

TERNA ENGINEERING COLLEGE, NERUL

Environmental Consciousness and Sustainability

7.1.4 Water conservation

Water conservation facilities available in the Institution:

1. Rain water harvesting
2. Bore well /Open well recharge
3. Maintenance of water bodies and distribution system in the campus

Rain water harvesting structures and utilization in the campus

TEC has taken sustainable initiative towards conserving water through a wide expanse of well-maintained green landscape which has been deliberately included on the campus to keep the ground porous so that rainwater can be collected through natural means to recharge the water table.

It helps in improving the quality and increasing the level of ground water. It also helps in improving the overall floral system and reduces the loss of the top layer of the soil. Rainwater harvesting practices at TEC include water table recharging.

TEC focuses on water conservation, use of push taps to reduce water wastage, use of pond water for gardening. TEC students carried out project to purify pond water by using waste water techniques. These efforts have resulted in lesser usage of the NMC water supply. Students and staff are sensitized on contributing towards the importance of water conservation and reducing water wastage through events to mark World Water Day and displaying presentations and posters on digital notice boards

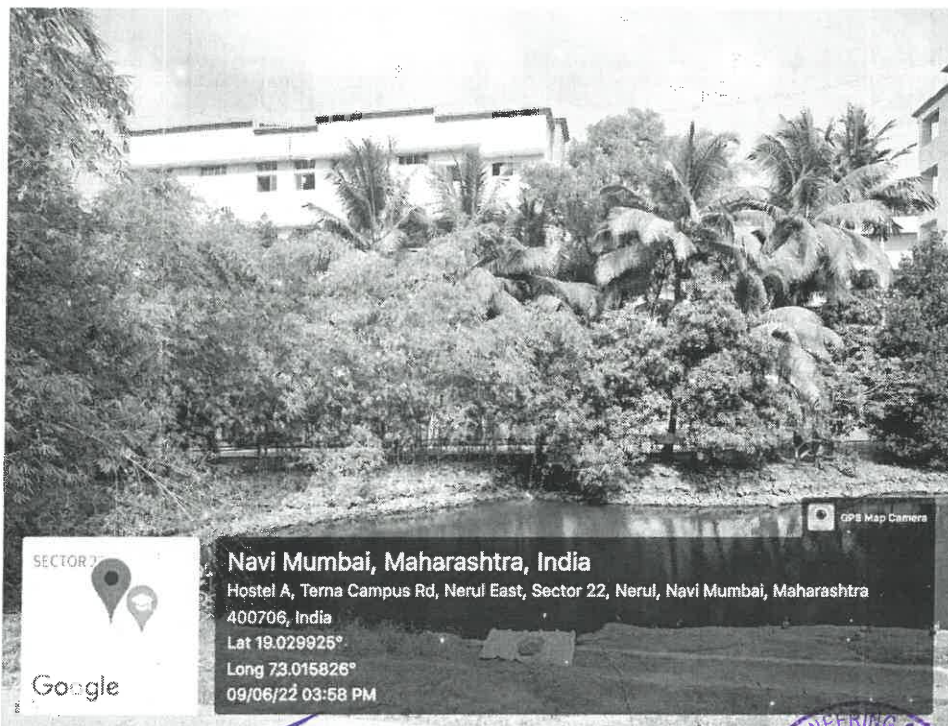
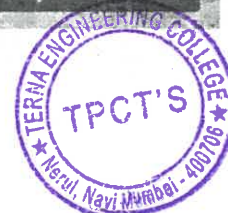


