

 ATMIYA UNIVERSITY	NAAC – Cycle – 1 AISHE: U-0967	
	Criterion 7	I V & B P
	KI 7.1	M 7.1.4

7.1.4	Water conservation facilities available in the Institution
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Abstract

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3	2021-22	Green Audit Reports on water conservation – 2021-2022	25
4	2022-23	Green Audit Reports on water conservation – 2022-2023	36
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Atmiya University Registrar, Rajkot-Gujarat-India

Atmiya University
Rajkot



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Atmiya University, Rajkot-Gujarat-India

Registrar
Atmiya University
Rajkot





**ATMIYA
UNIVERSITY**

NAAC – Cycle – 1
AISHE: U-0967

Criterion 7

I V & B P

KI 7.1

M 7.1.4

1 GREEN AUDIT REPORTS ON WATER CONSERVATION – 2019-20

Certificate

Atmiya University, Rajkot

upholds its dedication to environmental stewardship by actively committing to water conservation, significantly contributing to the advancement of sustainable practices.

Issued on: 21st April 2020

Mr. Hemantkumar Sonkusare
Civil Engineer, GPCB recognized Schedule-I Environmental Auditor

Atmiya University, Rajkot-Gujarat-India

Registrar
Atmiya University
Rajkot





**ATMIYA
UNIVERSITY**

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GREEN AUDIT REPORT FOR
WATER CONSERVATION
2019-20

At Atmiya University, Rajkot

Atmiya University, Rajkot-Gujarat-India

Registrar
Atmiya University
Rajkot



Page 4 of 57



Atmiya University

The great scientist and former President, Dr. APJ Abdul Kalam, wrote in the preface of his autobiography: "Each individual creature on this beautiful planet is created by God to fulfil a particular role."

Atmiya Group of Institution holds history of more than 55 years. One of the oldest organization of Saurashtra region. AGI offers various courses under the various academic institutions Atmiya Institute of Technology and Science, Atmiya Institute of Pharmacy, Shri M. & N. Virani Science College etc.

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His Divine Holiness Hariprasad Swamiji Maharaj, the present spiritual successor of Lord Swaminarayan is the mentor of ATMIYA University. With His blessings, His Divinity P.P.Tyagvallabh Swamiji has envisioned Atmiya University to be a global leader in showing the path to enshrine Jeevan Vidya into every domain area of higher education, in the pursuit of transformative outcomes of education for living life to the fullest. For this, over the years, He has invested His sweat and toil and that of His team, to create state-of-the-art learning facilities and spaces. The ultimate goal is to attain 'Atmiyata'.

The University status is in recognition of the appreciable learning facilities and qualities of the 'Atmiya Group of Institutions' (AGI), which have demonstrated many milestones of growth and development.





Water Management

Water conservation is a key activity as water availability affects on the development of the campus as well as on all area of development such as farming, industries, etc. Keeping this view water conservation activity is carried out.

Sources of Water

- Rainwater Harvesting
- Bore water
- A Main source of water is RMC connection and Ground water is extracted to fulfill the requirement. The college stores the water in overhead tank.

Daily water requirement is 63 KLitre

Sewage Disposal Facility

Atmiya University is situated in the municipal area of Rajkot. RMC (Rajkot Municipal Corporation) provides municipal facilities to the university. Sewage is being disposed in the sewerage network of Rajkot city.

RO Plant

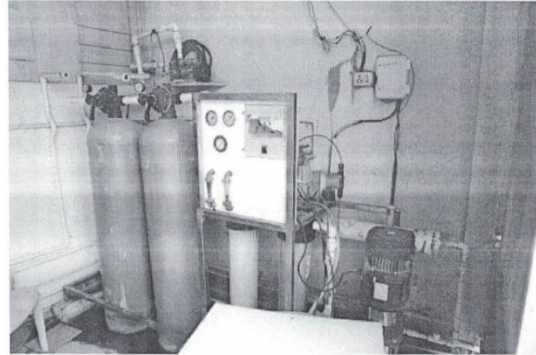
RO plants provide clean and safe drinking water by removing contaminants, such as bacteria, viruses, and dissolved solids, from the water. This ensures that students, faculty, and staff have access to safe drinking water, promoting better health and well-being. With access to clean drinking water on campus, there is less reliance on bottled water. This can lead to a significant reduction in plastic waste generated by the university, contributing to environmental sustainability efforts.





Green Initiative:

The RO (reverse osmosis) water is being used for the irrigation purpose in the garden of university.



Reverse Osmosis Plant for Drinking Water

Rainwater Harvesting:

Capacity: 17 Lac Liters

Environmental Benefits: By reducing the demand for potable water and minimizing storm water runoff, rainwater harvesting contributes to environmental conservation efforts. It helps preserve freshwater resources, protects aquatic ecosystems, and mitigates the impacts of urbanization on natural hydrological cycles.

Water Conservation: Rainwater harvesting reduces reliance on traditional water sources by collecting and storing rainwater for various uses, such as irrigation, flushing toilets, and landscape maintenance. This helps conserve freshwater resources and reduces the strain on municipal water supplies, especially during periods of drought or water scarcity.





Rainwater Harvesting Tank

Water Usage in the Campus

Basic use of water in campus	KL/Day
Drinking	9
Gardening	15
Kitchen and Toilets	12
Others	9
Hostel	18
Total	63 KL/Day





Description of Water Storage Tank

Building	SN	Tank Description	Size (liter)	No. of Tank	Capacity (liter)
AU Building	1	Raw Water- A Wing	2500	4	10000
	2	Raw Water- B Wing	2500	4	10000
	3	Master RO - Raw Water	5000	3	15000
	4	RO Water (A Wing-2, B Wing-2, RO-3)	2500	7	17500
	5	Pharmacy and Mechanical Lab	2000	1	2000
	6	Faculty Block (A& B Wing)	2500	2	5000
	7	Library Terrace	2000	1	2000
	8	Raw Water Near AU Building- Underground	275000	1	275000
MPAB	9	RO Water - at Terrace	2000	2	4000
	10	Raw Water- at Terrace	60000	1	60000
	11	Raw Water- at Terrace	40000	7	280000
	12	Near Building- Underground	333746	2	667492
	13	Near Building- Underground	336826	2	673652
	14	Below Temple- Underground	189924	1	189924
	15	Below Temple- Underground	43718	1	43718
Workshop	16	In Front of Store- Underground	123604	1	123604
	17	RO Water- at Terrace	2000	1	2000
	18	Raw Water- at Terrace	2000	2	4000
	19	Raw Water- at Terrace	5000	1	5000
Science Building	20	Behind Workshop- Round Tank- Underground	45650	1	45650
	21	RO Water- at Terrace	2500	1	2500
	22	Raw Water Tank- at Terrace	23300	2	46600
	23	Raw Water Tank- Ladies Toilet	30000	3	90000
	24	CIF Lab	1500	1	1500
	25	Raw Water- OTIS- Underground	32620	1	32620





