GREEN AUDIT
2021-2022

KSPM's
Rajarambapu College of Sugar Technology, Islampur
Empowerment Through....
Science & Technology...

RAJARAMBAPU COLLEGE OF SUGAR TECHNOLOGY
ISLAMPUR

Introduction

A Green Audit for Environmental Protection:

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of various establishments. It aims to analyze environmental practices within and outside of the concerned sites, which will have an impact on the eco-friendly ambience. The purpose of Green auditing is to assess periodically the compliance of completed or on-going activities with the requirements of legislation, measures proposed in environmental policies, environmental management systems and environmental schemes or the provisions of standards and contracts.

B Benefits of Green Audit:

- Ensuring legislative compliance.
- Reducing environmental impacts.
- Reducing waste, water and energy costs.
- To safeguard the environment and natural resources.
- Empower the organization to frame a better environmental performance.
- It portrays good image of institution through its clean and green campus.
- Finally, it will help to built positive impression for the upcoming NAAC visit.

C NAAC criteria VII Environmental Consciousness:

Green Audit is assigned to the criterion VII of NAAC. National Assessment and Accreditation Council which is a self-governing organization that declares the institutions as Grade A , Grade B orGrade C according to the scores assigned at the time of accreditation of the institution. The intention of green audit is to upgrade the environmental condition in and around the institution. It is performed by considering some environmental parameters like water and wastewater management, energy conservation, waste management, air monitoring, etc. for making the institution more eco-friendly.

Students are the major strength of any academic institution. Practicing green actions in any educational institution will inculcate the good habit of caring nature in students. Many environmental activities like plantation and nurturing saplings and trees, cleanliness drives, bird watching camp, no vehicle day, rain water harvesting visits to ecologically important places through green clubs will make the student a good citizen of country.

D Profile of Rajarambapu College of Sugar Technology, Islampur:

Krushival Shikashan Prasarak Mandal.

Rajarambapu College of Sugar Technology, Islampur is started in 2010. Rajarambapu College of Sugar Technology follows a philosophy of 'Knowledge is a Power'. Most important things is that our institute which is affiliated to shivaji university Kolhapur. Ours is the only institute affiliated to any university in Maharashtra, which provides UG & PG degree in Sugar Technology as well as Alcohol Technology.

Rapid growth of modern technology is the most significant source and obligatory factor and it should be adopted and implemented for effective function and principle procurement of industry. Highly resourceful experts from the Institute consistently striving to discover growing innovative scientific, technological development for upgrading modern skills, talent and potential of human resource through dynamic training modules to cater to the educational and training requirements of sugar and allied industries to flourish their growth.

The Institute has designed a UG, PG and Certificate Programmes to cater the need of the sugar and allied industry for varying duration, covering wide range of disciplines to enable a trainee to imaginatively understand the value and utility of modern technologies to achieve desired results.

Uncompromising adherence to value and implementation of high quality educational programme, with the aim of creating and developing a rich pool of selfless young men and women, capable of ensuring for themselves a decent livelihood and meeting the growing needs of developing society were committed to satisfy our stake-holders and society at large by providing world class education to our students.

Since November 2016, we have started two new courses viz. M. Sc. Sugar Technology and M. Sc. Alcohol Technology to make available higher studies for the students and proceed for research activities. From June 2017, we started certificate courses viz. Distillery Plant Operator, DCS Operator, Sugar Engineering for student to make them a good experienced human recourse for Sugar/Alcohol Industries.

Main Aim

- To provide technical education for sugar and allied industries.
- To undertake research on related to sugar and allied industries
- To provide refresher course to the employees of different sugar factories.
- To provide consultancy services to industries through Technical Adviser team.

Our Mission.

To encourage the students of rural area for their all round development and to inculcate human values amongst them for social commitment and nation building.

COLLEGE PROFILE IN BRIEF

NAME OF THE COLLEGE : Rajarambapu College of Sugar Technology, Islampur

ESTABLISHMENT : **2010**

PIONEERS : Hon.B.D.Pawar

Rajarambapu College of Sugar Technology, Islampur is started on 13th September 2010. Rajarambapu College of Sugar Technology follows a philosophy of **"Knowledge is a Power"** .This is the only college for B.Sc. and M. Sc. Sugar Technology, M. Sc. Alcohol Technology and Certificate courses related to Sugar and Alcohol industries human resource development.Since November 2016, we have started two new courses viz. M. Sc. Sugar Technology and M. Sc. Alcohol Technology to make available higher studies for the students and proceed for research activities. From June 2017, we started certificate courses viz. Sugar Engineering, Analytical Chemist for Sugar Laboratory, Analytical Chemist for Co-gen Laboratory, Analytical Chemist for ETP Laboratory, Manufacturing Assistant, Distillery Plant Operator, DCS Operator, ETP Operator, Turbine Operator for student to make them a good experienced Human Recourse for Sugar/Alcohol Industries. The facilities are as follows.

- **Classroom:** 07 spacious classrooms with necessary furniture & blackboards in 01 building of the college.
- **Library:** The library of the college is big stored independent building with more than 1058 books & 01 study room.
- **Laboratory:** 04 spacious laboratories with Computers with Battery backup,equipment's & furniture etc.
- **Administrative Office:** The spacious LAN computerized administrative office with moderntechnology & with necessary facilities.
- **Toilet:** 02 Toilets for gents & 01toilets for ladies.
- **Conference Hall:** Independent conference hall with necessary facilities for different activities of the departments.
- **Study Room**: In the library one reading for students & study room for faculty members. This study rooms are facilitated with necessary furniture. Drinking water facility is available in the library.
- **Canteen:** One canteen in the campus providing tea & snacks.

Methodology

The college has conducted Green Audit in the year 2021/2022, on a yearly basis. The audit was carried out in three phases.

a. Questionnaire survey:

It includes administrative issues associated with the planning of audit, selecting the personnelfor the audit team, preparing the audit protocol used by organization, obtaining background information, etc. The scope of the audit was defined at this step. It was decided that the informationrelated to Water and Wastewater management, Energy conservation, Green belt, Carbon inventory, Solid waste management, Hazardous waste management, Air and noise quality status, activities of nature club, etc. should be gathered for the audit purpose. For collecting data related to these different areas, specific questionnaires were prepared.

b. Onsite visit and observations:

The data related to above mentioned areas was collected by visiting each and every facility of college campus. The questionnaires were filled up according to the present situation. Photographic documentation was also done with the help of sophisticated camera.

c. Data analysis:

After collection of secondary data, the reviews related to each environmental factor were taken by the green audit team. The data was tabulated, analyzed and graphs were prepared using computer. Depending upon the observations and data collected, interpretations were made. The lacunas and good practices were documented. The Environmental Management Plan (EMP) was prepared for the next academic year in order to have better environmental sensitization. Finally, all the information was compiled in the form of Green Audit Report.

