

GREEN & ENVIRONMENTAL AUDIT REPORT | 2021

GREEN AUDIT REPORT - 2021

is presented to

M. S. Ramaiah University of Applied Sciences

University House, New BEL Rd, M S R Nagar, Mathikere, Bengaluru, Karnataka

has successfully demonstrated knowledge on Energy conservation,
Water conservation, Bio diversity, Waste management, Indoor
Environmental quality, Carbon footprint.

24.01.2022

DATE



NISCHAY N
GREEN BUILDING CONSULTANT



Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Green and Environment Audit Report 2021



PREPARED FOR

M. S. Ramaiah University of Applied Sciences
Bengaluru, Karnataka – 560054

PREPARED BY

GREEN AURA

No 692f 12th A cross BEL layout Bharath Nagar,
Bangalore, Karnataka,
India, 560091
Year -2021


Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Disclaimer

The Green Audit team has meticulously crafted this report for M. S. Ramaiah University of Applied Sciences utilizing input data provided by representatives of the University. Our comprehensive findings are based on a thorough examination of the provided data and the expert judgment of our esteemed team members. While we have exercised utmost care in the preparation of this report, the details contained herein are compiled in good faith and are contingent upon the available information.

It is imperative to underscore that the calculations presented in this report are derived from our most accurate estimates, and we explicitly refrain from making any express or implied representation, warranty, or undertaking. The Audit team explicitly disclaims any assumption of responsibility for any direct or consequential losses that may arise from the utilization of the information, statements, or forecasts contained within this report.

The information and analysis presented herein are valid as of the date of our site visits and the study period between October and December 2021. Our work is a testament to our dedication and is based on our best efforts and judgments, considering the information available at the time of report preparation. It is important to note that Green Aura does not provide a guarantee regarding the accuracy of this information or any conclusions drawn from it. The observations outlined in this report are indicative of the facility's performance based on our assessment and should not be misconstrued as a definitive commentary on the functioning of the facility. These observations are exclusively founded on the data recorded during our meticulous assessment.

Green Aura explicitly disclaims any responsibility for the reader's use of or reliance upon this report, as well as any decisions made based on its contents. Readers are strongly advised that they assume all liabilities incurred by themselves or third parties resulting from their reliance on this report, encompassing the data, information, findings, and opinions contained within it.

The study team comprised senior technical executives from Green Aura, and the audit spanned multiple visits conducted from October to December 2021.

- Mr. Nischay N Gowda – Director, Green Aura Bengaluru.
- Mr. Sachin Kumawat, Sr Engineer.
- Mr. Akash Kumar, Jr Engineer.


Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Executive Summary

Universities and institutions wield significant influence over their surroundings, contributing both positively and negatively to the broader world. The progress of a nation often takes root within its educational institutions, where ecological considerations play a pivotal role in overall development. The activities undertaken by a university can result in a diverse range of environmental impacts. A clean and healthy environment not only facilitates effective learning but also fosters a conducive atmosphere for education. Recognizing this, M. S. Ramaiah University of Applied Sciences places great importance on environmental factors and actively incorporates eco-friendly concepts into its operations.

M. S. Ramaiah University of Applied Sciences is firmly committed to sustainability and has taken numerous proactive measures to minimize its environmental footprint. However, there are still several areas where significant improvements can be realized. This report aims to showcase the achievements of M. S. Ramaiah University of Applied Sciences while offering recommendations for enhancing its environmental sustainability. The university conducted a Green Audit for the year 2022 and remains dedicated to maintaining a sustainable campus environment.

The primary goal of this report is to identify areas for improvement and propose practical, economically viable solutions to optimize energy and water usage on the campus. Just as individual self-reflection is a natural and integral part of a quality education, institutional self-evaluation is equally essential for a quality educational institution. Consequently, it is imperative for the university to assess its own contributions toward a sustainable future.

M. S. Ramaiah University of Applied Sciences has undertaken various initiatives to promote an eco-friendly campus environment, including energy conservation, water conservation, efforts for carbon neutrality, hazardous and e-waste management, health and well-being, and plantation. The university and its constituent institutions actively engage in activities through organizations like the N.S.S. (National Service Scheme) and other initiatives to raise eco-friendly awareness among students. Special programs featuring prominent personalities are organized to educate and train the public, and students are encouraged to participate in eco-friendly endeavors.

In conclusion, M. S. Ramaiah University of Applied Sciences is committed to its mission of sustainability and continuously strives to create a more environmentally responsible campus for the benefit of its students and the wider community.


Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Table of Contents

1	Green Auditing	5
2	About University	6
3	Built Environment	7
4	Water Audit	12
5	Good Health and Well-Being	19
6	Waste Management Audit	25
7	Biodiversity	26
8	Green education	30
9	Recommendation	34


Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Green Auditing


The term "Green" signifies practices that are environmentally friendly and do not harm the natural environment. This concept can be encapsulated by the acronym "Global Readiness in Ensuring Ecological Neutrality" (GREEN). A "Green Audit" can be defined as the systematic process of identifying, quantifying, recording, reporting, and analyzing elements of ecological diversity, and expressing these findings in financial or social terms.

To effectively implement a Green Audit, it is essential to understand various key aspects, including the objectives, drivers, future potential, benefits, and advantages of such an assessment. The practical application of Green Auditing involves various measures such as energy conservation, the utilization of renewable energy sources, rainwater harvesting, efforts towards achieving carbon neutrality, and extensive plantation initiatives.

The concept of Green Auditing has gained significance in educational institutions and organizations alike, as it serves as a valuable management tool for evaluating and improving environmental standards. By embracing Green Auditing, institutions can contribute to sustainable development and enhance their overall environmental performance. Moreover, the reckless experimentation with nature, often disregarding natural laws and regulations, is a significant driver behind the growing importance of Green Auditing.



