

# Green Audit Report

GOVERNMENT DEGREE COLLEGE

Utnoor, Adilabad Dist.



**2021-2022**

**GOVERNMENT DEGREE COLLEGE,**

**Utnoor DISTRICT: Adilabad 504311**

**TELANGANA STATE**

**(Affiliated to Kakatiya University)**

**INTERNAL GREEN AUDIT REPORT**

**SUBMITTED TO**

**COMMISSIONERATE OF COLLEGIATE EDUCATION  
TELANGNA**

## INTERNAL GREEN AUDIT ASSESSMENT TEAM

- **Chairman:** Sri M. Swamy, Principal (FAC)- Water Audit
- **Vice-Chairperson:** Sri. J Ravikiran, IQAC Co-ordinator-Carbon FootPrint Audit
- **External Member:** Smt Anitha, Principal (FAC),GDC Arts Adilabad-  
  
Landscape Audit & Waste Audit
- **Convener:** Sri. M Srinivas, Lecturer in Botany
- **Members:**
  - Sri Z Shanker, Lecturer in English -Green Activities Audit
  - Smt. D Tirupathi, Lecturer in Economics- Student Clubs
  - Sri P. Kishan, Lecturer in Pol. Science- Flora & Fauna Audit
  - Sri Naresh Rathod, Lecturer in Telugu- Energy Audit

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## INTRODUCTION

A clean and healthy environment aids effective learning and provides a conducive learning environment. There are various efforts around the world to address environmental education issues. Green Audit is the most efficient and ecological way to manage environmental problems. It is a kind of professional care which is the responsibility of each individual who are the part of social and environmental processes. It is necessary to conduct green audit in college campus because it helps the students to be aware of the green audit, its advantages and thereby grow up as good citizens. Thus Green audit becomes necessary at the college level.

A simple indigenized system has been devised to monitor the environmental performance of Government Degree College,Utnoor. It comes with a series of questions to be answered on a regular basis. This innovative scheme is user friendly and totally voluntary. The aim of this is to help the institution to set examples of environment friendly initiatives for the community, and to educate the young learners.

## Benefits of the Green Auditing

- To create a green campus
- More efficient resource management
- To provide basis for improved sustainability
- To enable waste management through reduction of waste generation, solid-waste and water recycling
- To create plastic free campus and evolve health consciousness among the stakeholders
- Recognize the cost saving methods through waste minimizing and managing
- Enhance the alertness for environmental guidelines and duties
- Enhancement of college profile
- Developing environmental ethic and value systems in youngsters.
- Green auditing should become a valuable tool in the management and monitoring of environmental and sustainable development programs of the college.

## **OBJECTIVES:**

- ❖ *1. To assess the quality of the water and soil in the college campus*
- ❖ *2. To monitor the energy consumption pattern of the college*
- ❖ *3. To quantify the liquid and solid waste generation and management plans in the campus.*
- ❖ *4. To assess the carbon foot print of the college*
- ❖ *5. To assess whether the measures implemented by College have helped to reduce the Carbon Footprint.*
- ❖ *6. To impart environment management plans to the college Green Audit*
- ❖ *7. Providing a database for corrective actions and future plans.*
- ❖ *8. To assess whether extracurricular activities of the Institution support the collection, recovery, reuse and recycling of solid wastes.*
- ❖ *9. To identify the gap areas and suggest recommendations to improve the Green Campus status of the College.*

## **METHODOLOGY**

The purpose of the present green audit of the college is to ensure whether the practices followed in the campus are in accordance with the Green Policy. The methodology includes the collection of the data, physical inspection of the campus, observation and review of the maintenance. The prescribed questionnaires are used for acquiring basic information related to different categories like water, energy, waste management etc. With means of available equipment and facilities, the testing and analysis of the audit has been done.

## ABOUT THE COLLEGE

The Govt. Degree College, Utnoor was established in 2007 by the erstwhile undivided Government of Andhra Pradesh to cater to the needs of under graduate students in and around the ITDA region of Utnoor. The college is affiliated to Kakatiya University, Warangal with and is catering the educational needs to the poor Tribal people and other weaker sections of this rural and hilly region. Located in peaceful ambience and functioning on its own campus, ours is an institution for higher education that promises academic excellence of the students by ensuring quality education towards fulfilment of their dreams of employment both in government and private sectors. With its committed and dedicated faculty, the college aims not only to mould future citizens of India with societal responsibilities but also to equip them with knowledge and skills necessary for their employment in the globalized context. The college focuses on strengthening the morale of the students in the present-day competitive world.

The growth and progress of the college is going steadily year by year for the past 13years and presently the college is offering three under graduate courses in B.A, B.Com., and B.Sc. in both Telugu and English media.

Our college is located at a distance of about 2 km from the Utnoor town and is surrounded by greenery of farm lands and hillocks. At present, the college building has 20 wide and well ventilated rooms. The College has one Computer Laboratory comprising 20 computers, one spacious Library with more than 4000 books and also six Digital Classrooms, one Seminar Hall, Office Room, Staff Room, Principal Chamber, Ladies' Restroom, Examination Branch Office and one MANA TV / T- SAT room.

Majority of the people who belong to this place are Scheduled Tribes. They all are from socially, economically poor back ground. People who live here are dependent on small businesses and on agriculture. Keeping all this in view, we have made vision of our college as to create right platform for the opportunity to acquire necessary knowledge and life skills thereby become successful in life.

### **Vision :**

To provide quality education with commitment to the values of student success and excellence both in academic and values.



**Mission :**

The institution strives to focus all its efforts to realise its vision through the following mission statements:

To inculcate moral values and leadership qualities in students for high ethical standards in personal, social and public life; To provide students with best opportunity for the growth and career enhancement; and To provide quality education to the students to encourage research at higher levels of study.

**COLLEGE PROFILE**

**Name of the College:** Government Degree College, Utnoor

**Address:** K.B Complex , Utnoor

**Contact Info:** Principal (FAC)- Sri M Swamy, Chairman

Green Audit Committee-9949745845

**Campus Area:** 5 Acres

**Built-up Area:** 37176.72 Sq. ft.

**Is the building has ventilators for natural air flow in all rooms:** Yes

**The student and faculty strength of the college:**

(As per the A.Y. 2021-2022)

<b>Strength</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
No of students	489	456	945
No of Teaching Staff	14	04	18
No. of Non-Teaching staff	03	01	04

**Physical Structure:**

The available land of the college: **05** acres

. The built-up area of the college: **37176.72** Sq.Ft.

## GREEN AUDITING

Colleges and Universities have broad impacts on the world around them, both negative and positive. The activities pursued by colleges can create a variety of adverse environmental impacts. But colleges are also in a unique position as educational institutions to be leaders in pursuing environmentally sustainable solutions. Green Audit is linked to Sustainable development process. Through Green Audit, one gets a direction as how to improve the condition of environment and there are various factors that have determined the progress of Green Audit process. The green audit practically involves energy conservation, use of renewable sources, rain water harvesting, efforts of carbon neutrality, planting of trees, hazardous waste management and E-waste management. Finally, Green audit is a requirement of NAAC assessment to the Colleges and Universities.

It is necessary to conduct green audit in college campus because students have to be aware of the green audit, its advantages to save the planet and thereby get motivated to become good citizens of the country. Green audit and sustainable development process help to reduce wastage and associated cost as well as increase the product quality. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more relevant.

Green audit can be a useful tool for a college to determine how and where they are using most of energy, water or other resources; the college can then consider how to implement changes and make savings. It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan. Green auditing can also create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of the impact of green methods on campus. It gives an opportunity for the development of ownership, personal and social responsibility for the students and teachers.

All across the world, colleges and universities are looking to a sustainable future by working to become carbon neutral. Universities are taking responsibility for their environmental impact and are working to neutralize those effects. To become carbon neutral, universities are working to reduce their emissions of greenhouse gases, reduce their use of energy, use more renewable energy, and emphasize the importance of sustainable energy sources.

## **LAND USE ANALYSIS**

The college is located in pollution free campus spread over 5 acres of land at the outskirts of Utnoor town. Utnoor is a tribal area which comes under ITDA region.

