

WATER AUDIT REPORT 2025

(As per NAAC Green Campus Initiatives)

 Audit Period: January 2022 – March 2025

Prepared By:
Water Audit Committee, CAS Mavelikkara

Guided By:
Principal Dr. Aysha V
IQAC Coordinator Smt. Latha Nair J



COLLEGE OF APPLIED SCIENCE, MAVELIKKARA

(Affiliated to the University of Kerala)

Mavelikara P.O, Alappuzha-690101

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PREFACE



Main Campus

The College of Applied Science, Mavelikara (CAS Mavelikara), established under the Institute of Human Resources Development (IHRD), Government of Kerala, has been serving as a centre of excellence in higher education since its inception. Affiliated to the University of Kerala, the institution offers undergraduate and postgraduate programs in Computer Science, Electronics, and Commerce, catering to the academic aspirations of students from Mavelikara and neighbouring regions.



Side View of Thazhakara Campus

With a mission to impart quality education, **CAS Mavelikara** combines academic rigor with social responsibility. Over the years, the college has consistently strived to maintain high standards in teaching, research, and community engagement. In addition to academic pursuits, the institution has been actively engaged in promoting environmental consciousness, sustainable practices, and holistic student development in alignment with the vision of the National Assessment and Accreditation Council (NAAC).

The campus is equipped with modern classrooms, laboratories, a well-stocked library, and ICT-enabled facilities that provide an enriching academic environment. At the same time, the college takes pride in maintaining a green, eco-friendly campus with initiatives focusing on energy conservation, waste management, and water conservation.

The preparation of this Water Audit Report is a step towards strengthening our sustainable practices and aligning with NAAC's Green Campus Initiatives. It aims to assess the present water consumption pattern, identify areas for improvement, and propose actionable strategies for efficient water management. Through this initiative, CAS Mavelikara reaffirms its commitment to environmental stewardship and the sustainable use of natural resources, thereby nurturing responsible citizens who are conscious of ecological balance.

This report will serve not only as an internal document for self-evaluation but also as a guiding framework for future conservation efforts, ensuring that the institution continues to uphold its values of academic excellence and environmental responsibility.

MISSION

At the College of Applied Science Mavelikkara (IHRD), we are dedicated to fostering a dynamic learning environment that empowers students to excel in their academic and professional pursuits. Our mission is to provide comprehensive education through innovative undergraduate and postgraduate programs in Computer Science, Electronics, Commerce, and Business Administration.

We aim to cultivate critical thinking, technical proficiency, and ethical leadership, equipping our students with the skills necessary to thrive in a rapidly changing global landscape. By integrating practical experience with theoretical knowledge, we strive to produce well-rounded graduates who contribute positively to society and drive advancements in their respective fields. Industry On Campus (IOC) Project helps the students to earn while they are Learning. Mission Through a commitment to excellence, collaboration, and continuous improvement, we endeavour to be a leading institution that inspires lifelong learning and fosters a spirit of inquiry and Innovation.

VISION

Our vision at the College of Applied Science Mavelikkara (IHRD) is to be a premier institution recognized for excellence in education and research in the fields of Applied Science, Technology, and Commerce. We aspire to create a vibrant academic community that nurtures creativity, innovation, and entrepreneurship among our students. We are Science, Technology, and Commerce. We aspire to create a vibrant academic community that nurtures creativity, innovation, and entrepreneurship among our students. We envision producing skilled, adaptable graduates who are not only proficient in their disciplines but also committed to ethical practices and societal development. Through state-of-the-art facilities, industry partnerships, and a focus on holistic education, we aim to empower our students to become leaders and change makers in an increasingly interconnected world. In pursuit of this vision, we strive to promote a culture of lifelong learning, interdisciplinary collaboration, and social responsibility, preparing our students to meet the challenges of the future with confidence and integrity.

ACKNOWLEDGEMENT

We express our deep sense of gratitude to **Dr. Aysha V, Principal, CAS Mavelikkara**, and **Smt. Latha Nair J, IQAC Coordinator, NAAC**, for their constant encouragement, valuable guidance, and motivation in undertaking the Water Audit of our institution. Their vision and support have been instrumental in the successful completion of this initiative.

We also extend our heartfelt thanks to the **teaching staff, non-teaching staff, office staff, students, and the Water Audit Committee members** for their wholehearted cooperation throughout the process. Their active participation, timely assistance, and constructive suggestions greatly contributed to the smooth execution of the audit activities.

A special note of appreciation is due to the **office staff**, whose meticulous support and assistance in providing relevant data and records made the task more effective and accurate. This report is the result of collective effort, and we have endeavoured to present it in accordance with the requirements of the college and as a reflection of our best expertise and commitment. We sincerely hope that the findings and recommendations of this audit will serve as a valuable contribution towards the institution's **sustainability and green campus initiatives**.

