

# RAJARAJESWARI COLLEGE OF ENGINEERING

Approved by AICTE, New Delhi.

Affiliated to the Visvesvaraya Technological University, Belagavi



Criterion: 7.1.4 Academic Year: 2016-2021



## Report

### 7.1.4. Water conservation facilities available in the Institution:

SI No	Description	Link
1	Rain Water Harvesting	<a href="https://www.rrce.org/rrce/wp-content/uploads/2016/12/DVV-7.1.4.pdf">https://www.rrce.org/rrce/wp-content/uploads/2016/12/DVV-7.1.4.pdf</a>
2	Borewell / Open well recharge	
3	Construction of tanks and bunds	
4	Waste water recycling	
5	Maintenance of water bodies and distribution system in the campus	

J. odt

Principal  
Principal

RAJARAJESWARI  
COLLEGE OF ENGINEERING  
Ramohalli Cross, Bengaluru-74



#### 7.1.4. Water conservation facilities available in the Institution.

##### 1. Rain water harvesting.

Rainwater harvesting system, also called rainwater collection system or rainwater catchment system, technology that collects and stores rainwater for human use. The stored water is used for gardening use. Besides natural percolation tanks, concrete storage tanks have also been built and rain water has been stored after proper filtration paving the open places with concrete roads is avoided so that rain water can be percolated. The rainwater harvested during rains not only helps to save water from conventional sources, but also to save energy and reduce expenses incurred on transportation and distribution of water.



**Photo.1: Rain water harvesting facility inside the campus**

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**Photo.2: Rain water storage tanks and rain harvesting water filter**

Awareness programmes on water conservation and rain water harvesting have been conducted regularly through various service of the college. In order to minimize the abstraction of ground waters, maintain the underground water table and control the hardness of the water supplied in the campus, the rain water potential has also been estimated for its tapping. As per the scheme the roof top water shall be collected in the underground tanks/ sumps, whereas the water collected from paved and unpaved areas shall pass through grease cum silt trap and clean water shall be either directly used or shall be used for recharging the existing bore wells within the campus.

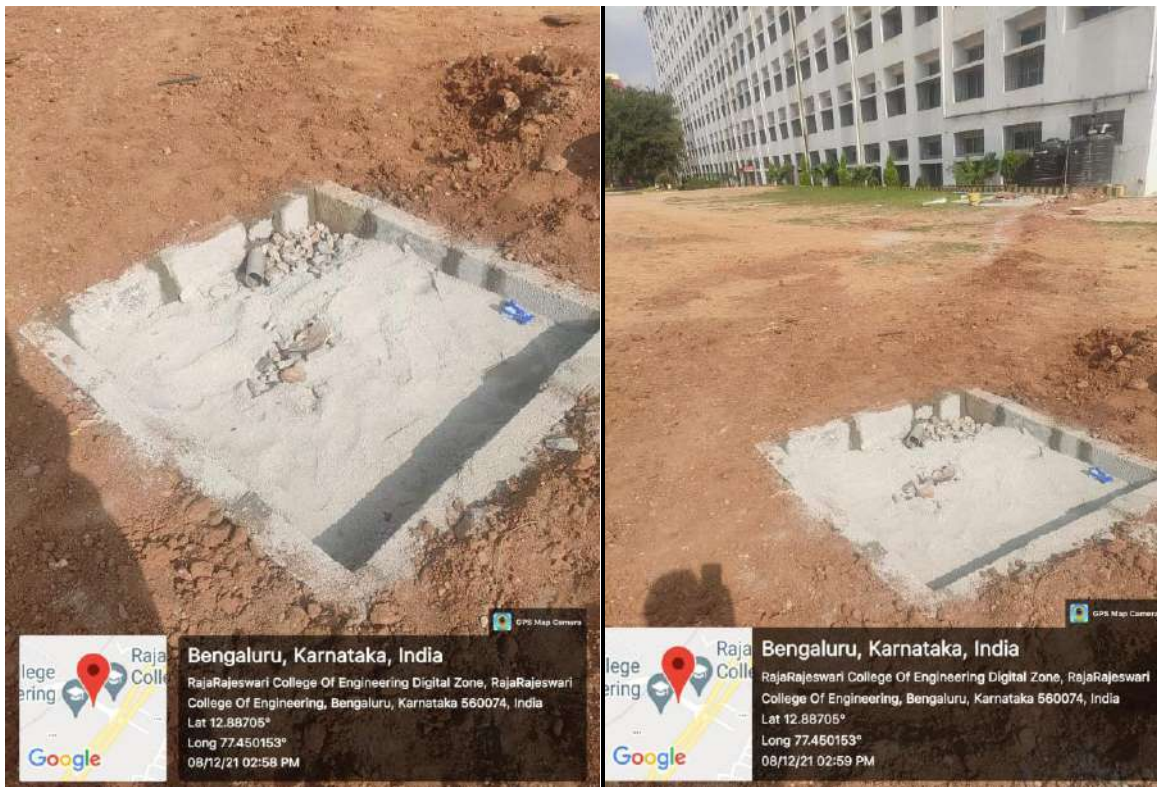


## 2. Borewell / Open well recharge

Institution has Borewell / Open well recharge the main components of a system for groundwater recharge are:

Catchment area selected: The rainwater collection area is rooftop of the building which is the catchments for recharge. Rain water collected is filtered before it is supplied to well since the water is getting recharged. It is ensured that catchment is not contaminated with any impurities and chemicals.