Building	SN	Tank Description	Size (liter)	No. of Tank	Capacity (liter)
	26	Wastewater- Outside the Building	2000	1	2000
Yogidham Gate	27	Raw Water Tank- Underground	48750	4	195000
Niramay	28	RO Water Tank at Terrace	2500	1	2500
	29	Raw Water Tank- at Terrace	11650	1	11650
	30	Raw Water Tank- Near Office	5000	2	10000
Sarvanaman	31	Raw Water Tank- at Terrace	2000	1	2000
	32	Raw Water Tank- at Terrace	8550	1	8550
	33	Raw Water- inside building	600	1	600
Total Water Storage Capacity					28,41,060

Rain water harvesting for the year 2019-20

Month	Water Collected (litre)	Water Used (liters)
June	6,50,800	6,25,000
July	11,50,400	11,60,700
August	11,80,600	11,70,800
September	10,50,600	9,30,750
October	3,40,500	4,10,000
November	00	75,650





Ground Water recharge Bore well

The excess rainwater beyond the capacity of rain water storage tank is channelized to bore-well for ground water recharge.

Calculation of rainwater harvesting at Atmiya University

SN	Building	Roof Area (m ²)
1	AU Main Building	8225.00
2	Multipurpose Academic Building	2050
3	Workshop	1650
4	Science Building	2400
Total		14,325 m²

Rainfall in the Rajkot city: 1528 mm

Runoff coefficient for concrete= 0.75

$$\begin{aligned} \text{Total Water conserved} &= \text{rainfall} * \text{runoff coefficient} * \text{roof area} \\ &= 1.528 * 0.75 * 14325 \\ &= 16416.45 \text{ m}^3 \\ &= 16416450 \text{ litres} \end{aligned}$$

Note:-Rainfall data taken from Rajkot municipal corporation official website and Runoff coefficient taken 0-1 ranges rough to smooth surface.





Impact: Social and Institutional

1. Building Construction with harvested water:

- 80 lack liter water was utilized from harvested source for the under-construction Multipurpose Building.

2. Social Impact:

- **Water Conservation Awareness:** Implementing rainwater harvesting raises awareness among students, faculty, and the community about sustainable water management. It serves as an educational tool, encouraging environmentally responsible behaviour.
- **Enhanced Water Security:** Rajkot, like many areas, faces water scarcity, particularly during dry seasons. Rainwater harvesting contributes to local water security, helping the university reduce its reliance on municipal or external water supplies. This leads to a more self-sufficient water supply system, directly benefiting the university community.
- **Reduced Impact on Municipal Resources:** Collecting and using rainwater on campus eases the demand on the city's water supply, which benefits the broader community. By harvesting rainwater, the university helps free up municipal water resources for other essential needs, supporting a more balanced distribution of water across Rajkot.
- **Public Health Improvement:** Rainwater harvesting contributes indirectly to public health. By reducing dependency on groundwater, it helps maintain groundwater levels, reducing the risk of water contamination. Access to cleaner, safer water reduces the prevalence of waterborne diseases in the surrounding community.

3. Institutional Impact:

- **Cost Savings and Resource Efficiency:** Rainwater harvesting can significantly reduce the university's water bills. This financial benefit allows for reallocating resources toward other green initiatives, research, and educational activities. The long-term savings contribute to the university's financial sustainability.
- **Enhanced Institutional Reputation:** By implementing rainwater harvesting, the university positions itself as an environmentally conscious institution. This commitment to sustainability can enhance the university's image, attracting students, faculty, and partners who value environmental responsibility.
- **Educational Value and Research Opportunities:** The system provides a hands-on learning opportunity for students, particularly those studying environmental science.





engineering, and sustainability. Rainwater harvesting projects offer a real-life platform for research, workshops, and practical training, helping students gain valuable skills in sustainable practices.

- **Compliance with Regulatory Standards:** Adopting rainwater harvesting aligns with environmental regulations and standards, positioning the university as compliant with local and national environmental policies. This alignment can be beneficial during audits and assessments, potentially granting the institution access to incentives or recognition programs.
- **Contribution to Green Campus Initiatives:** Rainwater harvesting is a foundational element of a broader green campus initiative, supporting other sustainability goals like waste management, energy conservation, and sustainable landscaping. This holistic approach can also provide a model for other institutions in Rajkot and beyond.

Recommendations

- **Rainwater Harvesting Expansion:** Install additional collection units to maximize water capture during the monsoon season.
- **Smart Metering:** Implement digital meters for real-time monitoring of water usage.
- **Awareness Campaigns:** Conduct workshops for students and staff on water conservation.

Conclusion

Atmiya University has made significant strides in water conservation, with key initiatives like rainwater harvesting and wastewater reuse. However, there is scope for improvement in optimizing consumption and addressing inefficiencies. Implementing the recommendations will enhance sustainability and ensure compliance with GPCB standards.

H.G. Sonkaran
Schedule-1 Auditor





**ATMIYA
UNIVERSITY**

NAAC – Cycle – 1
AISHE: U-0967

Criterion 7

I V & B P

KI 7.1

M 7.1.4

2 GREEN AUDIT REPORTS ON WATER CONSERVATION – 2020-21

Certificate

Atmiya University, Rajkot

is dedicated to environmental stewardship through its commitment to water conservation,
contributing significantly to the promotion of sustainable practices.

Issued on: 17 May 2021

Mr. Hemantkumar Sonkusare
Civil Engineer, GPCB recognized Schedule-I Environmental Auditor

Atmiya University Registrar, Rajkot-Gujarat-India

**Atmiya University
Rajkot**





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GREEN AUDIT REPORT FOR
WATER CONSERVATION
2020-21

At Atmiya University, Rajkot

Atmiya University, Rajkot-Gujarat-India

Registrar
Atmiya University
Rajkot



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Atmiya University

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Atmiya University Registrar, Rajkot-Gujarat-India

Atmiya University
Rajkot





Water Management

Water conservation is a key activity as water availability affects on the development of the campus as well as on all area of development such as farming, industries, etc. Keeping this view water conservation activity is carried out.

