7.1.4 Water conservation facilities available in the institution:

1. Rain water harvesting:

The institute is environmentally conscious and works towards the sustainability of environmental resources. Aurangabad city and its surrounding regions come under medium rainfall zone. As there is a shortage of water in summer season it is important to utilize water in the most efficient way. Taking into consideration this problem of water shortage, Institute has designed a rain water harvesting system for one of the buildings. Rain water is collected from each area of the campus, such as near the Engineering building premises, as shown in fig.1.1, and adjacent to the boys' and girls' hostel buildings, as shown in fig.1.2. This water is then collected through the pipes to chamber, as shown in fig.1.3 and 1.4. This water is then forwarded to well with gravitational force, as shown in fig.1.5. Fig 1.6 shows the details of the RWH board.

Quantity of rainwater harvested = (Area in sq. m.) X (runoff coefficient) X (Mean annual rain fall) X (1000) = 4, 42582.96 X 0.6 X 0.726 X 1000

= 19, 57, 795.48 lit/year

Total rain water harvesting from roof top results in saving of 1.9 million lit. / Year.

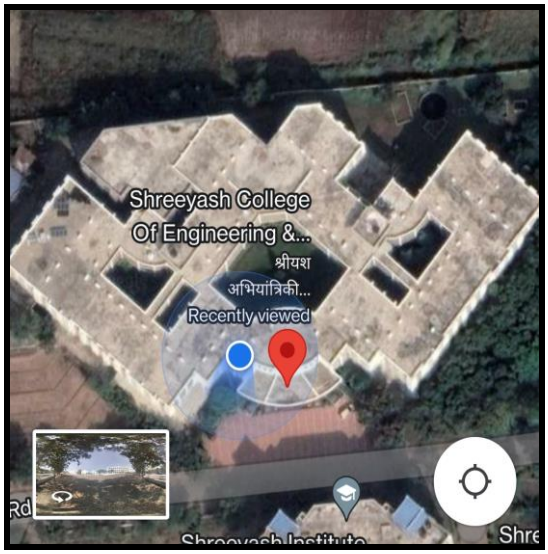

Fig. 1.1 Engineering terrace catchment area

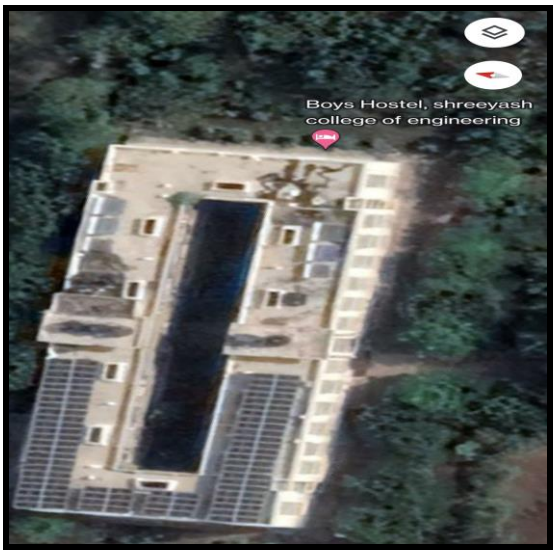

Fig. 1.2 Boys hostel terrace catchment area for RWH

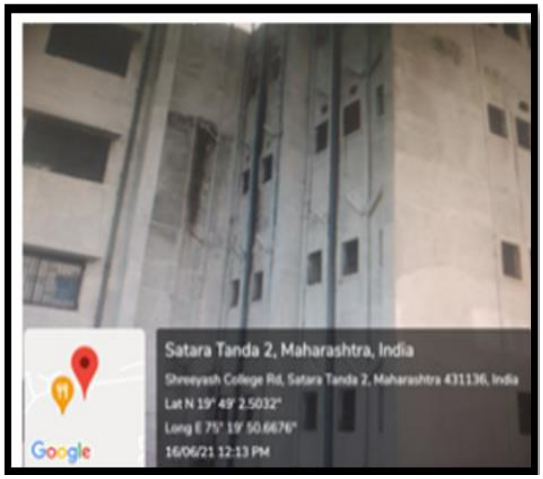

Fig. 1.3 Four inch pipes use for RWH

Fig. 1.4 Rectangular chambers are used for RWH

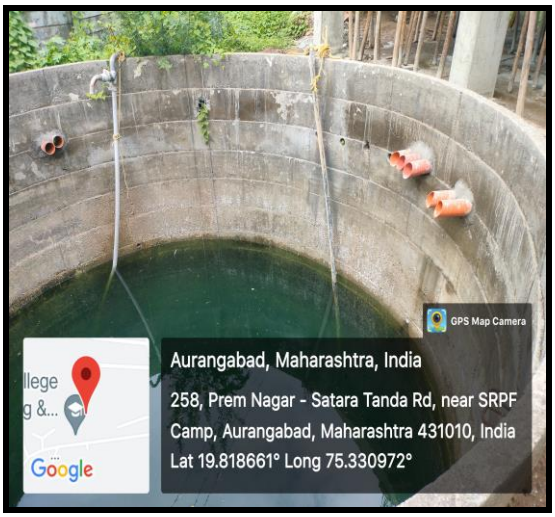

Fig. 1.5 Water collected through pipes in the well

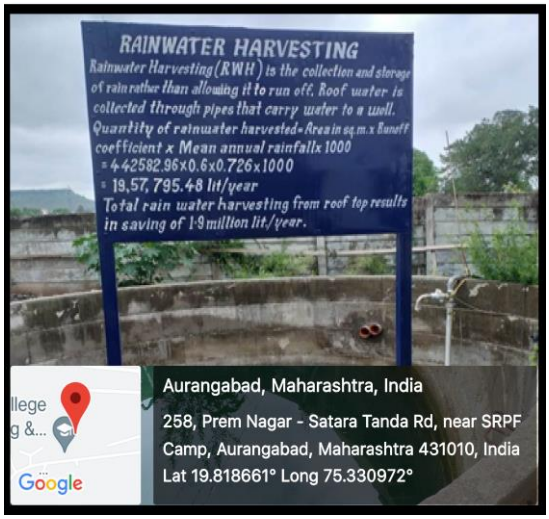

Fig 1.6 RWH details board display

2. Bore well /Open well recharge:

