



Viswambhara Educational Society  
**VAAGDEVI PHARMACY COLLEGE**  
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**1. RAINWATER HARVESTING AND WATER CONSERVATION AT VAAGDEVI PHARMACY COLLEGE, BOLLIKUNTA, WARANGAL**

Vaagdevi Pharmacy College is committed to sustainable water management and conservation, particularly in light of the scorching summers and regional water constraints. Recognizing the importance of water conservation, the college has implemented effective rainwater harvesting systems and practices that not only optimize water usage but also support the green infrastructure on campus. Below are the key aspects of the college's rainwater harvesting and water conservation efforts:

**1. Rainwater Harvesting System:**

- Rainwater is collected from the rooftops of buildings across the campus through a well-designed network of pipes. This network ensures that the rainwater is efficiently channelled into underground storage tanks.
- The campus features two large underground tanks, each with dimensions of 3m x 5.5m x 4m. These tanks are specifically designed to hold a significant amount of water, ensuring that enough water is stored during the monsoon months for use during the dry season.
- The rainwater is collected through a connected pipeline system that directs water to these storage tanks, where it is safely stored and can be utilized as needed.

**2. Water Utilization and Reuse:**

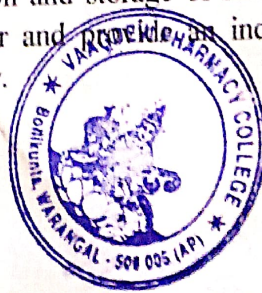
- The stored rainwater is primarily used for gardening and maintaining the green cover of the campus, especially during the hot summer months when fresh water is in limited supply.
- Additionally, wastewater generated on campus is disinfected and reused, contributing further to water conservation and reducing dependency on external water sources.

**3. Borewell/Open Well Recharge:**

- The college has a limited number of bore wells, which are used to meet the public water demand on campus. These bore wells are complemented by rainwater harvesting systems to ensure a consistent and sustainable water supply.
- The college also focuses on open well recharge, ensuring that groundwater levels are replenished during the monsoon season through effective rainwater harvesting and runoff collection.

**4. Construction of Tanks and Bunds:**

- In regions where water resources are scarce, the college has constructed tanks and bunds to maximize the collection and storage of rainwater. These structures play a critical role in storing rainwater and providing an independent water source during periods of regional water scarcity.



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5. Maintenance of Water Bodies and Distribution System:

- The college ensures regular maintenance of its water bodies and the rainwater harvesting system to ensure smooth operation. The stored rainwater is distributed through an efficient network to various parts of the campus, particularly for irrigation and landscaping.

6. Awareness and Educational Initiatives:

- Vaagdevi Pharmacy College actively promotes the importance of rainwater harvesting and water conservation among students and staff. Various seminars and workshops are organized by experts to educate the campus community on the methods and benefits of water conservation.
- Informational charts about rainwater harvesting systems are displayed at multiple locations across the campus to raise awareness and encourage best practices.
- The college also extends these efforts to the surrounding communities, particularly in Kamptee, where events are held to promote the significance of rainwater collection and its environmental benefits.


7. Encouraging Sustainable Practices:

- Through these initiatives, the college not only conserves water on campus but also motivates students to adopt water-saving habits both in their personal lives and in their future careers. The practice of rainwater harvesting is integrated into the curriculum and community outreach activities to ensure lasting impact.

Conclusion:

By implementing an effective rainwater harvesting system, promoting water conservation, and actively engaging the campus and surrounding community, Vaagdevi Pharmacy College is making a significant contribution to sustainable water management. The college's proactive approach ensures that water resources are effectively used, recycled, and conserved, helping to create a greener, more sustainable campus environment.



  
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Rain Water Harvesting



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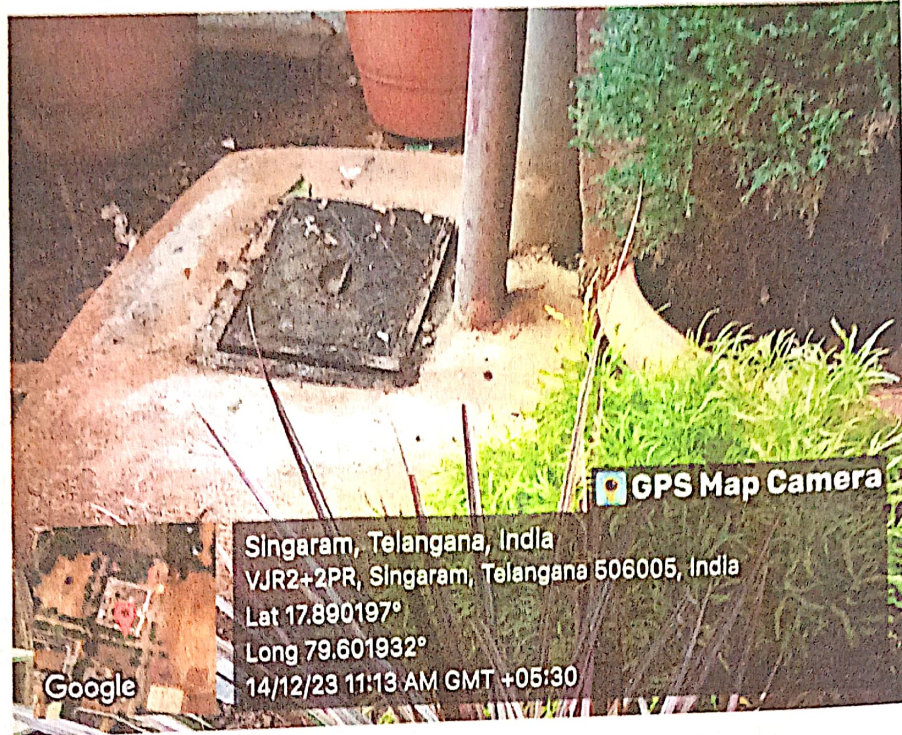
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Water Conservation Facilities