M. S. Ramaiah University of Applied Sciences- Campus.


Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

I. About University

M. S. Ramaiah University of Applied Sciences (MSRUAS) is a multidisciplinary, innovative, and collaborative Higher Education Institute established as a Private University by an Act of Karnataka State in 2013, with a vision to be student centric, emphasizing on applied research, while maintaining high academic and ethical standards. Initially, the University had Faculties of Engineering and Technology, Art and Design, Management and Commerce, Mathematical and Physical Sciences, Life and Allied Health Sciences, Pharmacy, Dental Sciences and Hospitality Management. The School of Social Sciences and School of Law were added in 2020. M S Ramaiah Medical College, M S Ramaiah Institute of Nursing Education and Research and M S Ramaiah University of Physiotherapy were brought under MSRUAS in 2022. MSRUAS offers Undergraduate, Postgraduate, Vocational and Ph.D. Programmes. The University has a student strength of around 7000+ and 740+ qualified faculty members well trained in pedagogy and constantly striving to impart quality education to address societal challenges. Through adoption of global best practices in curricular, research, co-curricular and extra- curricular activities, MSRUAS ensures all-round development of students. Directorates of Student Affairs, Training and Lifelong Learning, Transferable Skills and Leadership Development, Research, Internal Quality Assurance Cell, Techno-Centre, Entrepreneurship, International Collaborations and Partnership Management, support the academic activities and interaction with Academia, Research Organizations, Industry, and Communities, in India and Abroad. MSRUAS is equipped with modern infrastructure and laboratories including an Advanced Learning Center supporting initiatives in Research, Advanced Design, Simulation, Testing, Clinical Studies, and Health Care.

VISION

RUAS aspires to be the premier university of choice in Asia for student-centric professional education that lays emphasis on applied research while maintaining the highest academic and ethical standards.

MISSION

Our purpose is the creation and dissemination of knowledge. We are committed to creativity, innovation, and excellence in our teaching and research. We inspire critical thinking, personal development and a passion for lifelong learning.

We value integrity, quality, and teamwork in all our endeavors. And we serve the technical, scientific, and economic needs of our society.

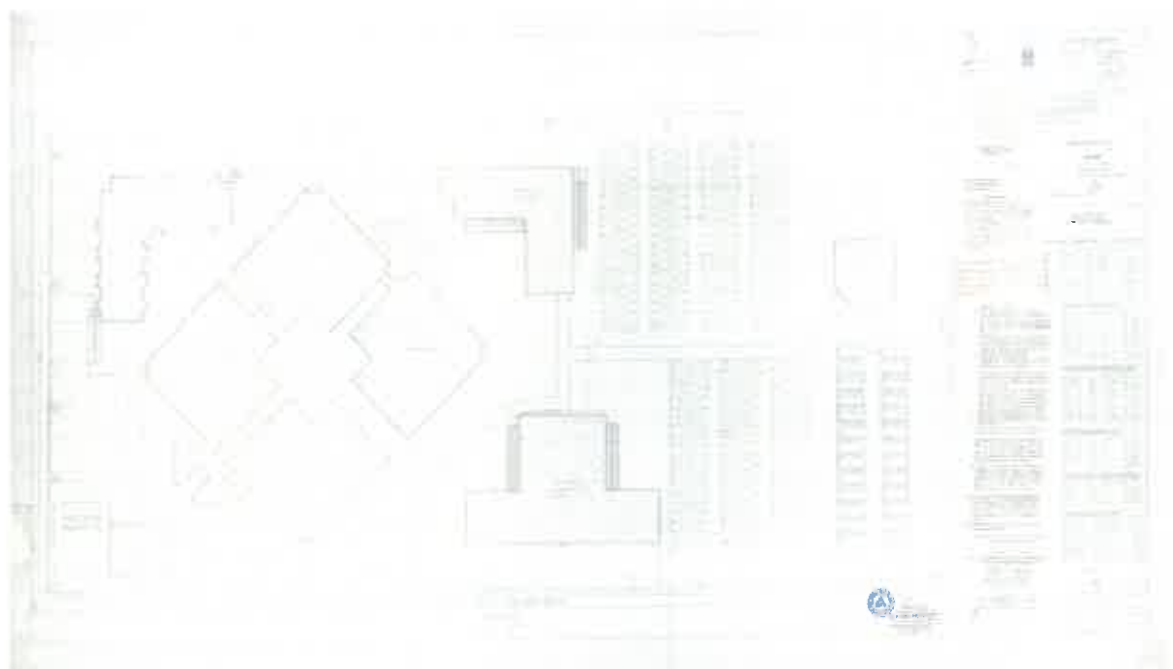

Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

II. Built Environment

i. Layout plan - Gnanagangothri Campus



M. S. Ramaiah University of Applied Sciences Gnanagangothri campus layout plan



M. S. Ramaiah University of Applied Sciences, Ramaiah Technology Campus layout plan



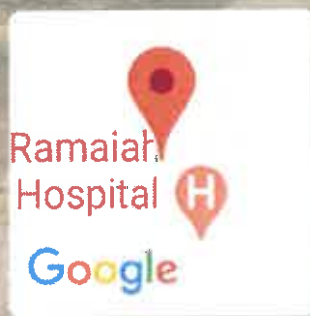
M. S. Ramaiah University of Applied Sciences, Ramaiah Technology Campus


Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

ii. Total built-up area of the University

Gnanagangothri Campus			
Sl. No.	Name of the Building	Floor	Area (Sft)
1	University House	Ground	12675
		First	20057
		Second	17900
2	Faculty of Dental Sciences	Basement	13,850
		Ground	30,374
		First	29,623
		Second	29,623
3	Faculty of Management & Commerce and Faculty of Life & Allied Health Sciences	Third	29,623
		Ground	24,500
		First	22,700
4	Faculty of Hospitality Management & Catering Technology	Second	22,700
		Third	22,700
		Basement	15,300
5	Faculty of Pharmacy	Ground	15,300
		First	15,900
		Second	15,900
		Third	15,900
6	Heritage Block (School of Social Sciences and School of Law)	Ground	22,700
		First	22,700
		Second	27,000
		Third	24,400
7	Ramaiah Medical College	Basement	6,675
		Ground	31,445
		First	28,000
		Second	28,853
		Third	28,000
8	Ramaiah Medical College Hospital	Lower Basement	65,250
		Upper Basement	52,780
		Ground	60,270
		First	59,880
		Second	56,590
9	Ramaiah Institute of Nursing Education and Research	Third	58,230
		Lower Basement 3 and Upper Basement 1	31,103
		Ground	1,17,316
		First	1,17,144
		Second	85,459
10	Triveni Girls Hostel and Nilgiris Boys Hostel	Third	24,074
		Ground	12,702
		First	12,702
		Second	12,702
11	Sapthagiri Hostel	Third	12,702
		Lower Basement	70,913
		Upper Basement	69,387
12	Faculty Residence – Tulasi Staff Quarters	Ground	42,338
		First	42,338
		Second	42,338
		Third	42,338
		Stilt Floor	3,200
		Ground + 2 Typical	9,600