OVERVIEW

Slno	Particulars	Details
1	Name of the institute:	College of Applied Science Mavelikara
2	Address:	Govt BHSS Campus Mavelikkara PO Alappuzha-690101
3	Affiliation:	University of Kerala
4	Year of Establishment:	1994
5	Contact:	Phone No: 0479-2304494,8547005046 E-mail: casmvk@gmail.com Website: www.casmvk.kerala.gov.in
6	Courses Offered:	<ul style="list-style-type: none"> • BSc Computer Science • BCA • BSc Electronics • BBA • BCom BIS • BCom Taxation & Procedures • BCom Finance • MSc Computer Science • MCom Finance



Front View of Thazhakara Campus



Front View of Main Campus

II. Water Audit Committee Members

Slno	Name	Designation
1	Anjali S Kumar	Asst.Prof in CS
2	Suchithra J	Asst.Prof in CS
3	Deepa Nair S	Computer Programmer
4	Anandhu Surendran	5 th Sem BSc CS
5	Niranjana T R	5 th Sem BSc CS
6	Devangana R	5 th Sem BSc CS
7	Reshma Mohanan	5 th Sem BSc CS
8	Abhijith Krishna	5 th Sem BCA
9	Aiswarya S	5 th Sem BCA
10	Christy K Achankunju	5 th Sem BCA
11	Nishi Sandeep	5 th Sem BCA
12	Aravind M	3 rd BSc CS
13	Vignesh V Pillai	3 rd BSc CS
14	Akhiljith J	3 rd BSc CS
15	Aju Krishna B	3 rd BSc CS

Initiatives under NAAC criteria, which emphasize environmental responsibility as a key quality indicator.

By conducting this water audit, CAS Mavelikara seeks to not only reduce its own ecological footprint but also to spread awareness among students, staff, and society about the urgent necessity of water conservation. This effort reflects the institution's long-standing commitment to sustainability, community engagement, and holistic education. Through this report, the college aspires to provide a transparent account of its water management practices and to outline actionable strategies for ensuring water efficiency in the coming years.

In essence, this audit is not merely a technical exercise but a conscious step towards building a culture of conservation and responsible citizenship, aligning with the global mission of protecting water—the lifeline of our planet.

IV. OBJECTIVES OF THE WATER AUDIT

The water audit at CAS Mavelikara was conducted with the following objectives:

1. To assess the availability and sources of water in the campus.
2. To analyze the consumption patterns in different areas of the college.
3. To identify instances of leakage, overflow, or wastage of water.
4. To create awareness among students and staff regarding water conservation.
5. To recommend sustainable practices for efficient water use and long-term management.

V. SCOPE OF THE WATER AUDIT

The Water Audit at College of Applied Science (CAS), Mavelikkara was conducted with the aim of evaluating water resources, consumption, and conservation practices across the institution.

The scope of this audit includes:

1. Coverage

1. Main Campus (classrooms, offices, canteen, sanitation facilities, library, and common areas).
2. Thazhakara Campus.
3. Gardens, lawns, and greenery areas.

2. Water Sources

1. Open wells within the campus.
2. Rainwater harvesting units.
3. Mavelikara Municipality water connection.
4. Overhead and underground storage tanks.

3. Data Collection Period

1. Analysis of water bills and consumption data from January 2022 to March 2025.

4. Audit Parameters

1. Estimation of water consumption in different areas (drinking, sanitation, gardening, laboratories, canteen).
2. Detection of leakage and wastage points.
3. Review of existing infrastructure (tanks, pipelines, rainwater harvesting).
4. Recommendations for sustainable water management.

VI. LIMITATIONS OF THE WATER AUDIT

While every effort has been made to ensure accuracy, the audit has the following limitations:

1. **Seasonal Variation** – Consumption may vary depending on climate and monsoon patterns, which could not be fully captured within the audit period.
2. **Absence of Automated Meters** – Water usage in different sections was estimated from bills and observations, as separate flow meters were not available for all areas.
3. **Restricted Scope** – The audit is limited to CAS Mavelikkara's campus premises and does not consider water consumption beyond institutional boundaries.
4. **Data Constraints** – Some older records were not available, and estimates were made based on the last three years of water bills.

VII. METHODOLOGY

The audit was carried out through a systematic approach:

- **Data Collection:** Water bill records (2022–2025) were collected and analysed along with Information gathered from the campus regarding water sources (groundwater, piped supply, storage tanks, etc.) and consumption areas (drinking, sanitation, gardening, labs, and hostels if any).

- **Physical Inspection:** The water supply pipelines, taps, storage tanks, restrooms, and wash areas were inspected for leakage and wastage.
- **Consumption Estimation:** Water consumption in different areas was estimated based on usage patterns and number of users.
- **Awareness Interaction:** Feedback was collected from staff and students regarding water usage habits.
- **Recommendations:** Based on findings, feasible conservation measures were suggested.





Fig: Inspection of water Sources at Main Campus

VIII. WATER SOURCES AT CAS MAVELIKARA

The main sources of water for the institution include:

- **Piped water supply** (from Kerala Water Authority / local municipal supply).
- **Groundwater sources** through bore wells, used primarily as a supplementary source.
- **Stored water** in overhead tanks and sumps for distribution within the campus.