Water Conservation Facilities

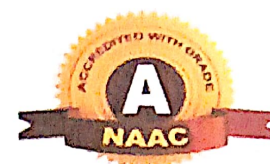


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## 2. BOREWELL AND OPEN WELL RECHARGE AT VAAGDEVI PHARMACY COLLEGE, BOLLIKUNTA, WARANGAL

As part of its commitment to sustainable water management and groundwater recharge, Vaagdevi Pharmacy College employs several methods to promote borewell and open well recharge. The college recognizes that groundwater is an essential resource, especially in regions that experience scorching summers and water scarcity. By enhancing the natural replenishment of groundwater, the college contributes to long-term water sustainability on campus.

Here's an overview of how borewell and open well recharge are managed and implemented at the college:

### 1. Borewell Recharge

Purpose of Borewell Recharge:

- Borewells are drilled to access deep groundwater resources. However, over time, the groundwater table in many regions has been depleting due to excessive extraction. To counteract this, borewell recharge systems are implemented to replenish groundwater levels by redirecting rainwater or surface water into the borewell.

Methods of Borewell Recharge:

- Rainwater Harvesting: Rainwater is collected from rooftops and other surfaces and directed through a network of pipes to recharge borewells. This water infiltrates the soil and replenishes the groundwater table. The college collects rainwater via its rooftop rainwater harvesting system and channels it directly into recharge pits or borewells.
- Recharge Pits: At specific locations on the campus, recharge pits are constructed near borewells. These pits are filled with permeable materials like gravel and sand, which allow rainwater or surface runoff to easily percolate down into the borewell, helping replenish groundwater.
- Check Dams or Recharge Trenches: In some areas, check dams or recharge trenches may be constructed to guide the flow of rainwater toward borewells. These structures slow down the flow of water, allowing it to seep into the ground and recharge the aquifer.

Maintenance of Borewells:

- Monitoring Water Levels: Regular monitoring of the water levels in the borewells is done to ensure the effectiveness of the recharge system. If the water table is falling, additional recharge measures can be implemented.
- Cleaning and Repair: Borewells are periodically cleaned and inspected to prevent clogging and ensure smooth operation. Sediment, algae, or other blockages in the borewell shaft are removed to allow water to flow freely.



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## 2. Open Well Recharge

### Purpose of Open Well Recharge:

- Open wells are typically shallow wells used to extract groundwater, and they are more prone to drying up in areas with low rainfall or over-extraction. To maintain a sustainable water supply, open well recharge systems help improve the replenishment of water in these wells.

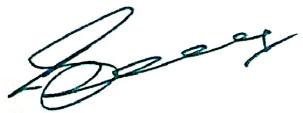
### Methods of Open Well Recharge:

- **Direct Rainwater Channelling:** Rainwater from the campus roofs or nearby catchment areas is directed into open wells via pipes or trenches. This allows rainwater to directly recharge the water table in the well.
- **Surface Water Collection:** Surface runoff water, which typically flows away from the campus, is collected and directed toward open wells using a system of drainage channels or cut-off drains. This runoff water is filtered and redirected to the open wells to boost groundwater recharge.
- **Percolation Pits and Trenches:** In addition to direct water entry into open wells, percolation pits or trenches are built around open wells. These pits are filled with porous materials like gravel, sand, or crushed stones to promote the infiltration of rainwater into the aquifer beneath the well.

### Maintenance of Open Wells:

- **Regular Cleaning:** Open wells need to be periodically cleaned to remove any accumulated silt, sediment, or organic matter that might block the inflow of water and reduce their effectiveness. Regular cleaning also prevents contamination of the water supply.
- **Monitoring Water Levels:** Similar to borewells, the water levels in open wells are closely monitored to ensure that the recharge systems are functioning effectively and that the well does not dry out during dry spells.
- **Protecting the Well Head:** The area around the well is protected to prevent contamination. Covering the well with proper protective structures (such as a cement slab or mesh) prevents debris, waste, and other pollutants from entering the water.