Sources of Water

- Rainwater Harvesting
- Bore water
- A Main source of water is RMC connection and Ground water is extracted to fulfill the requirement. The college stores the water in overhead tank.

Daily water requirement is 32 KL

Sewage Disposal Facility

Atmiya University is situated in the municipal area of Rajkot. RMC (Rajkot Municipal Corporation) provides municipal facilities to the university. Sewage is being disposed in the sewerage network of Rajkot city.

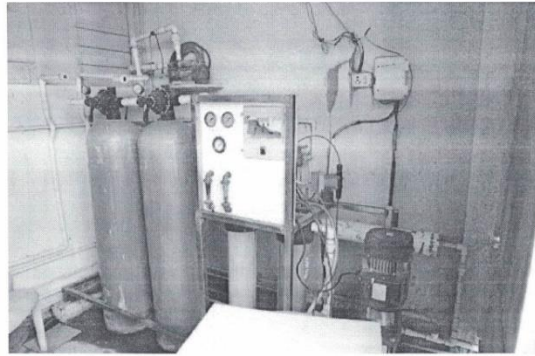
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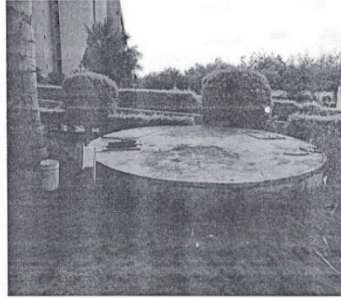
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Rainwater Harvesting Tank

Water Usage in the Campus

Basic use of water in campus	KL/Day
Drinking	3
Gardening	15
Kitchen and Toilets	4
Others	6
Hostel	4
Total	32 KL/Day

Atmiya University Registrar Rajkot-Gujarat-India

**Atmiya University
Rajkot**





Description of Water Storage Tank

Building	SN	Tank Description	Size (liter)	No. of Tank	Capacity (liter)
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	2	Raw Water- B Wing	2500	4	10000
	3	Master RO - Raw Water	5000	3	15000
	4	RO Water (A Wing-2, B Wing-2, RO-3)	2500	7	17500
	5	Pharmacy and Mechanical Lab	2000	1	2000
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	7	Library Terrace	2000	1	2000
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Total Water Storage Capacity					28,41,060

Rain water harvesting for the year 2020-21

Month	Water Collected (liter)	Water Used (liters)
June	5,45,700	5,35,000
July	11,54,700	7,60,700
August	11,45,900	6,40,800
September	7,50,600	8,20,750
October	4,56,500	7,90,000
November	00	5,06,150

Ground Water recharge Borewell

The excess rainwater beyond the capacity of rain water storage tank is channelized to borewell for ground water recharge.





Calculation of rainwater harvesting at Atmiya University

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1	AU Main Building	8225.00
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Total		14,325 m ²

Rainfall in the Rajkot city: 1151.66 mm

Runoff coefficient for concrete= 0.75

Total Water conserved = rainfall * runoff coefficient * roof area

$$= 1.1516 * 0.75 * 14325$$

$$= 12372.5025 \text{ m}^3$$

$$= \mathbf{12372502 \text{ litres}}$$

Note:-Rainfall data taken from Rajkot municipal corporation official website and Runoff coefficient taken 0-1 ranges rough to smooth surface.

Atmiya University Registrar Rajkot-Gujarat-India

**Atmiya University
Rajkot**





Impact: Social and Institutional

1. Building Construction with harvested water:

- 50 lack liter water was utilized from harvested source for the under-construction Multipurpose Building.

2. Social Impact:

- **Water Conservation Awareness:** Implementing rainwater harvesting raises awareness among students, faculty, and the community about sustainable water management. It serves as an educational tool, encouraging environmentally responsible behaviour.
- **Enhanced Water Security:** Rajkot, like many areas, faces water scarcity, particularly during dry seasons. Rainwater harvesting contributes to local water security, helping the university reduce its reliance on municipal or external water supplies. This leads to a more self-sufficient water supply system, directly benefiting the university community.
- **Reduced Impact on Municipal Resources:** Collecting and using rainwater on campus eases the demand on the city's water supply, which benefits the broader community. By harvesting rainwater, the university helps free up municipal water resources for other essential needs, supporting a more balanced distribution of water across Rajkot.
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Recommendations

- **Rainwater Harvesting Expansion:** Install additional collection units to maximize water capture during the monsoon season.
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- **Awareness Campaigns:** Conduct workshops for students and staff on water conservation.

Conclusion

Atmiya University has made significant strides in water conservation, with key initiatives like rainwater harvesting and wastewater reuse. However, there is scope for improvement in optimizing consumption and addressing various issues and campaigning through different stakeholders. Implementing the recommendations will enhance sustainability and ensure compliance with GPCB standards.


H.G. Sonkewar
Schedule-1 Auditor







**ATMIYA
UNIVERSITY**

NAAC – Cycle – 1
AISHE: U-0967

Criterion 7

I V & B P

KI 7.1

M 7.1.4

3 GREEN AUDIT REPORTS ON WATER CONSERVATION – 2021-22

Certificate

Atmiya University, Rajkot

demonstrates its dedication to environmental stewardship through a strong commitment to water conservation, playing a vital role in fostering sustainable practices.

Issued on: 24 May 2022

Mr. Hemantkumar Sonkusare
Civil Engineer, GPCB recognized Schedule-I Environmental Auditor

Atmiya University, Rajkot-Gujarat-India

Registrar
Atmiya University
Rajkot





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UNIVERSITY**

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GREEN AUDIT REPORT FOR
WATER CONSERVATION
2021-22

At Atmiya University, Rajkot

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Atmiya University, Rajkot-Gujarat-India

Registrar
Atmiya University
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Atmiya University

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- Rainwater Harvesting
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Daily water requirement is 95 KL

Sewage Disposal Facility

Atmiya University is situated in the municipal area of Rajkot. RMC (Rajkot Municipal Corporation) provides municipal facilities to the university. Sewage is being disposed in the sewerage network of Rajkot city.