Sl No.	Water Tank Details	Capacity in Litre
1.	Top of the Girls Toilet (Main Campus)	500 L
2.	Top of the Girls Toilet (Main Campus)	500 L
3.	Top of the Staff Toilet (Main Campus)	1000 L
4.	Thazhakara Campus-First Floor	1500 L
5.	Thazhakara Campus-First Floor	1500 L
5.	Thazhakara Campus-First Floor	1000 L







Fig: Water Tanks and Well at Thazhakara and Main Campus



Fig: Rain Water Harvesting at Main Campus

Drinking Water Sources



Water purifier at Thazhakara Campus



Dispenser at Thazhakara Campus

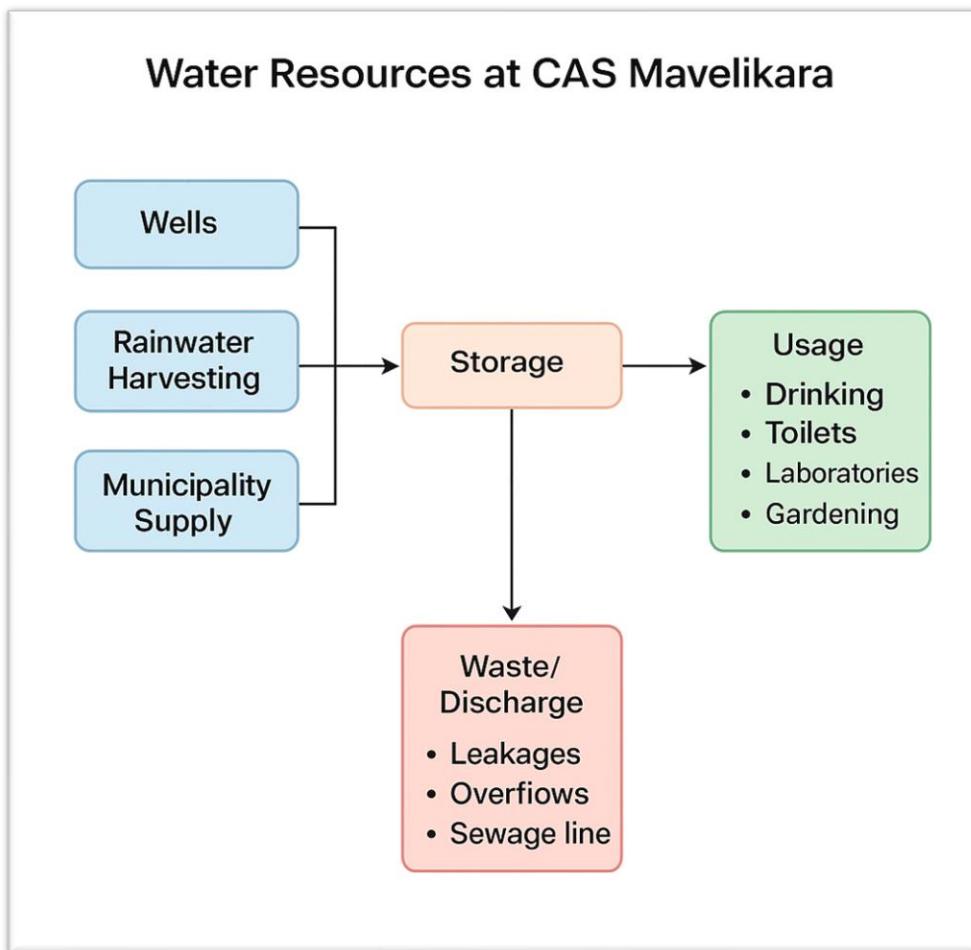


Cooler and Purifier at Main Campus

List of Water Sources

Since CAS Mavelikara typically uses a mix of wells, rainwater harvesting system, and Mavelikara Municipality water connection, here's a layout:

Sl. No.	Water Source	Description	Purpose of Use	Remarks
1	Open Wells	Traditional dug wells located inside the campus premises.	Drinking (after treatment), Cleaning, Gardening	Primary groundwater source
2	Rainwater Harvesting System	Rainwater collected from rooftop structures and stored in tanks.	Gardening, Recharge of groundwater	Seasonal use during monsoon
3	Mavelikara Municipality Supply	Treated water supplied by Mavelikara Municipality through pipeline connection.	Drinking water (primary), Toilets	Reliable but limited coverage
4	Stored Overhead/Underground Tanks	Water stored in tanks for campus distribution.	Drinking, Toilets, Laboratories	Balances supply and demand



IX. WATER CONSUMPTION PATTERN

The water is consumed across different areas in the campus:

1. **Drinking Water** – Water purifiers and coolers installed for staff and students.
2. **Restrooms & Sanitation** – Major consumption for toilets and wash basins.
3. **Laboratories** – Minimal use in computer science and electronics labs;
4. **Gardening & Greenery Maintenance** – Water used for plants, trees, and lawn maintenance.
5. **Canteen** – Moderate use for cooking, washing, and cleaning utensils.
6. **Cleaning & Housekeeping** – Regular cleaning of classrooms, corridors, and common areas requires significant water.
7. **Sports Facilities (if applicable)** – Use of water for playground/indoor stadium maintenance and drinking water for players.
8. **Construction & Maintenance (Occasional)** – Water consumption during infrastructure repairs or new building works.