An attempt has been made to give the details of campus land with the help of available records in the college and the questionnaire provided. The location has been recorded with GPS.

The photographs showing college building both administrative and teaching blocks with the garden and open area is herewith provided.

### **Physical Structure:**

The available land of the college: 5 acres

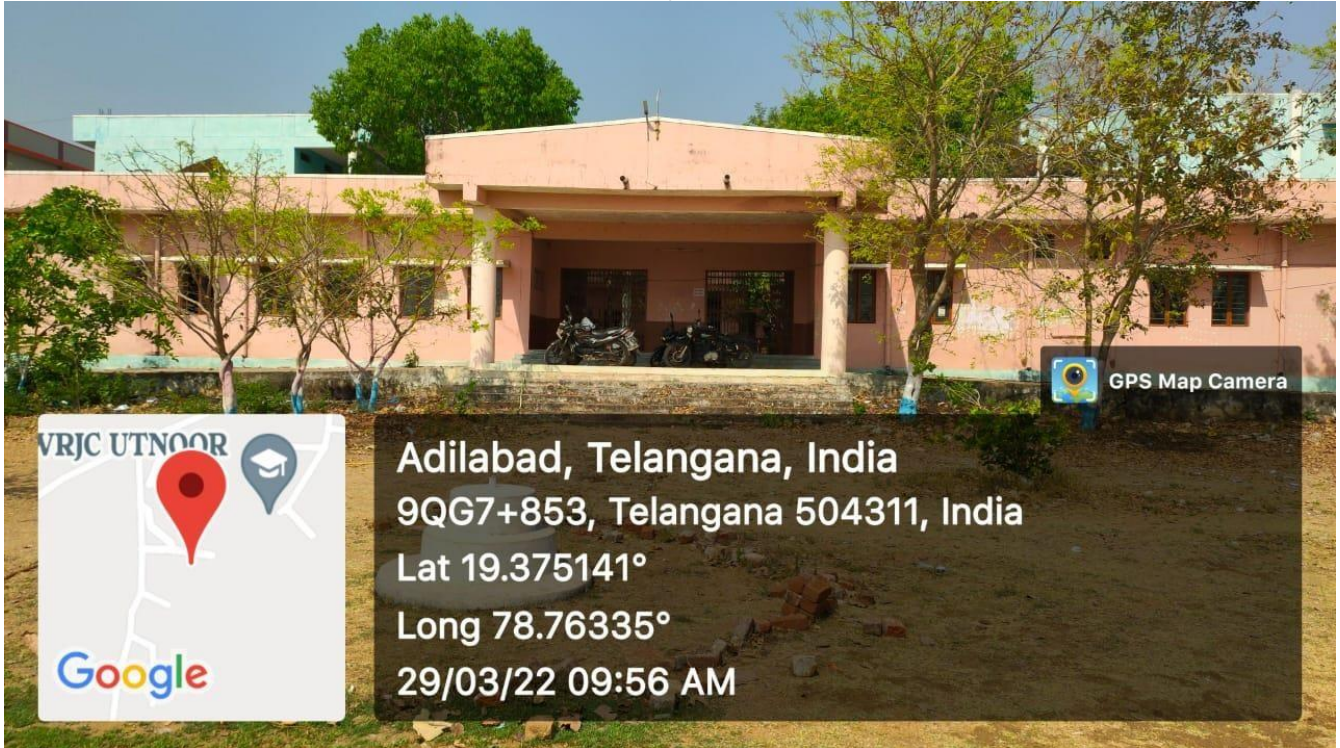
The built up area of the college: 37176.72 sq.ft.

The built up area has an attached wing of Administrative portion and a double storied teaching block.


### **Findings:**

Government Degree College Utnoor which was established in the year 2007 has an eco-friendly environment surrounded by greenery. The college has been maintaining green campus with periodical plantation under Telangana Harithaharam Program and their preservation and maintenance. Its land usage is such that 80% of its total area is occupied by open land with natural vegetation for supporting bio diversity in the campus area.

Gate way to the college



VRJC UTNOOR



Google

Adilabad, Telangana, India  
9QG7+853, Telangana 504311, India  
Lat 19.375141°  
Long 78.76335°  
29/03/22 09:56 AM

GPS Map Camera


## Teaching Block 1



WRJC UTNOOR



Adilabad, Telangana, India  
9QG7+853, Telangana 504311, India  
Lat 19.375059°  
Long 78.763146°  
29/03/22 10:02 AM

 GPS Map Camera



Teaching Block 2

## **WATER MANAGEMENT REPORT**

The college has two bore wells which fulfill the water needs and three over head tanks to preserve water. The college also has a separately dug pit for rain water harvesting as well as for waste water management. The college is providing safe drinking water to all the students and staff with the help of two R.O. plants.

Water quality testing is important because it is useful in testing the level of contamination of drinking water and the presence of pathogens of waterborne diseases. Drinking or using contaminated water can result in severe illness which may sometimes result in death. So it is essential to ensure that the drinking water is safe, clean and free from disease causing pathogens.

### **Drinking water indicators:**

- Color of water
- Alkalinity
- pH value
- Taste and odor
- Dissolved metals and salts
- Micro organism such as fecal coli form bacteria (Entamoeba histolytica, Giardia lamblia etc.)
- Dissolved solids
- Chlorides
- Zoo plankton
- Phytoplankton



## **ENERGY MANAGEMENT**

Energy auditing is the monitoring and analysis of the use of energy including submission of report containing recommendations for improving energy efficiency and an action plan to reduce energy consumption (The Energy Conservation Act, 2001). It is a study to determine how and where energy is used, and to identify methods for energy savings. It identifies all the energy streams in a system and quantifies the use of energy according to its discrete functions.

**Methodology:** It has been done by survey, Questionnaire and physical visit.

The main objective of any energy audit is determining ways to reduce energy consumption per unit of product output. The recommendations of the study will become a basis for future schemes of better energy consumption and preservation throughout the Institution. To determine what further Energy Savings can be achieved, on the most practical lines. Our thrust has been towards hidden losses and Technical up-gradation.

The College consumes Electricity for routine administrative and teaching learning activities. It consumes **1688.4 kW/hr** electricity per month for various activities. The authority keeps a regular check to replace the old filamentous bulbs, CFL bulbs and tube lights by low energy consuming LED bulbs and tube lights in order to keep the electricity consumptions of the college as low as possible. In order to save the energy, the college educates the staff and students to switch off the electrical appliances where they are not necessary.

## **WASTE MANAGEMENT**

Waste management includes the activities required to manage waste from its inception to its final disposal which includes collection, transport, treatment and disposal with monitoring and regulation.

The waste is separately collected as wet and dry wastes in separate bins and disposed separately. Dry waste includes paper, tins, cans etc. whereas wet waste includes organic wastes such as left-over food, dry leaves, vegetable wastes etc. The material was then separated as biodegradable and non-biodegradable wastes and is dumped in to separate pits.

The biodegradable wastes are composted in a separate compost pit forming an organic fertilizer. The organic manure so formed is used for the college garden. By reusing and recycling the college is contributing to the conservation of natural resources. The college adopts eco friendly practices such as waste recycling. The biologically reusable compost is being prepared under the activities of eco- club and is used for plants that are there in the college garden.

## **GREEN CAMPUS MANAGEMENT**

### **TREE DIVERSITY OF GOVERNMENT DEGREE COLLEGE, Utnoor**

Government Degree College, Utnoor occupies an area of about 5 acres. It has well diverse vegetation performing a variety of functions not only within the campus but also in surrounded area. The land encircles the college premises is suitable for fruit gardens and for commercial crops. Forest research station, which is located about a Eight kilometers distance, is an asset for this institution to provide an enriched resource for forest innovative studies. This center also puts forth its experimental new farming techniques in a variety of conventional and new varieties thus furnish the surroundings of the college campus with much more greenery. Periodically a number of plants were planted through Haritha Haram Programmes, an initiative of Telangana government which has become an integral part of the college.