  
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### 3. Integration of Borewell and Open Well Recharge

Combined Approach:

- Vaagdevi Pharmacy College integrates both borewell and open well recharge techniques to maximize groundwater replenishment. By using surface water runoff, rooftop rainwater, and other water sources, both the borewells and open wells are continuously replenished, contributing to the overall sustainability of the campus water system.
- The college has designed the recharge systems in a way that rainwater from various sources can be directed to both borewells and open wells based on the location and terrain of the campus.

Water Storage and Use:

- Once the groundwater is replenished through recharge, the water is stored in underground tanks or wells and can be accessed during periods of low rainfall or water shortage. The campus relies on these water sources for non-potable uses such as irrigation, landscaping, and cooling systems.

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### 4. Awareness and Community Engagement

Student Involvement:

- Vaagdevi Pharmacy College encourages student participation in monitoring and maintaining recharge systems as part of its environmental education initiatives. Students are involved in regular awareness campaigns and workshops on water conservation, highlighting the importance of borewell and open well recharge for sustainable water management.

Community Outreach:


- The college also extends its knowledge and best practices on water conservation and groundwater recharge to the local community. The college hosts seminars and workshops to educate surrounding communities about borewell recharge techniques and the importance of maintaining local water resources.

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### Conclusion

The borewell and open well recharge initiatives at Vaagdevi Pharmacy College play a critical role in ensuring sustainable groundwater management. By implementing rainwater harvesting, surface water collection, and other recharge systems, the college actively contributes to the replenishment of the groundwater table, reduces dependency on external water sources, and supports its campus's green infrastructure.



  
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With regular monitoring, maintenance, and the active involvement of students and staff, these water recharge systems not only improve water availability on campus but also set an example of responsible water management that can inspire other institutions and communities to adopt similar practices.



Bore-well



  
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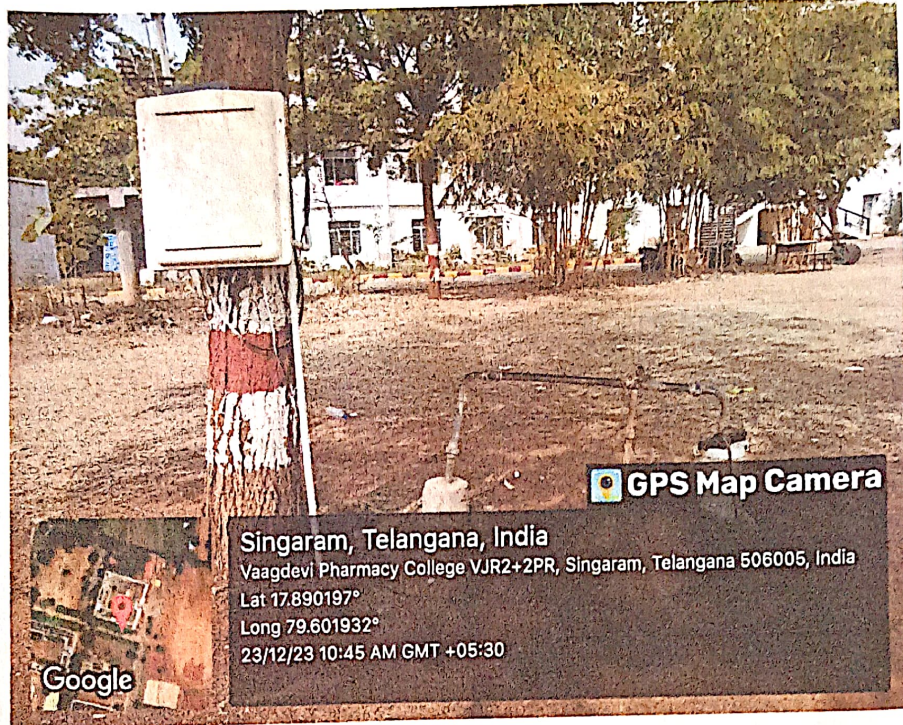




