

PAAVAI ENGINEERING COLLEGE

(Autonomous Institution)

(Approved by AICTE and Affiliated to Anna University)

(Accredited by National Board of Accreditation, New Delhi & NAAC (UGC) with 'A' Grade)

Paavai Nagar, NH - 7, PACHAL, NAMAKKAL - 637 018. Tamil Nadu

☎ 04286-243038, 58,88 & 98 Fax: 04286-243068 Email: pecprincipal@paavai.edu.in website: http://pec.paavai.edu.in

7.1.4 Water conservation facilities available in the Institution:

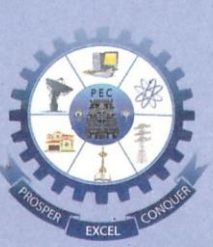
1. Rainwater Harvesting

Paavai Engineering College is situated in Pachal, Namakkal, a rural area with relatively low groundwater levels. Due to this, there's a higher demand for groundwater. The implementation of a rainwater harvesting system addresses this need by collecting and storing rainwater for further use. The Mega Rainwater Harvester has dimensions of 270ft×180ft×18ft, resulting in a volume of approximately 874,800 cubic feet. This capacity allows the system to store a significant amount of rainwater, up to 2 crore litres, which can be utilized for various purposes, including irrigation for thousands of cultivable lands in the vicinity of Paavai Institutions. The harvester consists of ordinary soil up to a depth of 5 feet, followed by 13 feet of soft rock, providing a suitable structure for rainwater storage. The harvested rainwater helps in increasing the availability of groundwater within a radius of 400 acres, contributing to overall water sustainability in the region.

The presence of the rainwater harvester adds beauty to the campus, with cascading water creating a picturesque sight, enhancing the environment of Paavai Institutions. The cool breeze emanating from the lake creates a calming atmosphere, providing students with a peaceful environment to relax and unwind, thereby promoting overall well-being. The lake serves as an ideal location for students to spend their leisure time, further contributing to their mental and emotional relaxation.



‘AMIRTHAVARSHINI’ a Mega Rain water Harvester



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‘AMIRTHAVARSHINI’ a Mega Rain water Harvester

Benefits of ‘AMIRTHAVARSHINI’

1. AMIRTHAVARSHINI can be an excellent back-up source of water for the college.
2. It reduces demand on ground water.
3. Rainwater harvesting systems are energy efficient and environmentally friendly in nature.
4. Low maintenance cost and requirements.
5. It reduces the soil erosion and runoff.
6. Rainwater is free from various chemicals found in ground water.
7. It is suitable for irrigation and watering gardens.

Composite Fish Culture:

The Composite Fish Culture System was Developed by the Indian Council of Agricultural Research in the 1970s, the composite fish culture system involves the cultivation of multiple fish species together in a single fish pond. This method maximizes the efficient use of resources and promotes ecological balance within the aquatic environment. It is a method in which five or six different types of fish species are grown together in a single fish pond. Paavai Engineering College has integrated composite fish culture into its rainwater harvesting system. By doing so, they aim to maintain soil and water fertility while also utilizing the harvested rainwater effectively. The composite fish culture system typically involves the cultivation of five or six

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different types of fish species. At Paavai Engineering College, both local and imported fish species are available, allowing for a diverse aquatic ecosystem within the fish ponds. Water is precious and it is one of the elements, which is very essential for living. All organisms require water for their life and living. Now, due to climatic change the ecosystem has become imbalanced. So there is a scare of water all around the earth.

The water based resources in the future depends on the sustainability of the current and future water resource allocation. As water becomes more scarce the importance of storing becomes significant. The balance between using water based on necessity of human and environment becomes an important thing. Therefore it is the responsibility for all individuals, organizations and institutions to conserve, maintain water for their use. So, Paavai Engineering College has cater the needs of society by having the Rain water harvester which benefits the rural areas. So save water and save your life.

2. Bore well /Open well recharge

Bore water or groundwater is the most common source of water, assessed by drilling the ground and pumping water from the aquifers. An aquifer is a water-holding permeable rock or clay that holds groundwater. The campus has approximately 5 bore wells, each with a diameter of 6 inches and depths ranging from 600 to 750 feet. Bore water is a common source of groundwater accessed by drilling into aquifers. Additionally, there are 3 open wells on the campus, each with depths ranging from 50 to 60 feet. Domestic and Agricultural Use: Groundwater from both bore wells and open wells is utilized for domestic purposes throughout the college campus. Moreover, it is also used for agricultural purposes. Each well is equipped with a separate water supply system to distribute water from one location to others within and around the campus.

The roads within the college campus are constructed with adequate camber, facilitating the drainage of rainwater during the rainy season. This runoff water can be utilized for well recharge. Rainwater runoff from the terrace of the building blocks is collected and channelized into wells to recharge groundwater. The operation and performance of pumps, motors, and water supply systems are periodically monitored and checked to ensure smooth functioning and to prevent any potential issues or inconvenience. Paavai Engineering College, including the utilization of groundwater sources, rainwater harvesting, and maintenance of water infrastructure to meet domestic and agricultural needs while also promoting sustainability and resource conservation.



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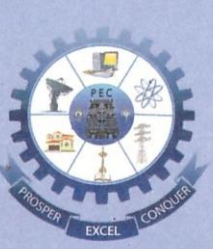
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Open well 1



Open well 2



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Open well 3

3. Construction of Tanks and Bunds:

The college campus features a network of storage tanks, including 14 overhead tanks with capacities ranging from 5,000 to 6,000 litres each, and 2 underground tanks with capacities of 20,000 litres each. These tanks are supplied with groundwater from bore wells, open wells, and other water bodies on the campus. There is a separate tank system dedicated to storing drinking water, ensuring convenient access to clean water for the campus community. Another tank system is specifically designated for storing bore water, likely for non-potable uses such as irrigation or industrial purposes. The maintenance department of the college is responsible for cleaning the tanks regularly in accordance with government norms. This ensures the quality of stored water and prevents contamination.