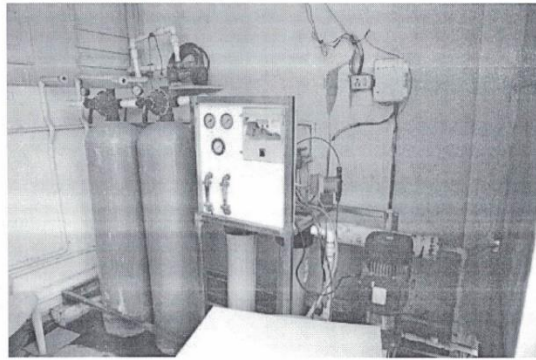
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Green Initiative: The RO (reverse osmosis) water is being used for the irrigation purpose in the garden of university.



Reverse Osmosis Plant for Drinking Water

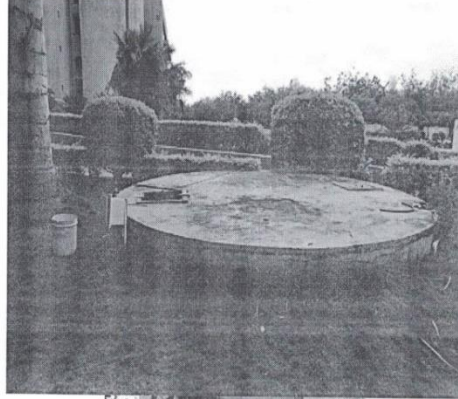
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Capacity: 17 Lac Liters

Environmental Benefits: By reducing the demand for potable water and minimizing storm water runoff, rainwater harvesting contributes to environmental conservation efforts. It helps preserve freshwater resources, protects aquatic ecosystems, and mitigates the impacts of urbanization on natural hydrological cycles.

Water Conservation: Rainwater harvesting reduces reliance on traditional water sources by collecting and storing rainwater for various uses, such as irrigation, flushing toilets, and landscape maintenance. This helps conserve freshwater resources and reduces the strain on municipal water supplies, especially during periods of drought or water scarcity.







Rainwater Harvesting Tank

Water Usage in the Campus

Basic use of water in campus	KL/Day
Drinking	15
Gardening	16
Kitchen and Toilets	20
Others	15
Hostel	29
Total	95 KL/Day

Description of Water Storage Tank

Building	SN	Tank Description	Size (litre)	No. of Tank	Capacity (litre)
AU Building	1	Raw Water- A Wing	2500	4	10000
	2	Raw Water- B Wing	2500	4	10000
	3	Master RO - Raw Water	5000	3	15000
	4	RO Water (A Wing-2, B Wing-2, RO-3)	2500	7	17500
	5	Pharmacy and Mechanical Lab	2000	1	2000
	6	Faculty Block (A& B Wing)	2500	2	5000
	7	Library Terrace	2000	1	2000
	8	Raw Water Near AU Building- Underground	275000	1	275000
MPAB	9	RO Water - at Terrace	2000	2	4000
	10	Raw Water- at Terrace	60000	1	60000
	11	Raw Water- at Terrace	40000	7	280000
	12	Near Building- Underground	333746	2	667492
	13	Near Building- Underground	336826	2	673652





Building	SN	Tank Description	Size (litre)	No. of Tank	Capacity (litre)
	14	Below Temple- Underground	189924	1	189924
	15	Below Temple- Underground	43718	1	43718
	16	In Front of Store- Underground	123604	1	123604
Workshop	17	RO Water- at Terrace	2000	1	2000
	18	Raw Water- at Terrace	2000	2	4000
	19	Raw Water- at Terrace	5000	1	5000
	20	Behind Workshop- Round Tank- Underground	45650	1	45650
Science Building	21	RO Water- at Terrace	2500	1	2500
	22	Raw Water Tank- at Terrace	23300	2	46600
	23	Raw Water Tank- Ladies Toilet	30000	3	90000
	24	CIF Lab	1500	1	1500
	25	Raw Water- OTIS- Underground	32620	1	32620
	26	Wastewater- Outside the Building	2000	1	2000
Yogidham Gate	27	Raw Water Tank- Underground	48750	4	195000
Niramay	28	RO Water Tank at Terrace	2500	1	2500
	29	Raw Water Tank- at Terrace	11650	1	11650
	30	Raw Water Tank- Near Office	5000	2	10000
Sarvanaman	31	Raw Water Tank- at Terrace	2000	1	2000
	32	Raw Water Tank- at Terrace	8550	1	8550
	33	Raw Water- inside building	600	1	600
Total Water Storage Capacity					28,41,060





Rain water harvesting for the year 2021-22

Month	Water Collected (litre)	Water Used (litre)
June	4,47,500	3,21,000
July	9,40,800	8,90,700
August	11,70,100	11,20,800
September	10,50,600	9,30,750
October	9,40,500	8,10,000
November	00	4,76,250

Ground Water recharge Bore well

The excess rainwater beyond the capacity of rain water storage tank is channelized to bore-well for ground water recharge.

Calculation of rainwater harvesting at Atmiya University

SN	Building	Roof Area (m ²)
1	AU Main Building	8225.00
2	Multipurpose Academic Building	2050
3	Workshop	1650
4	Science Building	2400
Total		14,325 m ²

Rainfall in the Rajkot city: 1312.33 mm

Runoff coefficient for concrete= 0.75

$$\begin{aligned}
 \text{Total Water conserved} &= \text{rainfall} * \text{runoff coefficient} * \text{roof area} \\
 &= 1.3123 * 0.75 * 14325 \\
 &= 14099.023 \text{ m}^3 \\
 &= \mathbf{1,40,99,023 \text{ litres}}
 \end{aligned}$$

Note:-Rainfall data taken from Rajkot municipal corporation official website and Runoff coefficient taken 0-1 ranges rough to smooth surface.





Impact: Social and Institutional

1. Building Construction with harvested water:

- 120 lack liter water was utilized from harvested source for the under-construction Multipurpose Building.

2. Social Impact:

- **Water Conservation Awareness:** Implementing rainwater harvesting raises awareness among students, faculty, and the community about sustainable water management. It serves as an educational tool, encouraging environmentally responsible behaviour.
- **Enhanced Water Security:** Rajkot, like many areas, faces water scarcity, particularly during dry seasons. Rainwater harvesting contributes to local water security, helping the university reduce its reliance on municipal or external water supplies. This leads to a more self-sufficient water supply system, directly benefiting the university community.
- **Reduced Impact on Municipal Resources:** Collecting and using rainwater on campus eases the demand on the city's water supply, which benefits the broader community. By harvesting rainwater, the university helps free up municipal water resources for other essential needs, supporting a more balanced distribution of water across Rajkot.
- **Public Health Improvement:** Rainwater harvesting contributes indirectly to public health. By reducing dependency on groundwater, it helps maintain groundwater levels, reducing the risk of water contamination. Access to cleaner, safer water reduces the prevalence of waterborne diseases in the surrounding community.