Figure 1 Terna lake in TEC campus

PRINCIPAL
TERNA ENGINEERING COLLEGE
Nerul, Navi Mumbai - 400 706



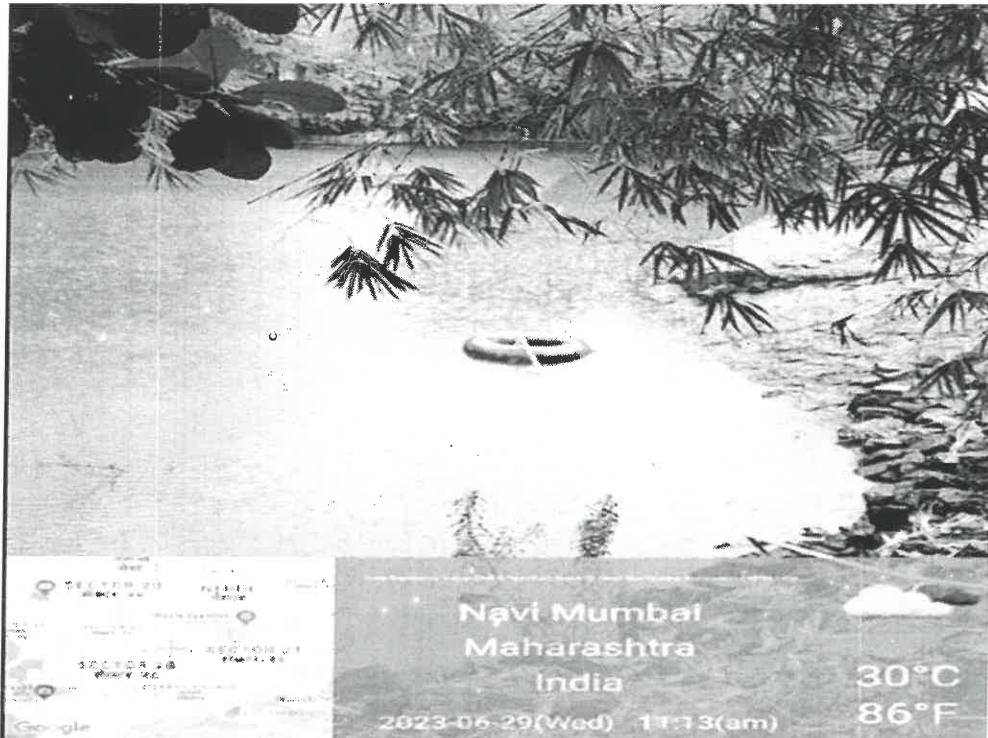


Figure 2 Rain water harvesting



TCPT'S
Terna Engineering College, Nerul
Department of Civil Engineering

PURIFICATION OF TEC POND WATER

Name of Group Members: Keshar Lawane, Kajal Gaikar, Sakshi, Jadhav, Shivani Pomondkar
Under the Guidance of: Prof. Ritesh Tandekar
Class & Semester: SE & IV

Introduction

- The pond water (TEC) is basically ground water.
- It contain large amount of physical impurity
- It's used only in gardening, washing and construction work in college

Problem Statement

- Reducing the need for freshwater.
- Reusing the TEC pond Water.

Aim & Objective

AIM:

- To Purify the Pond water
- To construct an economical filter.

OBJECTIVE:

- To purify pond water by using waste water techniques.
- To reuse pond water.

Methodology

- Literature Review
- Collecting pond water
- Preparing model formation.
- Calculating physical, biological, chemical impurities before filtration.
- Filtration
- Calculating physical, biological, chemical impurities after filtration.
- Comparing results
- Report writing.
- Paper Publication





Result

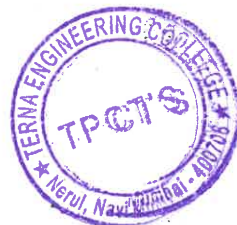
TEST NAME	BEFORE FILTRATION	AFTER FILTRATION
TURBIDITY	9.2	1.8
pH	7.31	7.2
TSS	244 mg/l	108 mg/l
TDS	308 mg/l	256mg/l
TS	852mg/l	364mg/l
COD	20mg/l	12 mg/l
BOD	2.0 mg/l	< 1 mg/l

Conclusion

- So we conclude that before filtration and after filtration the difference between results is much better.
- We can use that water for drinking, washing cars, for plantation and other works.
- This method is economically and environmentally friendly.