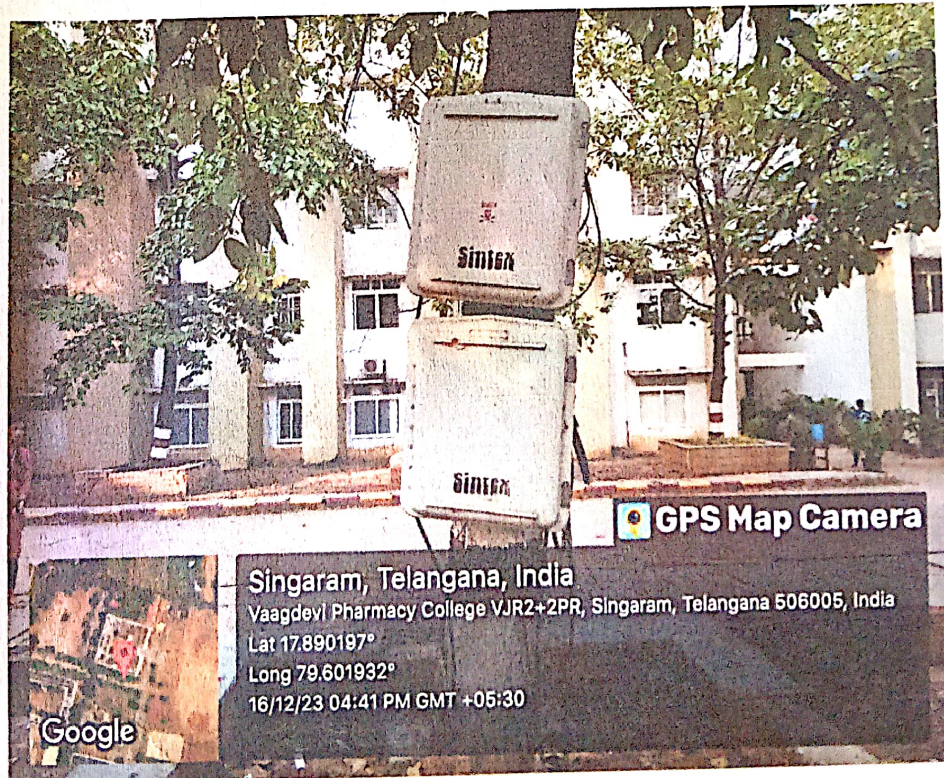
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Bore-well



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**3. CONSERVATION OF TANKS AND BUNDS AT VAAGDEVI PHARMACY COLLEGE, BOLLIKUNTA, WARANGAL**

Vaagdevi Pharmacy College has implemented a series of strategies to conserve and maintain tanks and bunds on campus, playing a vital role in the sustainable management of water resources. Tanks and bunds are crucial structures for capturing and storing rainwater, and their conservation is essential for ensuring water availability during dry periods, particularly in a region with water scarcity. Below are the key measures taken for the conservation of tanks and bunds:

**1. Regular Maintenance and Cleaning:**

- The tanks and bunds are regularly cleaned and maintained to ensure their efficiency and capacity in storing rainwater. Regular maintenance includes:
  - Removing debris such as leaves, branches, and sediment that might obstruct the water flow or storage capacity.
  - Inspecting and ensuring the integrity of the bunds, which are embankments or barriers designed to hold water, to prevent leakage or erosion.

**2. Reinforcement of Bunds:**

- The bunds surrounding the water tanks are reinforced to prevent soil erosion and ensure that water is safely retained. This may involve:
  - Planting vegetation along the bunds to reduce erosion and enhance soil stability.
  - Building retaining walls or using geotextile materials to improve the structural integrity of the bunds and prevent water loss.

**3. Water-Level Monitoring:**

- To ensure that the tanks remain functional and adequately filled during the rainy season, the water levels in the tanks are regularly monitored. This helps in making timely adjustments or repairs if the tanks begin to show signs of damage or overflow.


**4. Prevention of Overflows:**

- Measures are taken to prevent the tanks from overflowing during heavy rains. This includes ensuring that the overflow channels are clear and properly aligned to guide excess water away safely without damaging the bunds or surrounding areas.

**5. Use of Stored Water:**

- To maintain the tanks' storage capacity and avoid stagnation, the stored water is periodically used for irrigation and landscaping. This helps to keep the tanks in use, preventing the buildup of sediment and algae that could reduce the tank's effectiveness.



  
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6. Community and Student Engagement:

- The college actively involves students and staff in maintaining the tanks and bunds through awareness campaigns, volunteer programs, and hands-on activities. This encourages a sense of ownership and responsibility for water conservation on campus.

7. Enhancing Infiltration:

- In certain areas, infiltration pits or channels may be used near the tanks and bunds to allow water to percolate into the ground, helping to recharge the groundwater table and further augment water availability.

8. Long-Term Planning:

- The college ensures that the tanks and bunds are part of a long-term water conservation strategy, including:
  - Assessing the capacity needs of the campus and expanding the structures when necessary.
  - Designing future rainwater harvesting systems that integrate with the tanks and bunds to improve overall water storage and distribution on campus.

9. Minimizing Evaporation Loss:

- To prevent water loss due to evaporation, the college may install shading structures or encourage the growth of vegetation around the bunds and tanks. This helps reduce the surface area exposed to sunlight, thereby conserving more water.

Conclusion:

The conservation of tanks and bunds at Vaagdevi Pharmacy College is a critical aspect of the campus's sustainable water management strategy. By regularly maintaining these structures, reinforcing the bunds, preventing overflow, and involving the community, the college ensures that it can continue to efficiently collect, store, and utilize rainwater. These efforts not only help mitigate the effects of regional water scarcity but also contribute to a more sustainable and resilient campus ecosystem.