3. Institutional Impact:

- **Cost Savings and Resource Efficiency:** Rainwater harvesting can significantly reduce the university's water bills. This financial benefit allows for reallocating resources toward other green initiatives, research, and educational activities. The long-term savings contribute to the university's financial sustainability.
- **Enhanced Institutional Reputation:** By implementing rainwater harvesting, the university positions itself as an environmentally conscious institution. This commitment to sustainability can enhance the university's image, attracting students, faculty, and partners who value environmental responsibility.
- **Educational Value and Research Opportunities:** The system provides a hands-on learning opportunity for students, particularly those studying environmental science,

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engineering, and sustainability. Rainwater harvesting projects offer a real-life platform for research, workshops, and practical training, helping students gain valuable skills in sustainable practices.

- **Compliance with Regulatory Standards:** Adopting rainwater harvesting aligns with environmental regulations and standards, positioning the university as compliant with local and national environmental policies. This alignment can be beneficial during audits and assessments, potentially granting the institution access to incentives or recognition programs.
- **Contribution to Green Campus Initiatives:** Rainwater harvesting is a foundational element of a broader green campus initiative, supporting other sustainability goals like waste management, energy conservation, and sustainable landscaping. This holistic approach can also provide a model for other institutions in Rajkot and beyond.

Recommendations

- **Rainwater Harvesting Expansion:** Install additional collection units to maximize water capture during the monsoon season.
- **Smart Metering:** Implement digital meters for real-time monitoring of water usage.
- **Awareness Campaigns:** Conduct workshops for students and staff on water conservation.

Conclusion

Atmiya University has made significant changes in water conservation, with key initiatives like rainwater harvesting and wastewater reuse. However, there is scope for improvement in utilisation and reuse the water through various points. Implementing the recommendations will enhance sustainability and ensure compliance with GPCB standards.

H. G. Sonkewala
Schedule - 1 Auditor





4 GREEN AUDIT REPORTS ON WATER CONSERVATION – 2022-23

Certificate

Atmiya University, Rajkot

is committed to environmental stewardship by prioritizing water conservation and actively promoting sustainable practices.

Issued on: 03 May 2023

Mr. Hemantkumar Sonkusare
Civil Engineer, GPCB recognized Schedule-I Environmental Auditor

Atmiya University, Rajkot-Gujarat-India

Registrar
Atmiya University
Rajkot





**ATMIYA
UNIVERSITY**

NAAC – Cycle – 1
AISHE: U-0967

Criterion 7

I V & B P

KI 7.1

M 7.1.4

GREEN AUDIT REPORT FOR
WATER CONSERVATION-2022-23
At Atmiya University, Rajkot

Atmiya University, Rajkot-Gujarat-India

Registrar
Atmiya University
Rajkot



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Atmiya University

The great scientist and former President, Dr. APJ Abdul Kalam, wrote in the preface of his autobiography: “Each individual creature on this beautiful planet is created by God to fulfil a particular role.”

Atmiya Group of Institution holds history of more than 55 years. One of the oldest organization of Saurashtra region. AGI offers various courses under the various academic institutions Atmiya Institute of Technology and Science, Atmiya Institute of Pharmacy, Shri M. & N. Virani Science College etc.

ATMIYA University bestows wisdom and knowledge upon the learner to recognize this particular role. Established on April 13, 2018, under the Gujarat Private University Act 11, 2018, ATMIYA University emphasizes to train young minds in consonance with the doctrines of higher education and human values. The aim of this University is to spread eternal happiness and to create a happy society in letter and spirit. The motto “सुहृदं सर्वं भूतानम्” (Suhardam Sarva Bhootanam) is an expression of willingness to attain harmony with each creation of the Almighty!

His Divine Holiness Hariprasad Swamiji Maharaj, the present spiritual successor of Lord Swaminarayan is the mentor of ATMIYA University. With His blessings, His Divinity P.P.Tyagvallabh Swamiji has envisioned Atmiya University to be a global leader in showing the path to enshrine Jeevan Vidya into every domain area of higher education, in the pursuit of transformative outcomes of education for living life to the fullest. For this, over the years, He has invested His sweat and toil and that of His team, to create state-of-the-art learning facilities and spaces. The ultimate goal is to attain ‘Atmiyata’.

The University status is in recognition of the appreciable learning facilities and qualities of the ‘Atmiya Group of Institutions’ (AGI), which have demonstrated many milestones of growth and development.

Atmiya University Registrar Rajkot-Gujarat-India

Atmiya University
Rajkot





Water Management

Water conservation is a key activity as water availability affects on the development of the campus as well as on all area of development such as farming, industries, etc. Keeping this view water conservation activity is carried out.

Sources of Water

- Rainwater Harvesting
- Bore water
- A Main source of water is RMC connection and Ground water is extracted to fulfill the requirement. The college stores the water in overhead tank.

Daily water requirement is 91 KL

Sewage Disposal Facility

Atmiya University is situated in the municipal area of Rajkot. RMC (Rajkot Municipal Corporation) provides municipal facilities to the university. Sewage is being disposed in the sewerage network of Rajkot city.

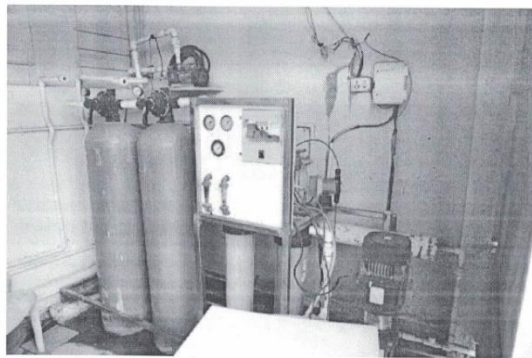
RO Plant

RO plants provide clean and safe drinking water by removing contaminants, such as bacteria, viruses, and dissolved solids, from the water. This ensures that students, faculty, and staff have access to safe drinking water, promoting better health and well-being. With access to clean drinking water on campus, there is less reliance on bottled water. This can lead to a significant reduction in plastic waste generated by the university, contributing to environmental sustainability efforts.





Green Initiative: The RO (reverse osmosis) water is being used for the irrigation purpose in the garden of university.



