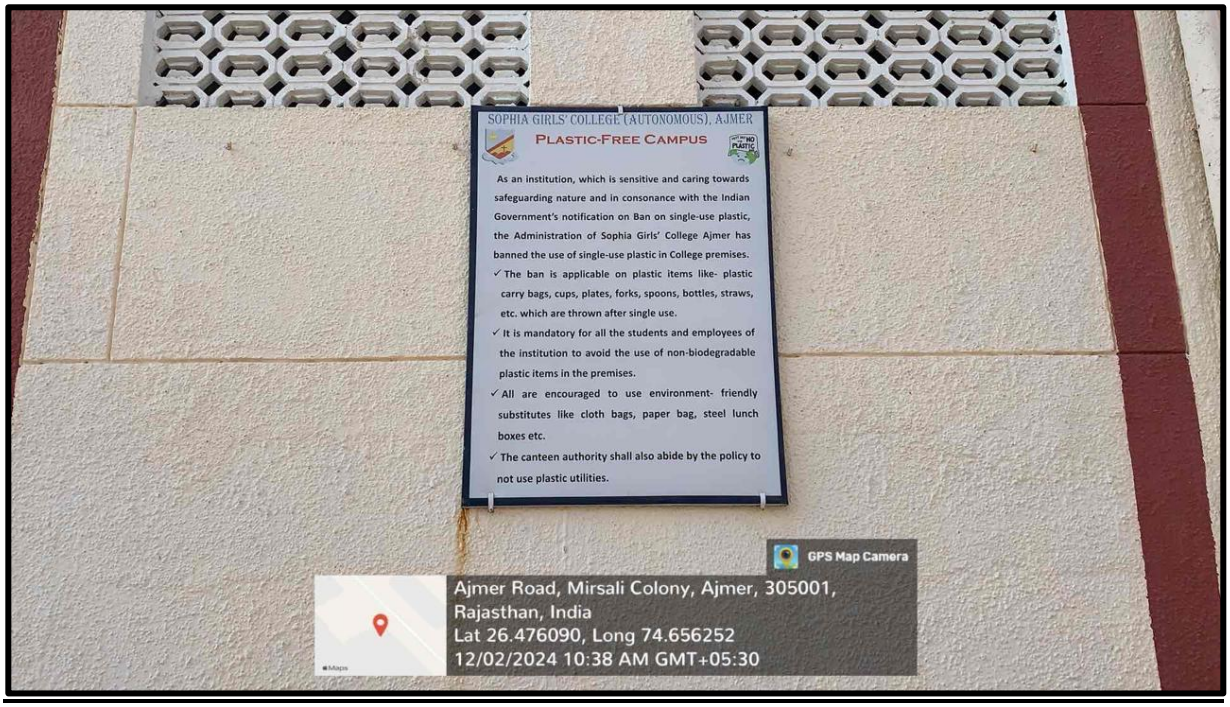
SOPHIA GIRLS' COLLEGE (AUTONOMOUS), AJMER

PCS FACILITIES
2023-24

BAN ON SINGLE-USE PLASTIC ITEMS



REDUCING CABON FOOTPRINT

CERTIFICATE

Environment and Energy Audit

SESSION -2023-2024

This is to certify that ***Sophia Girls' College (Autonomous), Ajmer*** has proven to have maintained the proper standards of ecological wellbeing and biota conservation in the Environmental and Energy Audit Green.

This audit included thorough analysis of various facets of ecological policy of the institution, including Flora, Fauna, Energy Resources & Consumption, Water Resources, and factors contributing to Carbon Footprints. A brief report on environmental promotional activities of the College is also attached herewith. I'd like to forward my best wishes and blessings to this establishment for their future endeavors.

10/2/24

Prof. Subroto Dutta

HOD, Environmental Sciences

MDSU Ajmer (Rajasthan)

SOPHIA GIRLS' COLLEGE (AUTONOMOUS) AJMER

RE-ACCREDITED 'A+' GRADE BY NAAC (UGC)

Affiliated To Maharshi Dayanand Saraswati University, Ajmer

Session 2023-24

Renewable Energy Sources

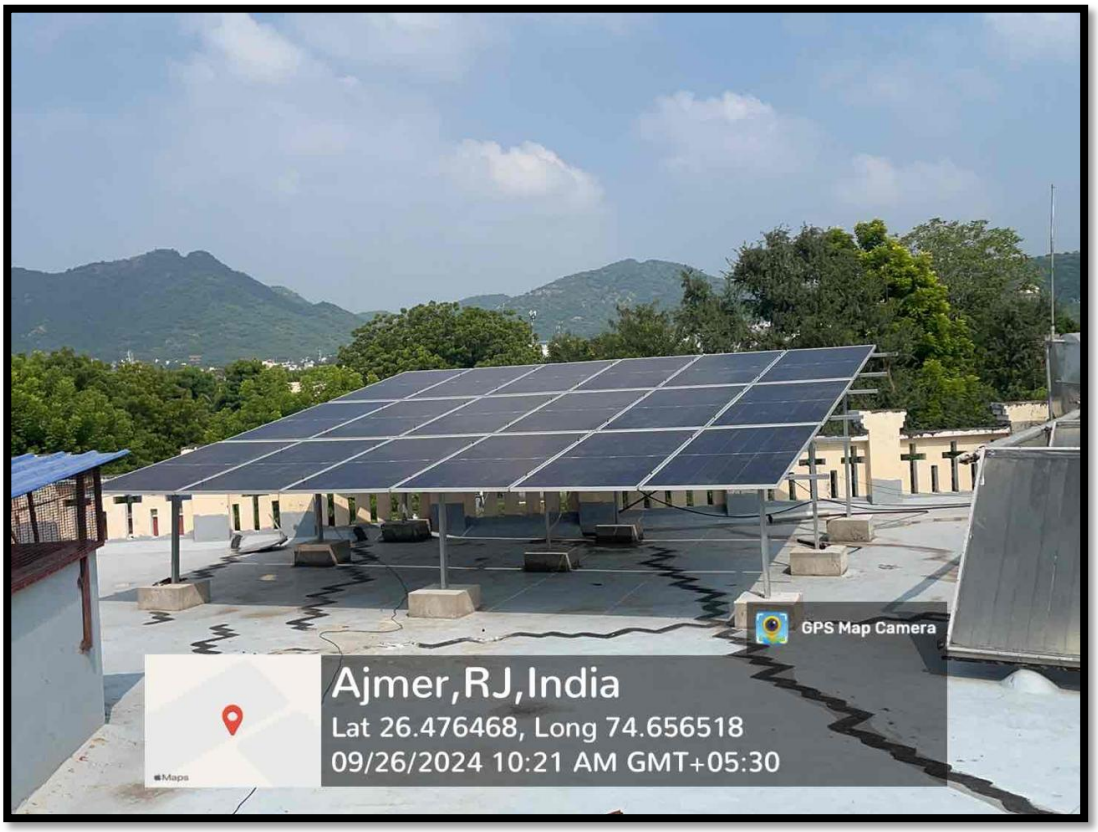
Sophia College is an institution having state-of-the-art infrastructure which requires around 160KWH of electricity per day. This requirement is met through solar power and other renewable sources of energy. There are 344 solar panels in our campus that fulfill not only our electricity needs but also supply the surplus to the government. This intricate system of panels generates 100 KWH of electricity of which

40KWH is stored in inverter off-grid with 9000 ampere capacity battery banks, while 60KWH is generated on-grid.

