

Department of Civil Engineering

Report on

Visit to “Kadana Dam”

Department of Civil Engineering, GCET had organized one day Educational visit to “Kadana Dam” on October 21st, 2021. 48 students, 2 faculty members had visited the Kadana Dam (Main Dam & View Point).

About Kadana Dam:

Kadana Dam is an earthen and masonry dam on the Mahi River in Mahisagar district of Gujarat, India. The dam was constructed between 1979 and 1989. The dam supports a pumped-storage hydroelectric power-station. The first two generators were commissioned in 1990, the second two in 1998. The first two generators commissioned, Stage I, are reversible Kaplan turbines that allow the power station to generate electricity during peak hours then pump it back into the reservoir during low demand hours such as night. The salient features of dam are as given in table below:

Table-1: Salient Features of Kadana Dam

Location	Village: Kadana, Tal: SantrampurDist: Panchmahals
Purpose	Irrigation, Hydro-Power & Flood Protection
River	Mahi
Area of catchment	25520 km ²
Mean annual runoff in the catchment	7696 Mm ³
Mean annual rainfall	760 mm
Year of commencement of construction work	1969
Year of completion	1979
Type of dam	Masonry with embankment main section
Height	66 m (217 ft.)
Length	575 m (1,886 ft.)
Active capacity of reservoir	1,203,000,000 m ³ (975,000 acre· ft.)
Catchment area	25,520 km ² (9,850 sq. m)
Turbines	Stage I: 2 x 60 MW Stage II: 2 x 60 MW Kaplan type
Installed capacity	240 MW
Spillway	
Type of spillway	Ogee
Length	406 m Main Spillway + 133 m Add. Spillway
Energy dissipater	Roller Bucket
Maximum discharge	49497 m ³ /s
Type, Nos. and size of gate	Radial, 27, (15.5m x 14m) (21 Main spillway, 6 Add. Spillway)

The visit was commenced from G H Patel College of Engineering & Technology at 6:30 am and students were firstly taken to Kadana Dam at 11:00 am.

The students group were divided into two and first group was taken into the newly constructed meeting hall and parallelly the second group was taken to damsite for the visit. Nitin Shrivastava sir, Irrigation Department, Mahi Circle first explained about salient features of Kadana Dam in the meeting room. He also made student understand about various challenges encountered during the construction of the dam. He also emphasis on learning new skills from all the domain of civil engineering. The second group then taken to meeting room for the discussion with Nitin sir and first group was taken to dam site.

After that, students were taken into the Drainage Gallery of the Kadana Dam. There, students learned about the function of the Drainage Gallery, Maintenance of the gallery and aeration unit. In the afternoon after lunch, students were taken to the Hydroelectric Powerhouse of the dam. There, students first understood regarding the monitoring and functioning of the turbine in the control room. After that they were taken to the turbine room to understand and learn about the components and working of the turbine.

Finally, after completing the visit successfully students were taken back to college campus at 9:30 pm. The overall visit was very much fruitful and students enjoyed and learned about the Storage works, Spillway, Hydroelectric Powerhouse.

Aim of Visit:

The main aim of visit was to make students aware and to teach them about the main components and construction of Storage Head works (Kadana Dam), Diversion Head works (Wanakbori Weir) & Cross Drainage works (Mahi Aqueduct) as they are studying the same in subject called "*Irrigation Engineering*".