Figure 3 Water purification project

PRINCIPAL
TERNA ENGINEERING COLLEGE
Nerul, Navi Mumbai - 400 706



Bore well recharge is done with rain water .It is installed in campus near to boys hostel and rain water is collected from terrace used to regenerate water in the bore well by absorbing it.



Figure 4 Bore-well Recharge

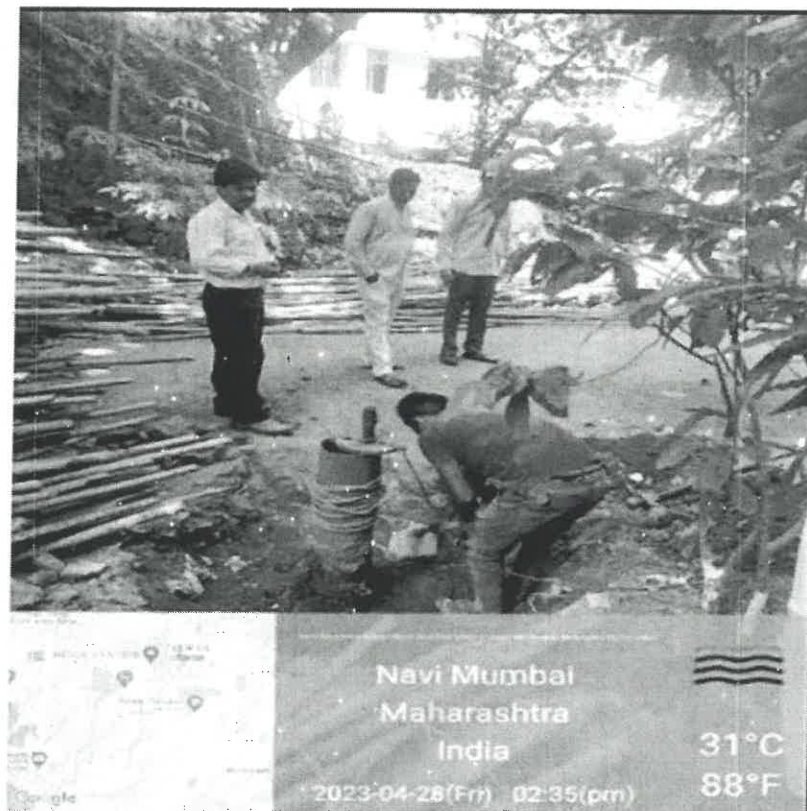

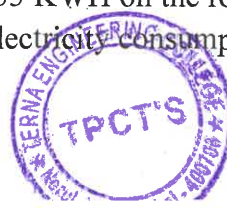


Figure 5 Bore well recharge construction

Energy conservation

We have taken a renewable energy initiative to reduce our electricity consumption and Save Energy by installing 13 Solar panels of capacity 33 KWH on the rooftop of the TEC. By using renewable energy we don't only reduce our electricity consumption from grid but


PRINCIPAL
TERNA ENGINEERING COLLEGE
Nerul, Navi Mumbai - 400 706



it also helps indirectly in reducing the Air and land pollution created by burning coal in thermal power plants and disposing fly ash (major waste generated from thermal power plants). LED bulbs (Lights) have been provided in all the buildings. Most of the street lights have been with LED lights, remaining bulbs of Street lights & in the rooms of various hostel blocks are also being replaced whenever needed. Playground lights also have LEDs.

Green practices on campus

TEC prioritizes green practices for sustainable environment and inculcates an empathetic culture towards the environment among its students and staff. The buildings on the campus are thermally, visually and acoustically comfortable. They are energy, material and water efficient. TEC has implemented green practices by digitization of academic and administrative processes, and effective waste management. Students are sensitized about green practices during their orientation programmes, Environmental Studies class, poster competitions, practical assignments and celebrations like World Water Day, Environmental Day, Swaccha Bharat Abhiyan etc. Green practices are a way of life at TEC.