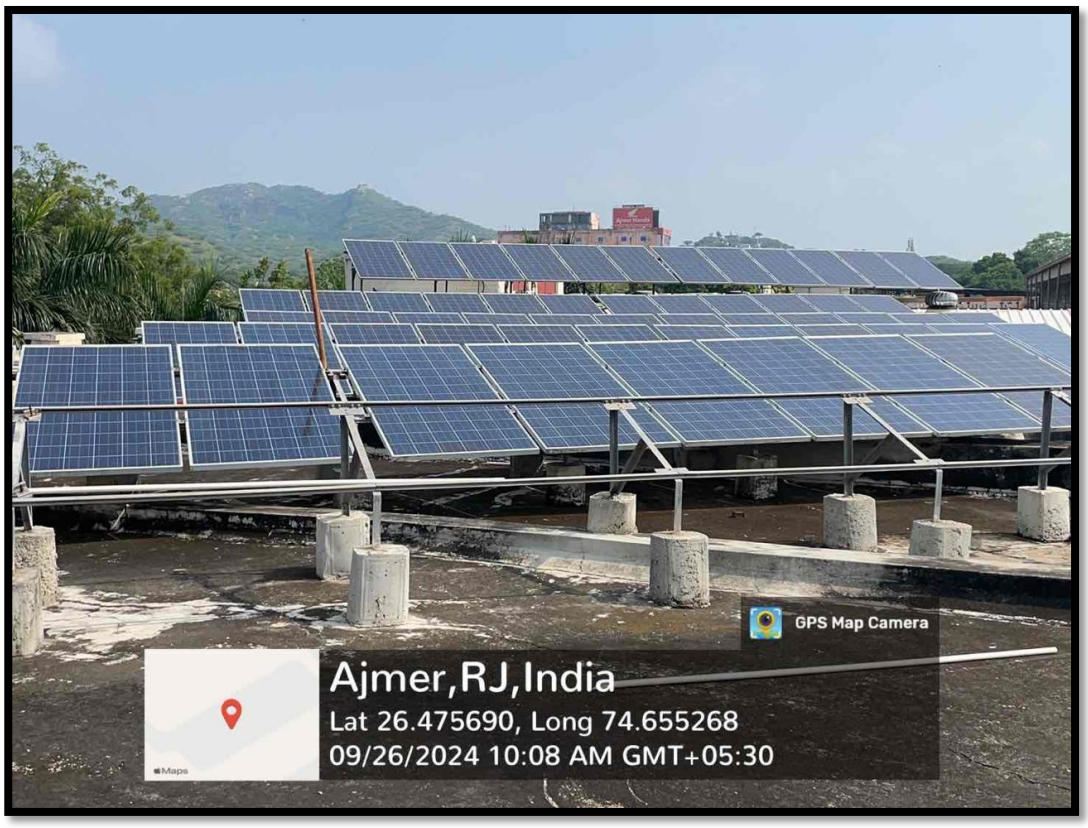
The stored 40KWH can be used regularly to operate all computer labs, lights, fans, refrigerators, projectors, water purifiers and air conditioners besides being back up for the power cuts. The on-grid 60KWH is shared with the government. Additionally, 16 individual solar street lights illuminate the campus at night and three solar water heating systems of 3500-liter capacity provide the college and hostel with hot water all through the year.

We also own a highly efficient Biogas Plant which provides us with eco-friendly fuel to be used for cooking purposes. We have a Vermicompost Plant in our campus that turns our degradable waste into manure We are extremely conscious of the problems of waste management and strive hard to minimize the production of waste through the policy of Reduce- Reuse- Recycle.

