formwork supported on pier caps below the soffit level of trough slab. The soffit formwork panels of the slab portion have a rolling system to push them to the next span without having to be dismantled and rehandled.

This is one of the largest aqueducts in the world. Slip forming technique was used for constructing piers of 64M length, 3.3M width & upto 25M height. Innovative false formwork was used for 25M spans of 28.9M & 9M height & also for RCC monoliths having 4 ducts of 6.1M width & 7.6M height.

The 9M high walls of monolith along with the top slab are cast in one continuous pour. Special formwork was designed like a tunnel form that can be rolled on to the next span. The whole system is being successfully operated to achieve a cycle time of 4 weeks per span, which is a milestone in Narmada Main Canal construction of similar works.

The whole visit was very fruitful for students in terms of achieving sound practical sense about different diversion head works and cross drainage works. After completing all the phases of visit successfully we started return journey to college campus and reached at 7:00 p.m.