- Conveyance: Water coming from rooftops is through downpipes to carry rainwater. Water collected in rain water harvesting storage a tank of capacity 1000 liters and water collected is used for gardening and washing college buses.
- Filtration: Rain water collected is filtered before supplying to open well recharge.
- Recharge well: Recharge well selected is old borewell which is unused for longer time is connected through underground pipe to rain water harvesting facility.

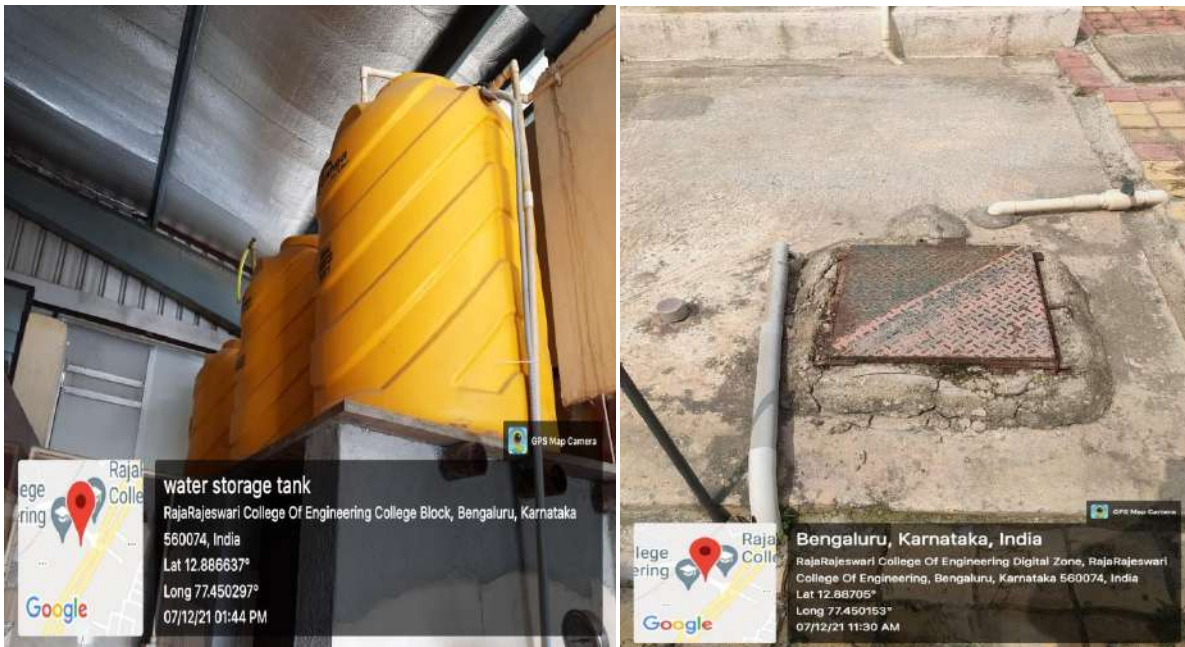


**Photo.3: Borewell / Open well recharge facility inside the campus**



### 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, the institution built rain water storage tank to collect the rainwater and can be used whenever it is required.



**Photo.4: Water storage overhead tanks and Water storing sump in the campus**

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## 4. Waste water recycling

In order to treat the domestic and other waste waters, the sewage treatment plants have been installed and successfully operated in the premises of RajaRajeswari Dental College and Hospital a sister concern organization and is located at a lower level adjacent this college. The STP capacities are 300 KLD respectively to handle the waste waters generated from College building, Hostels, Canteens and recreational areas such as gymnasium etc. The waste water is first disinfected using bleaching disinfectants and then discharged into the under drainage system leading to STP. The sewage generated from other buildings is directly discharged into the STP and is treated along with other waste waters. The STPs have been performing smoothly and deliver effluents with BOD values below 10 mg/l. The aerobic treatment followed by disinfection results in microbe concentration below 100 units as stipulated in the consent. Likewise all other listed parameters are also complied with. Monthly analysis reports are regularly forwarded to the KSPCB.



**Photo.5: Centralized Sewage treatment plant at RajaRajeswari Dental College and Hospital (RRDCH)**



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

- a) **Manual Sand Filter:** Primary water are received from well prior to any use must be free from any kind of suspended solids. To remove these particles Intello 400 manual sand filter supplied by Paramountpure Ltd. is installed in the campus. The system consists of filtration with self-cleaning filters, sand filters and with cartridges. The method of manual water filter is just fit in-line from mains cold water and that spur with no control valve.
- b) **Manual Water Softener:** Primary water are received from well prior to any use must be free from magnesium and calcium. To remove these particles Intello 400 manual water softener supplied by Paramountpure Ltd. is installed in the campus. The system consists of ion exchange, turning it from hard water to softened water. It delivers softened water by removing hardness minerals from mains water supply.

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**Photo.5: Water filter and Water softener plant installed in the campus**

Manual Sand Filter specifications		Manual Water Softener specifications	
Diameter (inches)	48	Diameter (inches)	48
Height (inches)	72	Height (inches)	72
Silex media in Kg	250	Resin (Qty. in Ltrs)	1300
Coarse Sand Media in Kg	400	Silex media in Kg	100
Fine sand Media in Kg	900	NaCl quantity in Kg for each Regeneration	240
Total Filter Media in Kg	2250	Output(x1000) Ltrs on 200PPM Hardness	412
Max Flow Rate (x1000 Ltr/Hr)	40	Max Flow Rate (x1000 Ltr/Hr)	40
Multiport valve Size and Mounting	Frontal Pipe 3"	Multiport valve Size and Mounting	Frontal Pipe 3"
Maximum Operating pressure	3.5 Bar	Maximum Operating pressure	3.5 Bar

**Table.1. Specifications of Water filter and Water softener plant installed in the campus**

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