Water Bill Expenditure (2022–2025)

Year	Charges (₹)
2022	6,405.00
2023	3758.00
2024	3874.00
2025* (till March)	1350.00
Total	15,387.00

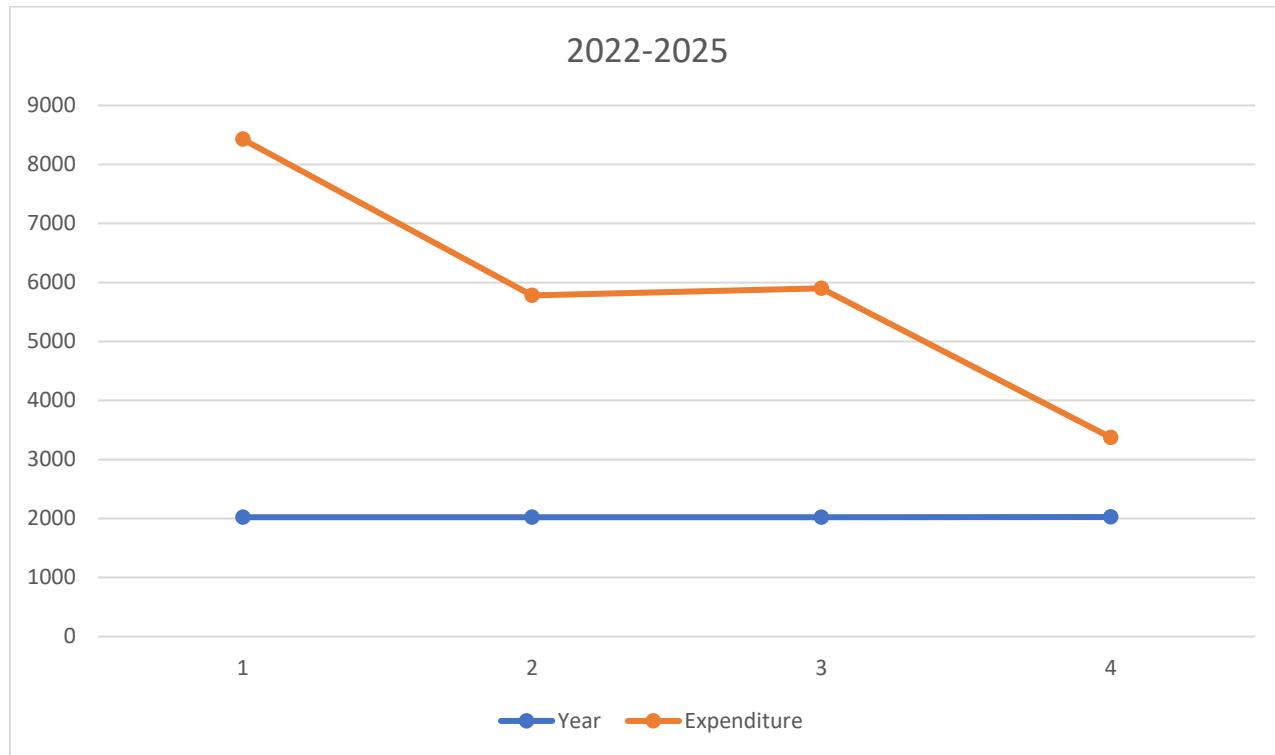


Fig: Line chart showing downward trend 2022 → 2025

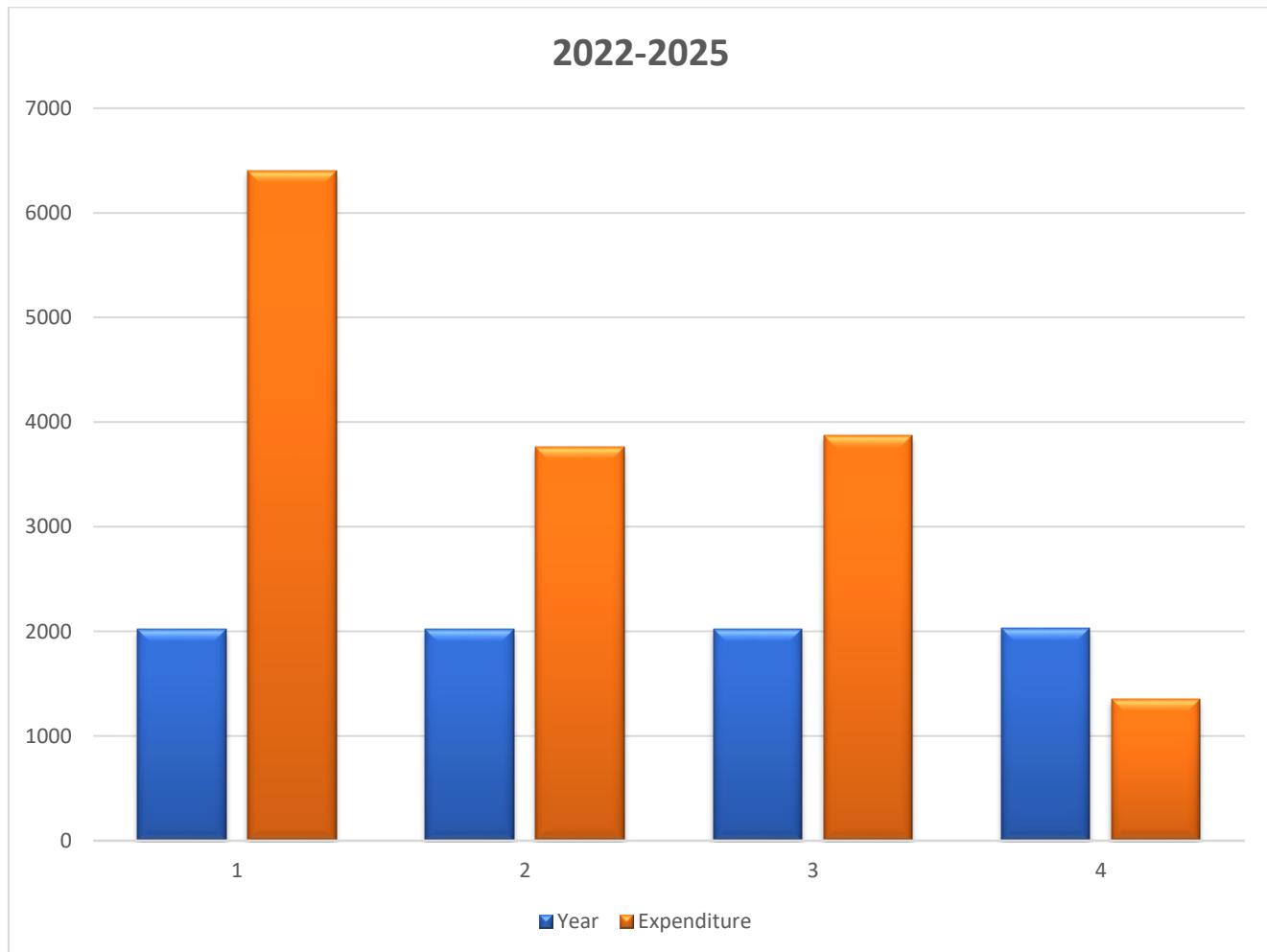


Fig: Bar chart showing downward trend 2022 → 2025

X. OBSERVATIONS

Based on the water audit conducted at **CAS Mavelikkara**, the following key observations were made:

X.1 Leakage and Wastage

- No major pipeline leakages were identified within the campus; however, minor dripping taps and occasional overflow from storage tanks were noticed during inspection.
- Although individually these issues may appear negligible, when considered over a long period, they contribute to significant annual wastage.

X.2 Water Consumption

- A significant portion of water (approximately 50–60%) is consumed in sanitation facilities, particularly restrooms and wash areas.
- Laboratories account for minimal consumption, while canteen and gardening contribute moderately.
- Drinking water usage is adequately managed through purifiers and storage units.

X.3 Groundwater Usage

- The institution makes minimal use of groundwater from open wells and bore wells, which is a positive sustainability practice.
- However, increasing dependency on groundwater in the future should be avoided to prevent depletion of the local water table.

X.4 Awareness and Behavioural Patterns

- Limited awareness was observed among students regarding water conservation practices. Instances of taps left open unnecessarily were noted during inspections.
- Awareness signboards and conservation messages were minimal or absent in key locations such as restrooms and water coolers.

X.5 Rainwater Harvesting and Sustainability

- A rainwater harvesting system exists within the institution; however, it is not fully functional or integrated with the main water supply.