The trees of the college enhanced the quality of all stake holders by providing oxygen, preserving soil, improving air quality supporting a variety of wild life. Many species of insects, birds and other animals are dependent on this vegetation. There is a variety of vegetation that includes trees and plants like flowering plants, fruit plants, shady trees, medicinal plants and many other categories exist in the college campus which has been playing a significant role in maintaining the eco friendly environment.

## FLORAL DIVERSITY

### LIST OF THE PLANTS IN THE GARDEN WITH APPROXIMATE NO.

S.No.	Common Name	Botanical Name	No.of Plants
1.	Mango tree	Mangifera indica	05
2.	Black Jamun	Syzygium cumini	05
3.	Gulmohar (Thurai)	Delonix regia	03
4.	Sapthaparni	Alstonia scholaris	06
5.	Neem	Azadiracta indica	10
6.	Amla Tree	Phyllanthus emblica	03
7.	Lemon tree	Citrus lemon	02
8.	Tippa teega	Tinospora cardifolia	01
9.	Conocarpus plant	Conocarpus lancifolius	08
10.	Coconut tree	Cocos nucifera	01
11.	Pomegranate	Punica granatum	03
12.	Bougainvillea plant	Bougainvillea glabra	02
13.	Munaga tree	Moringa olifera	02
14.	Kaanuga plant	Pongamia pinnata	10

15.	Shoe flower plant	Hibiscus rosasinensis	02
16.	Karivepaku plant	Muraya konigi	02
17.	Subabul tree	Lucaena leucocephala	11
18.	Kumkudukai (soap nut)	Sapindus mukorossi	06

**FAUNAL DIVERSITY OF GOVERNMENT DEGREE COLLEGE,  
Utnoor**

The college is located in Utnoor, Adilabad Dist which is known for rich forest cover with Kawal Wild life sanctuary with tiger reserve that supports rich bio diversity. The climate is temperate and hot. The rain mainly records more from late June to September last week. The climate is suitable for rich flora and fauna.

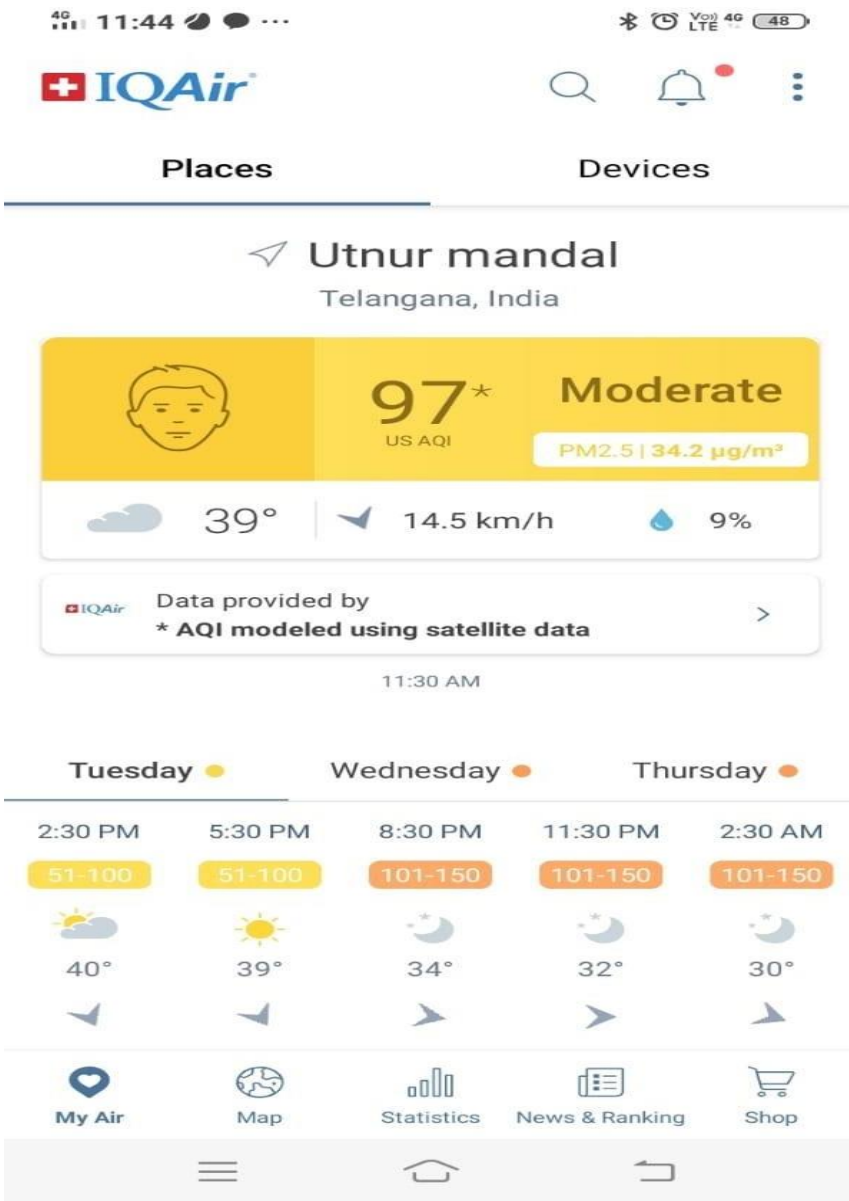
**The faunal diversity observed and documented as follows:**

<b>S. No.</b>	<b>Faunal Group</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Seasonality</b>
1	Spiders	Common house spider	Parasteatoda tepidariorum	All seasons
2	Moths and Butterflies	Monarch	Danaus plexippus	Spring
3	Dragon Flies	Common dragon fly	Diplacodes trivialis	Rainy season
5	Wasps	Yellow wasp	Ropalidia marginata	All seasons
6	Beetles			
7	Annelids	Eath worm	Pheretima posthuma	All seasons
8	Other arthropod	Cockroach	Periplanata americana	All seasons
9	Amphibians	Common frog	Rana tigrina	Rainy season
10	Snakes	Russesl viper	Vipera russeli	All seasons
<b>S. No.</b>	<b>Faunal Group</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Seasonality</b>
11	Birds	Common sparrow	Passer domesticus	All seasons
12	Birds	Parrot	Psittacula cameri	All seasons

13	Birds	Common Crow	Carvus splendens	All seasons
14	Mammals	Cows	Bos indicus	All seasons
15	Mammals	Goats	Capra aegagrus	All seasons

## AIR QUALITY INDEX

Air quality is tested by using Air Quality.com App. and showing the results of air quality at Utnoor and it is predicted to be moderate.



## **CARBON FOOT PRINT**

- Petrol used by two wheelers/ day =15 L
- Fuel used by four wheelers= 0 L
- Fuel for persons travelling by common= 16 L
- Total fossil fuel use/day= 31 L
- Cost of stake holder transportation per month= 31 L @ 110/-= 3,410/-X 30  
Days=1, 02,300/-.

## **NOISE LEVEL INDEX IN AND AROUND THE CAMPUS**

The college is located in a peaceful area which is exposed to low noise pollution.. The human ear constantly receives various sounds of manmade and natural. Sound has two basic properties i.e. loudness and frequency. Loudness is the strength of sensation of sound perceived by the individual.