Environmental Auditing Process

Planning

Choosing Audit Team

Collection of Data

Analyzing Results of Audit

Evaluating Audit

Overview of Green Audit

A. Profile of Rajarambapu College of Sugar Technology, Islampur:

Rajarambapu College of Sugar Technology, Islampur, is situated in Maharashtra at **17º04'99"N 74º26'52"E**, in the Sangli District and it is at altitude of 457 fts above mean sea level.

Satellite image of Rajarambapu College of Sugar Technology Campus

Source: Google Earth

A) Entrance

B) Office

C) Laboratory

D) Open space.

Latitude: 17º04'99"N **Longitude: 74º26'52"E**

Sr.	Particular	Content	
1.	**Name of the project**	**Green Audit/Energy Audit/Environmental Audit**	
		Name	Rajarambapu College of Sugar Technology, Islampur.
		Address	At.P:- Islampur Tahsil-Walwa. Dist.:- Sangli Pin-415409
		Telephone	08600752539
		Email ID	rcstcollege2010@gmail.com
		Name	**Natural Solution EnvironmentalServices**
			ISO 9001:2015 ISO 14001:2015
		Address	Islampur Dist.:- Sangli
		Registration No.	**MH29D0037743**
		GSTIN	**27ABYPI4809G1Z8**
		Mobile	**09860437123**
		Email ID	**naturalsolution3@gmail.com**
4.	**Type of project:**	Educational	
5.	**Location of the project**	Bahe Naka Bahe road A/P:IslampurTal:WalawaDist:Sangli	
6.	**Whether in Corporation/ Municipal / other area**	Muncipal	
		Sr. No.	**1765** **Sq. m**
			Sq. m
		Total	1765 **Sq. m**
		Buildup area	**743 Sq. m**
10.	**Ground-coverage percentage (%)** ***(Note: Percentage of plot not open to sky)***	**185.87 sq.m**	
11.	**Height of the building**	**5 meter**	

a. Water and Wastewater Audit:

Water audit can be defined as a qualitative and quantitative analysis of water consumption to identify means of reducing, reusing and recycling of water. Water Audit is nothing but an effective measure for minimizing losses, optimizing various uses and thus enabling considerable conservationof water in irrigation sector, domestic, power and industrial as well. A water audit is a technique or method which makes possible to identify ways of conserving water by determining any inefficienciesin the system of water distribution. The measurement of water losses due to different uses in the system or any utility is essential to implement water conservation measures in such an establishment.

Water accounting is the process of communicating water resources related information and the services generated from consumptive use in a geographical domain, such as a river basin, a country or a land use class; to users such as policy makers, water authorities, managers, etc.

Importance of Water Audit:

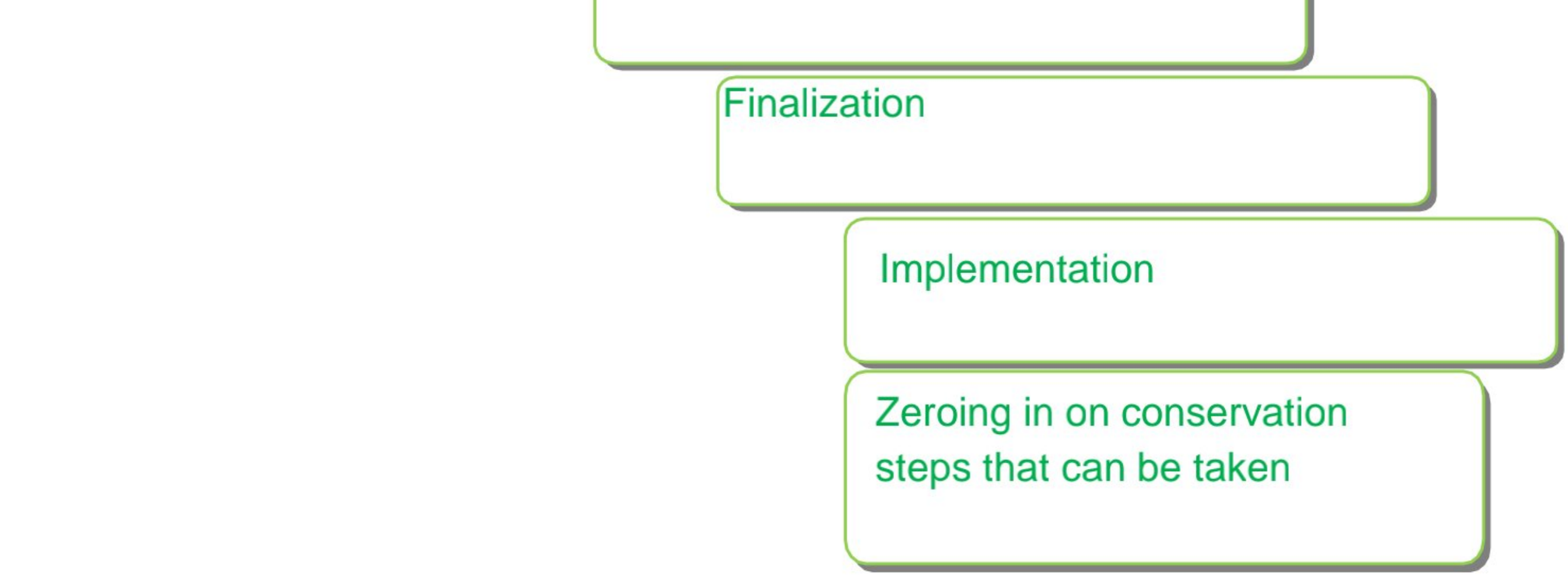
- Water audit improves the knowledge and documentation of the distribution system.
- Identifies the problem and risk areas and a better understanding of what is happening to the water after it leaves the source point.
- Leads to reduced water losses.
- Improved financial performance.
- Improved reliability of supply system.
- Efficient use of existing supplies.
- Better safeguard to public health and property and reduced legal liability.Reduced disruption, thereby improving level of service to customers.
- Large potential cost savings that can be achieved by water harvesting, through therecycling of water and the use of rain water.

It is observed that a number of factors like climate, culture, food habits, work and working conditions, level and type of development, and physiology determine the requirement of water. The community which has a population between 20,000 to 100,000 requires 100 to 150 liters per person (capita) per day. The communities with a population can consume over 100,000 — 150 to 200 liters person (capita) per day. As per the standards provided by WHO Regional office for South East Asia Schools requires 2 liters per student; 10-15 liters per student if water-flushed toilets, Staff accommodation requires 30 liters per person per day and for sanitation purposes it depends on technology.

C) Water Audit:

Water usage can be defined as water used for all activities which are carried out on campus from different water sources. This includes usage in all residential halls, academic buildings, on campus and on grounds. Wastewater is referred as the water which is transported off the campus. The wastewater includes sewerage, residence, hall waters used in cooking, showering, clothes washing as well as wastewater from chemical and biological laboratories which ultimately going down in sink or drainage system.