Reverse Osmosis Plant for Drinking Water

Rainwater Harvesting:

Capacity: 17 Lac Liters

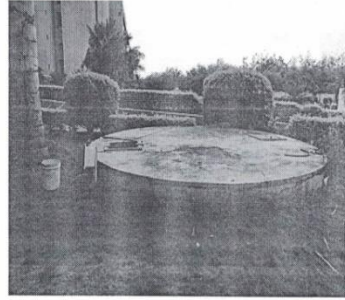
Environmental Benefits: By reducing the demand for potable water and minimizing storm water runoff, rainwater harvesting contributes to environmental conservation efforts. It helps preserve freshwater resources, protects aquatic ecosystems, and mitigates the impacts of urbanization on natural hydrological cycles.

Water Conservation: Rainwater harvesting reduces reliance on traditional water sources by collecting and storing rainwater for various uses, such as irrigation, flushing toilets, and landscape maintenance. This helps conserve freshwater resources and reduces the strain on municipal water supplies, especially during periods of drought or water scarcity.

Atmiya University Registrar, Rajkot-Gujarat-India

**Atmiya University
Rajkot**





Rainwater Harvesting Tank

Water Usage in the Campus

Basic use of water in campus	KL/Day
Drinking	14
Gardening	16
Kitchen and Toilets	19
Others	14
Hostel	28
Total	91 KL/Day

Atmiya University Registrar, Rajkot-Gujarat-India

**Atmiya University
Rajkot**





Description of Water Storage Tank

Building	SN	Tank Description	Size (litre)	No. of Tank	Capacity (litre)
AU Building	1	Raw Water- A Wing	2500	4	10000
	2	Raw Water- B Wing	2500	4	10000
	3	Master RO - Raw Water	5000	3	15000
	4	RO Water (A Wing-2, B Wing-2, RO-3)	2500	7	17500
	5	Pharmacy and Mechanical Lab	2000	1	2000
	6	Faculty Block (A& B Wing)	2500	2	5000
	7	Library Terrace	2000	1	2000
	8	Raw Water Near AU Building- Underground	275000	1	275000
MPAB	9	RO Water - at Terrace	2000	2	4000
	10	Raw Water- at Terrace	60000	1	60000
	11	Raw Water- at Terrace	40000	7	280000
	12	Near Building- Underground	333746	2	667492
	13	Near Building- Underground	336826	2	673652
	14	Below Temple- Underground	189924	1	189924
	15	Below Temple- Underground	43718	1	43718
	16	In Front of Store- Underground	123604	1	123604
Workshop	17	RO Water- at Terrace	2000	1	2000
	18	Raw Water- at Terrace	2000	2	4000
	19	Raw Water- at Terrace	5000	1	5000
	20	Behind Workshop- Round Tank- Underground	45650	1	45650
Science Building	21	RO Water- at Terrace	2500	1	2500
	22	Raw Water Tank- at Terrace	23300	2	46600
	23	Raw Water Tank- Ladies Toilet	30000	3	90000
	24	CIF Lab	1500	1	1500
	25	Raw Water- OTIS- Underground	32620	1	32620





Building	SN	Tank Description	Size (litre)	No. of Tank	Capacity (litre)
	26	Wastewater- Outside the Building	2000	1	2000
Yogidham Gate	27	Raw Water Tank- Underground	48750	4	195000
Niramay	28	RO Water Tank at Terrace	2500	1	2500
	29	Raw Water Tank- at Terrace	11650	1	11650
	30	Raw Water Tank- Near Office	5000	2	10000
Sarvanaman	31	Raw Water Tank- at Terrace	2000	1	2000
	32	Raw Water Tank- at Terrace	8550	1	8550
	33	Raw Water- inside building	600	1	600
Total Water Storage Capacity					28,41,060

Rain water harvesting for the year 2022-23

Month	Water Collected (litre)	Water Used (liters)
June	5,47,600	5,15,000
July	9,67,800	9,60,700
August	10,60,470	8,70,800
September	11,50,340	10,30,750
October	5,45,700	5,10,000
November	00	3,84,660





Ground Water recharge Bore well

The excess rainwater beyond the capacity of rain water storage tank is channelized to bore-well for ground water recharge.

Calculation of rainwater harvesting at Atmiya University

SN	Building	Roof Area (m ²)
1	AU Main Building	8225.00
2	Multipurpose Academic Building	2050
3	Workshop	1650
4	Science Building	2400
Total		14,325 m²

Rainfall in the Rajkot city: 966.33 mm

Runoff coefficient for concrete= 0.75

$$\begin{aligned} \text{Total Water conserved} &= \text{rainfall} * \text{runoff coefficient} * \text{roof area} \\ &= 0.9663 * 0.75 * 14325 \\ &= 10381.6856 \text{ m}^3 \\ &= \mathbf{1,03,81,686 \text{ liters}} \end{aligned}$$

Note:-Rainfall data taken from Rajkot municipal corporation official website and Runoff coefficient taken 0-1 ranges rough to smooth surface.





Impact: Social and Institutional

1. Building Construction with harvested water:

- 175 lack liter water was utilized from harvested source for the under-construction Multipurpose Building.

2. Social Impact:

- **Water Conservation Awareness:** Implementing rainwater harvesting raises awareness among students, faculty, and the community about sustainable water management. It serves as an educational tool, encouraging environmentally responsible behaviour.
- **Enhanced Water Security:** Rajkot, like many areas, faces water scarcity, particularly during dry seasons. Rainwater harvesting contributes to local water security, helping the university reduce its reliance on municipal or external water supplies. This leads to a more self-sufficient water supply system, directly benefiting the university community.
- **Reduced Impact on Municipal Resources:** Collecting and using rainwater on campus eases the demand on the city's water supply, which benefits the broader community. By harvesting rainwater, the university helps free up municipal water resources for other essential needs, supporting a more balanced distribution of water across Rajkot.
- **Public Health Improvement:** Rainwater harvesting contributes indirectly to public health. By reducing dependency on groundwater, it helps maintain groundwater levels, reducing the risk of water contamination. Access to cleaner, safer water reduces the prevalence of waterborne diseases in the surrounding community.

3. Institutional Impact:

- **Cost Savings and Resource Efficiency:** Rainwater harvesting can significantly reduce the university's water bills. This financial benefit allows for reallocating resources toward other green initiatives, research, and educational activities. The long-term savings contribute to the university's financial sustainability.
- **Enhanced Institutional Reputation:** By implementing rainwater harvesting, the university positions itself as an environmentally conscious institution. This commitment to sustainability can enhance the university's image, attracting students, faculty, and partners who value environmental responsibility.
- **Educational Value and Research Opportunities:** The system provides a hands-on learning opportunity for students, particularly those studying environmental science,





engineering, and sustainability. Rainwater harvesting projects offer a real-life platform for research, workshops, and practical training, helping students gain valuable skills in sustainable practices.