Proper bunds have been constructed throughout the campus to control erosion and retain water. Bunds are barriers or embankments designed to hold water in lightly sloping areas and prevent soil erosion. Bunds serve multiple purposes, including controlling erosion, retaining rainwater, and creating obstructions to manage water flow. They contribute to maintaining the integrity of the campus landscape and infrastructure. It's mentioned that bunds should be



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periodically assessed to ensure they remain effective in providing protection against leaks, spills, and erosion. Regular inspections help identify and address any issues or maintenance needs.



Namakkal, Tamil Nadu, India
95X6+CGX, Tamil Nadu 637018, India
Lat 11.398371°
Long 78.161312°
16/12/23 03:48 PM GMT +05:30

Water Tank 1



Ananthakrishnarayasamudram, Tamil Nadu, India
95X6+GQ, Ananthakrishnarayasamudram, Tamil Nadu 637018, India
Lat 11.398343°
Long 78.16202°
16/12/23 03:51 PM GMT +05:30

Water Tank 2

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Water Tank 3

4. Waste Water Recycling

A Waste Water Treatment plant is located at the back side of men's hostel of Paavai Engineering College. It is designed to treat a total volume of 4,50,000 liters of wastewater per day. The wastewater undergoes treatment processes within the plant to remove contaminants and impurities, making it suitable for reuse. The specific treatment methods employed may include physical, chemical, and biological processes to purify the wastewater. The treated water from the plant is utilized for gardening purposes within the college campus. Additionally, it is used for irrigation on agricultural lands in the neighboring areas, promoting efficient water use and supporting local agriculture.

The implementation of the Waste Water Treatment plant helps in reducing the environmental impact of wastewater discharge by treating it before reuse or discharge. It also supports the conservation of freshwater resources by facilitating the reuse of treated wastewater for non-potable purposes. Waste Water Treatment plant at Paavai Engineering College demonstrates a proactive approach to environmental stewardship and sustainable resource management. By treating wastewater and reusing the treated water and sludge, the college contributes to water conservation efforts and promotes eco-friendly practices within the campus and the surrounding community.

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Waste water recycling plant

The following are the components of Waste Water Recycling plant:

1. Bar screen chamber
2. Grit chamber
3. Collection tank
4. Aeration tank
5. Treated sewage collection tank
6. Roots blowers & Diffusers
7. Raw sewage transfer pump
8. Bio-mass recirculation pump.
9. Sludge drying pump
10. Pressure sand filter & Activated Carbon Filter
11. Filter feed pump

Bar Screen chamber => It is used for the Removal of floating materials. The size of the Screen Chamber is length = 2m, width = 1m and Depth = 1.5m.

Grit Chamber => It is used for the removal of Grid particles or Inorganic particles such as Sand Gravel, Slit and glass materials .The size of Grid Chamber is 2.0m length, 2.0m width, 2.0m depth.

Equalization tank => It is used for Neutralizing the characteristics of waste water. The size of Equalization tank is 15m length, 3.5m width, 3m liquid depth.

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Activate Sludge Process => It can be used for the Removal of BOD from waste water. Hydraulic detention time is 20 hrs. Size of the tank is 15m length, 15m width and 3m liquid depth.

Sludge drying beds is used for dewatering of sludge with the help of sunlight. Size of the sludge drying beds is 3m x 2m x 1.5m.

Benefits of Water Recycling:

1. It mainly helps in reducing water scarcity around the campus.
2. It can be used for creating or enhancing wetlands.
3. During this process, electricity and soil amendments are generated.
4. The recycled water can be mainly applied to agricultural and domestic purposes etc.
5. It reduces waste water discharges by reducing and preventing pollution of water.

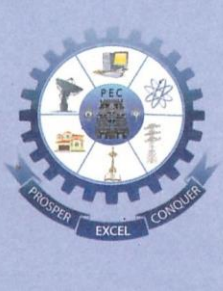
6. Maintenance of Water bodies and Distribution system in the campus:

Regular maintenance of water bodies is conducted to ensure sustainable, consistent, and safe water supply to the campus. The primary objective of maintenance is to provide a disease-free environment by eliminating bacteria, viruses, and other microbes present in the water. Chlorination process is carried out to disinfect water and kill harmful microorganisms, thereby preventing the spread of waterborne diseases such as cholera, dysentery, and typhoid.

The campus has a well-equipped system of pipes for the distribution of water. Different treatment processes such as ozonation and reverse osmosis are employed to treat water for drinking purposes. Separate distribution systems are used for drinking water and other activities. Low flow plumbing fixtures are installed to minimize water wastage. Collaborators of the college are educated and motivated about the importance of water conservation and efficient usage on campus.

Scheduled inspections of machinery are conducted on a daily, weekly, monthly, and annual basis to ensure proper functioning and prevent leakages. The overall distribution system on campus is well-maintained and supervised by the Maintenance Department to prevent water wastage.

Paavai Engineering College's water management practices prioritize safety, sustainability, and efficiency. Through regular maintenance, treatment processes, and conservation measures, the college ensures a reliable and safe water supply for all campus activities while minimizing environmental impact and promoting water.



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Distribution system



Distribution system