

Rain Water Harvesting: Structure and Utility:

➤ Introduction

As the scarcity of water is rapidly increasing everyday particularly during the summer season, the demand for water in the college campus also substantially increased. Therefore college has installed three rooftop rain water harvesting systems in the college campus.

➤ Design of proposed catchment area:

The catchment of water harvesting system is the rooftop that receives rainfall directly and drains the water system. The existing roof is made use of to collect rainwater. Therefore the rooftop is swept and cleaned regularly for collecting the water to its maximum purity.

From the design of the terrace floor, we calculated total rooftop area of our college.

System-1: Area of the rooftop of hall number 55, 56, 57 = 3872 sq. ft.

System-2: Area of the rooftop of hall number 58, 59, 60, 61, 62 = 5075 sq. ft.

System-3: Area of the rooftop of girls hostel = 3444 sq. ft.

Total area of proposed catchment = 12391 sq. ft.

➤ Design of transportation system:

For transporting the rain water from the catchment area in this project we have used Polyvinyl chloride (PVC) pipes and fittings. For the collection purpose, we are using pipes ranging 2.5 - 3 inches diameter. A care has been taken that the first spell of rain is flushed out and does not enter the system. This is done since the first spell of rain carries a relatively larger amount of pollutants from the air and catchment surface. The water is transferred to the special kind of filters which removes the leaves, dust, small twigs and other organic matter. In case of system-1, filtered water is then allowed to flow into the bore well near boys parking slot. In case of system-2, filtered water is transferred into the bore well in the staff parking slot and in case of system-3 rain water from girl's hostel rooftop is transferred into specifically designed dug well near the bore well of girls hostel.

➤ Approximate amount of water percolated under the ground per year:

The average monsoon rainfall in the area is approximately 666 mm per year. From average rainfall and the total surface of rooftop catchment area for each system, we have calculated the amount of water percolated under the ground per year which is given as below.

❖ System-1= 2,32,000 litres of water

❖ System-2= 3,04,000 litres of water

❖ System-3= 2,06,000 litres of water

2. Borewell /Open well recharge:

Total area of the college campus is about nearly 3 acres, on that only area of 40% on total area was developed as academic zones and the balance area is about 60 % on total area was earmarked for greenery. The college campus depends on ground water for all its needs and the daily need of water in the campus is around 10,000 liters approximately. To compensate the mentioned daily need we had constructed 2 number of bore wells with different depths as per the sub soil water position and all are recharge regularly with harvesting and soak pits.

3. Construction of tanks and bunds

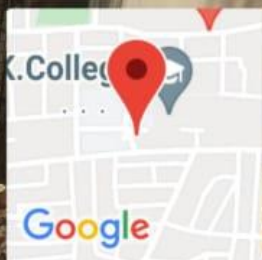
As the water crisis continues to become severe, there is a dire need of reform in water management system and revival of traditional systems. As a part of revival to traditional wisdom, in this institute we built 2 ground tanks to collect and storage the water for reuse on-site.

4. Waste water recycling:

In this institute, separate hostel is constructed and this is accommodating around 100 girls. Almost 3000 liters of water demand is for hostel for smooth functioning. Total water demands is being meet extract from ground water through bore wells and these are recharged with ground tanks and harvesting pits. Total waste water produced from these hostels treated with waste water treatment plant. The waste water after treatment is proposed to be utilized effectively for gardening purpose. This will incidentally drastically reduce the usage of fresh water.

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

The college campus depends on ground water for all its needs and the daily need of water in the campus is around 10,000 liters approximately. The ground water is pumped into storage tanks located at different places in the campus. There are 8 overhead storage tanks in the campus. The water is distributed through well laid pipe network. Drinking water after treating in RO plant is supplied. Water for all other purpose is supplied through another set of distribution pipes. Entire distribution system is well supervised by maintenance committee to ensure that there are no leakages and wastages of precious water through joints and valves.