Water Audit Process:

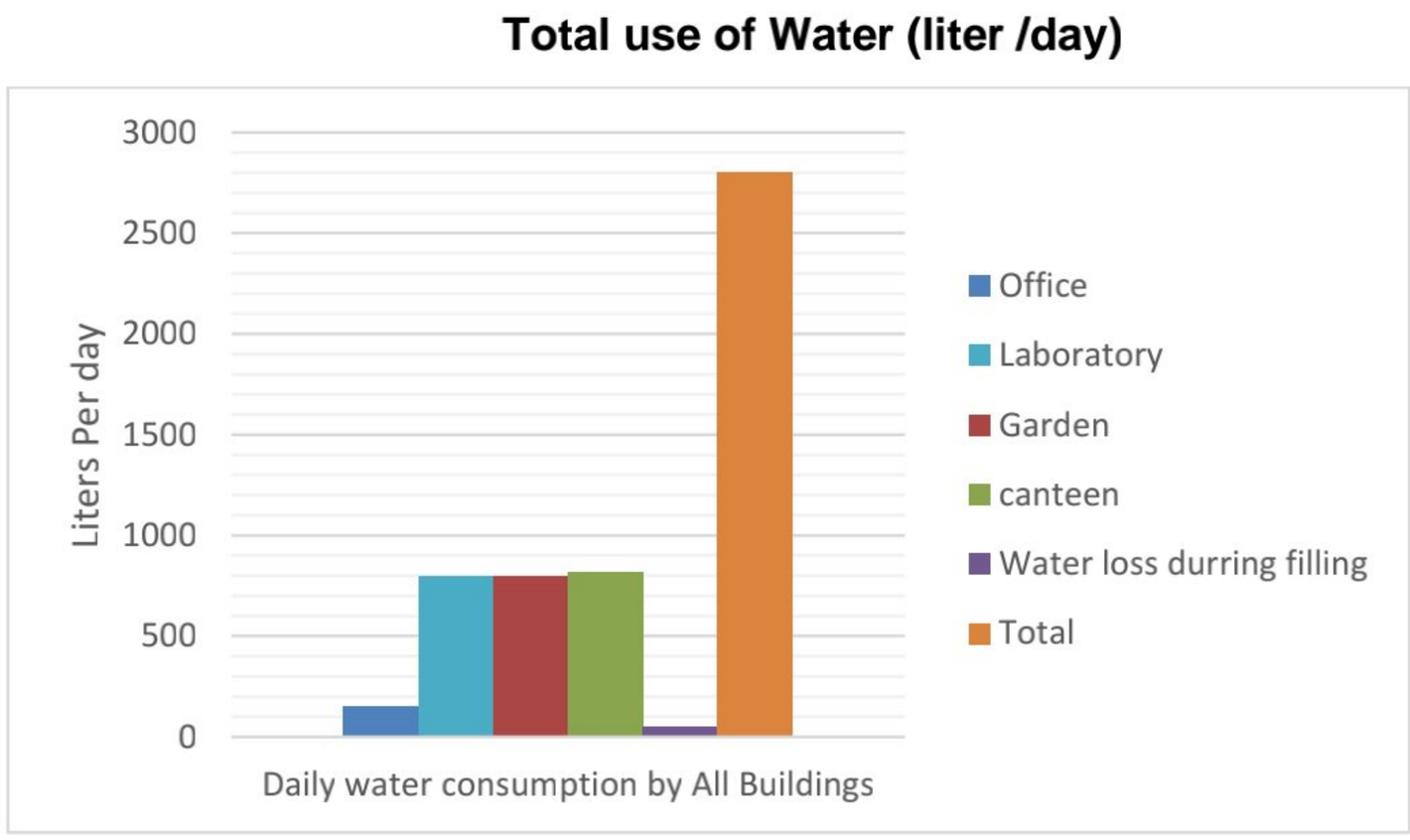


❖ Overall water consumption in Rajarambapu College of Sugar Technology:

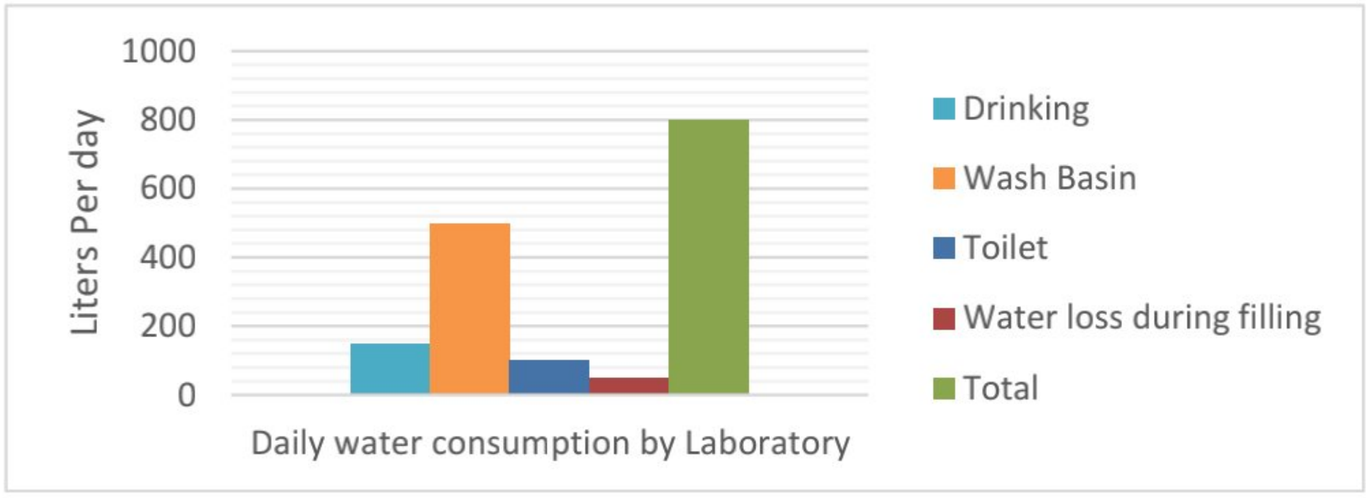
From the data collected for water audit of Rajarambapu College of Sugar Technology, the water distribution and water consumption pattern is noticed as follow. The college is having main building for administrative work as well for teaching work. For the water audit purpose we categorized the college campus area into three buildings namely as Main Building, office and Garden.

In water audit study the daily water consumption by Main Buildings is found to be as follows.