Ramaiah Technology Campus			
Sl. No.	Name of the Building	Floor	Area (Sft)
1	A Block (RTC)	Basement	10,600
		First	10,600
		Second	12,100
		Third	12,100
2	B Block (RTC)	Upper	10,600
		Ground	10,600
		First	10,600
		Second	10,600
3	C Block (RTC)	Third	10,600
		Lower	8,600
		Upper	10,200
		Ground	10,200
		First	10,200
4	D Block (RTC)	Second	10,200
		Third	10,200
		Upper	8,600
		Ground	10,200
		First	10,200



Bengaluru, Karnataka, India

M S Ramaiah Advanced Learning Center Building Gnanagangotri
 Campus, Gate 4, New BEL Road, MSR Nagar, M S Ramaiah Nagar,
 Mathikere, Bengaluru, Karnataka 560054, India
 Lat N 13° 1' 46.3548"
 Long E 77° 34' 11.2656"
 09/04/21 01:29 PM

gk
 Registrar
 M.S. Ramaiah University of Applied Sciences 10
 Bangalore - 560 054



GC
Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

III. Water Audit

A water audit stands out as a crucial management tool, effectively minimizing losses, optimizing diverse uses, and promoting significant water conservation. The campus's unwavering commitment to efficient water usage and management is evident through various initiatives, ensuring satisfaction and eliminating unnecessary water wastage.

Throughout the survey, no instances of water wastage were observed. The expansive open grounds, adorned with abundant greenery, play a vital role in water percolation, eliminating barren areas. The campus is equipped with a functional rainwater harvesting unit that efficiently utilizes collected water for various campus needs. Additionally, all wastewater generated within the campus undergoes treatment in a fully operational Sewage Treatment Plant, and the treated water finds reuse for gardening purposes within the university. This comprehensive approach underscores the campus's dedication to responsible water management and sustainability.

i. Project Summary

Name	M. S. Ramaiah University of Applied Sciences
Location	University House, Gnanagangothri Campus New BEL Road, MSR Nagar, Bangalore - 560054 Phone +91 80 4536 6616
Coordinates	13.021863285853364, 77.51070903502364
Nearest water body	Cauvery
Nearest highway	NH 44 (0.5 km)
Nearest railway station	Yeshwanthpur
Nearest airport	KIA
Water resources	1. BWSSB 2. Ground Water (Bore Well)
Average daily water consumption	400 m ³ /day
Wastewater going to STP	200 m ³ /day
Total water recycle/reuse	75m ³ /day
Average annual rainfall	1200 mm
Total rooftop and surface area	100000 sq. ft.
Proposed rooftop and surface area	80000 sq. ft.
Water storage tank	8 lakhs lit (tanks with different capacities in various buildings of the campus)


Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

Name	Ramaiah Technology Campus (Peenya Campus)
Location	#470-P, Peenya Industrial Area, Peenya-IV Phase, Bangalore -560058, Phone: 080 4906 5555
Coordinates	13.019406825058931, 77.50178540334586
Nearest water body	Cauvery
Nearest highway	NH4 (2.5 km)
Nearest railway station	Yeshwanthpur
Nearest airport	KIA
Water resources	1.BWSSB 2. Ground Water (Bore Well-for Emergency condition)
Average daily water consumption	100m ³ /day
Wastewater going to STP	50 m ³ /day
Total water recycle/reuse	75 m ³ /day
Average annual rainfall	1200mm
Total rooftop and surface area	40,000 sq. ft.
Proposed rooftop and surface area	20000 sq. ft.
Water storage tank	1.5 lac lit (tanks with different capacities in various buildings of the campus)

ii. Water Supply and Usage

The university fulfills its water requirements primarily through strategically positioned bore wells, totaling six across the campus. These bore wells play a crucial role as vital reservoirs, guaranteeing a steady water supply throughout the year. In a proactive measure to enhance groundwater sustainability, the university has introduced recharge structures for all bore wells. These structures facilitate the percolation of rainwater and surface runoff into the ground, actively contributing to the preservation of groundwater resources. This approach exemplifies the university's dedication to efficient water management and the conservation of valuable resources.

WATER CONSUMPTION & WATER SOURCES

As a primary data collected by survey, we found


Sr. No.	Particulars	Details
1	Students staying at Hostel	150
2	Students at College	1289
3	Teaching Staff	395
4	Non-Teaching Staff	310
5	Visitors	150
	Total	2294

Estimation of water requirement for drinking & domestic use as per (Source: NBC 2016, BIS)

Sr. No.	Particulars	Details	Water Consume limit	Total water in lit/day
1	Students staying at Hostel	150	135 lit/day	6750
2	Students at College	1289	45 lit/day	58005
3	Teaching Staff	395	45 lit/day	17775
4	Non-Teaching Staff	310	45 lit/day	13950
5	Visitors	150	15 lit/day	2250
	Total	2294		98730

Total expected Water consumption as per NBC 2016, BIS for MSRUEAS is – 98.730 m³/day.