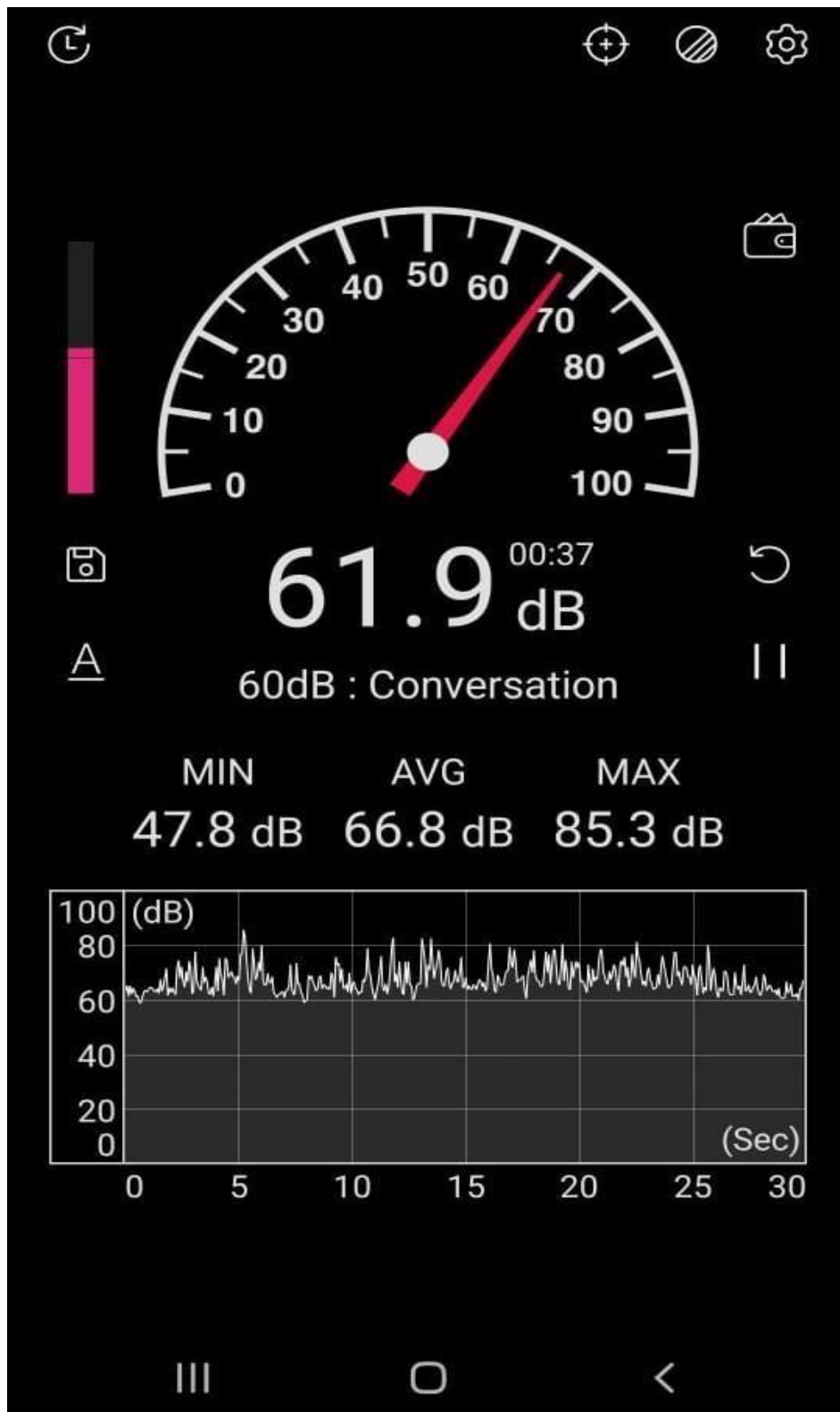
It is measured in terms of Decibels. Just audible sound is 10 dB, a whisper about 20 dB, normal conversation 35-60 dB, heavy street traffic 60-70 dB, jet planes during takeoff is about 150 db, rocket engine is about 180 dB. The loudest sound that a person can stand without much discomfort is about 80 dB. Sounds beyond 80 dB can be safely regarded as pollutant as it harms hearing system. The WHO has fixed 45 dB as the safe noise level for the city. Up to 65db can be tolerated. Loudness is also expressed in sones. One sone equals to the loudness of 40 db. Frequency is defined as number of vibrations per second. It is expressed in hertz (Hz).

### **Materials and methods:**

Noise measuring app-Sound Meter was used to measure the noise level. It detects any noise, music and surrounding sound. It will provide maximum, minimum and average noise values.



Picture showing noise levels recorded in library hall



**Table: Noise detected at various places in the college**

<b>S . No.</b>	<b>Place</b>	<b>Measurements (Duration in second)</b>	<b>Minimum (dBA)</b>	<b>Maximum (dBA)</b>	<b>Average (dBA)</b>
1	Library	26	32	44	38
2	Canteen	39	65	75	70
3	Play ground	54	33	78	55.5
4	Auditorium	---	---	--	--
5	Administrative Block	24	40	65	52.5

## ECO FRIENDLY ACTIVITIES CONDUCTED

### *BEST PRACTICE 1*

- 1) **Title of the practice: Preparation of clay idols of vinayaka and free distribution**
- 2) **Objectives of the practice:**-vital role of nature and how pollution is effecting human lives by the increasing global warming. They came to know the beauty of nature and tried to protect the nature by this practice
- 3) **The context:**-clay idols made by the students were distributed to the local people, to make them aware of the effect of Plaster of Paris & colored Ganesh idols and how they polluting aquatic resources and animals.
- 4) **The practice:**-students collected clay from the river bank and made beautiful mini sized Ganesh idols and distributed idols to the local people.
- 5) **Evidence of success:**-so many local people, who are aware of the importance of clay idols and its usage, accepted the very idea and encouraged the students with this appreciations.
- 6) **Problem encountered and Resources required:**-those who were attracted to the beauty of plaster of Paris idols did not accept & support the clay idols idea, and it's out implementation .There is the need of outstanding awareness program about protecting nature from pollution.

## ***BEST PRACTICE 2***

### **1) Title of the practice: Preparation of natural colors for Holi celebrations.**

#### **2) Objectives of the practice:-**

The usage of natural colors in this Holi time reduces bacterial effects that increase great joy. The students spread this idea into the gloomy thoughts of uneducated people, by making natural colors with their own hands by using natural flowers.

#### **3) The context:-**

Through this practice students learnt how human health is affected by the unnatural and inorganic products. They came to know the importance and advantages of natural colors while celebrating holi, and to make the life happy by filling with natural colors.

#### **4) The practice:-**

Students collected “modhugu flowers” from nearby the forest, boiled the flowers in hot water until the water became saffron color. After making it cool all flowers were removed and used that saffron color liquid to play holi. They spread this idea each and everyone whom they knew.

#### **5) Evidence of success:-**

So many were accepted this idea and practiced to use “modhugu flowers” in making natural colors to play holi.

#### **6) Problem encountered and Resources required:-**

Those who want different colors to make their friends suffer with sticky colors were not accepted to use this natural color.

# GRADING REPORT

S.No	Components of Assessment	Max. Marks	Marks Awarded	Grade	Signature
1	Energy Audit	20			
2	Waste Audit	15			
3	Water Audit	15			
4	Landscape or Environment Audit	15			
5	Carbon foot print and Oxygen Emission Audit	15			
6	Green Audit	10			
7	Student clubs	10			

## Grades

91-100: A<sup>+</sup>

81-90: A

71-80: B<sup>+</sup>

61-70: B

51-60: C

## **ANNEXURE (Questionnaire & Tabular forms)**

### **AUDITING FOR WATER MANAGEMENT**

1. List out uses of water in your college.  
For drinking, gardening, sanitation and for laboratory requirements.
2. What are the sources of water in your college?  
Bore well
3. How many wells are there in your college?  
01 Bore well
4. No. of motors used for pumping water from each well?  
01
5. What is the total horse power of each motor?  
2 HP
6. What is the depth of each well?  
180 ft
7. What is the present depth of water in eachwell?  
90 ft
8. How does your college store water?  
Overhead tanks
9. Quantity of water stored in your overhead water tank? (In liters)  
2000 Liters
10. Quantity of water pumped every day? (In liters)  
500 Liters
11. If there is water wastage, specifywhy.  
No
12. How can the wastage be prevented / stopped?

By regular checking of the pipes and taps and by making the students and staff aware of the importance of water

13. Locate the point of entry of water and point of exit of waste water in your College.

Yes, located

14. Where does waste water come from?

From Sinks and toilets

15. Where does the waste water go?

Waste water harvesting pit

What are the uses of waste water in your college?