- At present, rainwater is not being effectively harvested for reuse in gardening or groundwater recharge.
- There is no system for greywater reuse (e.g., wastewater from wash areas) for secondary purposes like gardening.

X.6 Water Bill Expenditure (2022–2025)

- Total expenditure for the last three years: **₹15,387**.
- Annual expenditure trend:

- 2022 – ₹6,405
- 2023 – ₹3,758
- 2024 – ₹3,874
- 2025 (till March) – ₹1,350

- A **gradual reduction in expenditure** was observed, indicating improved monitoring and reduced wastage.

XI. BENEFITS OF WATER AUDIT

A water audit is a systematic examination of water usage within an institution, industry, or community with the objective of identifying opportunities to reduce wastage and enhance efficiency. Conducting a water audit brings multiple environmental, economic, and social benefits. The following are the major benefits of a water audit in detail:

1

1. Identification of Water Wastage Points

One of the primary advantages of a water audit is its ability to detect areas where water is being wasted.

- Leakages in pipelines, taps, and storage tanks can be identified.
- Overflow in water tanks and inefficient fixtures are recognized.
- Unnecessary usage in areas such as gardening, laboratories, and sanitation can be controlled.

By identifying wastage points, institutions can implement corrective measures and significantly reduce losses.

2. Promotion of Water Conservation

A water audit helps in fostering a culture of water conservation among stakeholders.

- Students, faculty, and staff become more aware of their role in sustainable usage.
- Conservation practices like rainwater harvesting, reuse of greywater, and installation of water-saving devices can be promoted.

This inculcates environmentally responsible behaviour across the institution.

3. Reduction in Water Bills and Cost Savings

A direct financial benefit of conducting a water audit is the reduction in water bills.