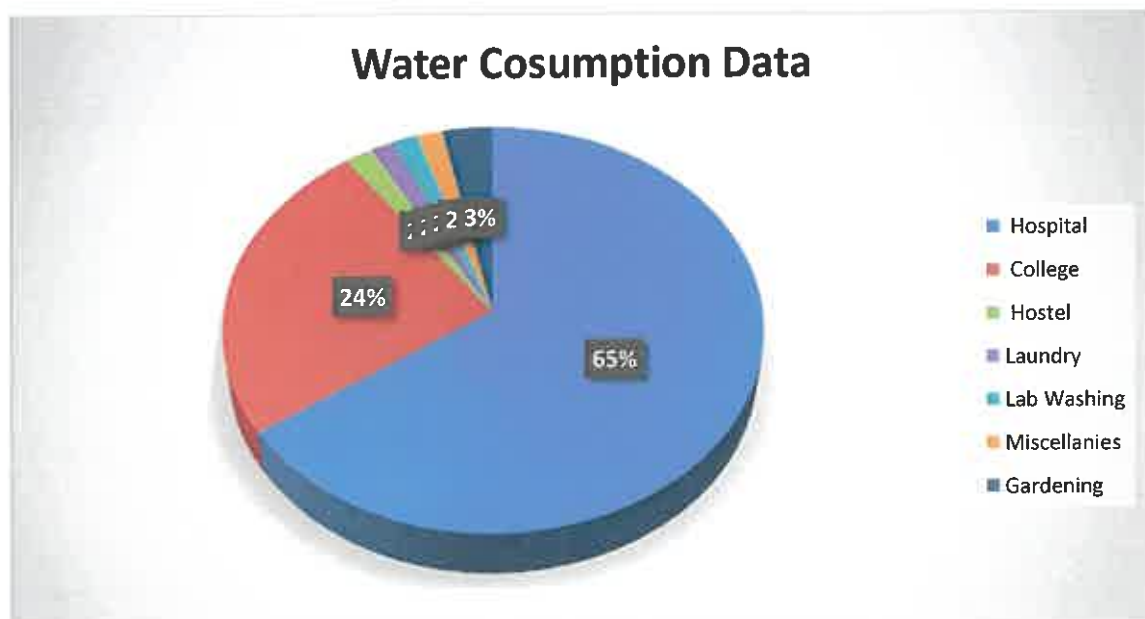



Registrar
 M.S. Ramaiah University of Applied Sciences
 Bangalore - 560 054

Actual Water Uses – (Both Campuses)

Sr. No.	Description	Water Consumption (m ³ /day)	Source/Remark
1	Domestic		1.BWSSB
	a) Hospital	400	2.Ground Water
	b) College	150	
	c) Hostel	10.7	
2	Laundry	20	
3	Lab Washing	10	
4	Miscellanies	10	Fresh Water
	Total	600	
5	Gardening	20	Treated/Recycle Water from STP Plant
6	Flushing	80	
		700	(Fresh Water & Treated Water From STP)

Water Consumption Summary



iii. Water quality

The quality of the bore well water has been assessed and meets the standards for potable (drinkable) water. To ensure the continued safety and quality of the drinking water provided to staff and students, the campus has implemented a comprehensive water treatment system. This system includes UV (Ultraviolet) and RO (Reverse Osmosis) filtration systems installed on each floor of every block. These filtration systems effectively purify the water, making it safe for consumption, and contribute to the overall well-being of the University community by providing access to clean and potable drinking water.



Drinking water facility in each block

iv. Rain water harvesting

At MSRUAS, a comprehensive strategy for rainwater harvesting has been embraced, promoting sustainable water management practices on campus. Employing the non-roof method, the campus has implemented an innovative approach to optimize rainwater utilization and effectively recharge the groundwater table. Specific structures, including recharge pits, have been strategically placed across the campus to capture and infiltrate rainwater into the ground. This approach not only conserves water but also significantly contributes to enhancing the groundwater table.

Additionally, the campus has integrated an advanced system of drain channels intelligently distributed throughout the campus. These channels are designed to collect rainwater and channel it to a centralized point or low-lying areas. This meticulous planning ensures that rainwater is efficiently gathered and redirected to specific zones for effective absorption or collection. By adopting this holistic approach, the campus minimizes surface runoff and effectively manages rainwater, contributing to both groundwater replenishment and the conservation of water resources.



Rainwater Harvesting – pipelines



Domestic Water Sump – 2 lakhs litre capacity



Water Filter for bore wells



Rainwater Harvesting – Pit



Water filter for borewells



Water Station



Pipeline for Rainwater Harvesting



Water Station Control Board – level control and pump control



IV. Good Health and Well-being.

i. Campus design caters to differently able people

The campus design places a strong emphasis on accessibility and inclusivity, catering to differently-abled individuals and senior citizens. Several measures have been implemented to ensure their comfort and ease of movement, including:



Non slippery ramps



Lifts with Braille assistance

Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054 19



Bengaluru, Karnataka, India
 M.S.Ramaiah Nagar, MSRIT Post, New BEL Rd,
 Devasandra Layout, Bengaluru, Karnataka 560054,
 India
 Lat N 13° 1' 42.0384"
 Long E 77° 34' 3.8028"
 09/04/21 03:00 PM



Bengaluru, Karnataka, India
 #27, AA Tower, MSR Main Road, Near Flyover, Mathikere, M
 S Ramaiah Nagar, Mathikere, Bengaluru, Karnataka 560054,
 India
 Lat N 13° 1' 45.7248"
 Long E 77° 34' 0.8112"
 12/04/21 01:34 PM

Washroom facility for differently abled



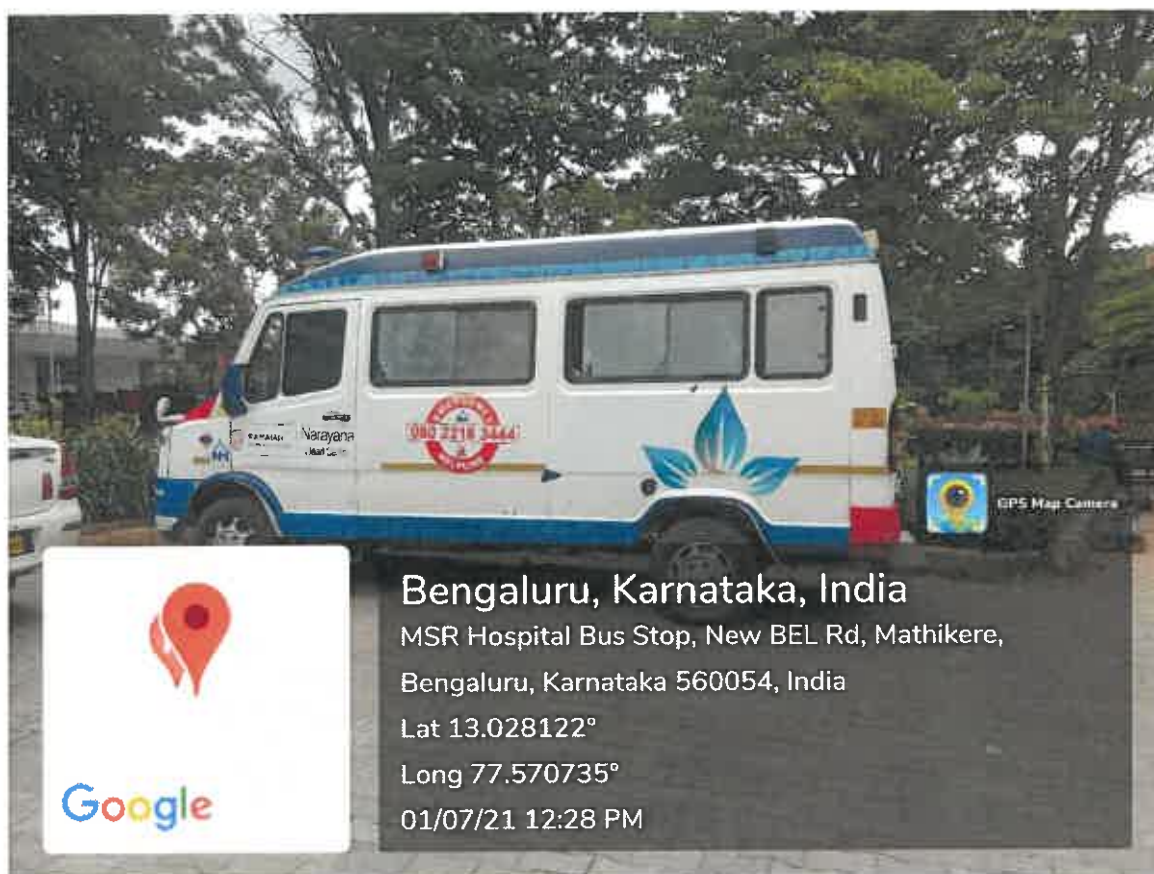
Bengaluru, Karnataka, India
 Ramaiah Institute Of Technology Old Medical College
 Building, MSR College Rd, M S Ramaiah Nagar,
 Mathikere, Bengaluru, Karnataka 560054, India
 Lat 13.029719°
 Long 77.566954°
 01/07/21 12:20 PM