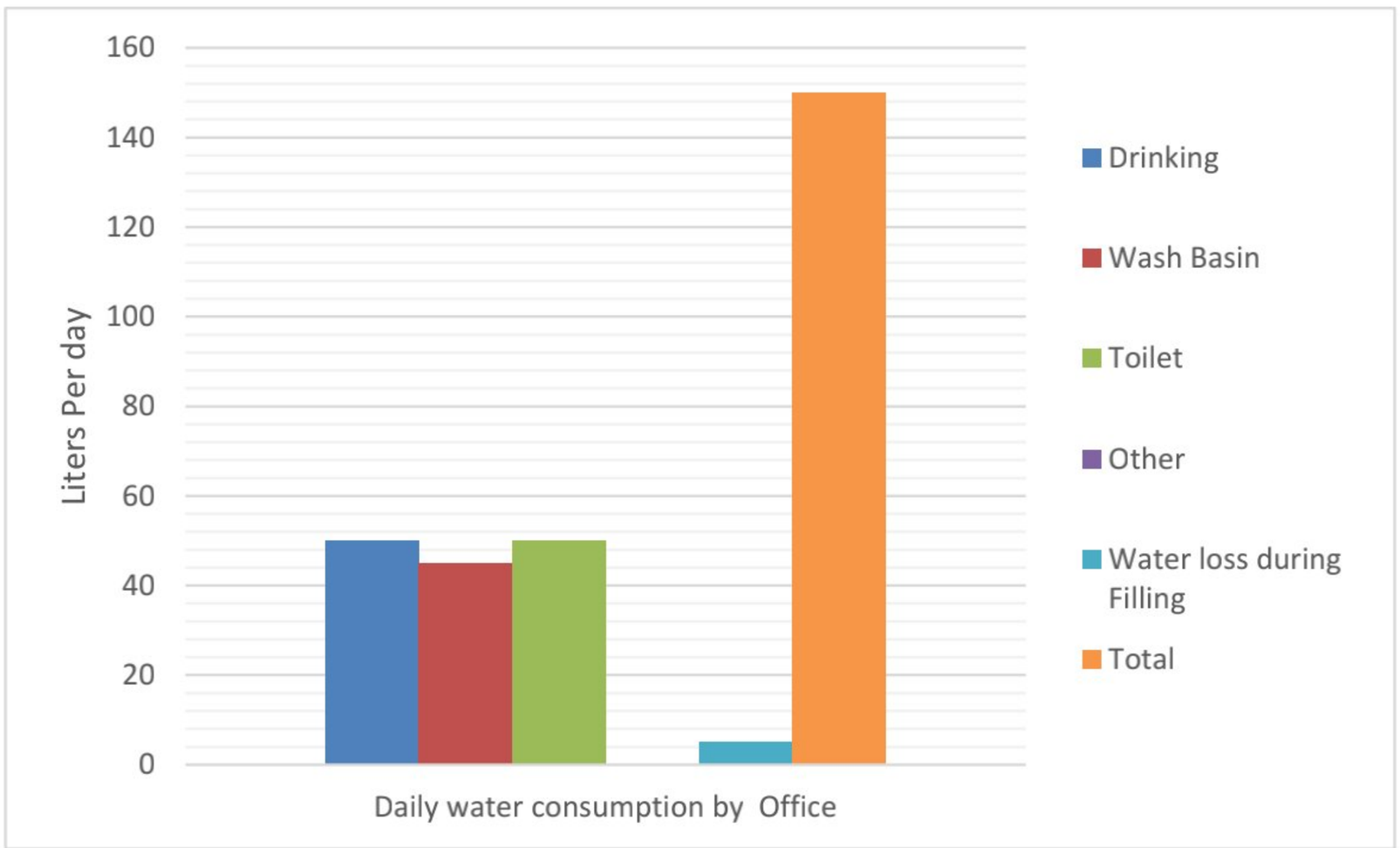
Daily water consumption by All Buildings						
Site	**Office**	**Laboratory**	**Garden**	**Canteen**	**Water loss during Filling**	**Total**
Total use of Water (litrer/day)	150	800	800	820	50	2620
Percentage	5.725191	30.534351	30.534351	31.29771	1.90839695	100



Daily water consumption by Laboratory					
Site	Drinking	Wash Basin	Toilet	Water loss during Filling	Total
Total use of Water (liter/day)	150	500	100	50	800
Percentage	18.75	62.5	12.5	6.25	100



Daily water consumption by Office						
Site	Drinking	Wash Basin	Toilet	Other	Water loss during Filling	Total
Total use of Water (litrer/day)	50	45	50	0	5	150
Percentage	33.33333	30	33.3333	0	3.33333333	100



D. Total Electric Energy Audit.

An electricity audit is simply an audit or calculation of how much electricity you are using in your home and of where that electricity is going.

An energy audit is an analysis of a facility, indicating how and where that facility can reduce energy consumption and save energy costs. Its insight to energy efficiency and conservation can lead to significant savings on the company's utility.

Importance of Electric energy Audit:

- The audit will not only inform you of opportunities but provide you with financialanalysis. This will enable prioritization based on financial benefit and return on investment.
- Provide you with solid, easy to understand technical information regarding theproposed energy conservation measures.
- A good quality audit will analyze your historical energy use and find potential issues usingstatistical methods.
- Provide you with emissions analysis to help you understand the benefits of your decisions from an environmental standpoint.
- Understand where energy is used and which areas are worth focusing on the most (energy hogs).
- Provide you with benchmark information to help you understand your energy useperformance compared to others in your field and area.

Location / Wing Name:-										
Classrooms	LED		Regular Light				Fan	Exhaust fan	Fridge	Computer
	22 W	18W	W	W	W	W	75 W	W	W	Monitor +CPU
1	3	0	0	0	0	0	1	0	0	0
2	2	0	0	0	0	0	1	0	0	0
3	2	0	0	0	0	0	2	0	0	0
4	2	0	0	0	0	0	1	0	0	0
5	0	4	0	0	0	0	2	0	0	0
6	0	4	0	0	0	0	1	0	0	0
7	0	4	0	0	0	0	2	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
TOTAL	9	12	0	0	0	0	10	0	0	0
TOTAL WATT	198	216	0	0	0	0	750	0	0	0
LED LIGHT					**414**		**REGULAR LIGHT**			**750**

Location / Wing Name:-								
Office/other	LED			Regular Light		Fan		
	22W	8 W	5W	15W	W	75 W	Fridge200W	150W Exhaust Fan
Office	3	0	0	0	0	4	0	0
Principal	1	0	0	0	0	1	0	0
Cabin 1	1	0	0	0	0	0	0	0
Cabin 2	1	0	0	0	0	1	0	0
Cabin 3	1	3	0	0	0	0	0	0
Staff Cabin 1	0	0	0	0	0	0	0	0
Staff Cabin 2	1	0	0	0	0	1	0	0
Staff Cabin 3	1	0	0	0	0	1	0	0
Staff cabin 4	1	0	0	0	0	0	0	0
NSS	0	1	0	0	0	0	0	0
Bell 1	0	0	1	0	0	0	0	0
Bell2	0	0	0	1	0	0	0	0
Canteen	0	2	0	0	0	1	1	1
Store Shopy	0	1	0	0	0	0	0	0
Raswanti	0	1	0	0	0	0	0	0
Parking	0	1	0	0	0	0	0	0
Library	2	0	0	0	0	2	0	0
Toilet 1	1	1	0	0	0	0	0	0
Toilet 2	0	1	0	0	0	0	0	1
Total	**13**	**11**	**1**	**1**	**0**	**11**	1	0
Total Watt	220	32	5	15	0	600	200	150
Total LED				**257**	**Regular Light**		**965**	