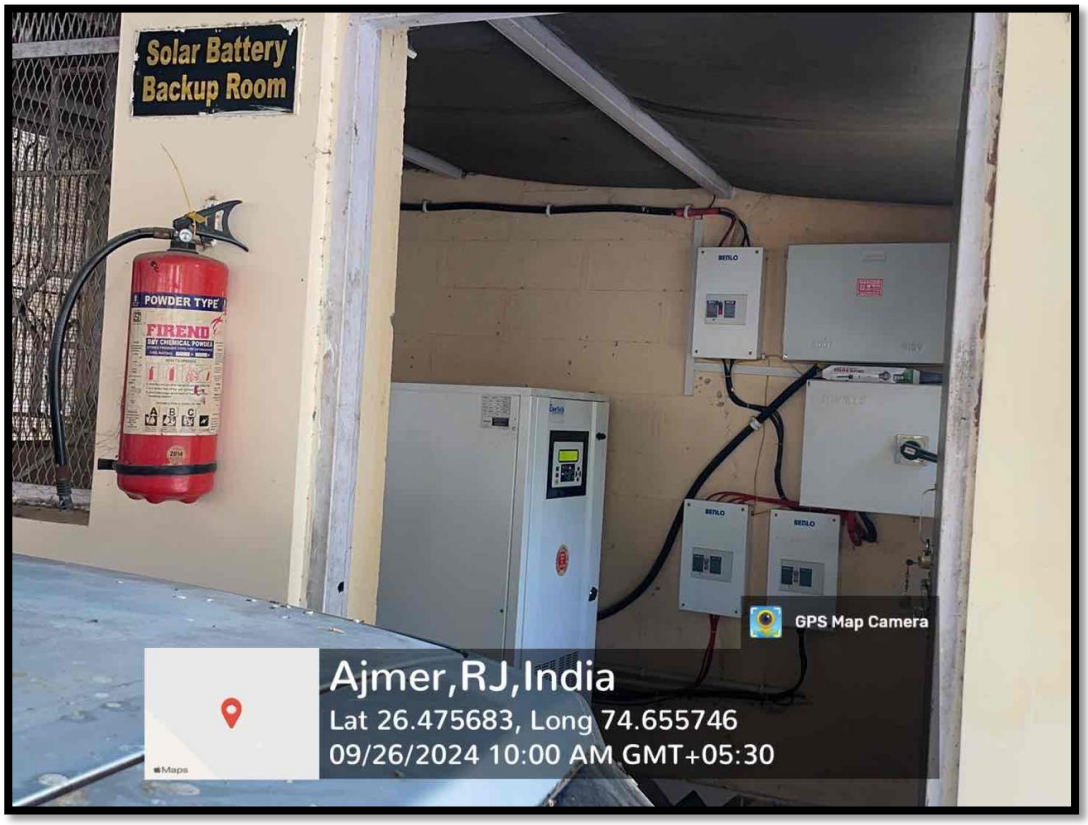
On Grid - Solar Panels



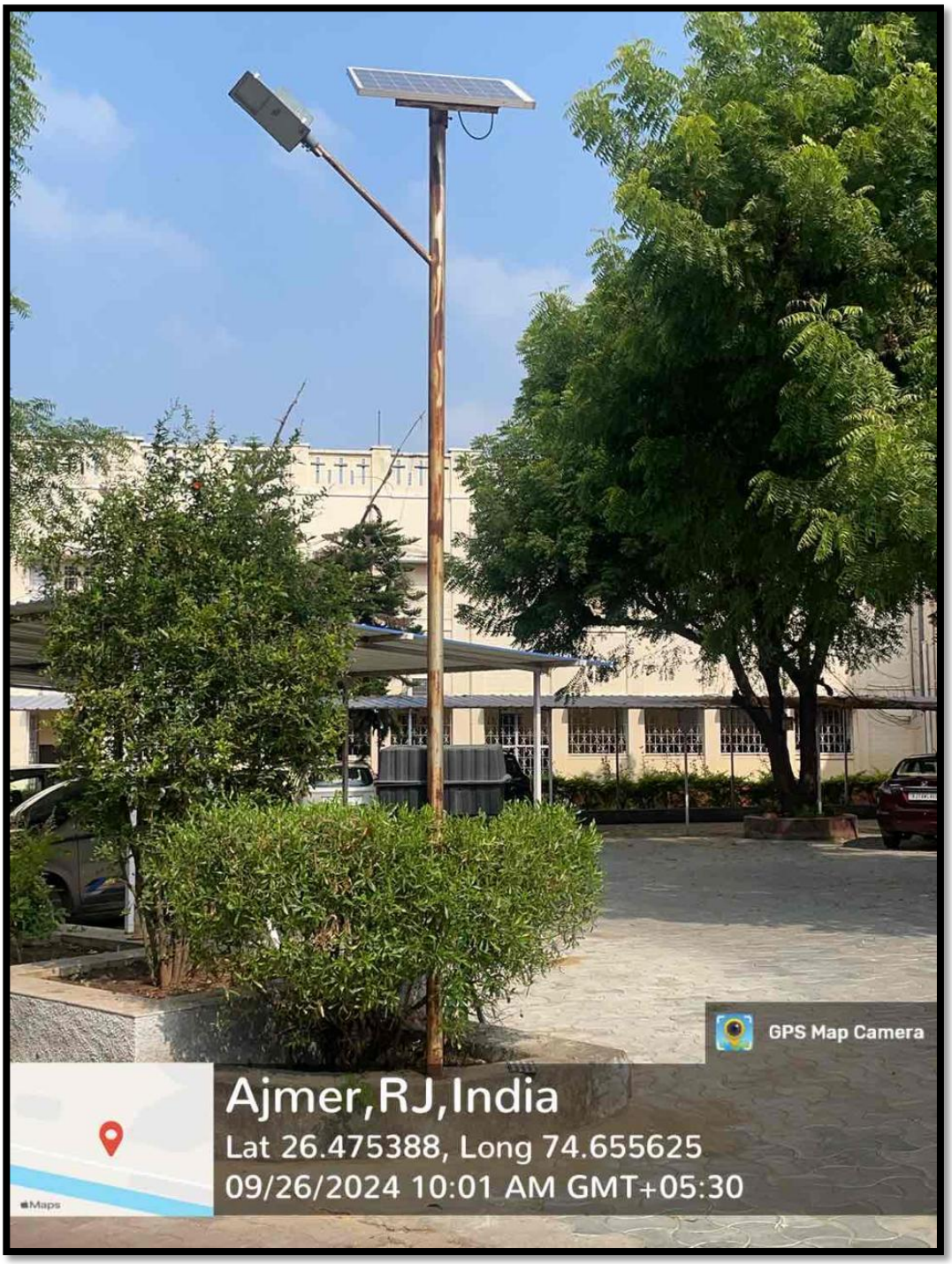
Off Grid - Solar Panel



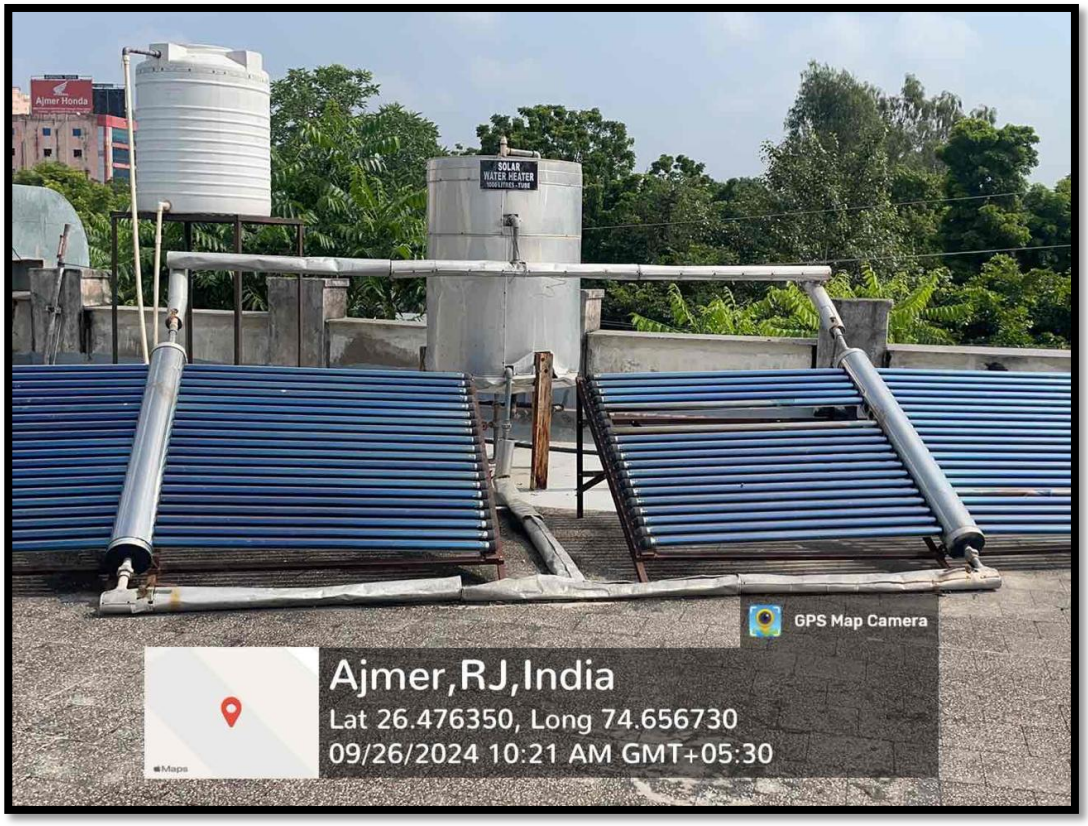
Battery Back Room



Sensor Based Solar Lights

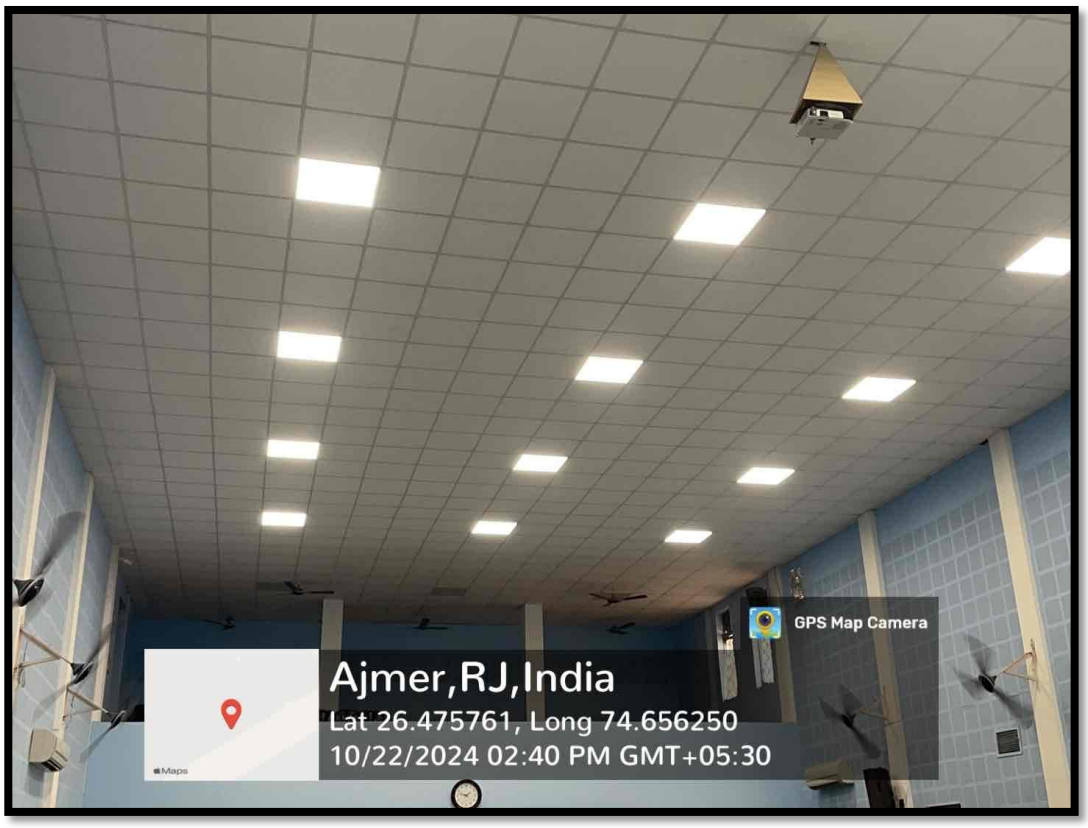


Solar Water Heating Panels