1) Students, staff using

a) Public Transport, car pooling and bicycles

TEC is well connected by various modes of public transport like suburban railway, city bus services, cab services etc.

Maximum students and staff use public transport services. Nerul railway station is within the range of 1 km from college convenient students and staff. Bust stop is also next to TEC gate. Many students avail railway concession facility. Some of the staff members use car-pooling and save fuel, and contribute towards reducing carbon emissions and conserving energy.

Some of the staff members and students use bicycles



PRINCIPAL
TECNA ENGINEERING COLLEGE
Navi Mumbai - 400 706



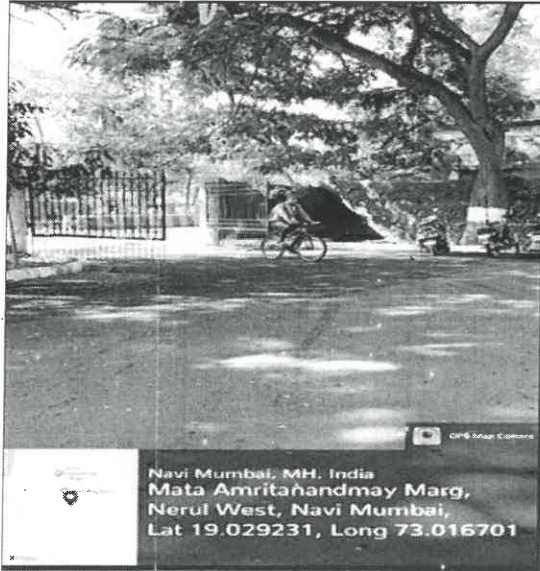


Figure 6 Car pulling by some staff members

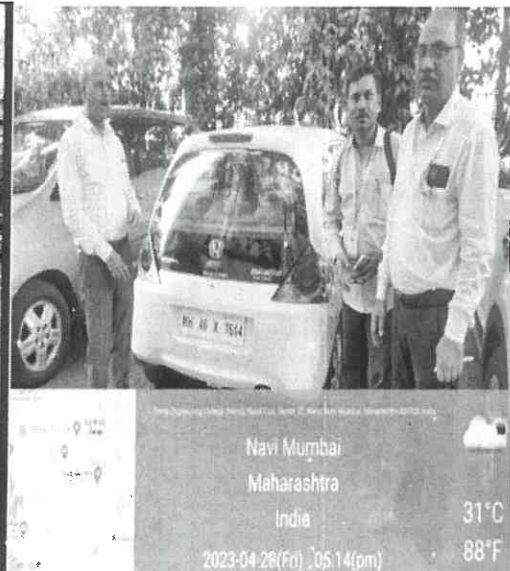


Figure 7 use of bicycle by some staff members

2) Plastic free campus campaign:

A 'No Plastic' Awareness Campaign was conducted by NSS team at TEC to share the hazards of indiscriminate use of plastic. Being conscious towards the environment, TEC prohibits the use of Styrofoam on the campus and minimizes the use of plastic.




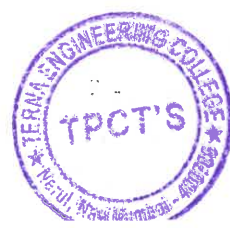
Figure 8 no plastic zone

3) Green landscaping with trees and plants:

Green landscaping at TEC includes eco-landscaping which is designed and maintained in such a manner that it saves time, money, and energy. It contributes to reducing air, soil, and water pollution; and making healthy recreation spaces.

The TEC campus has a well-designed landscape which includes approximately 300 trees, shrubs and plants. It is maintained by water collected in pond during rainy days.