As a part of water conservation facilities that are available in the institution, the bore well facilities are available in the campus. 3 wells in the premise with a depth of 65 feet for 2 wells and 75 feet for 1 well as shown in fig.2.1.and 2.2. Around 25,000 liters of water is pumped on a daily basis which is used as 10,000 liters for the Canteen and 6,000 liters for the Garden. 5 Ponds in the premise and the quantity in each is 5 Crore liters, 1 Crore liters, 50 Lakh liters 24 thousand liters, 60 lakh liters, 10 lakh liters thus amounting to a total of Six crore seventy lakh and twenty four thousand liters of water being stored. Due to there is no water in our borewell, we use it for peculation purposes.

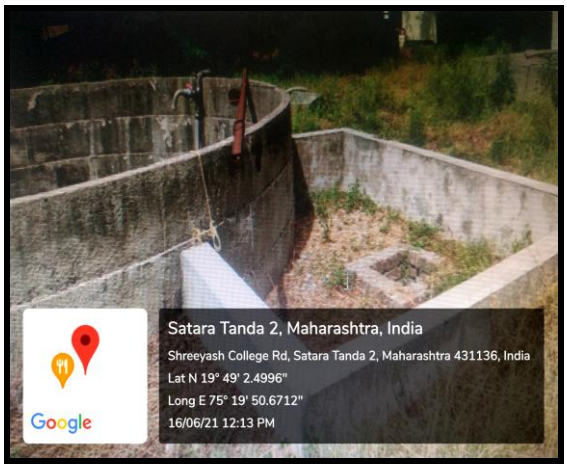

Fig. 2.1 Open well is used for storage of the water

Fig. 2.2 Open well is used for storage of the water

3. Construction of tanks and bunds

As shown in figs. 3.1 and 3.2, our campus has underground water tanks of 5,000 litres each in the college area and the boy's hostel. Thus totaling 15,000 liters, and 8 tanks having capacity 2,000 liter water on the terrace totaling 16,000 liters. Thus, the total amount of water stored in tanks is 71,000 liters. As shown in fig. 3.3, our students constructed bunds to collect rainwater on campus.

Fig. 3.1 Underground water tanks for boy's hostel

Fig. 3.2 Underground water tanks for college

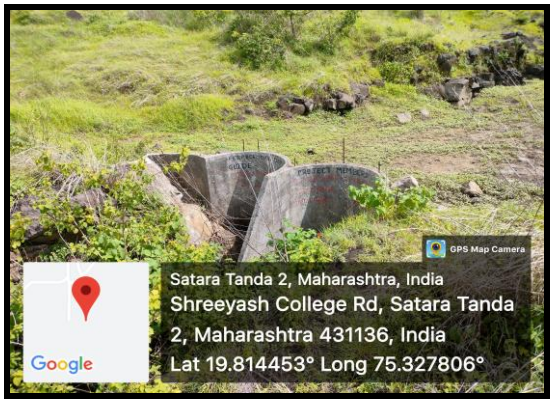

Fig 3.3 Constructed bunds by the students at campus area

4. Waste water recycling:

In our campus the best facility is available for water waste management is STP. The water is purified and then recycled to a pure state and then sent through pipelines and containers and then utilized for the green forestation of trees and plants around the vicinity. We collect all liquid from college campus as well as Boy's and Girl's Hostel and recycle it by STP and then we use it for watering the trees. Due to this shortage of water problem of our Institute is solved.