It is used to improve the underground water level by sinking it into the pit

16. What happens to the water used in your labs? Whether it gets mixed with ground water?

No

17. Is there any treatment for the lab water?

No

18. Whether green chemistry methods are practiced in your labs?

No

19. Write down four ways that could reduce the amount of water used in your college.

Cannot be reduced as water is being used without any wastage.

20. Record water use from the college water meter for six months.

No equipment available

21. Bimonthly water charges paid to water connections if any

Nil

22. No. of water coolers. Amount of water used per day? (in liters)

No water coolers used.

23. No. of water taps. Amount of water used per day?

1500 liters

24. No. of bath rooms in staff rooms, common, hostels. Amount of water used per day?

400 Liters

25. No. of toilet, urinals. Amount of water used perday?

500Liters

26. No. of water taps in the canteen. Amount of water used per day?

Nil

27. Amount of water used per day for garden use.

400 Liters

28. No. of water taps in laboratories. Amount of water used per day in eachlab?

400 liters

29. Total use of water in each hostel?

No hostels, nil usage of water

30. At the end of the period, compile a table to show how many liters of water have been used in the college for each purpose

31. Is there any water used for agricultural purposes?

No

32. Does your college harvest rain water?

Yes

33. If yes, how many rain water harvesting units are there? (Approx. amount)

One pit,1000 liters

34. How many of the taps are leaky? Amount of water lost per day?

Nil



35. Are there signs reminding people to turn off the water? Yes /No

Yes

36. Is there any waterless toilets?

No

37. How many water fountains are there?

Nil

38. How many water fountains are leaky?

Nil

39. Is drip irrigation used to water plants outside?

No

40. How often is the gardenwatered?

Every day

41. Quantity of water used to watering the ground?

100 liters

42. Quantity of water used for bus cleaning? (Liters perday)

Nil

43. Amount of water for other uses? (Items not mentioned above) Nil

44. Area of the college land without tree/building canopy.

2 Acre

45. Is there any water management plan in the

college?Yes

46. Are there any water saving techniques followed in your college? What are they?

Rain water harvesting pit, waste water sinking pit, supply of water from rain water pit to plantation

47. Please share Some IDEA for how your college could save more water.

Repairs leaks with the help of appropriate authority

Labs and class rooms clean up with buckets of water

## AUDITING FOR ENERGY MANAGEMENT

1. List ways that you use energy in your college.(Electricity, electric stove, kettle, microwave, LPG, firewood, Petrol, diesel and others).--Electricity.
2. Electricity bill amount for the last year.  
Electricity bill amount for the last year Rs.1,00,000=00.
3. Amount paid for LPG cylinders for last one year.- Rs 3000.00
4. Weight of firewood used per month and amount of money spent? Also mention the amount spent for petrol/diesel/others for generators? No firewood is used in the College.
5. Are there any energy saving methods employed in your college? If yes, please specify. If no, Suggest Some?  
Yes.
  1. LED tubes and LED bulbs are used in the college.
  2. Energy Efficient (Five Star Rating) Refrigerator is used in the college.
6. How much money does your college spend on energy such as electricity, gas, firewood, etc. In a month?
  1. One Month Current Bill Rs. 8000/-
  2. One Month Gas Cylinder Bill Rs. 600/-
7. How many CFL bulbs has your college installed? Mention use (Hours used/day for how many days in a Month)?  
No CFL Bulbs are used in the Campus.
8. Energy used by each bulb per month? (For example – 60 watt bulb x 4hours x number of bulbs = Kwh).  
No CFL Bulbs are used in the Campus.
9. How many LED bulbs are used in your college? Mention the use (Hours used/day for how many days in a month)  
LED Bulb = 07 (6 Hours/Day, 25 days)
10. Energy used by each bulb per month? (kWh).

One LED Bulb Energy per month = 1.35 kWh.

11. How many incandescent (tungsten) bulbs have your college installed? Mention use (Hours used/day for how many days in a Month)

No Incandescent Bulbs are used in the College.

12. Energy use by each Bulb per month? (kWh).

Nil

13. How many Fans are installed in Your College? Mention use (Hours used/day for how many days in a month)

Total Number of Fans = 22 (6hrs/Day, 25 days)

14. Energy used by each Fan per month? (kWh).

Energy Used by each Fan = 9 kWh

15. How many air conditioners are installed in your College? Mention use (Hours used/day, for how many days in a month)

Nil

16. Energy used by each air condition per month?(kWh)

Nil

17. How many electrical equipment including weighing balance are installed in your college?

Mention the use (Hours used /day for how many days in a month)

Not Applicable

18. Energy used by each electrical equipment per month?(kWh).

Nil

19. How many Computers are there in your college? Mention the use (Hours used/day for how many days in a month)

Total Computer = 38 (6 Hours/Day) for 25 Days

20. Energy used by each Computer per month? (kWh).

Each Computer uses 37.5 kWh

21. How many photocopiers are installed by your college? Mention use (Hours used/day for how many days in a month).

Total Photocopiers = 3 (1 hour/Day) for 25 Days

22. How many cooling apparatus are installed in your college? Mention use (Hours used/day for how many days in a month)

Nil

23. Energy used by each cooling apparatus per month? (kWh) Mention use (Hours used/day, for how many days in a month)

Nil

24. Energy used by each photocopier per month? (kWh) Mention the use (Hours used/day, for how many days in a month) How many inverters your college installed? Mention use (Hours used/day for how many days in month)

Energy used by each photocopier per month = 1.5 kWh

25. Energy used by each Inverter per month? (kWh).

Energy used by each Inverter per month = 150 kWh

26. How many electrical equipment are used in different labs of your college? Mention the use (Hours used/day for how many days in a month)  
Nil
27. Energy used by each equipment per month? (kWh)  
Nil
28. How many heaters are used in the canteen of your college? Mention the use (Hours used/day for how many days in a month)  
No heaters are used in the Canteen.
29. Energy used by each heater per month? (kWh)  
Nil
30. No of street lights in your college?  
No. of street lights = 01
31. Energy used by each street light per month? (kWh)  
Energy used by each street light per month = 1.18 kWh
32. No of TV in your college and hostels?  
No. of TV's in our college = 01
33. Energy used by each TV per month?(kWh)  
Energy used by TV/month is 22.5 kWh
34. Any other item that uses energy (Please write the energy used per month) Mention the use (Hours used/day for how many days in a month)  
Virtual class room and smart boards.
35. Are any alternative energy sources/nonconventional energy sources employed / installed in your college? (Photovoltaic cells for solar energy, windmill, energy efficient stoves, etc..) Specify.  
Nil
36. Do you run "switch off" drills at college?  
Yes
37. Are your computers and other equipment put on power-saving mode?  
Yes
38. Does your machinery (TV, AC, Computer, weighing balance, printers, etc.) run on standby mode most of the time? If yes, how many hours?  
Yes (2 to 4 hours)
39. What are the energy conservation methods adapted by your college?
  1. Switch off the light and fans, when they are not in use.
  2. LED lights and energy saving fans are installed.
  3. Five star rating refrigerators are used in the labs.
  4. All the electrical equipment's are unplugged when they are not in use.
  5. Limited usage of Computers and Printers is encouraged.
40. How many boards displayed for saving energy awareness?  
One flexi are displayed for saving energy awareness.
41. How much ash is collected after burning fire wood per day in the canteen?  
Nil
42. Write a note on the methods/practices/adaptations by which you can reduce the energy use in your college campus in future.

There are number of ways to reduce the energy usage in the college. Most important one is turn off the light and fans when they are not in use. Energy efficient bulbs and fans like LED should be installed in the college. Unplug all the electronic devices when they are not in use. For outside purpose solar lights are the best choice. If we have a greater number of Computer labs which required electric output, we should use power strip. Whenever the computers and printers are not in use, we can switch them all off at a time to prevent the huge energy loss. Conducting awareness programs in the campus to tell Energy conservation is energy creation.

(Calculation of energy for electrical appliances Appliance Power used in (watt) Usage per day (hours)Number of appliances Average kWh per day (Watt X hours X Number X 1000) Average kWh per month (Watt X hours X Number X 1000 x 30) Incandescent bulb 60 watt CFL 18 W Microwave 1000W Stove 3000W Kettle 2500W)

### **AUDITING FOR WASTE MANAGEMENT**

What is the total strength of students, teachers and Non-teaching staff in your College?