Biogas Plant

LED Lights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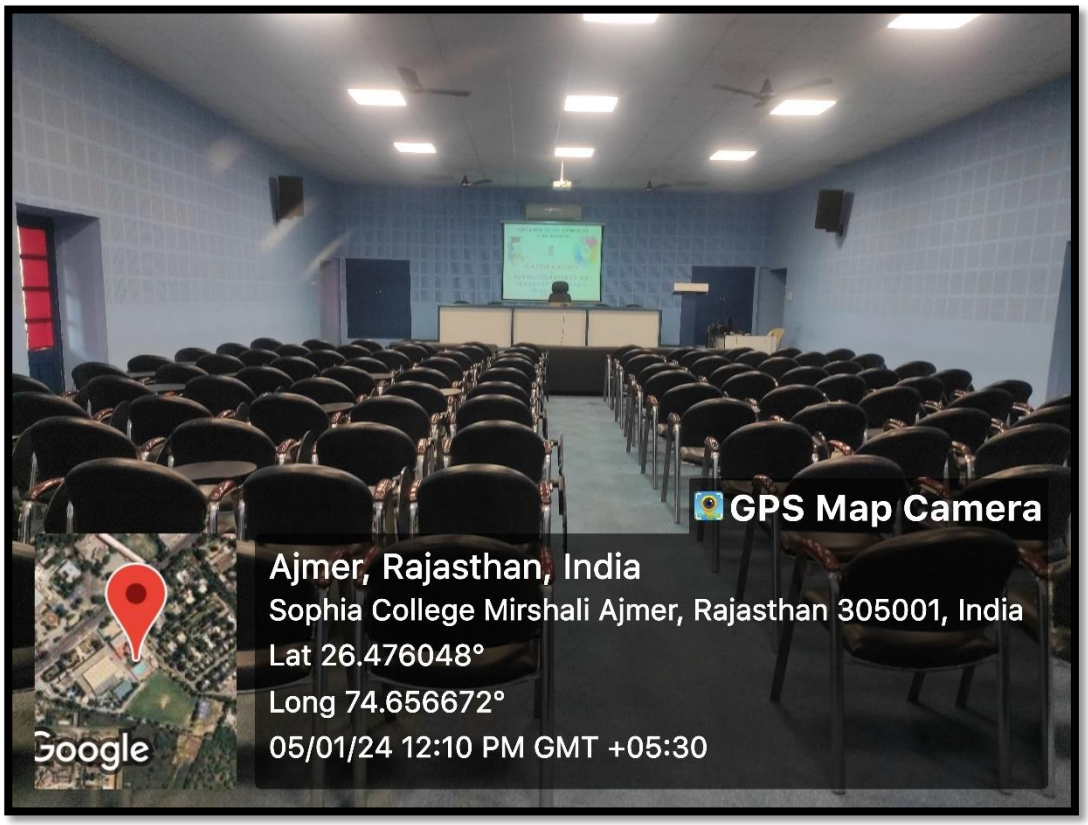
GPS Map Camera
Ajmer, Rajasthan, India
Sophia College Mirshali Ajmer, Rajasthan 305001, India
Lat 26.476048°
Long 74.656672°
05/01/24 12:10 PM GMT +05:30
Google