PRINCIPAL
TERNA ENGINEERING COLLEGE
 Nerul, Navi Mumbai - 400 706



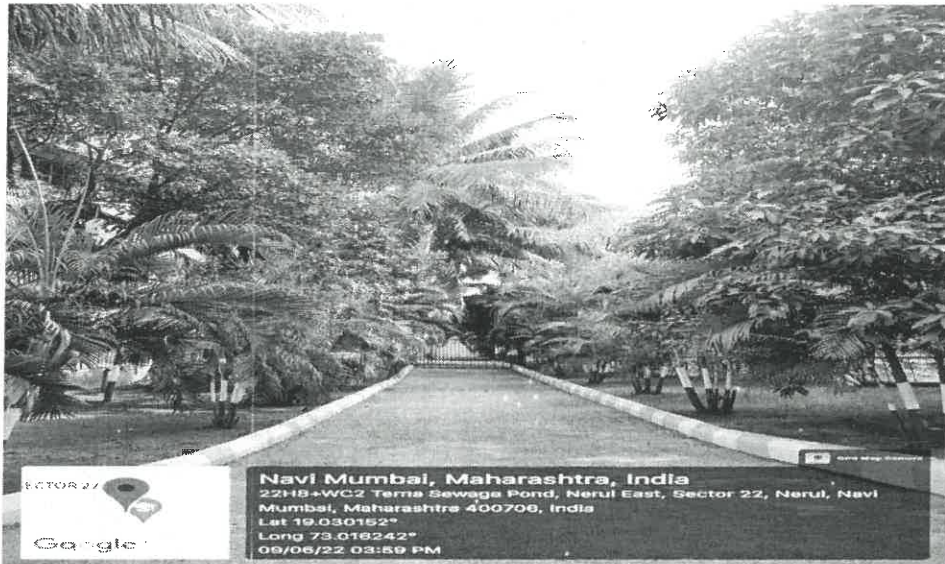


Figure 9 TEC Green campus

4) Disabled-friendly, barrier-free environment

The fundamental principles that have been followed at TEC are various facilities to meet disabled people's standards for safety, convenience, and usability. This construction and maintenance standard are followed in all categories of buildings and facilities used by the students for making accessible to and functional for physically disabled persons, as pictured below

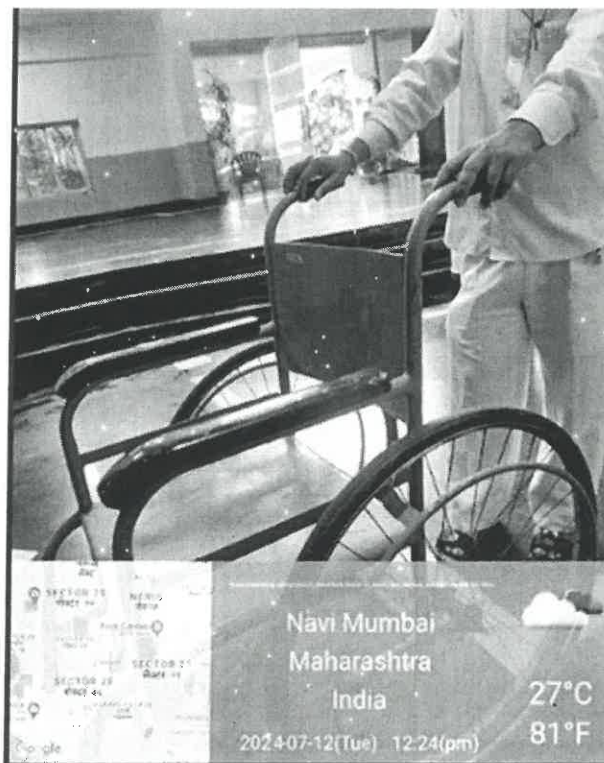
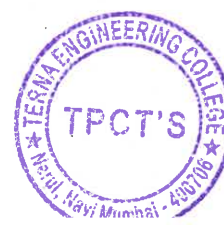


Figure 10 Wheel chair: available on the ground floor near room no. 024.