No. of Students; 922, ,No. of Teachers; 18 No. Non-teaching staff; Gents -4 Ladies -1 Total: 945

Which of the following are available in your College?

Give area occupied, Garden area and Garbage dump (2)

Playground area (1), Laboratory (2), Kitchen (0), Canteen(0), Toilets (5) Car/scooter shed area0

Number of class rooms-(6), Office rooms- 2 and others Library-(1))

Which of the following are found near your college? Mark the level of disturbance it creates for the college in a scale of 1 to 9.

Municipal dump

yard Nil

Garbage heap Nil

Public convenience Sewer line Nil

Stagnant water Nil

Open drainage Industry – (Mention the type) - Nil

Bus / Railway station Market / shopping complex / public halls - Nil

**WASTE**

Does your college generate any waste? If so, what are they?

How much quantity?

Number or weight E-waste Hazardous waste (toxic) - 0

Solid waste -2 Kgs per day

Dry leaves – 5 Kgs per day

Canteen waste - Nil

Liquid waste -

Glass - Nil

Unused equipment- Nil

Medical waste if any- Nil

Napkins Others (Specify)- Nil

Is there any waste treatment system in the college? Yes Waste water harvesting pits

Is there any treatment for toilet/urinal/sanitary napkin waste?- No

1. What is the approximate quantity of waste generated per day? (in Kilograms) Office Laboratories Canteen/kitchen 2 Kgs
2. Why waste is a problem? Some non degradable wastes create health hazards if not treated properly
3. Whether waste is polluting ground/surface water? How? Yes, It contaminates the drinking water which causes health hazards in human and other animals
4. Whether waste is polluting the air of the college? How? No, No gaseous wastes produced only a meager quantity of gases from labs, very less
5. How is the waste generated in the college managed?  
Methods 1 Composting 2 Recycling 3 Reusing 4 Others (specify) -Composting, Reusing
- 6 How many separate boxes do you think you would need to put into a classroom to start a waste segregation and recycling campaign? 4, Biodegradable, Non biodegradable, Reusable and recyclable  
What should be the use for each box? (Develop a Colour code with reasons)
7. Do you use recycled paper in College? No recycling mechanism of paper exists
8. Is there any waste wealth program practiced in the college? No

Approx. Bio degradable Non-Bio degradable Hazardous Others < 1 kg. 2 - 10 kg. > 10

kg.Approx.

Bio degradable Non-Bio degradable Hazardous Others < 1 kg. 2 - 10 kg. > 10 kg.Approx.

Bio degradable Non-Bio degradable Hazardous Others < 1 kg. 2 - 10 kg. > 10 kg.

9 How would you spread the message of recycling to others in the community? Have you taken any initiatives? If yes, please specify.

By conducting rallies, organizing awareness programmes to reduce environmental pollution caused by wastes etc. Yes, we have undertaken a programme on awareness of damages caused by plastic usage by releasing pamphlets through our NSS students and distribution of them and preparation of Ganesh idols with clay an initiative of eco-friendly practices and preparation of natural colours, conducted rallies etc.etc.

10 Can you achieve zero garbage in your college? (Reduce, Recycle, Reuse, Refuse) If yes, how?

Yes we can achieve by maintaining the wastes in suitable and safe methods

### **AUDITING FOR GREEN CAMPUS MANAGEMENT**

1. Is there a garden in your college? Area?

Yes, 2000 sqft.

2. Do students spend time in the garden?

Yes.

3. Suggest plants for your campus. (Trees, vegetables, herbs, etc.)

Trees like shady for ex. Neem, Sapindus, Fruit plants like Blue berry, Mango, Guava, Flowering plant like Bouganvillea, Jasmine, Shoe flower, medicinal plants and many other species because the soil is very good and fertile

4. List the species planted by the students, with numbers.

Provided in the report

5. Whether you have displayed scientific names of the trees in the campus?

No.

6. Is there any plantation in your campus? If yes specify area and type of plantation.



Yes.

7. Is there any vegetable garden in your college? If yes how much area?

No.

8. Is there any medicinal garden in your college? If yes how much area?

No.

9. What are the vegetables cultivated in your vegetable garden? (Mention the quantity of harvest in each season)

No.

10. How much water is used in the vegetable garden and other gardens? (Mention the source and quantity of water used).

Bore Water is used and 300 Liters

11. Who is in charge of gardens in your college?

Mr.M Srinivas Lecturer in Botany.

12. Are you using any type of recycled water in your garden?

No

13. List the name and quantity of pesticides and fertilizers used in your gardens?

S.No.	Name of the Pesticide/Fertilizer	Quantity
1	Urea	2 Kg
2	DAP	2 Kg

14. Whether you are doing organic farming in your college? How?

No

15. Do you have any composting pit in your college? If yes, what are you doing with the compost generated?

Yes, we have normal compost pit in our college. We are using the compost generated as natural fertilizer for our garden.

16. What do you doing with the vegetables harvested? Do you have any student market?

No, we do not have any vegetable garden.

17. Is there any botanical garden in your campus? If yes give the details of campus flora.

Yes

\*\*\*\*\*

18. Give the number and names of the medicinal plants in your college campus.

.No	S	Name of the medicinal plants	Number of the plants
1		Azadiracta indica	8
2		Moringa olifera	2
3		Tinospora cardifolia	1
4		Syzygium cumini	4
5		Bryophyllum prination	1
6		Emblica officinalis	5
7		Ocimum sanctum	3
8		Hybiscus rosasinensis	2
9		Pongamia pinnata	8

20. Any threatened plant species planted/conserved? No

21. Is there a nature club in your college? If yes what are their activities? Yes Eco club- plantation, organizing awareness programs to inculcate aesthetic sene and the spirit of environmental protection

22. Is there any arboretum in your college? If yes details of the trees planted. - No

23. Is there any fruit yielding plants in your college? If yes details of the trees planted. – Yes Mango,Citrus, Black Berry, Custard apple.etc.

24. Is there any groves in your college? If yes details of the trees planted. - No

25. Is there any irrigation system in your college? No

26. What is the type of vegetation in the surrounding area of the college?

Mango Fruit Garden, Cotton, Paddy and Millet crops

27. What are the nature awareness programmes conducted in the campus?

We conducting Harithaharam, plastic awareness programs importance of water awareness program and wild animal day program

28. What is the involvement of students in the green cover maintenance? Maintenance of college garden by making them as teams for watering and gardening

29. What is the total area of the campus under tree cover? Or under treecanopy?

2 Acres

30. Share your IDEAS for further improvement of green cover.-

Making the available open ground cultivable, using of organic manure, involving all the stake holders in improving the green cover, taking the help of forest department, raising funds for its growth, planting more no. of trees etc

### **AUDITING FOR CARBON FOOTPRINT**

1. What is the total strength of students and teachers in your College?

No. of Students= 945

No. of Teachers= 18

No. of Non-teaching staff Gents & Ladies Total=05

2. Total Number of vehicles used by the stakeholders of the college.

(per day)

Total Number of vehicles = 20

3. No. of cycles used = 04

4. No. of two wheelers used (average distance travelled and quantity of fuel and amount used per day)No. of two wheelers = 30@6km/day

Average distance travelled = 180 km

Quantity of fuel used per day = 05 L

Amount used per day = 05 L x 110/=550/-

5. No. of cars used (average distance travelled and quantity of fuel and amount used per day)No. of cars

00

6. Average distance travelled = 00 km

Quantity of fuel used per day = 0 L

Amount used per day = 00

7. No. of persons using common (public) transportation (average distance travelled and quantity of fuel and amount used per day)

No. of persons using common public

transportation = 300 persons Average distance travelled

=  $300 \times 25 \text{ km} = 7500 \text{ km}$

Quantity of fuel used per day = 937 L

Amount used per day =  $937 \text{ L} \times 102/- = 95,574/-$

8. No. of persons using college conveyance by the students, non-teaching staff and teachers (average distance travelled and quantity of fuel and amount used per day)

Nil

9. Number of parent-teacher meetings in a year? Parents turned up

(approx.) Number of parent-teacher meetings in a year = 02 (70)

10. Number of visitors with vehicles per day?

Number of visitors with vehicles per day = 30

11. Number of generators used per day (hours). Give the amount of fuel

used per day. Nil

12. Number of LPG cylinders used in the canteen (Give the amount of fuel used per day and amount spent).

01

13. Quantity of kerosene used in the canteen/labs (Give the amount of fuel used per day and amount spent).

Nil

14. Amount of taxi/auto charges paid and the amount of fuel used per month for the transportation of vegetables and other materials to canteen.

