



**A Report on Industrial Visit at  
Sewage Treatment Plant & Tertiary Treatment Plant, Bamroli,  
Surat on 24/01/2019**

For  
**Diploma 6<sup>th</sup> Semester**

**Organized by  
DEPARTMENT OF CIVIL ENGINEERING**



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

**CHHOTUBHAI GOPALBHAII PATEL INSTITUTE OF TECHNOLOGY**

**UKA TARSADIA UNIVERSITY**



**DEPARTMENT OF CIVIL ENGINEERING**

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Site visit is considered as one of the tactical methods of teaching. The main reason behind this: it lets students to know things practically through interaction, working methods and employment practices. Moreover, it gives exposure from academic point of view. Main aim of industrial visit is to acquaint the students with the process of municipal waste water treatment. Through industrial visit students are acquainted about new technologies and knowledge.

Department of Civil Engineering, Chhotubhai Gopalbhai Patel Institute of Technology, Uka Tarsadia University, Bardoli organized industrial visit on Sewage Treatment Plant and Tertiary Treatment Plant at Bamroli, Surat on 24<sup>th</sup> January, 2020 for Diploma Civil engineering students. This visit was planned as part of curriculum requirement of the subject, Environmental Engineering. It was organized with the prior permission and guidance of honorable Director, Dr. Rajkumar V. Patil. Further, it would not been possible without sincere efforts of Dr. Manoj Gundalia, Head of Civil Engineering Department. Prof. Nikita Patel, Subject Teacher coordinated and guided the students during the visit. Faculty member and students of Diploma Civil Engineering took great interest and made this visit a grand success.

**Schedule of Visit:**

TIME		LOCATION
-	10:30	At Sewage Treatment Plant, Bamroli, Surat
10:30	11:00	Give overview of STP & TTP by Mr. Kiran Desai (Site Supervisor)
11:00	13:30	Visit to Sewage Treatment Plant and Tertiary Treatment Plant
13:30	13:45	Group Photo

**Total no. of students: 21** (Diploma 6<sup>th</sup> Semester)

**Faculty Organizer:** Prof. Nikita A. Patel

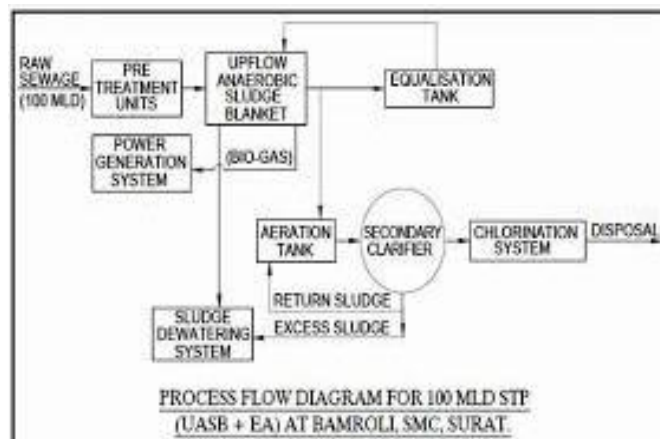
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### Sewage Treatment Plant & Tertiary Treatment Plant

Sewage treatment is the process of removing contaminants from municipal wastewater, containing mainly household sewage plus some industrial wastewater. Physical, chemical, and biological processes are used to remove contaminants and produce treated wastewater that is safe enough for release into the environment. A by-product of sewage treatment is a semi-solid waste or slurry, called sewage sludge. The sludge has to undergo further treatment before being suitable for disposal or application to land.

Sewage treatment generally involves three stages, called primary, secondary and tertiary treatment.