Creche facility

Registrar
M.S. Ramaiah University of Applied Sciences
 Bangalore - 560 054



Basic amenities facility within the campus

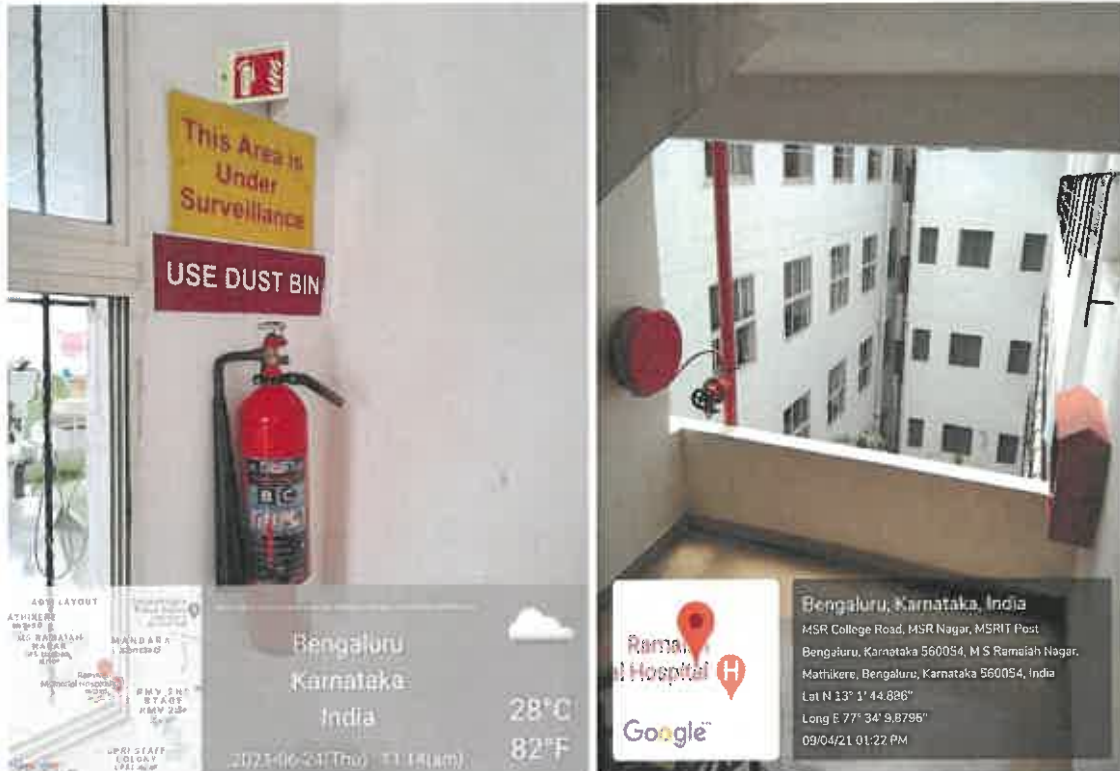


These measures collectively create an inclusive environment, promoting equal access and participation for all members of the campus community, regardless of physical abilities or age.

GR
Registrar
 M.S. Ramaiah University of Applied Science,
 Bangalore - 560 054

ii. Fire suppression system

To ensure the safety and well-being of the University community, University has implemented a robust fire safety system with hand held fire extinguishers and are Halon free. campus has not used any Halon based fire suppression system. Carbon dioxide B C Fire Extinguisher, also including dedicated fire safety water lines. These water lines serve as a crucial component of our emergency response plan, providing the means to combat fires effectively and minimize potential damage.





MSR College Rd, M S Ramaiah Nagar, Marikere, Bengaluru, Karnataka 560054, India

Bengaluru
Karnataka
India

2021-06-24(Thu) 11:16(am)



28°C
82°F



MSR College Rd, M S Ramaiah Nagar, Marikere, Bengaluru, Karnataka 560054, India

Bengaluru
Karnataka
India

2021-06-24(Thu) 11:20(am)

