Criterion: 7.1 Institution Values and Social Responsibilities.

7.1.4. Water conservation facilities available in the Institution.

1. Rain water harvesting.

The rainwater harvesting system, alternatively known as a rainwater collection or catchment system employs technology to gather and store rainwater for human use. This stored water serves irrigation purposes in gardening. In addition to natural percolation tanks, the installation of concrete storage tanks allows for rainwater storage post-filtration. Harvested rainwater not only contributes to water conservation from conventional sources but also plays a vital role in energy savings. It minimizes the expenses associated with the transportation and distribution of water, emphasizing the sustainability and efficiency of the rainwater harvesting approach.

Photo.1: Rain water harvesting facility inside the campus

Regular awareness programs on water conservation and rainwater harvesting have been conducted through various services of the college. The objective is to reduce the extraction of groundwater, maintain the underground water table, and control the hardness of the water supplied on campus. To tap into the rainwater potential, a systematic approach has been adopted. Under this scheme, rooftop water is collected in underground tanks or sumps. Water from paved and unpaved areas is directed through grease cum silt traps, and the clarified water is either used directly or employed for recharging the existing bore wells within the campus. This strategy aligns with the institution's commitment to sustainable water management and environmental responsibility.

2. Borewell / Open well recharge

The institution employs borewell and open well recharge as key components of its groundwater recharge system. The main elements of this system are as follows:

Catchment Area Selection: The catchment area chosen for recharge is the rooftop of the building. Rainwater collected from this area is considered the catchment for recharge. To ensure the quality of the recharged water, it undergoes filtration, and precautions are taken to prevent contamination with impurities and chemicals.

Conveyance: Rainwater from rooftops is directed through downpipes to facilitate its conveyance. The collected rainwater is stored in a rainwater harvesting storage tank with a capacity of 1000 liters. This stored water is then utilized for gardening and washing college buses.

Filtration: Before being supplied for open well recharge, the rainwater collected undergoes filtration to remove any impurities.

Recharge Well: The selected recharge well is an old borewell that has been unused for an extended period. It is connected through an underground pipe to the rainwater harvesting facility, facilitating the recharge of the groundwater.

This comprehensive approach to groundwater recharge aligns with the institution's commitment to sustainable water management and underscores the importance of utilizing rainwater as a valuable resource for various purposes within the campus.

Photo.2: Borewell / Open well recharge facility inside the campus

3. Construction of Tanks and Bunds

In response to the escalating water crisis and recognizing the critical need for reform in water management systems, the institution has undertaken a proactive approach to revive traditional water conservation methods. One significant initiative in this direction is the construction of water storage tanks.

Photo.3: Water storage tanks in the campus

4. Waste water recycling

To address the treatment of domestic and other wastewater, sewage treatment plants (STPs) have been strategically installed and are effectively operated at the premises of RajaRajeswari Dental College and Hospital, a sister concern organization situated at a lower level adjacent to this college. With capacities of 300 KLD each, these STPs efficiently handle wastewater generated from various sources, including the college building, hostels, canteens, and recreational areas such as the gymnasium.

The wastewater undergoes a meticulous treatment process, beginning with disinfection using bleaching agents before being discharged into the under drainage system leading to the STP. Direct discharge from other buildings is routed into the STP, where it is treated alongside other wastewater sources. The STPs consistently demonstrate optimal performance, delivering effluents with Biochemical Oxygen Demand (BOD) values below 10 mg/l. The aerobic treatment, complemented by disinfection, ensures a microbe concentration below 100

units, as stipulated in the consent. Compliance with all listed parameters is consistently maintained, and detailed monthly analysis reports are regularly submitted to the Karnataka State Pollution Control Board (KSPCB). This systematic approach to wastewater treatment underscores the institution's commitment to environmental responsibility and regulatory compliance.

Photo.4: 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.

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

Table.1. Specifications of 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

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