Location / Wing Name:-												
Lab.	LED		Instrument								Fan	Exhaust fan
	22 W	8W	1750W	60W	2000W	6000W	150W	1500W	3700W	1250 W	75 W	75 W
Sugar Lab	1	0	0	0	0	0	0	0	0	0	1	1
Polari meter	0	0	0	2	0	0	0	0	0	0	0	0
Hot plate	0	0	0	0	0	0	0	0	0	0	0	0
Distilled water	0	0	0	1	0	0	0	0	0	0	0	0
Muffle Furnace	0	0	0	0	1	0	0	0	0	0	0	0
Oven		0				0	0	0	0			
							0	0	0			
Alcohol Lab	3	0	0	0	0	0	0	0	0	0	1	1
Oven	0	0	1	0	0	0	0	0	0	0	0	0
Temp.cont	0	0	0	0	0	0	0	0	0	1	0	0
Chemistry Lab	2	1	0	0	0	0	0	0	0	0	2	1
Distilled water	0	0	0	1	0	0	0	0	0	0	0	0
water Bath	0	0	0	0	0	0	1	0	0	0	0	0
								0	0			
Micro Lab.	2	0	0	0	0	0	0	0	0	0	2	0
Oven	0	0	2	0	0	0	0	0	0	0	0	0
Auto Clove	0	0	0	0	0	1	0	0	0	0	0	0
Water Bath	0	0	0	0	0	0	1	0	0	0	0	0
Laminar air flow	0	0	1	0	0	0	0	0	0	0	0	0
									0			
Ball Mill	0	0	0	0	0	0	0	1	0	0	0	0
Shredder	0	0	0	0	0	0	0	1	0	0	0	0
Rapipol Extractor	0	0	0	0	0	0	0	1		0	0	0
Raswanti Motor	0	0	0	0	0	0	0	0	1	0	0	0
Total	8	1	4	4	1	1	2	3	1	1	6	3
Total Watt	176	8	7000	240	2000	6000	300	4500	3700	1250	450	225
Total LED	184		Regular Light					25665				

Other Electric Equipment				
Sr.No.	Particular	Watt	Qty.	Total
1	Printer	30	4	120
2	Xerox	1450	1	1450
3	Laptop	21	10	210
4	Projector	250	1	250
5	Monitor	55	10	550
6	AC	840	1	840
				3420

Total LED and Regular Light		
	LED Watt	**Regular Watt**
Classroom /Department	414	750
Office and Others	257	965
Laboratory	184	25665
Other Electric equipment	0	3420
Total Wattage	**855**	**30800**

E. Solid waste audit:

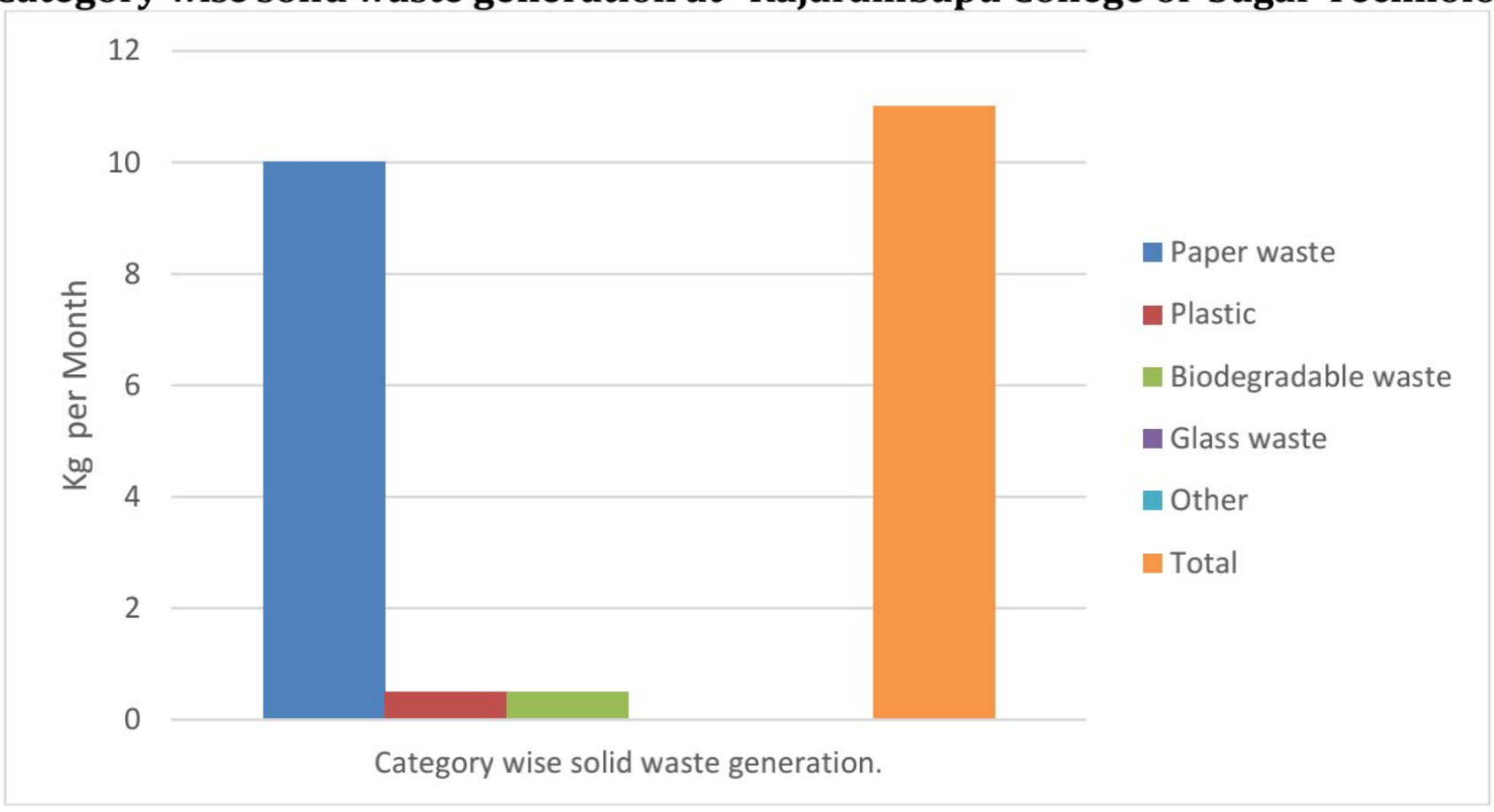
Solid waste management is becoming a major public health and environmental concern world over. Improper solid waste disposal leads to substantial negative environmental impacts e.g., pollution of air, soil, water and generation of greenhouse gases from landfills. Many insect borne diseases are spread through garbage. Therefore, it is necessary to manage the solid waste appropriately to reduce the load on waste management system. The intention of this inventory is to find out the quantity, volume, type and current management practice of solid waste generation in The Rajarambapu College of Sugar Technology.