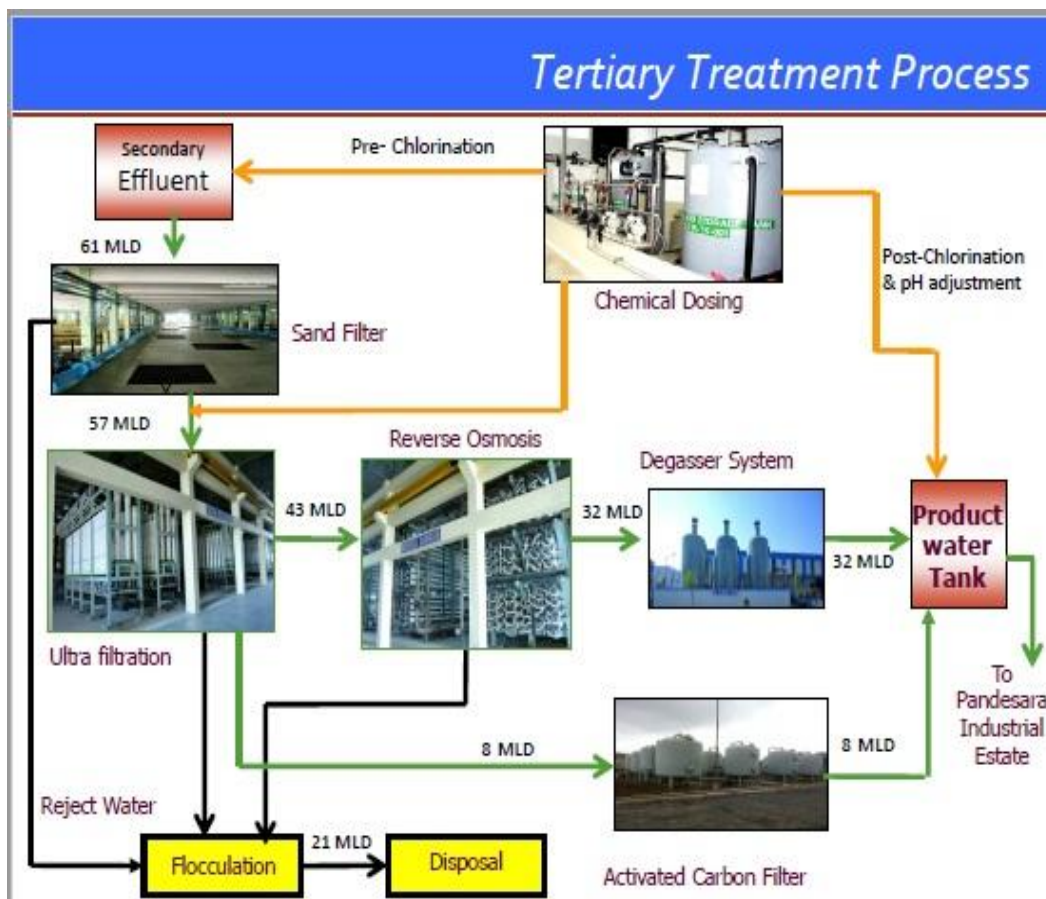
- **Primary Treatment** consists of temporarily holding the sewage in a quiescent basin where heavy solids can settle to the bottom while oil, grease and lighter solids float to the surface. The settled and floating materials are removed and the remaining liquid may be discharged or subjected to secondary treatment. Some sewage treatment plants that are connected to a combined sewer system have a bypass arrangement after the primary treatment unit. This means that during very heavy rainfall events, the secondary and tertiary treatment systems can be bypassed to protect them from hydraulic over loading, and the mixture of sewage and storm water only receives primary treatment.
- **Secondary Treatment** removes dissolved and suspended biological matter. Secondary treatment is typically performed by indigenous, water-borne micro-organisms in a managed habitat. Secondary treatment may require a separation process to remove the micro-organisms from the treated water prior to discharge or tertiary treatment.
- **Tertiary Treatment** is sometimes defined as anything more than primary and secondary treatment in order to allow ejection into a highly sensitive or fragile ecosystem (estuaries, low-flow rivers, coral reefs...). Treated water is sometimes disinfected chemically or physically (for example, by lagoons and microfiltration) prior to discharge into a stream, river, bay, lagoon or wetland, or it can be used for the irrigation of a golf course, greenway or park. If it is sufficiently clean, it can also be used for groundwater recharge or agricultural purposes.
- The process flow diagram for 100 MLD Sewage Treatment Plant is given below:



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**Details of Tertiary Treatment Plant:**

- Capacity of the plant : 40 MLD
  - Contractor : M/s Enviro Control Associates (I) Pvt. Ltd
  - Technology partner : M/s Hyflux, Singapore
  - Capital Project Cost : Rs. 85.10 crores
  - Present Fresh water cost to Industries : Rs. 23/KL
  - Recycle water cost to Industries : Rs. 19.84/KL (Yearly Increment on Indexation base)
  - Project commissioned on : May – 2014
  - Total Recycle water Supply to Industries till 15th November-17 : 38532 ML
  - Total Income through Industrial Grade Water till 15th November-17 : Rs. 74.77 Crore
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- The process flow diagram for 40 MLD Tertiary Treatment Plant is given below:





Group Photo taken at Tertiary Treatment Plant

## **Summary**

This visit helped students to enhance their collective theoretical and practical knowledge of Treatment Plants. They can identify their prospective study areas of future work in the overall organizational function. Students can also understand detailed design of plant and process which will be covered in the subject. Physical observation of various processes of plants will definitely be enhanced the skill and understanding of students in the environment engineering.