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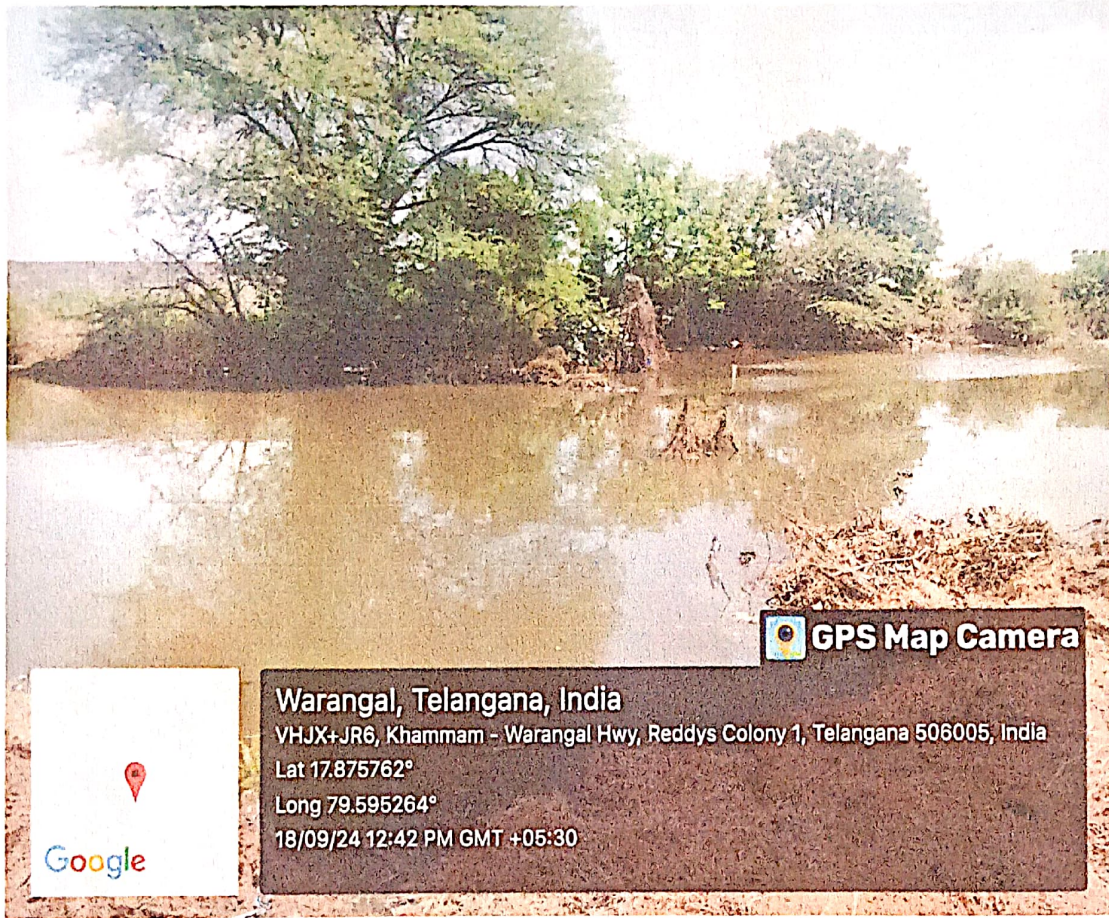
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Conservation of Tank



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#### 4. WASTEWATER RECYCLING AT VAAGDEVI PHARMACY COLLEGE, BOLLIKUNTA, WARANGAL

Vaagdevi Pharmacy College is committed to promoting sustainability and resource conservation, and wastewater recycling is a key part of the college's efforts to reduce its environmental footprint. Recycling wastewater not only helps conserve freshwater resources but also supports the campus's various activities, including landscaping, gardening, and maintaining green spaces. Below are the key practices and systems in place at Vaagdevi Pharmacy College for wastewater recycling:

##### 1. Wastewater Collection and Segregation:

- Wastewater generated on the campus, including that from bathrooms, laboratories, canteens, and other domestic uses, is collected separately from other types of waste. This segregation ensures that only wastewater that can be safely treated and reused is directed to the recycling system.
- Greywater (wastewater from sinks, showers, and other non-sewage sources) is primarily targeted for recycling, while blackwater (from toilets) is processed through a separate treatment system.

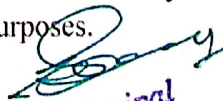
##### 2. Treatment of Wastewater:

- The college employs an efficient wastewater treatment process to ensure the water is safe for reuse. This typically involves:
  - Primary treatment: Removal of large solids and debris from the wastewater.
  - Secondary treatment: Biological treatment to degrade organic matter using aerobic or anaerobic processes, often through methods like biological filtration or activated sludge systems.
  - Tertiary treatment: Filtration and disinfection (e.g., using UV light or chlorination) to remove pathogens, making the treated water suitable for various non-potable uses.