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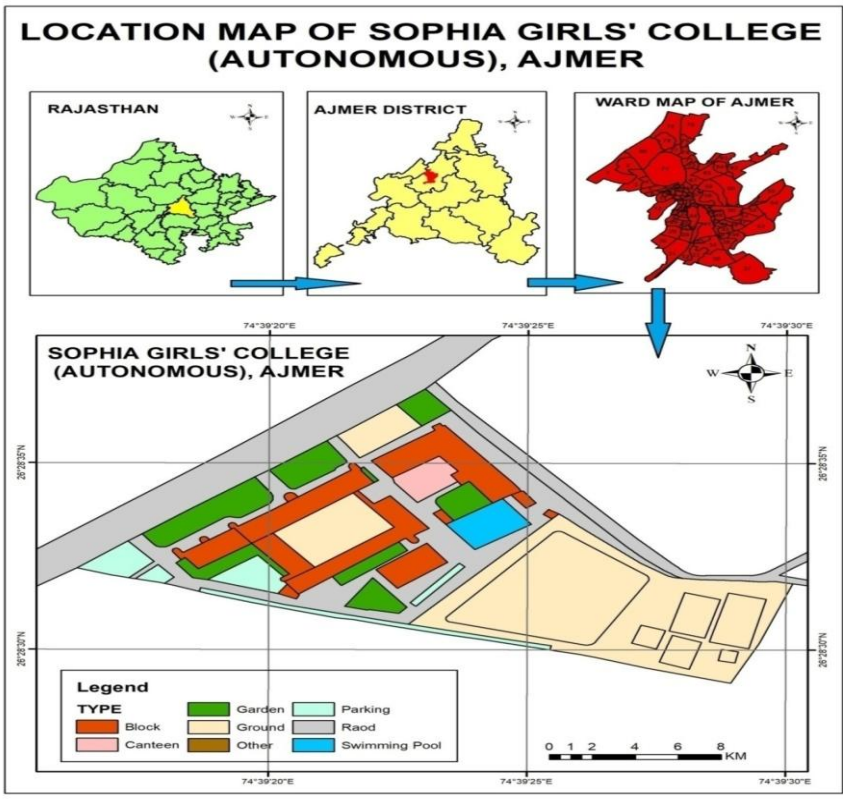
Session 2023-24

ENVIRONMENT AUDIT

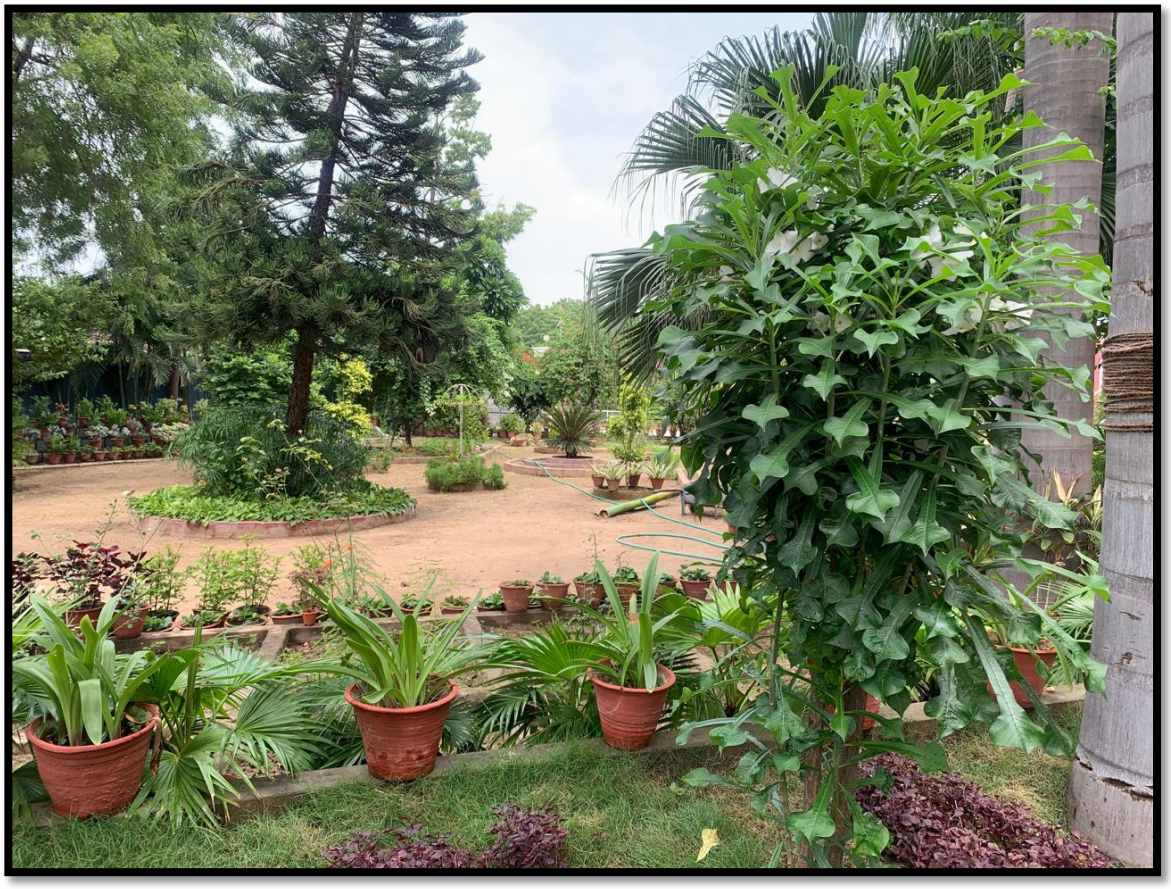
SOIL QUALITY



Soil is composed of many different physical, chemical, and biological elements, all of which are necessary for the soil to perform its important activities. Soil quality refers to

the soil's capacity to maintain its fertility for both plants and animals. Because soil is a dynamic and complex part of Earth's biosphere, disturbances from both natural and man-made sources necessitate continuous assessments of it. Any perturbations in the soil affect its chemical, biological, and physical qualities. The physical, chemical, and biological properties of the soil can be assessed using these attributes as indicators. Different soils respond to management in different ways, depending on the natural properties of the soil and the surrounding environment. Healthy soil maintains the integrity of the ecosystem while supporting the health of people, animals, and plants attributable to its biological, chemical, and physical properties.