- Monitoring water usage and eliminating leakages lower monthly and yearly costs.
- Efficient water management reduces electricity costs for pumping and treating water.

Thus, the audit supports long-term financial savings for the institution.

4. Improved Efficiency of Water Management Systems

Through a water audit, existing systems such as storage tanks, pipelines, and distribution networks can be evaluated for efficiency.

- Recommendations for upgrading to modern fixtures and efficient plumbing systems can be made.
- Institutions can adopt advanced technologies like sensor-based taps and dual-flush systems to further improve efficiency.

5. Support for Institutional Sustainability Goals

A water audit is closely aligned with the **Green Campus Initiatives** and NAAC criteria.

- Demonstrates the institution's commitment to sustainable resource management.
- Helps in achieving compliance with environmental regulations and accreditation standards.
- Strengthens the institution's image as an eco-friendly and socially responsible campus.

6. Basis for Future Planning and Infrastructure Development

The data collected through a water audit provides a foundation for future decision-making.

- Helps in designing new buildings and facilities with efficient water systems.
- Facilitates long-term planning for rainwater harvesting and groundwater recharge.
- Provides insights for integrating renewable energy systems with water usage (e.g., solar-powered pumping).

7. Contribution to Environmental Protection

Reducing water wastage directly contributes to the protection of natural water resources.

- Helps in lowering pressure on groundwater extraction.
- Conserves rivers, lakes, and ponds by minimizing over-dependence.
- Reduces the risk of water scarcity for local communities.

8. Enhances Institutional Reputation and Community Engagement

By successfully implementing water conservation strategies through audits, the institution sets an example for the local community.

- Builds a reputation as a **sustainable and socially responsible campus**.
- Inspires other educational institutions and organizations to adopt similar practices.

Engages students in practical environmental stewardship, which they can replicate in their homes and society.



Fig: Water Audit Process

XII. RECOMMENDATIONS

Based on the observations of the water audit at CAS Mavelikkara, the following structured recommendations are proposed to ensure effective water management and long-term sustainability:

1. Repair and Maintenance

- Conduct regular inspections of all water pipelines, taps, and storage tanks to detect leakages or dripping issues.
- Install automatic float valves in overhead tanks to prevent overflow.
- Maintain a logbook of periodic maintenance activities for accountability.

2. Awareness and Training

- Organize seminars, workshops, and campaigns on water conservation for students and staff.
- Display signboards and posters near washrooms, drinking water points, and laboratories reminding users to conserve water.
- Integrate water conservation awareness into Eco-Club and NSS activities.

3. Rainwater Harvesting and Groundwater Recharge

- Fully implement and maintain the rainwater harvesting systems already available on campus.
- Expand harvesting capacity by installing rooftop collection units linked to storage or recharge pits.
- Use harvested rainwater for gardening, cleaning, and flushing to reduce dependence on municipal supply.

4. Water-Saving Devices

- Install sensor-based taps, dual-flush systems, and low-flow faucets in sanitation areas.
- Replace old taps with aerator-fitted taps to minimize wastage.
- Encourage students and staff to report faulty taps or leakages immediately.

5. Greywater Reuse and Recycling

- Explore possibilities of treating wastewater from wash areas and reusing it for gardening and cleaning.
- Establish a pilot greywater recycling system as a model for sustainable practice.

6. Monitoring and Data Management

- Introduce water meters at major consumption points to track usage more accurately.
- Prepare a monthly water consumption report using meter readings and water bills.
- Compare data year-on-year to monitor improvements and identify areas needing attention.

7. Institutional Action Plan

- Form a Water Management Committee under IQAC to oversee conservation activities.
- Integrate water management into Green Campus Initiatives and report annually as part of NAAC criteria.
- Develop a long-term roadmap to reduce water consumption by at least 20% within the next three years.

XIII. ACTION PLAN FOR SUSTAINABLE WATER MANAGEMENT

Action Item	Responsible Authority	Timeline	Expected Outcome
Repair of leaking taps and pipelines	Maintenance Dept.	1–2 months	Elimination of water wastage
Awareness campaigns for students & staff	IQAC / NSS / Eco Club	Every Semester	Improved conservation behavior
Installation of water meters in major consumption points	Management & Maintenance Dept.	Within 1 year	Accurate monitoring of consumption
Expansion of rainwater harvesting systems	College Management	1–2 years	Reduce dependency on municipal water by 20–30%
Greywater reuse system for gardening & cleaning	Management & Eco Club	2–3 years	Significant reduction in fresh water use
Regular plumbing inspections	Maintenance Dept.	Ongoing	Preventive maintenance and reduced costs
Display of awareness posters/signage near taps & toilets	Students' Union / NSS	Immediate	Behavioral change & reduction in wastage

XIV. CONCLUSION

The water audit conducted at **CAS Mavelikara** has provided valuable insights into the overall pattern of water usage, sources, and areas requiring improvement. The analysis reveals that while the present water consumption is moderate and generally efficient, there is scope for enhancing sustainability through systematic interventions.

Key findings of the audit indicate that the **major share of consumption** is in sanitation, drinking water, and gardening. Though wastage is minimal, small leakages and unmonitored taps can collectively contribute to unnecessary loss. Additionally, rainwater harvesting structures remain underutilized, and there is untapped potential in reusing greywater for gardening and cleaning purposes.

