SHAHAJIRAO PATIL VIKAS PRATISHTHAN'S

S. B. PATIL COLLEGE OF ENGINEERING (Diploma), INDAPUR, DIST: PUNE

ACA – R - 49	**Field Visit Report (WWE)**	Academic Year: 2025-26
Rev : 01		Semester: IV

Visit to Baramati Railway Station

Institution: S. B. Patil College of Engineering (Diploma), Indapur.
Department: Civil Engineering
Class: Second Year (SY) Civil Engineering
Subject: Water & Waste Water Engg.
Date of Visit: 6 March 2026
Location of Visit: Baramati

- **Faculty Coordinators:**

- Prof. Gaikwad A. S.
- Prof. Dhere P. S.

- **Number of Students:**

- SY Civil Engineering: 23
- FY Civil Engineering: 17
- **Total Students:** 4

➢ Introduction

Water is one of the most essential natural resources required for human survival and development. However, raw water obtained from natural sources such as rivers, lakes, or reservoirs often contains impurities including suspended particles, microorganisms, dissolved salts, and organic matter. Therefore, water must undergo several treatment processes before it becomes safe for drinking and domestic use.As part of the academic curriculum for the subject **Water & Wastewater Engineering**, students of **S.B. Patil College of Engineering (Diploma), Indapur** visited the **Baramati Water Treatment Plant** on **6 March 2026**. The main objective of this visit was to understand the practical operation of water purification systems and to observe different treatment units used in municipal water treatment.The visit was conducted under the guidance of our respected faculty members **Prof. Gaikwad A. S.** and **Prof. Dhere P. S.**, who explained the theoretical and practical aspects of water treatment during the visit.

➢ Objectives of the Visit

The main objectives of the visit were:

- To understand the practical working of a municipal water treatment plant.
- To study the different stages involved in water purification.
- To observe the operation and maintenance of treatment units.
- To understand the importance of safe drinking water supply in urban areas.

➢ Source of Water

The raw water used in the Baramati Water Treatment Plant is mainly obtained from nearby water sources such as dams or rivers. This raw water may contain impurities like:

- Suspended solids
- Bacteria and microorganisms
- Organic matter
- Turbidity and color
- Dissolved salts

Before supplying this water to the public, it must be treated using several purification processes.

➢ Process of Water Treatment

The Baramati Water Treatment Plant follows a standard water purification process consisting of several stages:

❖ Intake Structure

The intake structure is used to collect raw water from the source. Pumps are installed to lift water from the source and convey it to the treatment plant.

Functions:

- Collection of raw water
- Removal of large floating materials using screens
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❖ Aeration

Aeration is the process of mixing air with water. This helps remove unpleasant odor, gases, and improves the taste of water.

Advantages:

- Removes dissolved gases
- Reduces iron and manganese
- Improves taste and odor

❖ Coagulation

In this process, chemicals such as **alum** are added to water. These chemicals help small suspended particles combine to form larger particles called **flocs**.

Purpose:

- To destabilize fine suspended particles
- To prepare particles for sedimentation

❖ Flocculation

After coagulation, water is gently mixed so that the small particles collide and form bigger flocs.

Characteristics:

- Slow mixing process
- Formation of heavy flocs which settle easily

❖ Sedimentation

In the sedimentation tank, water is kept undisturbed for a certain time so that heavy flocs settle at the bottom.

Results:

- Removal of suspended solids
- Clear water collected at the top

The sludge collected at the bottom is removed periodically.

❖ Filtration

After sedimentation, water is passed through **sand filters** to remove remaining fine particles.

Types of filters commonly used:

- Rapid sand filter
- Slow sand filter

The filtration process removes:

- Fine suspended particles
- Bacteria
- Remaining turbidity

❖ Disinfection (Chlorination)

Chlorine is added to the filtered water to kill harmful microorganisms and bacteria.

Purpose:

- Ensure water is safe for drinking
- Prevent waterborne diseases

Common chemicals used:

- Chlorine gas
- Bleaching powder

➢ Storage and Distribution

After treatment, the purified water is stored in **clear water reservoirs**. From these reservoirs, water is pumped through pipelines to different parts of the city for public use.

The distribution system includes:

- Pumps
- Pipelines
- Overhead tanks
- Valves and control systems

➢ Observations During the Visit

During the visit, we observed the following:

- The plant is well organized and maintained.
- All treatment units such as sedimentation tanks, filtration units, and chlorination systems were working efficiently.
- Operators continuously monitor water quality parameters.
- Safety measures are followed while handling chemicals like chlorine.

The plant staff explained the working of each unit and answered our questions related to water treatment processes.

➢ Learning Outcomes

From this visit, we learned:

- Practical working of water treatment processes.
- Importance of each treatment unit in producing safe drinking water.
- Role of engineers in maintaining water supply systems.
- Importance of water quality monitoring.
- Application of theoretical knowledge learned in class.

➢ Conclusion

The visit to the **Baramati Water Treatment Plant** was highly informative and beneficial. It helped us understand the real-life operation of water treatment processes used to supply safe drinking water to the community.

The visit also enhanced our knowledge about the importance of water purification and the role of civil engineers in designing and maintaining water supply systems.

We sincerely thank our respected faculty members **Prof. Gaikwad A. S.** and **Prof. Dhere P. S.** for organizing this educational visit and guiding us throughout the program.


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