PRINCIPAL
TERNA ENGINEERING COLLEGE
 Nerul, Navi Mumbai - 400 706



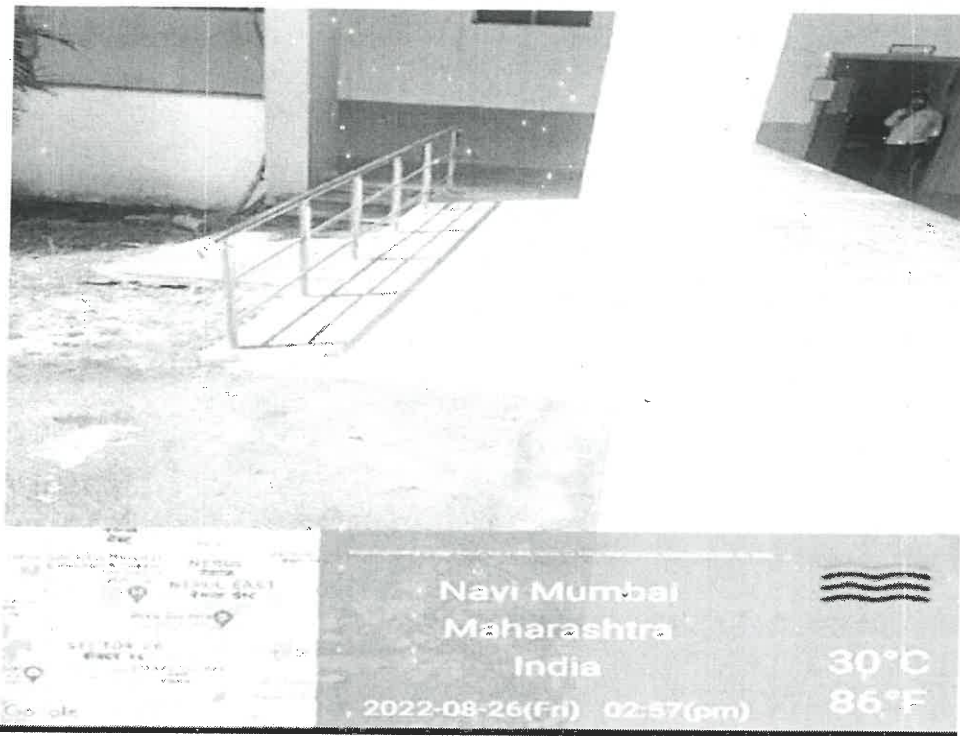


Figure 11 Ram at TEC campus for physically disabled person

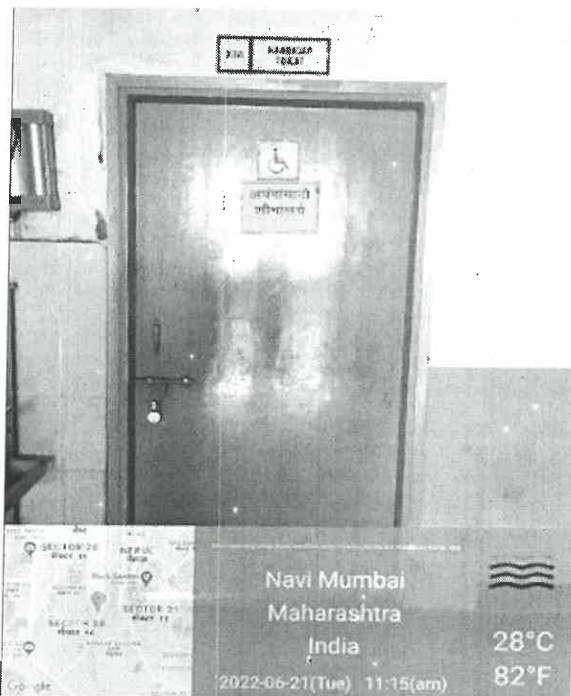


Figure 13 Washrooms for physically disabled persons



Figure 12 Lift facility


PRINCIPAL
TERNA ENGINEERING COLLEGE
 No. 1, Navi Mumbai - 400 706