The institution's commitment to **environmental stewardship** can be further strengthened by:

- Installing water meters to monitor usage across different departments.
- Expanding rainwater harvesting and groundwater recharge systems.
- Reusing treated wastewater for non-potable purposes.
- Regular plumbing inspections to prevent leakages.
- Encouraging a culture of water conservation among staff and students through awareness drives, workshops, and signage across campus.

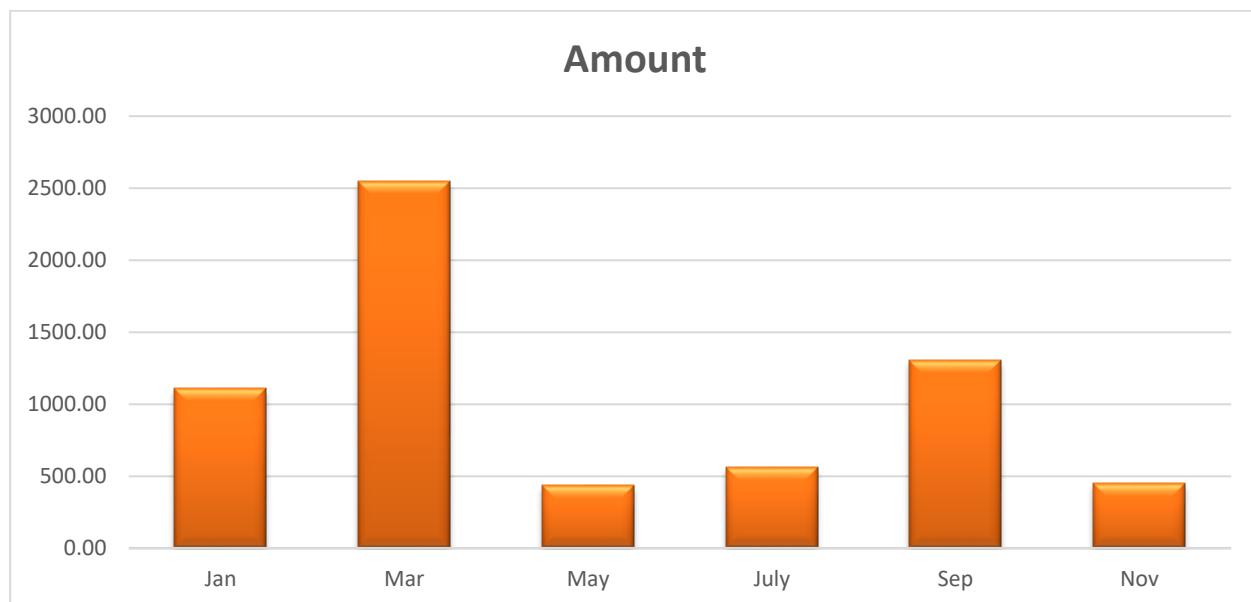
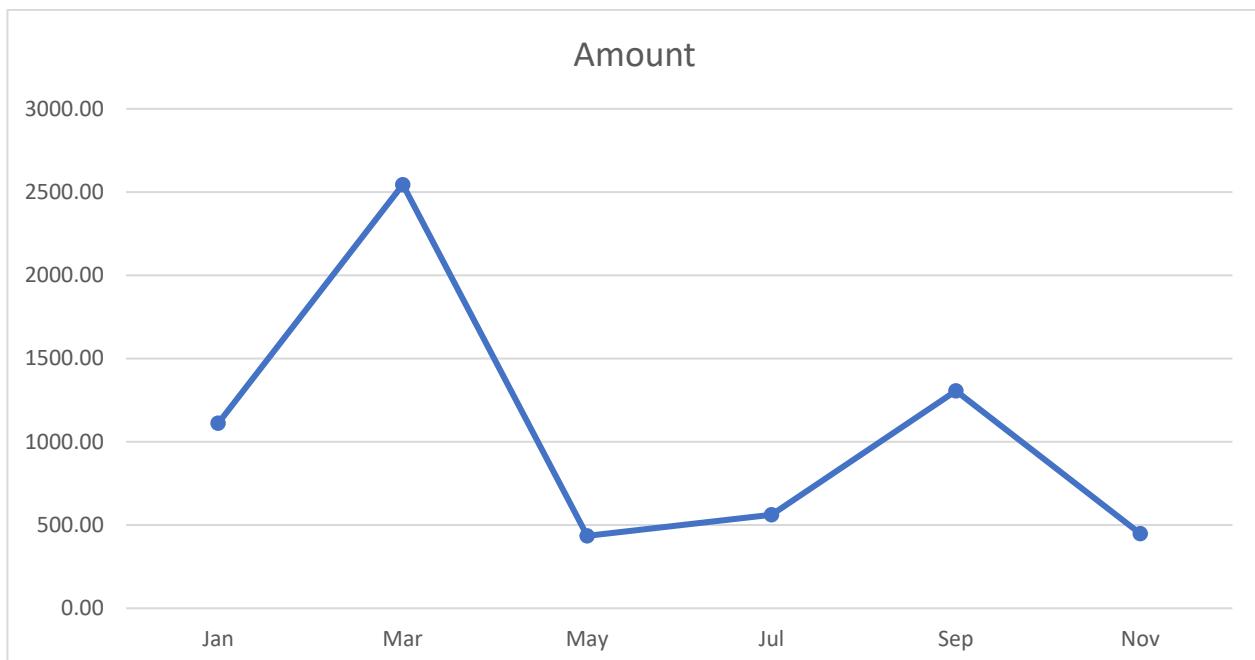
By implementing these measures, **CAS Mavelikara** can achieve multiple objectives: ensuring reliable water availability, reducing operational costs, fostering eco-conscious behaviour, and contributing to the **Sustainable Development Goals (SDG 6 – Clean Water and Sanitation, SDG 12 – Responsible Consumption, and SDG 13 – Climate Action)**.