##### 3. Recycling and Reuse of Treated Wastewater:

- The treated wastewater is then recycled and reused for purposes such as:
  - Gardening and Landscaping: The treated water is primarily used for watering plants, maintaining lawns, and keeping the green spaces on campus thriving, especially during dry periods.
  - Toilet Flushing: In some areas of the campus, treated wastewater is used for flushing toilets, reducing the consumption of fresh potable water.
  - Cooling Systems: In certain areas where cooling towers or HVAC systems are used, treated wastewater is also recycled for cooling purposes.



  
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4. Storage and Distribution:

- The treated and recycled water is stored in dedicated underground tanks or holding ponds designed specifically for this purpose. The water is then distributed through a piped network to the designated areas where it is used for gardening, irrigation, or other non-potable needs.
- The storage tanks are regularly maintained to prevent contamination and ensure the water quality remains high.

5. Monitoring and Quality Control:

- The quality of recycled wastewater is regularly monitored to ensure that it meets the necessary standards for the intended use. This includes checks for pH levels, chemical oxygen demand (COD), biological oxygen demand (BOD), and the presence of pathogens.
- Periodic testing is carried out to ensure that the recycled water does not pose a health or environmental risk and is safe for irrigation and other uses.

6. Awareness and Education:

- The college actively promotes the importance of water conservation and wastewater recycling among students and staff. Educational campaigns, workshops, and seminars are organized to raise awareness about the need to recycle wastewater and use water efficiently.
- Visual aids such as charts and posters are placed around the campus to educate the community about the wastewater recycling process and its environmental benefits.

7. Sustainability and Resource Conservation:

- By recycling wastewater, Vaagdevi Pharmacy College significantly reduces its reliance on freshwater sources and helps conserve valuable natural resources.
- The recycled water supports the campus's landscaping and green areas, ensuring that the environment remains healthy and vibrant, even in times of water scarcity.
- The practice also helps in reducing the overall water consumption on campus, making the college more sustainable and resilient to regional water challenges.

8. Future Expansion and Improvements:

- The college plans to continuously improve and expand its wastewater recycling capabilities. This could include enhancing the treatment technology, increasing the volume of water recycled, or incorporating more sustainable water management practices like rainwater harvesting and wastewater reuse for additional applications.



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Conclusion:

Through its comprehensive approach to wastewater recycling, Vaagdevi Pharmacy College not only minimizes the consumption of precious freshwater but also contributes to sustainable water use on campus. By treating and reusing wastewater for non-potable applications like gardening, irrigation, and toilet flushing, the college is taking significant steps toward becoming more water-efficient and environmentally responsible. The college's commitment to water conservation serves as a model for other educational institutions and communities to follow.



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## 5. MAINTENANCE OF WATER BODIES AND DISTRIBUTION SYSTEM AT VAAGDEVI PHARMACY COLLEGE, BOLLIKUNTA, WARANGAL

Vaagdevi Pharmacy College places great importance on the maintenance of water bodies and the distribution system to ensure sustainable water use, particularly for rainwater harvesting and wastewater recycling initiatives. Proper maintenance is essential to ensure that water resources are available for various campus needs, such as gardening, irrigation, and maintaining green spaces, even during periods of water scarcity.

Here's an outline of the key practices followed by the college for the maintenance of water bodies and the distribution system:

### 1. Maintenance of Water Bodies (Tanks, Bunds, and Ponds)

#### Cleaning and De-silting:

- Regular cleaning of water bodies (such as rainwater harvesting tanks, ponds, and bunds) is carried out to ensure that debris, sediments, and organic matter do not accumulate, which can reduce the water storage capacity.
- De-silting is performed periodically to remove accumulated sludge and dirt that can reduce the efficiency of water storage. This process is particularly important for maintaining the quality and volume of collected water.

#### Vegetation Control:

- The water bodies are monitored for the growth of aquatic plants (like algae or invasive species) that can obstruct water flow or affect the water quality.
- Manual removal or controlled management of vegetation is carried out to prevent overgrowth and ensure that the water remains clean and clear.
- Vegetative cover around bunds is promoted to prevent soil erosion and enhance water retention.

#### Monitoring Water Levels:

- Water levels in the tanks and ponds are regularly monitored to ensure that the structures are functioning efficiently, especially during and after rainfall.
- Adequate overflow channels are in place to prevent water from spilling over or eroding the banks of the tanks or bunds. If necessary, additional bunding or reinforcement is done to prevent water loss.

#### Recharging Groundwater:

- The water bodies, including ponds and recharge wells, are designed to assist in groundwater recharge by allowing rainwater to percolate into the ground, thereby replenishing the underground water table.



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- The percolation rate is periodically tested, and any necessary improvements to recharge mechanisms (such as installing infiltration pits or adding more permeable surfaces) are carried out to enhance groundwater replenishment.