Several samples taken from Sophia Girls' College had nearly optimal soil quality specifications, which suggests that the campus has healthy soil resources. Consequently, the lush growth of flora at the College contributes to the sustainability of the ecosystem. In order to improve soil fertility, more organic carbon needs to be added to the soil samples from Sophia College. These minerals are crucial for plant growth because they affect a plant's ability to withstand disease and are required for flowering in plants. Potash supplies calcium and sulfur in crop-available forms. It also acts as a balancing agent, improving the uptake of other essential nutrients by a plant, such as nitrogen and ammonium. Plant health depends on a consistent supply of soluble calcium since calcium cannot be transferred from old to new plant tissues. The collegiate samples' values for these two nutrients fall within the ideal range. Samples of soil from the campus have a pH that is somewhat alkaline, which has an impact on how well plants absorb nutrients. A measure of soil salinity that influences microbial growth and nutrient absorption is called soil conductivity. The conductivity of the soil acts as a gauge for nutrient availability. Low conductivity is indicative of low nutrient concentration, which usually results in plant development retardation and nutritional inadequacies. High quantities, however, should be avoided since they could burn or even kill the plant. The current study revealed that the soil conductivity value was less than 1, which is within allowable bounds and secures a sufficient supply of nutrients for the best possible plant growth.



Vermicompost Pit

WATER RESOURCES AND MANAGEMENT

Academic institutions serve as pillars of knowledge, innovation, and community engagement. Efficient water management and the integration of green infrastructure are integral components of sustainable development in academic institutions. It is imperative that they take a proactive role in sustainable development by implementing efficient water management practices and integrating green infrastructure. This chapter explores the importance of these strategies in academic settings and their contribution to long-term sustainability goals. By prioritizing these initiatives, institutions not only reduce their environmental impact but also cultivate a culture of environmental stewardship among students, faculty, and the wider community. Through innovation, education, and leadership, academic institutions can lead the way toward a more sustainable and resilient future. Sophia Girls' College (Autonomous), Ajmer has implemented comprehensive water rainwater harvesting, and water-efficient landscaping, contributing to significant water savings. Studying an example of an educational institution that has implemented effective water management practices can provide valuable insights and lessons for other institutions, as well as for broader communities.

Comprehensive Water Management Audit

- **Basic Profile**

Year of Audit	**2023-24**
Total Area of the Campus (in Acres)	**9.99 Acres**
Total Number of Teachers (Average)	**62**

Total Number of Non-Teaching Staff(Average)	**31**
Total Number of Students (average)	**1784**

- **Main Sources of Water Supply**

Total daily water supply in the College (Litres per day)	**25433.33 Litres**
a) Municipal Supply (Piped Water)	**2" – 1** **1" – 2**
b) No. of Wells / Tube wells	**2**
c) No. of Tanks **College –** **Hostel -**	 **6** **9**

- **Average Water Consumption Data in College–**

Water Consumption (Litres per day)	
Drinking	**900 litres**
Cooking	**800 litres**
Gardening	**6000 litres**
. Toilet Flush	**5000 litres**
Basin Water Use	**6500litres**
Washing Utensils	**1700 litres**
Washing & Cleaning	**1400 litres**
Water for Coolers	**2000 litres**
For labs	**800 litres**

No. of Taps in Academic Block	**148**
No. of Toilets in Academic Block	**45**
No. of Water Coolers	**6**
No. of Water Purifiers	**9**

- **Water Utilization in Hostel-**

Purpose	**Per day**
For Cooking	**1200 litres**
For Washing	**2500 litres**
For Bathing	**3000 litres**
For Cleaning	**1300 litres**
No. of Taps in Hostel	**164**
No. of Toilets in Hostel	**32**
No. of Water Coolers	**2**
No. of Water Purifiers	**3**

- **Canteen –**

Total water consumption (Litres per day)	**1000 litres**
No. of Taps	**2**

- **Swimming Pool –**

Total water holding capacity (in cubic litres)	**5,00,000**
Water treatment process & frequency	**Daily**
Frequency of changing water	**Once a Year**

- **Gardening –**

No. of Sprinklers	**10**
No. of taps	**8**
No. of Pumps	**10**

- **Water Reservoir Capacity-**

No. of Overhead Water Tanks	**5**
No. of Underground Water Tanks	**2**
Total Capacity of Overhead Water Tanks	**40,000**
Total Capacity of Underground Water Tanks	**1,10,700**

- **Water Pumping System –**

Total No. of Water Pumps	**5**
Quantity of Water pumped per day	**52000 litres**
Total Horse Power of each Motor	**5 hp – 6** **1.5hp – 4** **1hp – 1** **0.5hp - 2**

Harvesting Nature's Gift: A Comprehensive Overview of the Rainwater Harvesting System

Sophia Girls' College (Autonomous), Ajmer understands its responsibility towards the environment to ensure its ecological balance. It is essential to take-up measures to conserve and augment the natural water resources. It becomes our duty to use the resources wisely and Rain water harvesting is one of the measures which is useful for water conservation to meet out daily water requirements.