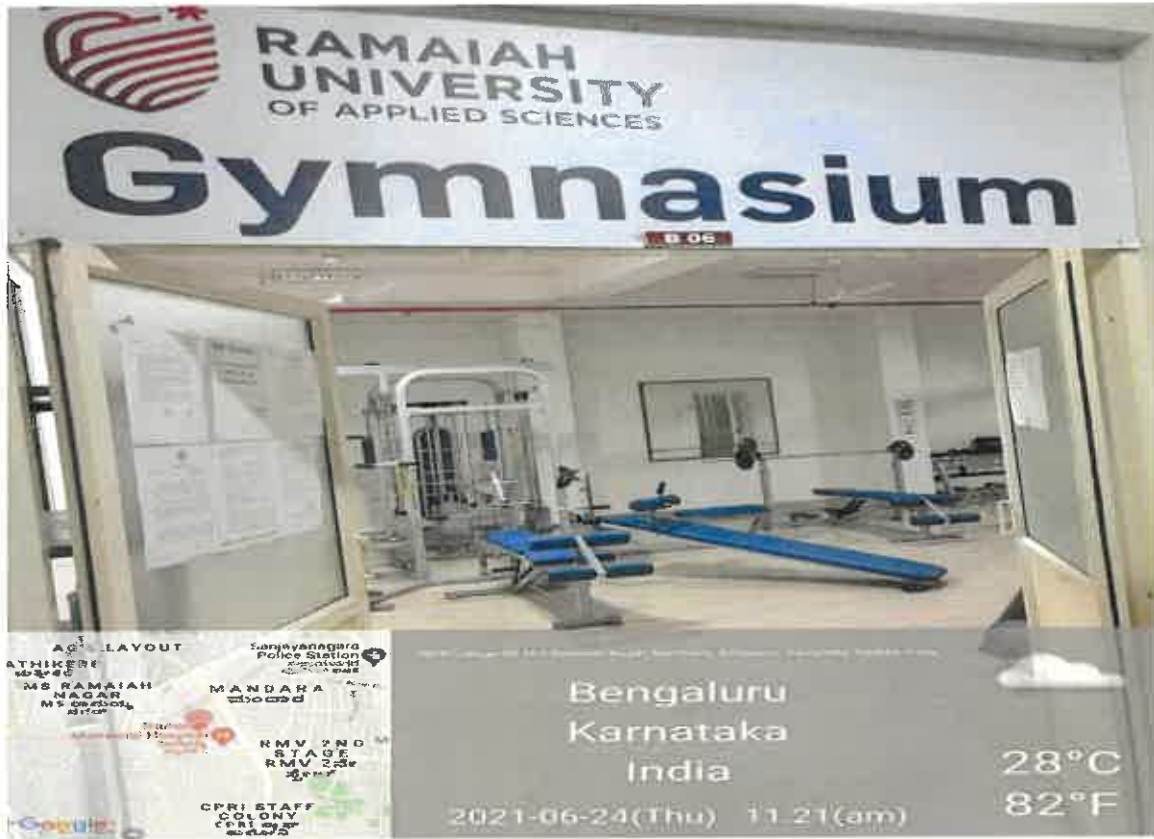


28°C
82°F

Indoor sports facilities

Handwritten signature
Registrar

M.S. Ramaiah University of Applied Sciences
Bengaluru - 560 054



Gym facility

GPR
 Registrar
 M.S. Ramaiah University of Applied Sciences
 Bangalore - 560 054

V. Waste Management Audit

M. S. Ramaiah University of Applied Sciences is committed to promoting environmentally responsible practices, and one key area where this commitment is evident is in its waste management strategies. By implementing a range of initiatives, the university aims to reduce its environmental impact, minimize landfill contributions, and foster a culture of sustainability among its students and staff.

Source Segregation:

The university has established a robust source segregation system, encouraging the separation of waste at its origin. Dust bins for biodegradable and plastic waste are strategically placed across the campus, facilitating the easy disposal of waste materials by students and staff.

Regular Cleaning and Municipal Service Collaboration:

Daily cleaning activities ensure the maintenance of a clean and hygienic environment. A significant portion of non-biodegradable waste is efficiently lifted by the City Municipal service, reinforcing the university's commitment to responsible waste disposal.

Specialized Handling of Hazardous Waste:

University is responsible for the collection and proper disposal of various types of hazardous waste generated within the university, ensuring adherence to safety and environmental standards.



[Signature]
Registrar
M.S. Ramaiah University of Applied Science
Bangalore - 560 054


VI. Biodiversity Audit

A thorough scientific survey of the campus's plant and animal life was conducted throughout the rainy, winter, and summer seasons in 2022, constituting a comprehensive biodiversity audit. This examination revealed significant findings, including the identification of numerous tree species and a diverse array of mammals, birds (*Aves*), arthropods, and annelids. These findings highlight the remarkable diversity of flora and fauna flourishing on the campus.

Noteworthy among the discoveries is the seasonal influx of various bird species, contributing to the ecological significance of the campus. In a commendable initiative, the institution has taken steps to label trees and plants with their botanical names and assign unique numerical identifiers. This concerted effort aligns with the broader goal of preserving and celebrating the campus's rich biodiversity, aiming to foster a deeper appreciation for the natural world.

Campus Plantation Overview: In the campus, there is a dedicated effort towards creating a vibrant and green environment with a focus on a variety of plants that contribute to the beauty and ecological balance of the surroundings.

List of Plants at RUAS				
SI No	Botanical name	Common name	Family	Nos of plants
1	<i>Eugenia Jambosoides</i> C Wright ex Griseb	(nerale)	Myrtaceae	16
2	<i>Azadirachtra Indica</i> A Jubs	Neem	Meliaceae	12
3	<i>Dracaena reflexz</i> Lam	Sang - of - India	Asparagaceae	13
4	<i>Plumiria Obtusa</i> . L.	Pagoda- tree	Apocynaceae	6
5	<i>Jacaranda Mimosifolia</i> D. Don	Block poui	Bignoniaceae	28
6	<i>Luacaena Lencocephala</i> (Lam)de wit	coffee bush	Leguminosae	5
7	<i>Hibiscus rosa-sinensis</i> L	Chinese hibiscus	Malvaceae	8
8	<i>Ixora coccinea</i> L	Flame -of-the-woods	Rubiaceae	30
9	<i>Thuja occidentlis</i> L	Northern White-cedar	cupressaceae	32
10	<i>Erica arborea</i> L	Tree health (Austalian bottle brush)	Ericaceae	25
11	<i>Tabebnia aurea</i> (silvamanso)Benth. &Hook.f.	Carribbean trumpet-tree	Bignoniaceae	6
12	<i>Saraca Indica</i> L	Ashoka tree	Leguminosae	4
13	<i>Phyllanthus emblica</i> L	Indian -goosberry	Phyllanthaceae	3
14	<i>Phyllanthus acidus</i> (L). Skeeb	Indian -goosberry	Phyllanthaceae	4
15	<i>cocos nucifera</i> L	Coconut	Arecaceae	13
16	<i>Trichilia dregeana</i> sond.	Christamas-bells	Meliaceae	11
17	<i>Terminalia catappa</i> L	Indian - almond	Combretaceae	8
18	<i>Ficus sycomorus</i> L	Sycomore	Moroceae	4