This survey related to solid waste generation would be helpful for making the college more environments friendly.

- **Category wise solid waste generation at Rajarambapu College of Sugar Technology (kg/month)**

Category wise solid waste generation at Rajarambapu College of Sugar Technology (Kg/month)							
Category of Waste	**Paper Waste**	**Glass Waste**	**Biodegradable Waste**	**Contraction Waste**	**Other**	**Plastic**	**Total**
Quantity Kg/Month	10	-----	0.500	0	0	0.500	11
Percentage	90.90	0	4.54	0	0	4.54	100

Category wise solid waste generation at Rajarambapu College of Sugar Technology.



The average amount of solid waste generated per month in Rajarambapu College of Sugar Technology was 11 kg/month. On the basis of observations the highest quantity of solid waste generated is Biodegradable waste which is about 0.500kg/month and Paper waste is about 10 kg/month respectively. The examination department generated paper waste in large quantity in the college. The plastic waste is produced in minimum quantity i.e. 0.500 kg/month. Besides, the above mentionedwastes,

Plastic waste generation and its distribution in college campus

	Plastic kg/ month				Total
Category	Hard	Soft	Carry bags	Other	
Quantity	0.450	0.50	---	-----	0.500
Percentage	90	10	----	-----	100

F.Hazardous waste audit:

Rajarambapu College of Sugar Technology is one of the well-known educational institutes having 207 student strength. This college caters the facility for Science faculty' students in their campus. If there is other waste is produces will hand over to the particular authority.

G.E-waste:

Generation of e-waste is found on every educational institute. It is observed that the E-waste generated at Rajarambapu College of Sugar Technology is of Schedule II category. Computers, Printers, Laptops, Scanners, Internet Routers and Xerox machines are used for administrative work.The wire required for the connectivity also gets included in the e waste. The college has its own computer 76 computers. The library uses some electronic scanners which after its use can become e-waste. Presently, the college is dispatching the e waste to Krushival Shikashan Prasarak Mandal where the waste is collected centrally and it is given to authorized e waste collector.

Key Observations:

- ✓ The average waste generated in the college is. 11 Kg/month
- ✓ Highest quantity of solid waste is of Biodegradable waste 0.500 Kg/month
- ✓ Paper waste is 10 Kg/month.
- ✓ Plastic waste is about 4.5 % to the total solid waste on the college campus.
- ✓ Some of the classrooms were found without solid waste baskets.
- ✓ There is need of some improvements into the collection of solid waste.
- ✓ Solid waste is to be segregated at the source.

H. Ambient air quality status:

Ambient air sampling is important part of environmental monitoring. Particulate matter and

Trace gases sampling were carried out on the college campus. The sampling was carried outusing Calibrated Handy Dust Sampler APM 821 with flow rate 1 lit/min equipped with glass fiber filter paper (size 25 mm). The sampling period was 2 hrs.

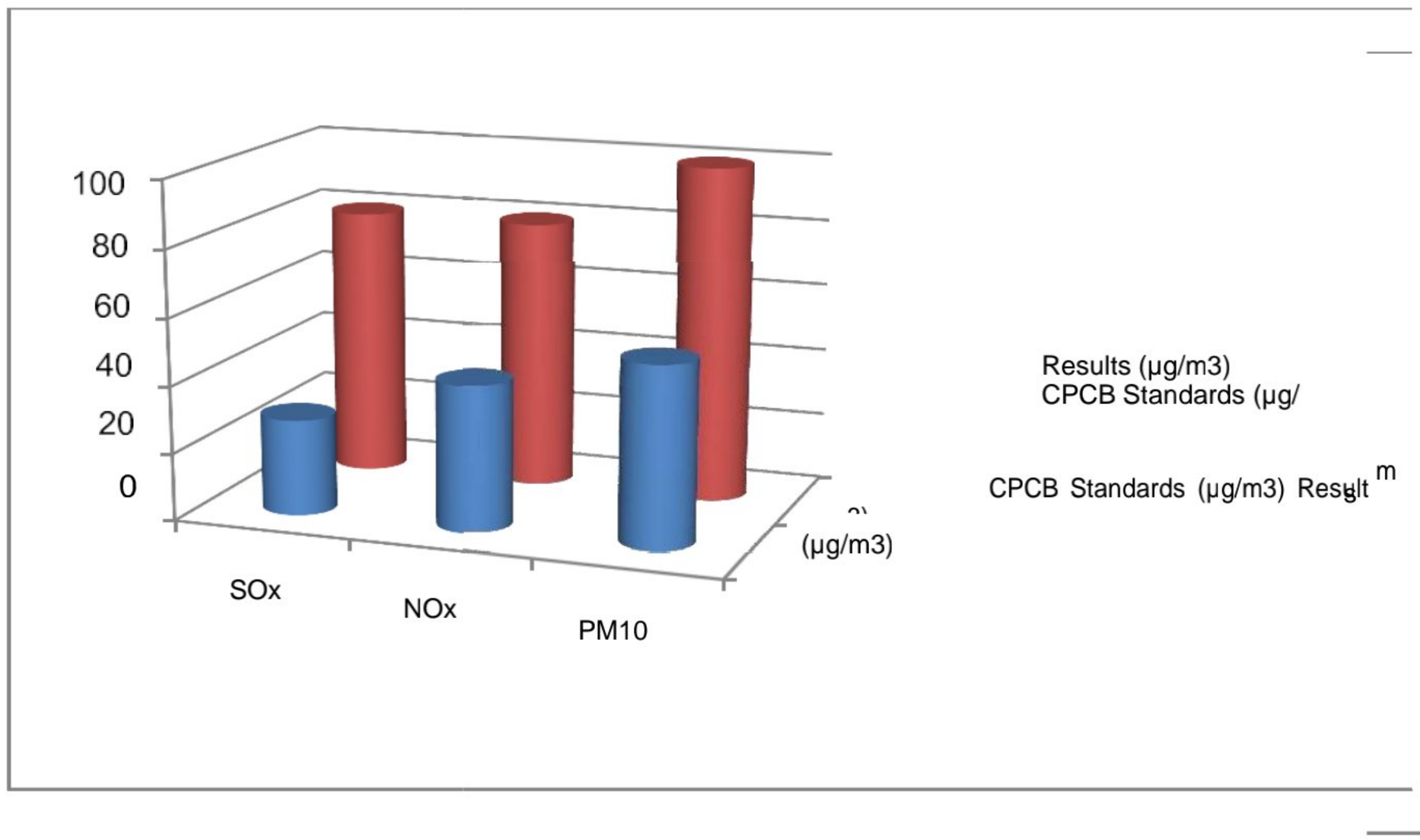
Sulphur dioxide (SO_2) and Oxides of Nitrogen (NOx) in the air were estimated with West and Geake method and Jacob and Hochheiser modified method respectively. Particulate matter (PM_{10}) was measured gravimetrically. The samples were collected and analyzed in the approved laboratory. The details of air quality status in the college are given as bellow:

Ambient air quality status of Rajarambapu College of Sugar Technology.