- **Compliance with Regulatory Standards:** Adopting rainwater harvesting aligns with environmental regulations and standards, positioning the university as compliant with local and national environmental policies. This alignment can be beneficial during audits and assessments, potentially granting the institution access to incentives or recognition programs.
- **Contribution to Green Campus Initiatives:** Rainwater harvesting is a foundational element of a broader green campus initiative, supporting other sustainability goals like waste management, energy conservation, and sustainable landscaping. This holistic approach can also provide a model for other institutions in Rajkot and beyond.

Recommendations

- **Rainwater Harvesting Expansion:** Install additional collection units to maximize water capture during the monsoon season.
- **Smart Metering:** Implement digital meters for real-time monitoring of water usage.
- **Awareness Campaigns:** Conduct workshops for students and staff on water conservation.

Conclusion

Atmiya University has made significant efforts in water conservation, with key initiatives like rainwater harvesting and wastewater reuse. However, there is scope for improvement in optimizing consumption and awareness. Implementing the recommendations will enhance sustainability as a whole.


 H. G. Sonkulan
 Dy. Head of the Dept. - J Audit







**ATMIYA
UNIVERSITY**

NAAC – Cycle – 1
AISHE: U-0967

Criterion 7

I V & B P

KI 7.1

M 7.1.4

5 GREEN AUDIT REPORTS ON WATER CONSERVATION – 2023-24

Certificate

Atmiya University, Rajkot

remains devoted to environmental stewardship by embracing water conservation and promoting sustainability initiatives.

Issued on: 08 June 2024

Mr. Hemantkumar Sonkusare
Civil Engineer, GPCB recognized Schedule-I Environmental Auditor

Atmiya University Registrar, Rajkot-Gujarat-India

**Atmiya University
Rajkot**





**ATMIYA
UNIVERSITY**

**NAAC – Cycle – 1
AISHE: U-0967**

Criterion 7

I V & B P

KI 7.1

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**GREEN AUDIT REPORT FOR
WATER CONSERVATION
2023-24**

At Atmiya University, Rajkot

Atmiya University, Rajkot-Gujarat-India

**Registrar
Atmiya University
Rajkot**



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**ATMIYA
UNIVERSITY**

**NAAC – Cycle – 1
AISHE: U-0967**

Criterion 7

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Atmiya University

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The University status is in recognition of the appreciable learning facilities and qualities of the 'Atmiya Group of Institutions' (AGI), which have demonstrated many milestones of growth and development.

Atmiya University Registrar, Rajkot-Gujarat-India

**Atmiya University
Rajkot**



Page 49 of 57



Water Management

Water conservation is a key activity as water availability affects on the development of the campus as well as on all area of development such as farming, industries, etc. Keeping this view water conservation activity is carried out.

Sources of Water

- Rainwater Harvesting
- Bore water
- A Main source of water is RMC connection and Ground water is extracted to fulfill the requirement. The college stores the water in overhead tank.

Daily water requirement is 96 KL

Sewage Disposal Facility

Atmiya University is situated in the municipal area of Rajkot. RMC (Rajkot Municipal Corporation) provides municipal facilities to the university. Sewage is being disposed in the sewerage network of Rajkot city.

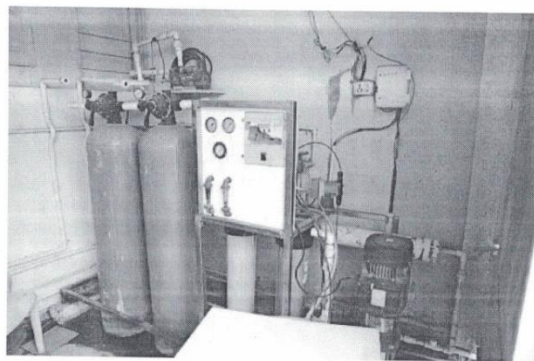
RO Plant

RO plants provide clean and safe drinking water by removing contaminants, such as bacteria, viruses, and dissolved solids, from the water. This ensures that students, faculty, and staff have access to safe drinking water, promoting better health and well-being. With access to clean drinking water on campus, there is less reliance on bottled water. This can lead to a significant reduction in plastic waste generated by the university, contributing to environmental sustainability efforts.





Green Initiative: The RO (reverse osmosis) water is being used for the irrigation purpose in the garden of university.



Reverse Osmosis Plant for Drinking Water

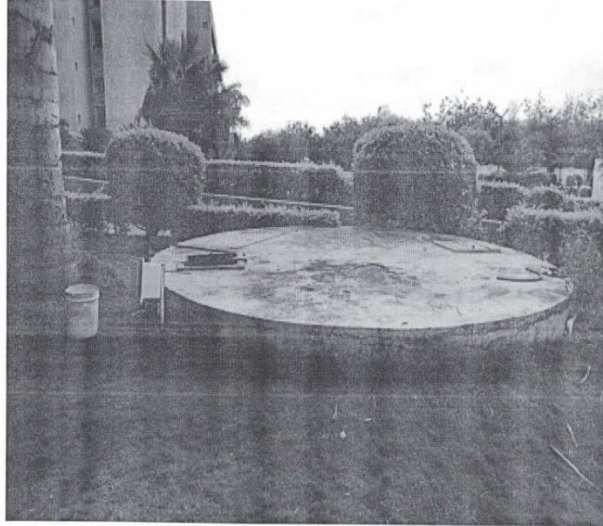
Rainwater Harvesting:

Capacity: 17 Lac Liters

Environmental Benefits: By reducing the demand for potable water and minimizing storm water runoff, rainwater harvesting contributes to environmental conservation efforts. It helps preserve freshwater resources, protects aquatic ecosystems, and mitigates the impacts of urbanization on natural hydrological cycles.

Water Conservation: Rainwater harvesting reduces reliance on traditional water sources by collecting and storing rainwater for various uses, such as irrigation, flushing toilets, and landscape maintenance. This helps conserve freshwater resources and reduces the strain on municipal water supplies, especially during periods of drought or water scarcity.