 Registrar
 M.S. Ramaiah University of Applied Sciences
 Bangalore - 560 054

19	<i>Callistemon viminalis</i> (sol. Ex Gaertn).G. Don	Greek bottle brush	Myrtaceae	3
20	<i>Araucaria heterophylla</i> (Salisb.) Franco	Norfolk island. Pine (*X Mass tree	Araucariaceae	2
21	<i>Tectona grandis</i> L.f.	Bankok teak	Lamiaceae	25
22	<i>Grevillea robusta</i> A. cunn.ex R.Br.	Asustralian silky- Oak	Proteaceae	45
23	<i>Tecoma Stans</i> (L.) jubs.ex Kunth	Trumpet- flower	Bognoniaceae	10
24	<i>Polyatthia longifolia</i> (sonn.) Thwaites	Cemetery- tree	Annonaceae	4
25	<i>Areca catechu</i> L.	Indian- nut	Arecaceae	40
26	<i>Tamarindus Indica</i> L.	Tamarind	Leguminosae	1
27	<i>Limonia acidissima</i> Graff	Indian wood apple	Rutaceae	3
28	<i>Bougainvillea glabrachois</i>	Paper- flower	Nyctaginaceae	10
29	<i>Dyposis Lutescens</i> (H.Wendl.)Beentje & J.Dransf.	Areca palm	Arecaceae	24
30	<i>Ficus carica</i> L.	Fig	Moroceae	2
31	<i>Risa chinesis</i> Jacq	Bengal rose	Rosaceae	74
32	<i>Plumeria Pudica</i> Jacq	Bridal boquet	Apocynaceae	13
33	<i>Euphorbia Lotinifolia</i> L.	Tropical smokebush	Euphorbiaceae	15
34	<i>Murraya Koenigii</i> (L.) Spreag.	Curryleaf tree	Rutaceae	1
35	<i>Anacardium occidental</i> L.	Cashew	Anacardiaceae	2
36	<i>Arotocarpus heterophyllus</i> Lam	Jack fruit	Moraceae	10
37	<i>Averrhoa carambola</i> L.	Carambola (star fruit)	Oxalidaceae	1
38	<i>Dendrocalamus giganteus</i> munro	Giant bamboo	Poaceae	6
39	<i>Maringa Ofera</i> Lam	Drumstick tree	Maringaceae	8
40	<i>Mangifera Indica</i> L.	Common Mango	Anacardiaceae	27
41	<i>Psidium guajava</i> L.	Common gouava	Myrtaceae	35
42	<i>Manilkara Zapota</i> (L>) P. Royen	Chicle	Sapotaceae	5
43	<i>Pterocarpus Indicua</i> Willd.	Amboyna- wood	Leguminosae	28
44	<i>Ficus Microcarpa</i> L.f.	Chinese benyan	Maraceae	10
45	<i>Tabebuia heterophylla</i> (DC.) Britton.	White- cedar	Bignoniaceae	6
46	<i>Spathodea campanuiata</i> P. Beur.	African Thlip tree	Bignoniaceae	3
47	<i>Cordia Sebestena</i> L.	Geranium-tree	Boraginaceae	1
48	<i>Annona Montana</i> Macfad	Mountain Soursop	Annonaceae	2
49	<i>Citrus Maxima</i> (Burm) Merr.	Pomelo	Rutaceae	2
50	<i>Filicium decipicus</i> (wight & Arn.) Thwaites	Feru tree	Sapindaceae	3
51	<i>Brownea grandiceps</i> Jacq	Rose-of-venezuela	Leguninosae	3
52	<i>Persea americana</i> Mill	Avocada	Lauraceae	2
53	<i>Annona Squamosa</i> L.	Custard - apple	Annonaceae	4
54	<i>Calophyllum inophyllum</i> L.	Indian lourel	Clusiaceae	2
55	<i>Syzygium samangense</i> (Blume) Merr.& L.M.	Java - apple	Myrtaceae	2
56	<i>Euphorbia miliides</i> mouli.	Christ's- plant	Euphorbiaceae	8
57	<i>Roystonea regia</i> (Kunth)D.F.Cook	Cuban rayal palm	Arecaceae	80

58	Ficus benjamina L.	Mahyan banyan	Moraceae	25
59	Santalum album L.	East Indian sandl wood	Santalaceae	3
60	Mognolia Champaca (L). Baill. Ex pierre	Michelia	Magnolioceae	3
61	Acacia auriculiforis Benth	Earleaf acacia	Leguominosae	1
62	Ficus religiosa L.	Sacred fig	Moraceae	1
63	Radermachera sinica (Hence)Hemsl.	China doll plant	Bignoniaceae	4
64	Syzygium Jambos(L.)Alston	Jambos	Myrtaceae	2
65	Mimusops elevgi L.	Medar	Sapotaceae	4
66	Delonix regia(Hook.)Ref.	Flamboyant	Leguninosae	9
			Total	802

Plant List RTC Peenya				
SI No	Botanical name	Common name	Family	Numbers
1	<i>Eugenia Jambosoides C Wright ex Griseb</i>	Nerale	Myrtaceae	14
2	<i>Azadirachtra Indica A Jubs</i>	Neem	Meliaceae	12
3	<i>Plumiria Obtusa. L.</i>	Singapore graveyard flower	Apocynaceae	10
4	<i>Styphnolobium japonicum. L.</i>	Pagoda- tree	Apocynaceae	6
5	<i>Jacaranda Mimosifolia D. Don</i>	Block poui	Bignoniaceae	28
6	<i>Hibiscus rosa-sinensis L</i>	Chinese hibiscus	Malvaceae	8
7	<i>Ixora coccinea L</i>	Flame -of-the-woods	Rubiaceae	30
8	<i>Thuja occidentlis L</i>	Northern White-cedar	cupressaceae	32
9	<i>Erica arborea L</i>	Tree health (Austalian bottle brush)	Ericaceae	25
10	<i>Saraca Indica L</i>	Ashoka tree	Leguminosae	4
11	<i>Phyllanthus acidus(L). Skeeb</i>	Indian -goosberry	Phyllanthaceae	4
12	<i>Terminalia catappa L</i>	Indian - almond	Combretaceae	8
13	<i>Ficus sycomorus L</i>	Sycomore	Moroceae	4
14	<i>Tectona grandis L.f.</i>	Bankok teak	Lamiaceae	28
15	<i>Grevillea robusta A. cunn.ex R.Br.</i>	Asustralian silky- Oak	Proteaceae	47
16	<i>Tecoma Stans(L.) jubs.ex Kunth</i>	Trumpet- flower	Bognoniaceae	5
17	<i>Ficus carica L.</i>	Fig	Moroceae	2
18	<i>Euphorbia Lotinifolia L.</i>	Tropical smoke bush	Euphorbiaceae	15
19	<i>Murraya Koenigii (L.) Spreag.</i>	Curry leaf tree	Rutaceae	1
20	<i>Moringa Olifera Lam</i>	Drumstick tree	Maringaceae	8
21	<i>Ficus Microcarpa L.f.</i>	Chinese banyan	Maraceae	10
22	<i>Spathodea campanuiata P. Beur.</i>	African Thlip tree	Bignoniaceae	3