Sr. No.	Parameters	Results (µg/m³)	CPCB Standards (µg/m³)
1	SOx	40.57	80
2	NOx	35.33	80
3	PM_{10}	60.61	100

It was observed that all the air quality parameters analyzed were within the Ambient Air Quality Standards of Central Pollution Control Board, India. The air quality is good in the college campus aswell as surrounding.

Ambient air quality status of Rajarambapu College of Sugar Technology.



I. Ambient noise monitoring status:–

Ambient noise monitoring was carried out in different areas of college campus like at college campus entry, college gate, and corridor, floor and ladies hostel. The sampling was carried out using calibrated Sound Level Meter (AZ 8921) by logarithmic scale in Decibels (dB). The noise readings were collected in the college campus and calculated. The details of noise status in college campus are given as below:

Ambient Noise levels in Rajarambapu College of Sugar Technology

Sr. No.	Site Name	Results dB (A) Leq	Standards (Day Time) dB (A) Leq
1	College Campus Entry	65.21	50
2	College Gate	60.04	50
3	Corridor	61.82	50
4	Canteen	58.39	50
5	Library	31.2	50
6	Office	42.5	50

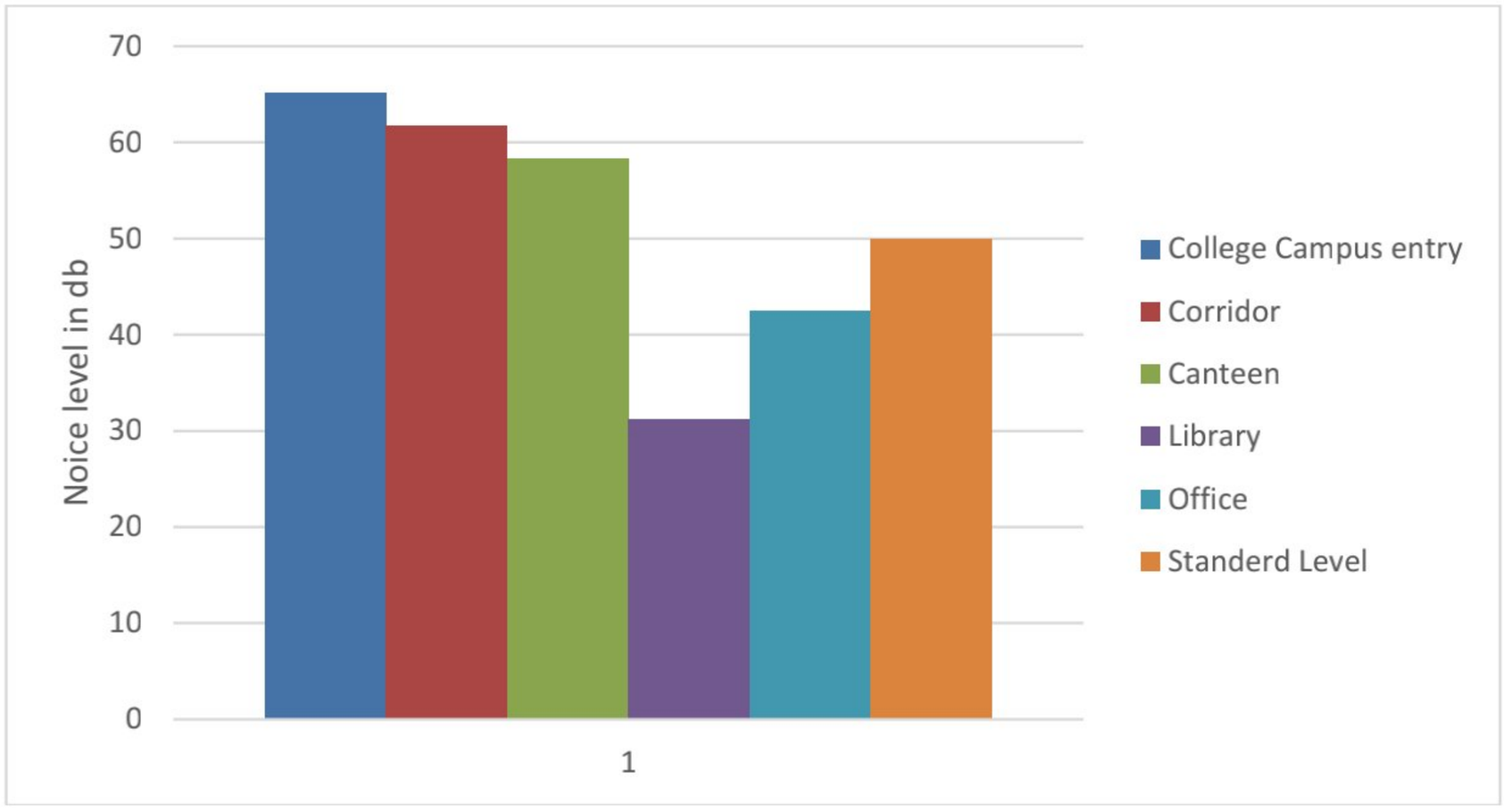
Note: - 1. All parameters expressed in dB (A) Leq.

2. Monitoring is carried during day time.

3. Day time is from 6.00 a.m. to 10.00 p.m.

It is observed from the table that the Ambient Noise levels overall in college is on higher side except ladies hostel as compared to the standards of Central Pollution Control Board for the day time.

Since the college is located adjacent of main roads and therefore, the major source of noiseis automobile noise, rolling noise. The human communication and transportation are causing high level sound. It is advisable to increase the green cover in the surrounding to avoid noise.



Ambient Noise levels in Rajarambapu College of Sugar Technology.

❖ Parking and traffic management:

Traffic generated from this project will confluent on 15 m wide road to college.

Parking statement:

Total parking area	375 sq. m2
Area per car	2m2 for two wheeler

(Width of all internal roads (m): Width of dive ways is 3 m wide)

❖ Bird's diversity:

The diversity among birds is striking Birds live in a variety of different habitats. Birds that live in different habitats will encounter different foods and different predators. Birds can be carnivores (feeding on other animals), herbivores (feeding on plants), or generalists (feeding on a variety offoods).

Sparrow, crow, bulbuls, Pigeon, Cuckoo, Bat, Butterfly, etc these species are seen regularly around the campus.