The rain water collected on the roof top from the Boy's Hostel, Girl's Hostel, and Institute Building is carried through a down take pipe and collected in the collection tank before being forwarded to the Air blower tank for the creation of bacteria for slutch separation in the control room, as shown in fig. 4.1. The water is then routed to a tube settler for purification, as shown in fig. 4.2, and then to a solid separation zone before being stored in a tank for use, as shown in fig. 4.3. Fig. 4.4 shows the flow chart of our STP plant.

This initiative is not only helpful for institute but it also helpful for surrounding areas. Conserving rain water and utilizing it for basic purposes fulfils a social responsibility.

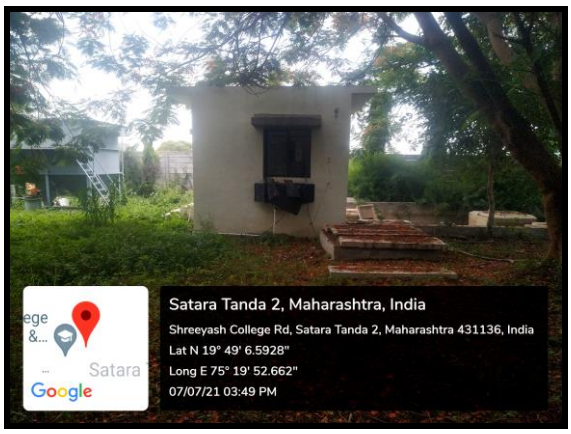

Fig. 4.1 Air Blower and Cotroller Room

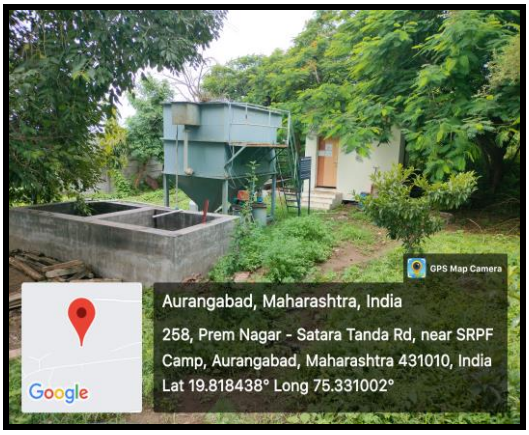

Fig. 4.2 Tube settler for SSTP plant

Fig. 4.3 Solid Separation Zone

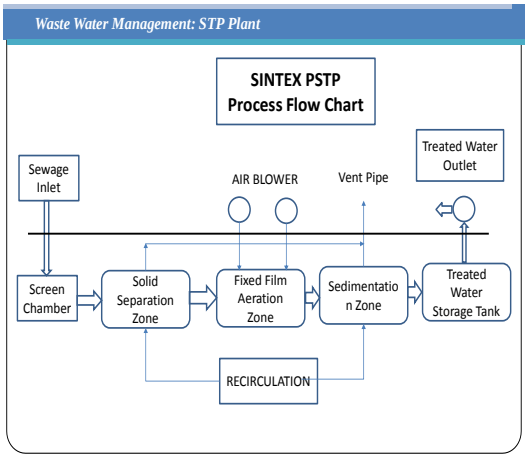

Fig. 4.4 Flow chart of STP Plant

5. Maintenance of water bodies and distribution system in the campus:

There are nine numbers of over head storage tanks and one elevated service reservoir in the campus.

- There are scheduled staff members who maintain the water bodies regularly
- Rain water from different Hostel buildings are taken to the ponds in such a way that they are not contaminated.
- Rooftops are also kept cleaned so that unnecessary garbage does not make the rain water dirty.
- Water reservoirs are kept above the roof top and also there underground reservoirs.
- They are directly connected to RO plant which is supplied through a separate set of distribution pipes and water for all other purposes is supplied through another set of distribution pipes as shown in fig. 5.1 and 5.2.
- From the roof top tanks water is distributed through PVC pipe lines.
- Bore well and Open well are also used for garden water.
- In fact the rain water is also used for gardening.

Fig. 5.1 RO Plant in Engineering building

Fig.5.2 RO Plant in Boys hostel building