In conclusion, the water audit not only emphasizes the need for **efficient water management** but also highlights the role of the institution in **setting a model of environmental responsibility** for the academic community and the society at large. This initiative aligns with the **NAAC Green Campus Initiatives** and reflects the college's vision of conserving precious natural resources for the benefit of present and future generations.

XV. ANNEXURE

Monthly Wise Line Charts and Bar Chart

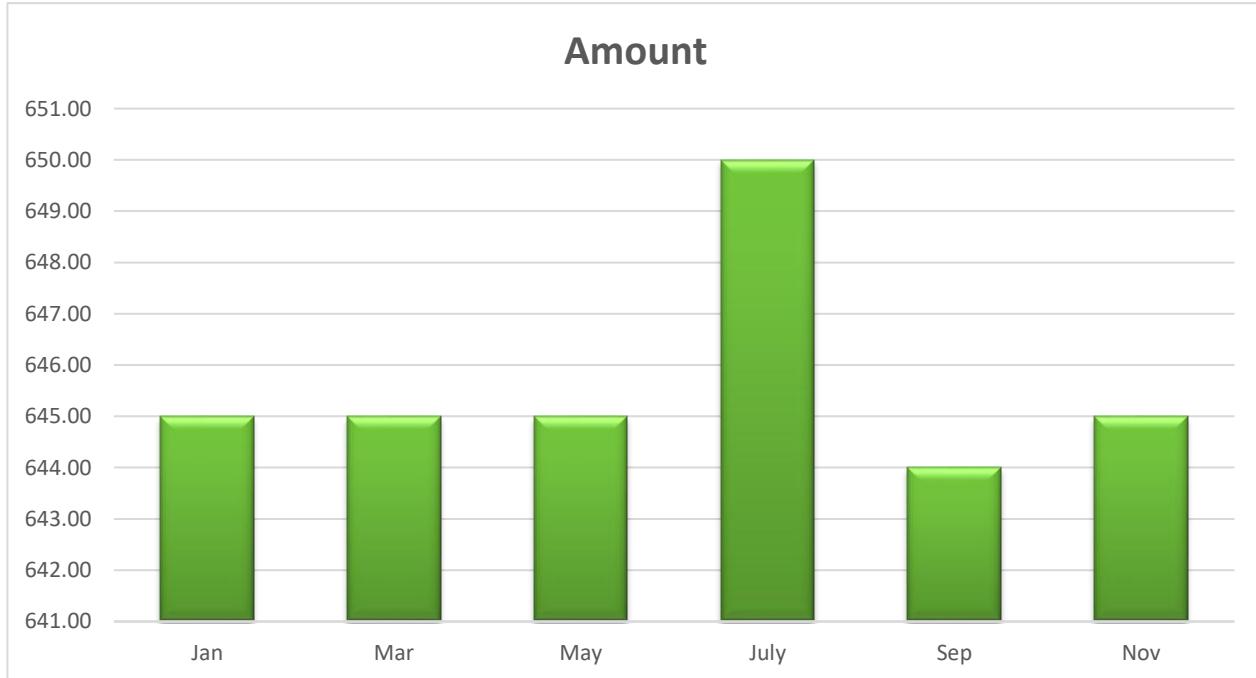
2022		
Bill Date	Month	Amount
10/01/2022	Jan	1111.00
16/03/2022	Mar	2545.00
12/05/2022	May	435.00
07/07/2022	Jul	561.00
16/09/2022	Sep	1305.00
09/11/2022	Nov	448.00
Total Amount:		6405.00



2023		
Bill Date	Month	Amount
06/01/2023	Jan	631.00
09/03/2023	Mar	789.00
08/05/2023	May	944.00
12/07/2023	Jul	104.00
07/09/2023	Sep	645.00
10/11/2023	Nov	645.00
Total Amount:		3758.00



2024		
Bill Date	Month	Amount
19/01/2024	Jan	645.00
20/03/2024	Mar	645.00
17/05/2024	May	645.00
10/07/2024	Jul	650.00
10/09/2024	Sep	644.00
19/11/2024	Nov	645.00
Total Amount:		3874.00



2025		
Bill Date	Month	Amount
10/01/2025	Jan	60.00
13/01/2025	Jan	645.00
15/03/2025	Mar	645.00
Total Amount:		1350.00