J. Details of tree census in College campus:

The beginning of the 21st century brought growing concern about global warming, climate change, food security, poverty, and population growth. CO_2 is a principle component causing global warming. Atmospheric carbon dioxide levels have increased to 40% from preindustrial levels to more than 390 parts per million CO_2. On this background it is a need of time to cover the educational campuses with green cover interrelated with climate change.

The current is a present status of tree cover, vegetation and carbon storage assessment of area under Rajarambapu College of Sugar Technology Campus. In an era of global warming and climate change; carbon emission, carbon sequestration, mitigation, adaptation are the keywords in academia. Carbon sequestration is a phenomenon of converting atmospheric carbon i.e. CO_2 in to other pools of carbon such as vegetation, soil, ocean etc. in various forms to mitigate global warming. It is one of the important clauses of Kyoto Protocol. Current tree census methodology has been adopted from the guidelines set by Indian Institute of Remote Sensing, Dheharadoon, Govt. of India.

- **Total number of trees enumerated on Rajarambapu College of Sugar Technology campus:**

All the collected data was tabulated and analyzed with the help of MS- Excel spreadsheets and objected findings were extracted by using various factors given by Inter governmental Panel on Climate Change (IPCC).

- **Total number of trees enumerated on Rajarambapu College of Sugar Technology campus:** Total 244 numbers of trees with more than 10 cm girth and height more than 4 ft have been enumerated. Girth and height of every tree has been measured.

- **Total No. of species identified in Rajarambapu College of Sugar Technology campus.**

Serial No.	Name	Number of individuals
1	**Mangifera indica**	01
2	**Eucalyptus globulus**	02
3	**Pruns dulcis**	02
4	**Araucaria columnaris**	01
5	**Bambusa**	182
6	**Annona aquamosa**	01
7	**Thespesia populnea**	02
8	**Ficus glomerata**	01
9	**Nyctanthes arbor- tristis**	01
10	Other	13
11	**Saccharum officinarum**	18

Environmental protection through activities conducted

Front view of the college.

Green Campus

College office

Solid waste Separation

Parking

Laboratory

Library

Rain water Harvesting

CONCLUSION AND MANAGEMENT PLAN

The Natural Solution Environment consultant. Islampur has conducted a Green Audit of Rajarambapu College of Sugar Technology in the academic year 2021-22. Green audit is theprocess of identifying and determining whether institution practices are eco-friendly and sustainable. The main objective of college to carry out green audit is to check green practices followed by college and to conduct a well formulated audit to understand where we stand on a scale of environmental soundness.

Conclusions:

From the green audit conducted by college following are some of the conclusions which canbe taken for improvement of the college campus to become environment friendly college campus.

1. College takes efforts to dispose majority waste by using proper methods.
2. Confidential paper waste is disposed properly.
3. Glass waste is to be disposed properly.
4. Electricity consumption is more at some departments.
5. Use of CFL lamps in the college is minimum. Its use should be encouraged and now converted to LED lights.
6. Toilets and bathrooms are consuming more water.
7. E-waste segregation, handling and disposal are properly done.
8. Practice of waste segregation to be initiated.
9. Air quality on the campus is good.
10. Conduct more seminars, Camps and group discussions on environmental education and awareness.

Recommendations:

Following are some of the key recommendation for improving campus environment.

1. College should develop its own Environmental Policy by using guidelines given in Green Audit document.
2. The data related to all measured environmental parameters should be monitored and recorded regularly and information be made available to administration.
3. The college should develop internal procedures to ensure its compliances with environmental legislation and responsibility be fixed to carry out it in practice.
4. All street lighting should be changed to LED lights to save electricity.
5. Drip irrigation for gardens and vegetable cultivation can be initiated.
6. Establish Environmental Cell in college.

ENVIRONMENT MANAGEMENT PLAN:

By understanding the dynamics of present situation of resource utilization and current practices of waste disposal we have prepared an Environment Management Plan (EMP) for the The Rajarambapu College of Sugar Technology. Dist. Sangli. This plan not only will provide the strengths, weaknesses and remedies for the green and clean campus but also give priority of the sector where the college has to give more efforts to improve its environment.

Sector	Strengths	Suggestions
	Solid Waste	
Paper	1. Pulping of major portion of papers i.e. answer sheets, bills and other administrative papers. 2. Use of one sided papers in many departments and main building	• Towards paperless office: More use of e-mails, e-money transfer and advance IT technology for communication
Plastic	Reuse of plastic at some departments	• Segregation of waste at the source and sending plastic wastefor recycling • Ban on Plastic carry bags inCollege premises
Biodegradable waste	Solid waste generated	• Segregation of solid waste helpin composting process
Biodegradable Waste	Liquid waste	• Instead of fresh water for garden, use treated Anaerobic plant outlet water so reduce the load of fresh water.
Septic Tank	Organic waste.	• Use Bacteria for fast degradationof organic waste.
	Energy	
Electricity	Use untraditional source of energy	• Employment of more solar panels and other renewable energy sources. • General awareness aboutElectricity saving.

Fuel	Use of public Transport systemis comparatively more by staff and students.	• General awareness about efficient use of fuel.
	Water	
Water utilization	College has potential of Rain water harvesting. High liquid waste Generation.	• Installation of automatic water pumps to avoid overflowing losses • Proper and timely maintenanceof plumbing at all departments

	Hazardous Waste	
E-waste	• E waste is sent to E waste collection center	• There must be segregation of e- waste from regular waste and also among the e-waste. • E-waste in all forms not only computers, should be collected properly
	Air and Noise	
Air and Noise	Air quality is still in good condition	The plantation can be increased by Vertical gardening.
	Tree Census	
Tree Vegetation	There is requirement of Tree Plantation	Avoid monoculture, variety of species should be planted in campus area

- Turnkey project for ETP/STP/WTP.
- Up gradation Modification of ETP/STP.
- Consulting enviro engineers & designers.
- Stack & Ambient Air Quality Monitoring.
- Green Audit Report.

Natural Solution
Environmental Services

•ISO 9001:2015 •ISO 14001:2015 •ISO 45001:2018 CERTIFIED

Supplier • Aerobic/ Anaerobic Biological culture • Chemical Industrial & Domestic RO & Materials.
• Air Blower & Diffuser. • DM Plant/Softener/ Sand filter/ Carbon filtre & Media.

CERTIFICATE

This is to certify that Rajarambapu College of Sugar Technology, Urun Islampur has undergone detailed Environmental Audit,Green Audit, Energy Audit of their campus and submitted necessary data and credentials for scrutiny. The activities and measures carried out by the college have been verified based on the report submitted and wasfound to be satisfactory. This green audit is also aimed to assess impact of green initiatives for Maintenance of the campus eco- friendly.

Place :- UranIslampur

Date :- 05/03/2022

NATURAL SOLUTION ISLAMPUR

For, Natural Solution

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Environmental Engineer

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