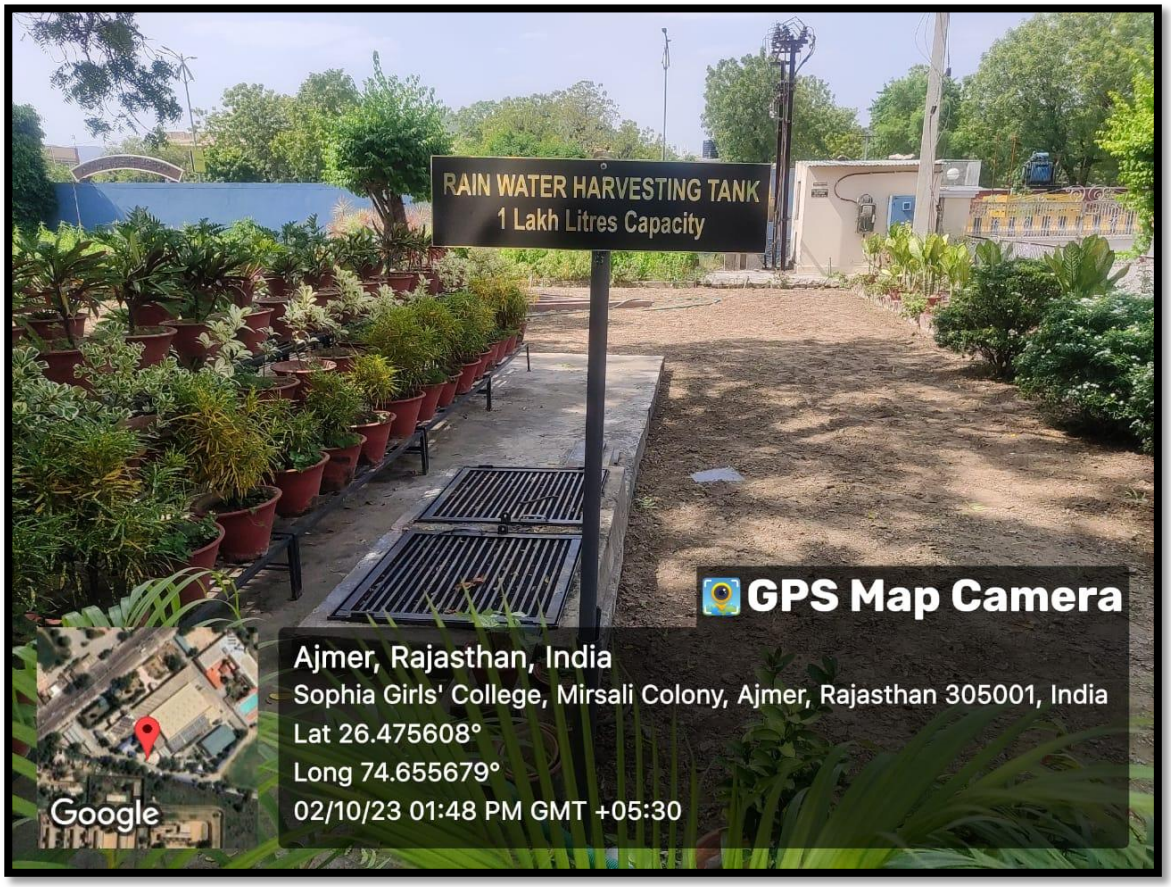
The old rain water harvesting system installed at the College premises, consisted of a rain catchment area, water channels and a large reservoir. The College designed a roof-top based rain water harvesting system. Catchment of rain water was the terrace area of college building. The collected rainwater was channeled through drain pipelines from roof-top to the harvesting reservoir. Rain water harvesting reservoir was situated adjacent to the Chemistry block of the college. The dimensions of the rain water harvesting reservoir was 6x5x3 feet which make it capable of storing around 2547 litres of rain water in storage tanks to be used later. This rain water was mainly channelized for utilization to science block of the college viz the Chemistry, Botany and Physics blocks due to the location ease.

The new rain-water harvesting mechanism of the College is modern and has a mammoth capacity of

1,00,000 litres. The total storage area is 10m*3.60m*2.90m. The system is situated at the front portion of the College premises capturing rain water from the whole terrace area of the building through fully structured pipelines. To enhance the efficiency of the system, 1.5 HP submersible pump and heavy-duty manhole cover are also setup. There are two bore wells also in the college campus which are recharged with water collected from rain water harvesting system.

Sophia Girls' College (Autonomous), Ajmer takes a significant stride towards environmental sustainability with its innovative rainwater harvesting system. In recognition of the global need for water conservation, the college has implemented a robust rainwater harvesting infrastructure, contributing to both ecological preservation and efficient water management. The rainwater harvesting system is a thoughtfully designed structure that seamlessly integrates with the college's architecture. Strategically placed catchment areas, such as rooftops and paved surfaces, channel rainwater through a network of gutters and pipes into storage tanks. These tanks, equipped with filters, ensure that the collected water is free from impurities, making it suitable for various purposes.

This rain water harvesting system is a small effort to conserve one of the most precious resources on earth and contribute towards the principle of sustainable development.



Engaging the Academic Community in Water Conservation Practices

Water conservation is a critical component of sustainable campus operations. Engaging the academic community, including students, faculty, and staff, in water conservation practices not only reduces environmental impact but also instils a culture of responsible resource use. Sophia Girls' College (Autonomous), Ajmer follows following strategies for effectively involving the academic community in water conservation efforts on campus.

Awareness and Education

A**. Curriculum Integration**:

Sophia College incorporates water conservation topics into relevant courses across disciplines, fostering a deeper understanding of the importance of water conservation and sustainable practices.

B. **Workshops and Seminars**

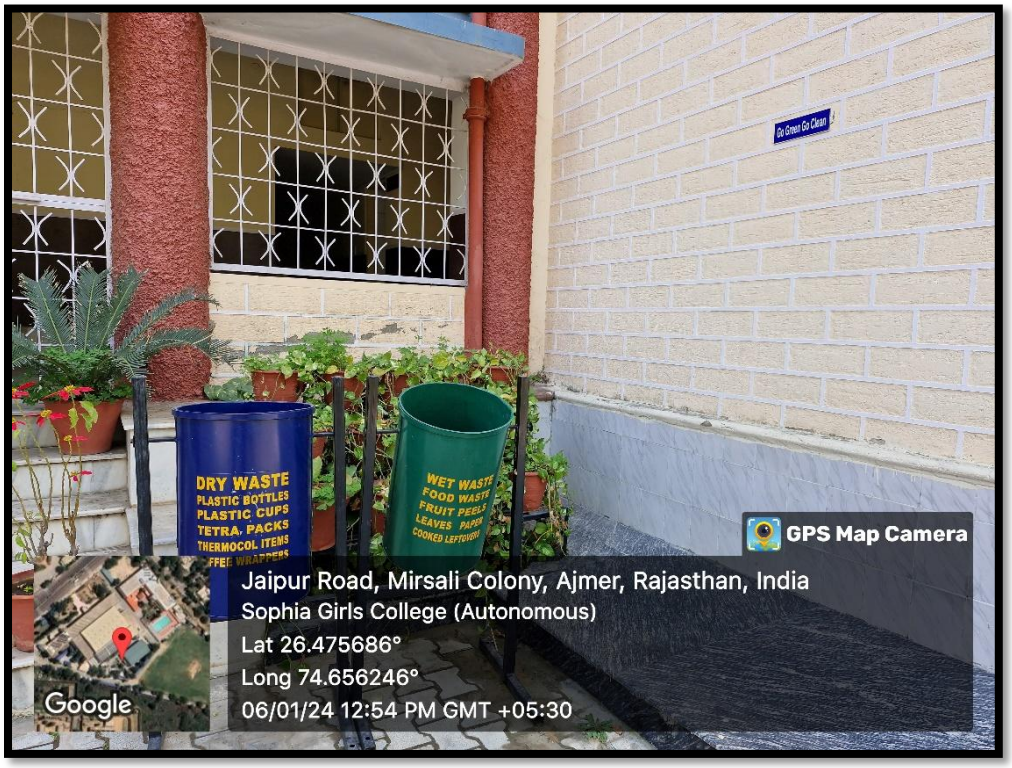
The College organizes workshops, seminars, and guest lectures on water conservation, featuring experts and practitioners who can provide valuable insights and practical tips.