Rainwater Harvesting Tank

Atmiya University, Rajkot-Gujarat-India

Registrar
Atmiya University
Rajkot





Water Usage in the Campus

Basic use of water in campus	KL/Day
Drinking	15
Gardening	17
Kitchen and Toilets	20
Others	15
Hostel	29
Total	96 KL/Day

Description of Water Storage Tank

Building	SN	Tank Description	Size (litre)	No. of Tank	Capacity (litre)
AU Building	1	Raw Water- A Wing	2500	4	10000
	2	Raw Water- B Wing	2500	4	10000
	3	Master RO - Raw Water	5000	3	15000
	4	RO Water (A Wing-2, B Wing-2, RO-3)	2500	7	17500
	5	Pharmacy and Mechanical Lab	2000	1	2000
	6	Faculty Block (A& B Wing)	2500	2	5000
	7	Library Terrace	2000	1	2000
	8	Raw Water Near AU Building- Underground	275000	1	275000
MPAB	9	RO Water - at Terrace	2000	2	4000
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	12	Near Building- Underground	333746	2	667492
	13	Near Building- Underground	336826	2	673652
	14	Below Temple- Underground	189924	1	189924
	15	Below Temple- Underground	43718	1	43718





Building	SN	Tank Description	Size (litre)	No. of Tank	Capacity (litre)
	16	In Front of Store-Underground	123604	1	123604
Workshop	17	RO Water- at Terrace	2000	1	2000
	18	Raw Water- at Terrace	2000	2	4000
	19	Raw Water- at Terrace	5000	1	5000
	20	Behind Workshop- Round Tank- Underground	45650	1	45650
Science Building	21	RO Water- at Terrace	2500	1	2500
	22	Raw Water Tank- at Terrace	23300	2	46600
	23	Raw Water Tank- Ladies Toilet	30000	3	90000
	24	CIF Lab	1500	1	1500
	25	Raw Water- OTIS- Underground	32620	1	32620
	26	Wastewater- Outside the Building	2000	1	2000
Yogidham Gate	27	Raw Water Tank- Underground	48750	4	195000
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	29	Raw Water Tank- at Terrace	11650	1	11650
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Sarvanaman	31	Raw Water Tank- at Terrace	2000	1	2000
	32	Raw Water Tank- at Terrace	8550	1	8550
	33	Raw Water- inside building	600	1	600
Total Water Storage Capacity					28,41,060





Rain water harvesting for the year 2023-24

Month	Water Collected (liters)	Water Used (liters)
June	6,30,500	5,42,000
July	11,60,340	11,50,700
August	11,80,600	8,60,800
September	10,50,600	9,90,750
October	3,40,500	4,10,000
November	00	5,88,290

Ground Water recharge Bore well

The excess rainwater beyond the capacity of rain water storage tank is channelized to bore-well for ground water recharge.

Calculation of rainwater harvesting at Atmiya University

SN	Building	Roof Area (m ²)
1	AU Main Building	8225.00
2	Multipurpose Academic Building	2050
3	Workshop	1650
4	Science Building	2400
Total		14,325 m²

Rainfall in the Rajkot city: 651 mm

Runoff coefficient for concrete= 0.75

$$\begin{aligned}
 \text{Total Water conserved} &= \text{rainfall} * \text{runoff coefficient} * \text{roof area} \\
 &= 0.658 * 0.75 * 14325 \\
 &= 7069.3875 \text{ m}^3 \\
 &= \mathbf{7069387 \text{ liters}}
 \end{aligned}$$

Note:-Rainfall data taken from Rajkot municipal corporation official website and Runoff coefficient taken 0-1 ranges rough to smooth surface.





Impact: Social and Institutional

1. Building Construction with harvested water:

- 150 lack liter water was utilized from harvested source for the under-construction Multipurpose Building.

2. Social Impact:

- **Water Conservation Awareness:** Implementing rainwater harvesting raises awareness among students, faculty, and the community about sustainable water management. It serves as an educational tool, encouraging environmentally responsible behaviour.
- **Enhanced Water Security:** Rajkot, like many areas, faces water scarcity, particularly during dry seasons. Rainwater harvesting contributes to local water security, helping the university reduce its reliance on municipal or external water supplies. This leads to a more self-sufficient water supply system, directly benefiting the university community.
- **Reduced Impact on Municipal Resources:** Collecting and using rainwater on campus eases the demand on the city's water supply, which benefits the broader community. By harvesting rainwater, the university helps free up municipal water resources for other essential needs, supporting a more balanced distribution of water across Rajkot.
- **Public Health Improvement:** Rainwater harvesting contributes indirectly to public health. By reducing dependency on groundwater, it helps maintain groundwater levels, reducing the risk of water contamination. Access to cleaner, safer water reduces the prevalence of waterborne diseases in the surrounding community.

3. Institutional Impact:

- **Cost Savings and Resource Efficiency:** Rainwater harvesting can significantly reduce the university's water bills. This financial benefit allows for reallocating resources toward other green initiatives, research, and educational activities. The long-term savings contribute to the university's financial sustainability.
- **Enhanced Institutional Reputation:** By implementing rainwater harvesting, the university positions itself as an environmentally conscious institution. This commitment to sustainability can enhance the university's image, attracting students, faculty, and partners who value environmental responsibility.






- **Educational Value and Research Opportunities:** The system provides a hands-on learning opportunity for students, particularly those studying environmental science, engineering, and sustainability. Rainwater harvesting projects offer a real-life platform for research, workshops, and practical training, helping students gain valuable skills in sustainable practices.
- **Compliance with Regulatory Standards:** Adopting rainwater harvesting aligns with environmental regulations and standards, positioning the university as compliant with local and national environmental policies. This alignment can be beneficial during audits and assessments, potentially granting the institution access to incentives or recognition programs.
- **Contribution to Green Campus Initiatives:** Rainwater harvesting is a foundational element of a broader green campus initiative, supporting other sustainability goals like waste management, energy conservation, and sustainable landscaping. This holistic approach can also provide a model for other institutions in Rajkot and beyond.

Recommendations

- **Rainwater Harvesting Expansion:** Install additional collection units to maximize water capture during the monsoon season.
- **Smart Metering:** Implement digital meters for real-time monitoring of water usage.
- **Awareness Campaigns:** Conduct workshops for students and staff on water conservation.

Conclusion

Atmiya University has made significant strides in water conservation, with key initiatives like rainwater harvesting and wastewater reuse. However, there is scope for improvement in optimizing consumption and addressing inefficiencies. Implementing the recommendations will enhance sustainability and ensure compliance with GPCB standards.


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