23	<i>Annona Montana Macfad</i>	Mountain Soursop	Annonaceae	2
24	<i>Annona Squamosa L.</i>	Custard - apple	Annonaceae	4
25	<i>Euphorbia miliides moul.</i>	Christ's- plant	Euphorbiaceae	8
26	<i>Santalum album L.</i>	East Indian sandal wood	Santalaceae	3
27	<i>Mognolia Champaca (L). Baill. Ex pierre</i>	Michelia	Magnoliocae	3
28	<i>Acacia auriculiforis Benth</i>	Ear leaf acacia	Leguominosae	1
29	<i>Ficus religiosa L.</i>	Sacred fig	Moraceae	1
30	<i>Syzygium Jambos(L.)Alston</i>	Jambos	Myrtaceae	2
31	<i>Delonix regia (Hook.)</i>	Flamboyant	Leguninosae	9
			Total	337

A diverse range of mammal, bird, arthropod, and annelid species were observed on campus, showcasing an unexpectedly rich composition of flora and fauna. This biodiversity is particularly remarkable given the urban location of the campus in the heart of the city, underscoring the resilience and adaptability of the local wildlife to coexist in this unique environment.


Registrar
M.S. Ramaiah University of Applied Sciences
Bangalore - 560 054

VII. Green Education

The institution proactively promotes green education by involving students and local communities, fostering increased awareness and inspiring the adoption of eco-friendly practices through the National Service Scheme (NSS). NSS assumes a pivotal role in educating students about the environment, imparting knowledge on environmental laws, and instilling a sense of responsibility for safeguarding the environment. To further these goals, the institution organizes a myriad of programs and awareness initiatives dedicated to environmental protection. These activities, conducted periodically, encompass various outreach and educational programs throughout the year, engaging both campus residents and local communities. The overarching aim of this collective effort is to augment public awareness regarding environmental sustainability and the green initiatives implemented on the campus.

The entire campus is devoted to the Swachh Bharat Abhiyan, actively promoting awareness about the Clean India mission. Staff and students enthusiastically partake in efforts to maintain the campus and its surroundings in impeccable cleanliness, thereby contributing to the mission's success across the campus.

Furthermore, the institution commemorates significant environmental occasions such as Environmental Day, Earth Day, and Water Day annually. These celebrations often involve tree planting activities, serving as a means to raise awareness and expand green coverage in and around the campus. This unwavering commitment to environmental awareness and action exemplifies the institution's dedication to sustainable practices and the overall well-being of the environment.

" RUAS Service to Society: AAE Teams Undertake Road Cleaning and Waste Awareness Campaign"

As a meaningful contribution to societal well-being, all three teams from the Aeronautical and Automotive Engineering (AAE) department at RUAS actively participated in a collaborative effort to clean the stretch of road between Brindavan Bus Stop and the road connecting Rajgopal Nagar Main Road near the Peenya Campus. The primary objectives were to enhance cleanliness in the area and raise awareness about responsible waste disposal practices.

To ensure the safety of participants, safety masks and hand gloves were procured. Essential tools such as shovels, diggers, and brooms were either borrowed or procured to facilitate the effective handling and segregation of waste. The teams diligently worked to remove banners and advertisement posters from walls and electrical transformer poles, further contributing to the visual cleanliness of the surroundings.

The collected waste predominantly comprised broken bottles, tissue papers, and paper plates, emphasizing the need for a concerted effort in waste management and public awareness. In the

final stage of the initiative, the gathered waste was transported to the main disposal area in the Peenya industrial area, utilizing a dump vehicle for proper disposal.

This service to society activity not only exemplifies RUAS's commitment to community welfare but also showcases the proactive involvement of the AAE teams in addressing environmental concerns. Through initiatives like these, RUAS continues to foster a sense of responsibility and environmental consciousness among its students, contributing to a cleaner and more aware society.




Registrar
M.S. Ramaiah University of Applied Science,
Bangalore - 560 054

VIII. Recommendation

Recommendations for Sustainable Practices

Following the recent Green Audit, we have identified several key recommendations aimed at further enhancing our sustainability efforts and environmental responsibility:

1. **Installation of Water Meters:** Implement water meters at all water tank outlets to accurately monitor and control water usage.
2. **Repairing Leaks:** Promptly address leaks by fixing taps and pipes to minimize water wastage.
3. **Dual Flush Systems:** Maintain and implement dual-flush tank systems for toilets to optimize water usage during flushing.
4. **Automatic Faucets:** Install auto-flush systems for basins to reduce water usage and promote efficient handwashing practices.
5. **Conscious Hand-Washing:** Encourage individuals to avoid running water continuously while handwashing, promoting water-conscious habits.
6. **Reuse of Treated Water:** Utilize treated water from Sewage Treatment Plants (STP) for flushing systems in toilets, urinals, and watering the garden across the entire campus.
7. **Pipeline Leak Detection:** Regularly monitor and promptly address tap and pipeline leaks to prevent unnecessary water loss.
8. **Drought-Tolerant Landscaping:** Opt for native and drought-tolerant grasses, ground covers, shrubs, and trees in landscaping projects to reduce the need for frequent watering.


Registrar
M.S. Ramaiah University of Applied Science,
Bangalore - 560 054



GA



GCS