C**. Awareness Campaigns**:

Sophia College launches awareness campaigns through posters and social media platforms to disseminate information about water conservation practices and their impact. Sophia Girls' College (Autonomous), Ajmer is putting unswerving efforts to make students aware about the environmental concerns plaguing planet Earth. Various forums at Sophia College aim at making students pro-active towards saving the environment by conducting various environment-oriented activities. These forums bring together the students of all faculties and train them to do their bit for protecting and saving the environment.

RECYCLING INFRASTRUCTURE

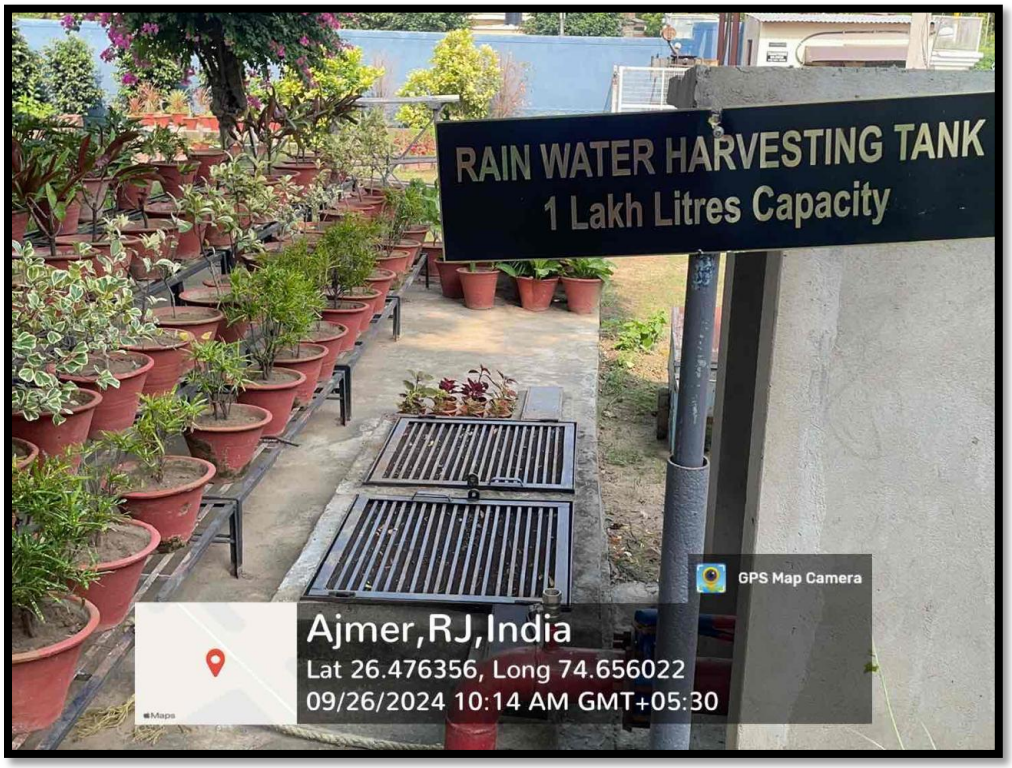
WASTE MANAGEMENT ON THE CAMPUS



Marked Dustbins for Waste Segregation

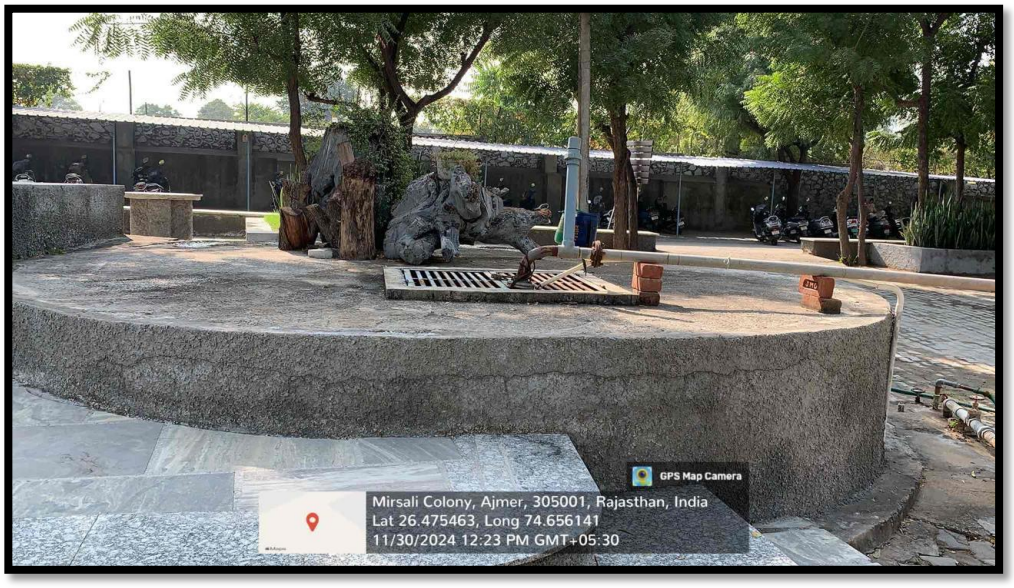
Municipal Waste Collection

TYPE OF RAINWATER HARVESTING SYSTEM



Rainwater Harvesting

Water Storage Tanks



Well – Recharged by Rainwater

MINIMIZING FOOD WASTE

Vermi-culture – Compost production by utilization of Organic waste

Biogas Plant – Utilization of Organic waste & Production of clean energy

PRINCIPAL
SOPHIA GIRLS' COLLEGE
(AUTONOMOUS)
AJMER