Beed, Maharashtra, India

Navghan College Rd, Kranti Colony, Datta Nagar, Beed,
Maharashtra 431122, India

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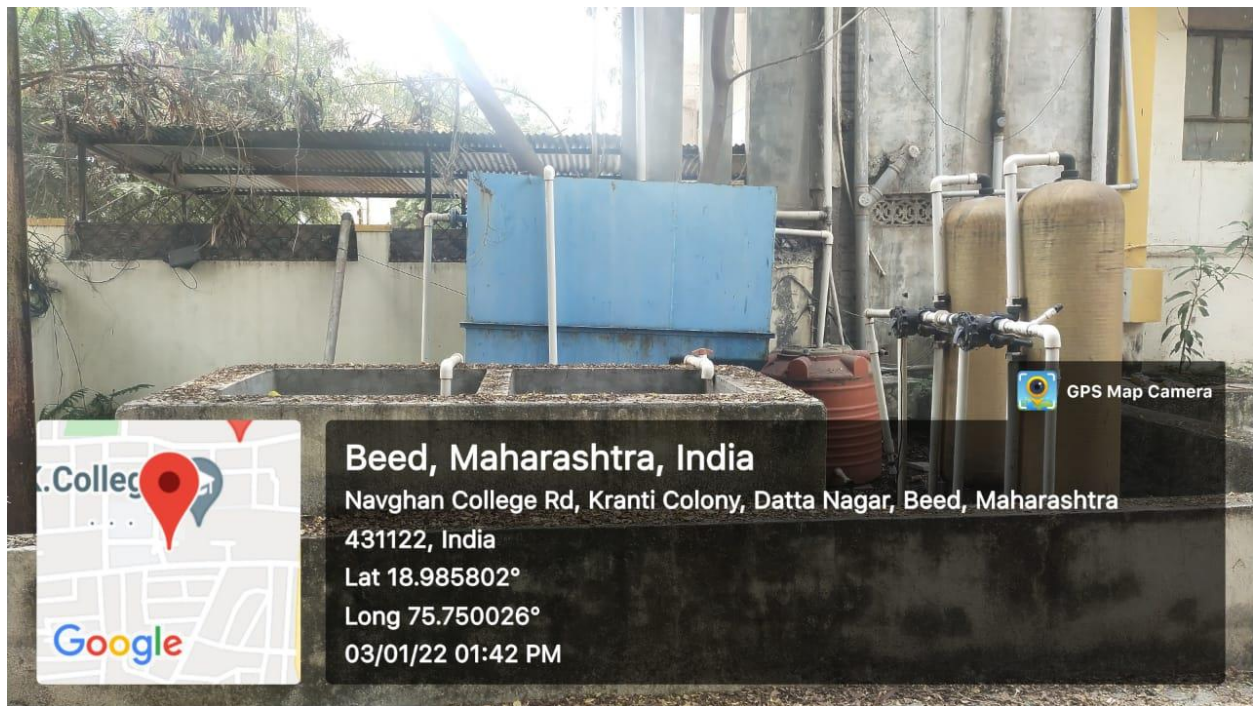
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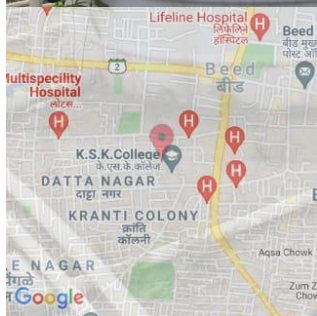




Bore well recharge plant



Waste water recycling plant



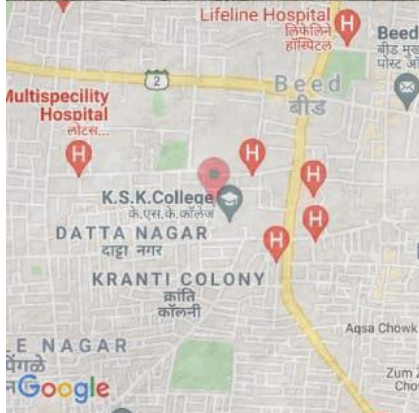
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Maharashtra
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Rain Water Harvesting Plant



GPS Map Camera



Beed, Maharashtra, India

XQP2+C3M, Datta Nagar, Beed, Maharashtra

431122, India

Lat N 18° 59' 9.9852"

Long E 75° 45' 0.7848"

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