## 2. Maintenance of Distribution System

### Pipe Network Inspection and Repair:

- The distribution network for both rainwater and treated wastewater is regularly inspected for leaks, blockages, or damage. Leaks can cause water wastage and reduce the efficiency of the system.
- Pipe repairs and replacements are performed as needed, ensuring that the network is functioning optimally. This includes inspecting underground pipelines, water storage tank connections, and valves.
- All pipes are appropriately labeled to ensure they are easily identifiable during maintenance and troubleshooting.

### Water Flow Regulation:

- The water flow to various parts of the campus (such as gardens, green spaces, and irrigation areas) is regulated to prevent wastage. This is managed by using flow meters and valves to control the amount of water distributed to different zones.
- Automatic timers or sensor-based irrigation systems may be employed to ensure that water is distributed efficiently and only when needed, avoiding unnecessary water consumption.

### Cleaning and Disinfection:

- The pipes used for distributing treated wastewater are regularly cleaned and disinfected to prevent the buildup of algae, debris, or pathogens that can contaminate the recycled water.
- Backwashing of filters and flushing of pipelines is done routinely to maintain the efficiency and cleanliness of the entire water distribution system.

### Water Quality Monitoring:

- The quality of water in the distribution system is periodically tested to ensure that it meets standards for irrigation and other non-potable uses. Tests for pH, turbidity, and contaminants are conducted regularly.
- The college also ensures that treated wastewater and rainwater used in irrigation are free from harmful pathogens and pollutants, protecting the campus environment and the health of the community.



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### 3. Infrastructure and Equipment Maintenance

#### Pump and Valve Maintenance:

- Pumps, used to move water from the storage tanks to various distribution points, are regularly serviced to ensure smooth operation. Maintenance includes checking for mechanical wear, cleaning filters, and lubricating moving parts.
- Valves in the system are inspected to ensure they are functioning correctly, preventing water wastage or incorrect water flow.

#### Monitoring Systems:

- The college may employ automated systems for monitoring the water levels, quality, and flow across the campus. These systems help detect issues quickly, minimizing downtime and water loss.
- Data is collected from sensors and flow meters, providing real-time information that helps maintain water balance and ensure that systems are functioning efficiently.

### 4. Awareness and Engagement

#### Staff and Student Engagement:

- The college encourages staff and students to actively participate in maintaining the water bodies and distribution systems. Awareness programs and workshops on water conservation, pipe maintenance, and water quality monitoring are conducted regularly.
- The campus community is informed about the importance of not littering or polluting the water bodies to maintain water quality and avoid unnecessary disruptions in the distribution system.

#### Community Outreach:

- The college extends its water conservation efforts to surrounding communities through outreach programs and educational seminars on the importance of maintaining water bodies and efficient water distribution systems.
- The college also shares its best practices with local institutions, contributing to broader environmental stewardship efforts.



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# VAAGDEVI PHARMACY COLLEGE

**AUTONOMOUS**

Accredited by NAAC WITH 'A' Grade, Certified by ISO 21001 : 2018

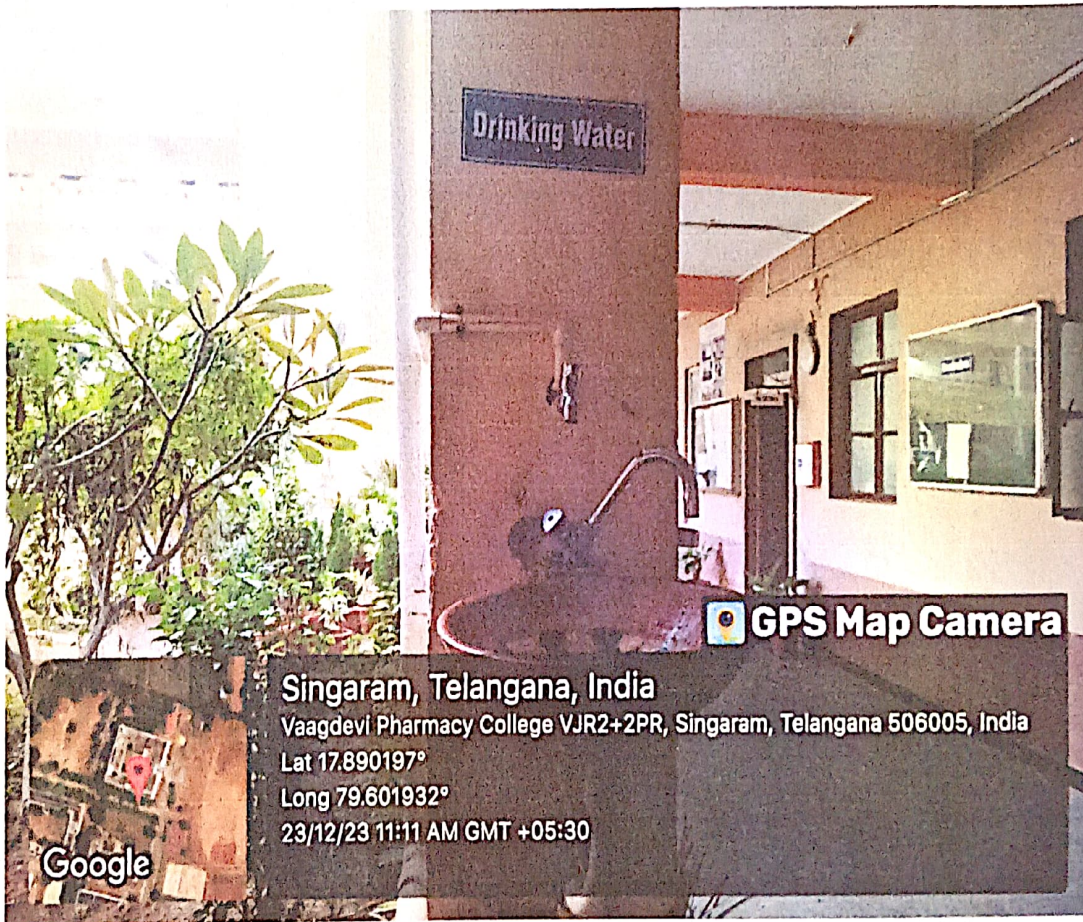
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KHAMMAM ROAD, BOLLIKUNTA, KHILA WARANGAL (MANDAL), WARANGAL - 506005, TELANGANA STATE