Nil

15. Amount of taxi/auto charges paid per month for the transportation of office goods to the college.

Nil

16. Average amount of taxi/auto charges paid per month by the stakeholders of the college. Nil

17. Use of any other fossil fuels in the college (Give the amount of fuel used per day and amount spent).

Nil

18. Suggest the methods to reduce the quantity of use of fuel used by the stakeholders/students/teachers/non-teaching staff of the college.

1. Usage of Electrical Vehicles Instead of Fuel Vehicles.
2. Usage of Bicycles for Short Distance Travel.
3. In case of walkable distance areas prefer foot travel.
4. Use public transportation i.e. Local Buses, Autos etc. Buses and autoes

18. Are the Rooms in Campus are Well Ventilated? Yes.

19. Window Floor ratio of the Rooms

Good.

## **Carbon Footprint - Sample Report**

- Petrol used by two wheelers/day–229 L

(Per person to and fro 40 Kms=1L) Fuel used by four wheelers (52 Persons) - 104 L

- (Per person to and fro 40 Kms=2L) Fuel for persons (total 2314 persons) travelling by common
- Transportation =184 L (4L x 50 persons)

Total fossil fuel use is 517 L / day

Total fuel cost per day for transportation =Rs. 36190/- (517 L x Rs 70 )

Cost of stakeholder transportation per month (Rs.36190x22 days)- Rs.796180

## Water chemical quality analysis provided in the report

### Water Quality analysis (Biological) report of college – II (with Photographic evidence)

No	Parameter/ WHO permissible level	Zooplankton (No of Samples/Sites)	Methodology
1	Protozoan (Ciliates)	Paramecium	Under microscope
2	Rotifers	---	----
3	Ostracods	----	----
4	Insect Larvae	----	----
5	Water Fleas	----	----
6	Bivalves	----	---
7	Snails	---	---
8	Mussels	---	---
9	Any Other (Specify)	---	---

## Water Quality Analysis

**(Biological) report of college – II (with Photographic evidence):**

S.No	Phytoplanktons	Scientific Name and number	Methodology
1	Diatoms (Bacillariophyceae)	Nil	Nil
2	Dinoflagellates (Dinophyceae)	Nil	Nil
3	Coccolithophores (Prymnesiophyceae )	Nil	Nil
4	Green algae (Chlorophyceae)	Nil	Nil
	Cyanobacteria (earlier Blue-green algae)	Nil	Nil
6	Others (specify)	Nil	Nil

A)Composting/ Vermicomposting	Yes	Remark
B)Recycling	--	--
C)Reusing	Yes	
D)Other ways	Yes	

**How the waste generated in the college is**

**managed?Waste generated in the college?**

E-waste	Nil	
Hazardous waste	Nil	
Solid waste	5 kgs	
Dry leaves	50 kgs	
Canteen waste	Nil	
Liquid waste	100 L	
Glass	NIL	
Unused Equipment	Nil	
Napkins	5 kgs	
Others (specify)		

<b>Do you use recycled paper in college?</b>	No
<b>Any waste management methods used?</b>	Compost





**GOVERNMENT DEGREE COLLEGE, Utnoor**

**AUDITING FOR ENERGY**

**MANAGEMENT**

**LIST OF ELECTRICAL APPLIENCES IN VARIOUS ROOMS**

S. N O.	ROOM NO.	FANS	LED BULBS	LED TUBES	TUBES	COMPUTERS	PRINTERS	UPS	SMART BOARDS	SCANNERS	PROJECTORS	CCTV DVR	FRI DGE	TV	WATER PURIFIERS	SPEAKERS
1	OFFICE ROOM	3			5	2	1	1					1			
2	PRINCIPAL CHAMBER	1			1	1		1					1	1		
3	READING (DOST) ROOM	2			2	10	1									
4	BOTANY LAB	2			1											
5	ZOOLOGY LAB	1			1											
6	COMPUTER LAB	2			2	30	1									1
7	PHYSICS LAB	1			5											
8	CHEMISTRY LAB 1				1											
9	CHEMISTRY LAB 2				1											
10	DR. BRAOU	2			2	1										
11	STAFF ROOM	1	1		4	1							1	1		
12	STORE ROOM	1			1											
13	CLASS ROOMS			12	4				5							
14	CORRIDOR 1		1	8	1											
15	CORRIDOR 2		1	8												
16	LIBRARY	6	1	8	4											
17	OUT SIDE				1							14				
	<b>TOTAL</b>	<b>22</b>	<b>04</b>	36	<b>36</b>	<b>45</b>	<b>03</b>	02	05			14	<b>01</b>			<b>01</b>

# GOVERNMENT DEGREE COLLEGE, KAGAZNAGAR

DIST: KUMURAMBHEEM ASIFABAD

AUDITING FOR ENERGY MANAGEMENT

## USAGE OF POWER

S.No.	Electrical Appliance / Instrument	Number	Power (W)/Unit	Total power (W)	W	Operation/day (6h)	W/hr	No,of days in Month (25)	Total Consumption per month
1	FANS	22	75	1650	1.65	6hr	1.65	25	247.5
2	LED BULBS	04	9	36	0.036	6hr	0.036	25	5.4
3	LED TUBES	36	15	540	5.4	6hr	5.4	25	135
4	TUBES	36	40	1440	1.44	6hr	1.44	25	216.0
5	COMPUTERS	45	250	11250	111.2	6hr	111.2	25	2780
6	PRINTERS	03	30	90	0.09	6hr	0.09	25	2.25
7	UPS	4	30	60	0.06	6hr	0.06	25	1.5
8	SMART BOARDS	6	150	750	7.5	6hr	7.5	25	187.5
9	SCANNERS								
10	PROJECTORS								
11	CCTV DVR	14	15	210	2.1	6hr	2.1	25	52.5
12	FRIDGE	01	350	350	3.5	24hr	3.5	30	105
13	TV	01	30	30	0.3	6 hr	0.3	25	0.75
14	WATER PURIFIERS								
15	SPEAKERS	01	20	20	0.2	6hr	0.2	25	0.5
<b>kW/hr</b>								<b>TOTAL CONSUMPTION PER MONTH</b>	<b>3733.9</b>

R.O water facility:



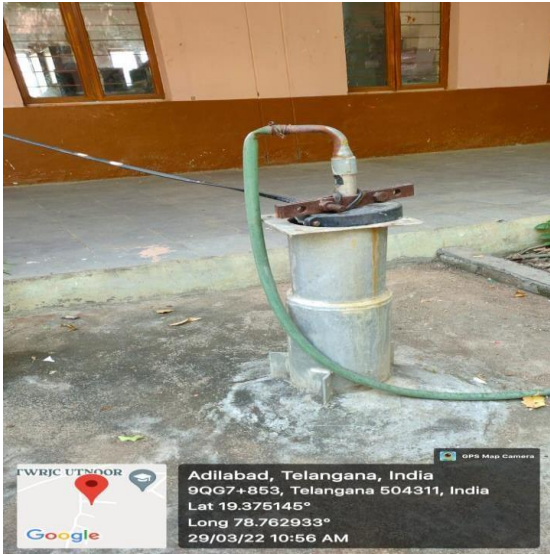
Water tank:



**Led Tube lights:**



**Water bohr:**



**Plantation:**



GPS Map Camera


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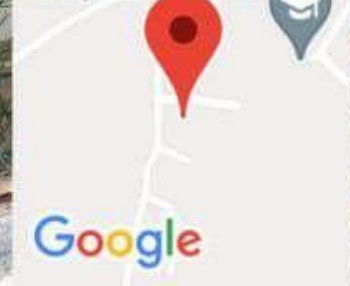
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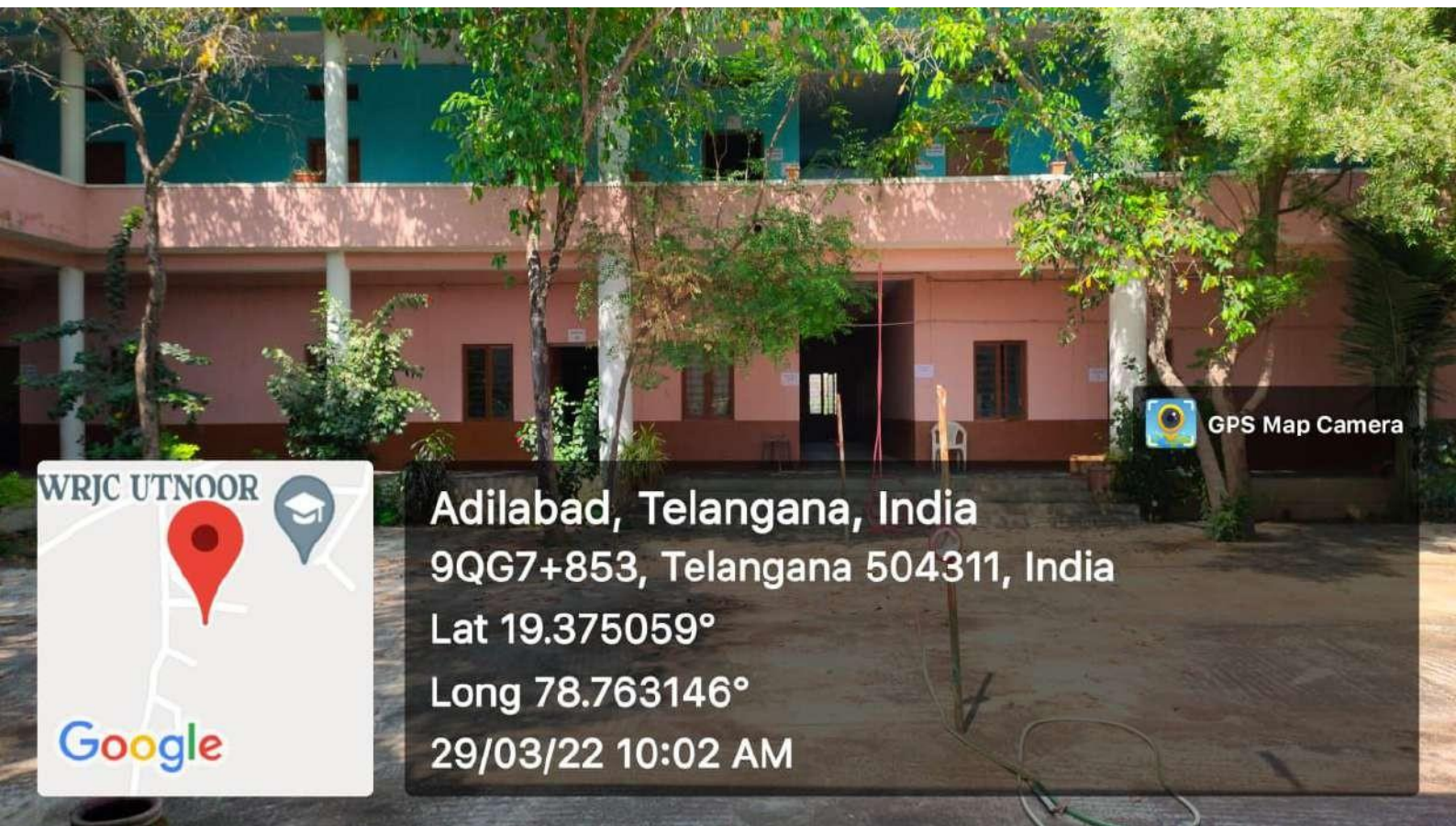
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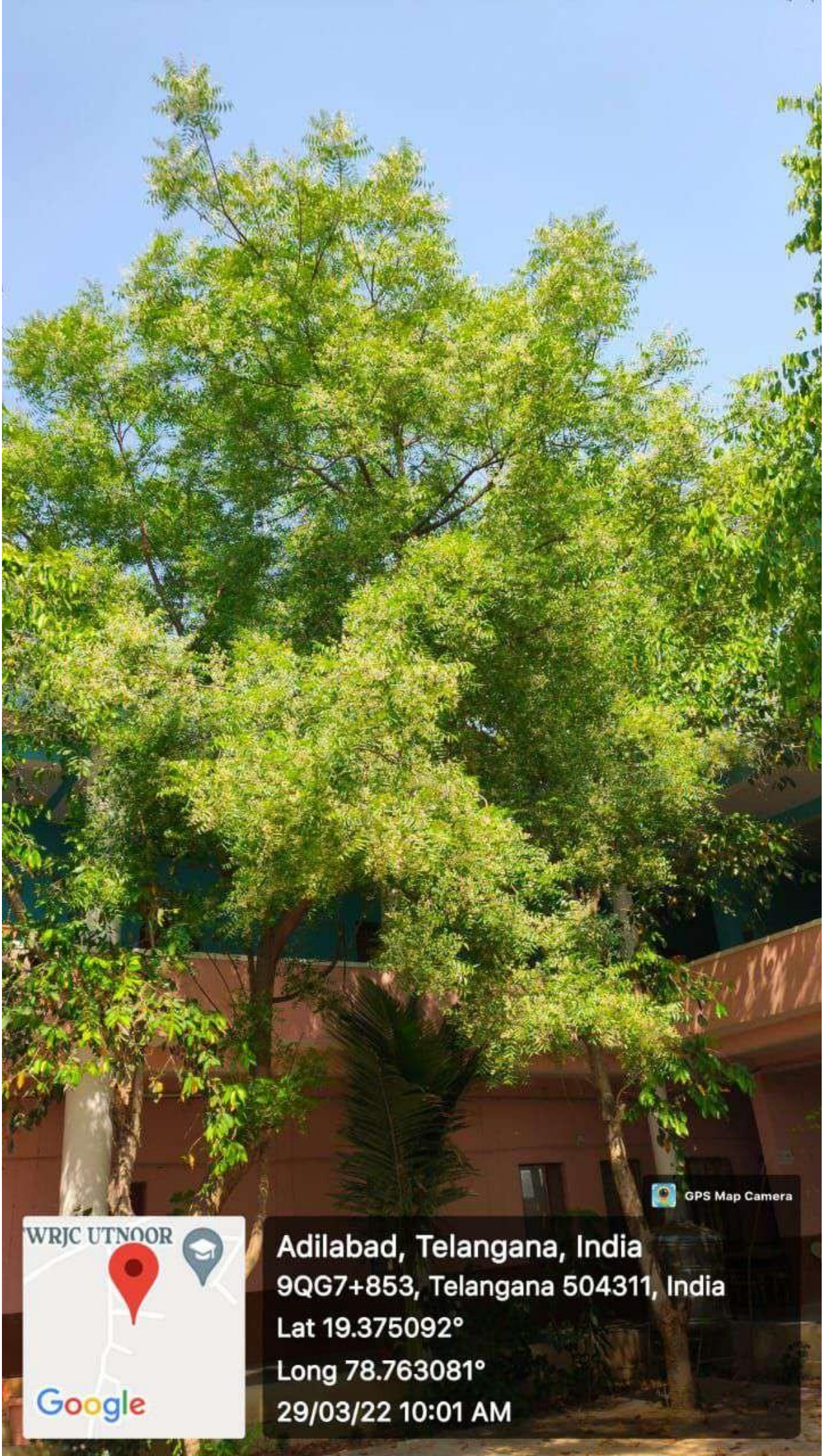


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