## Conclusion

By maintaining its water bodies and distribution systems with a proactive and systematic approach, Vaagdevi Pharmacy College ensures a sustainable water supply for its campus, even during water shortages or dry periods. Regular inspections, repairs, and quality monitoring contribute to the longevity and efficiency of the college's water infrastructure. This holistic approach not only supports the campus's green initiatives but also serves as an example of responsible water management, fostering a culture of conservation and sustainability.



Water Distribution system



*[Signature]*  
Principal  
Vaagdevi Pharmacy Coll  
Bollikunta, Warangal-506005 (T.S.)

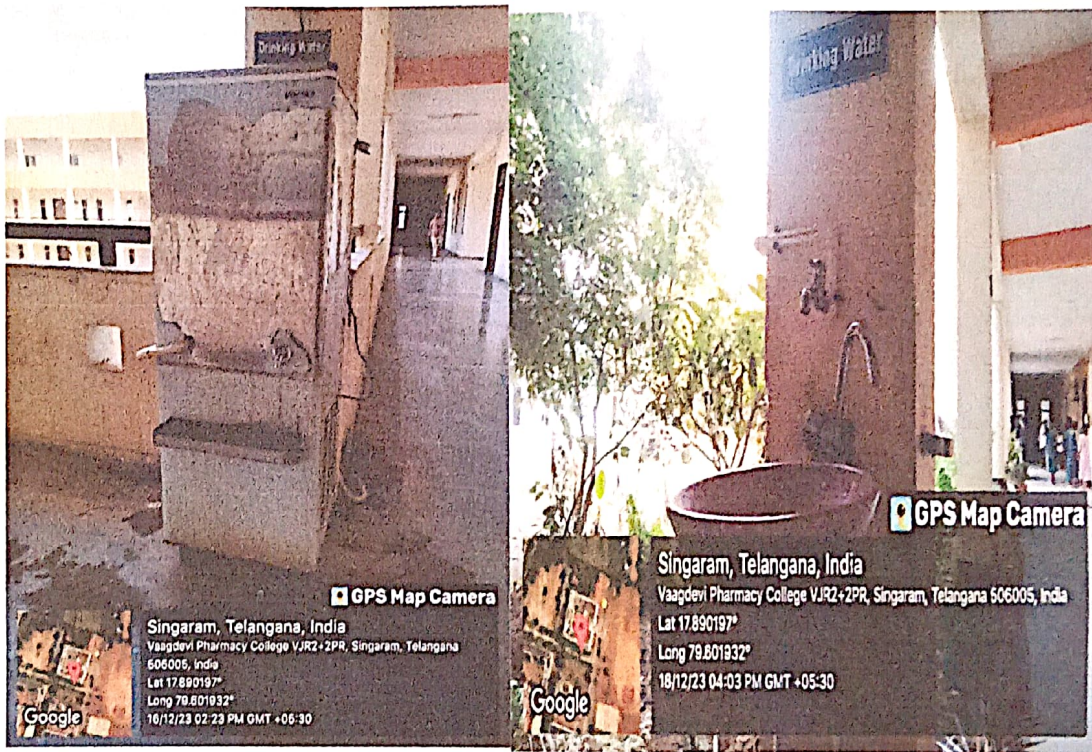


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Maintenance of Water bodies



Principal  
Vaagdevi Pharmacy College  
Bollikunta, Warangal-506005 (T.S)