

GREEN AUDIT REPORT

2018-2019



Government Degree College for Women
Begumpet, Hyderabad
(Autonomous, affiliated to Osmania University)



INTRODUCTION:

The term GREEN AUDIT means ecofriendly or not damaging environment. This can acronymically called as “GLOBAL READINESS IN ENSURING ECOLOGICAL NEUTRALITY”(GREEN).

Green auditing is an umbrella term, known by other name “ENVIRONMENTAL AUDITING”. The green audit practically involves energy conservation , use of renewable resources , rainwater harvesting , plantation ,hazardous waste management and E- waste .It is also a requirement of NAAC gradation to degree colleges.

The concept of Green Audit is considered as a tool to evaluate environmental standards and most efficient and ecological way to solve environmental problems. It is a practice of saving environment through various programs like GO GREEN, SAVE WATER, SAVE TREES, PLANTATION OF TREES.

It is necessary to conduct green audit in college campus and involve students to get awareness of green audit and its advantage to save planet.

GDCW BEGUMPET conducts Green audit for every 2 years and strives to maintain eco friendly atmosphere in & around campus. The green audit committee is group of staff members and students and also it is necessary to conduct a green in college campus and involves students in this concept to that students get awareness of green audit, its advantage to safe planet earth.

ABOUT US:

The GDCW BEGUMPET was established in 1971. The college is affiliated to Osmania university and has been accredited by NAAC with B grade in 2016. The college provides education to deserving young women in secular environment and committed to serve for cause of economically weak and socially under privileged women students. During last four and half decades the college has grown from strength to strength and presently facilitates approximately

2000 students to access higher education. As a part of requirement for re-accreditation process by NAAC in 2016 the college needs to undergo green audit.

In this regard government degree college for women Begumpet approached Center for environmental studies, Nizam College, Osmania university, Hyderabad.

Accordingly Center for environmental studies, Nizam College, Osmania university, Hyderabad, agrees to conduct green audit with the green audit team.

OBJECTIVE-GREEN BUILDING CONCEPT:

Also known as Green Construction. It refers to both structure & application of processes that are environmentally responsible & resource-efficient through out a building's life cycle: From planning to design construction, operation, maintenance, renovation & demolition.

OBJECTIVES:

It is to reduce overall impact of built environment on Human Health & Natural Environment by:

- 1) Efficiently using energy, water & other resources.
- 2) Protecting occupant health & improving employee productivity.
- 3) Reducing waste, pollution & environmental degradation.
- 4) Lowers utility costs in terms of energy, water, sewer & waste.
- 5) It increases health & productivity by enhancing green cover.

OBJECTIVE OF GREEN AUDIT OF GDCW (A) BEGUMPET

- ❖ To implement 'Go green' – Making the campus green.
- ❖ To identify opportunities to save energy.
- ❖ To see that proper steps have been taken to control or to prevent adverse effects like pollution.
- ❖ To reduce waste and to dispose waste
- ❖ To see that proper steps have been taken for maintaining health and welfare of the students and staff of the College.
- ❖ Health and safety practices.

METHODOLOGY:

PRE AUDIT ACTIVITIES:

- SCHEDULE
- PLANNING OF AUDIT
- PRE-AUDIT QUESTIONNAIRE

SCHEDULE:

The schedule for green audit is from **10/9/2018 to 20/9/2018**.

PLANNING OF AUDIT:

Based on the questionnaire given by the project coordinator and project investigator planning of audit is done. Planning of green audit involves the following scopes:

- 1)- Campus Infrastructure
- 2)-Plantation
- 3)- Water Resource and conservation
- 4)-Solid Waste Management
- 5)- Hazardous Waste Management
- 6)-E-Waste Management
- 7)-Energy production and conservation

FINDINGS:

1. CAMPUS INFRASTRUCTURE:

College administration is vital to the process of realizing campus sustainability and the policies made by administration is an essential instruments for any substantial change in campus environment. Principal of college Dr. G.Yadagiri had played a key role in making in policies of improving campus infrastructure.

Incinerators are installed in washrooms as a student welfare and eco-friendly activity.

1	Total campus area	2.32acres
2	Canteen area	225Sq.mts
3	Ladies room	68.73

4	Gymkhana hall	16
5	Washroom Blocks 1,2,3,4	44
6	English language lab	48
7	Dept. of Sciences, Arts and Commerce	500
8	Dept. Of Languages	50
9	Library	48
10	Reading rooms	50
11	Class rooms	520
12	Sports room	96
13	Computer labs 1 and 2	84each
14	Labs	42

2. PLANTATION:

College has rich plantation in & around campus which include trees, shrubs, herbs,& medicinal plants. Medicinal Plants are grown in a separate medicinal Garden, a composting pit is also being maintained & the produce is used as bio fertiliser to the garden plant.

List of audited plants:

TRESS:

S.NO	BOTANICAL NAME/COMMON NAME	USES
1	Saraca indica-Ashoka tree	Stem, bark- used in treating leprosy
2	Magnifera indica-Mango	Fruit edible , root used to treat ulcers
3	Samanea saman-Rain tree	Road side shade tree. Pods used as fodder
4	Azadiracta indica-Neem	Road side tree. Indian Herbal doctor

5	Annona squamosa-Custard	Fruit bearing,bark used in skin disorders
6	Syzygium cumini-Jamun	Fruit yielding,seeds are for diabetic
7	Ficus religiosa-Peepal	Shade tree, stem used to treat skin disorders
8	Areca catechu- Nut tree	Nut has high medicinal value
9	Colacasia esculenta-chama	Corms are stem vegetables, good for piles
10	Tectona grandis – teak wood	High quality timber yielding
11	Murraya koenigii-karyapak	Aromatic leaves of high medicinal value
12	Cycas	Ornamental
13	Thuja	Ornamental
14	Ficus bengalensis	Ornamental
15.	Pongamia pinnata	Biodiesel Plant

MEDICINAL PLANTS:

1	Achras sapota-sapota	Fruit edible, skin disorders
2	Cymbopogon martini-lemon grass	Used in perfumery
3	Ocimum sanctum-Tulsi	Leaves for curing asthma
4	Ocimum basilicum-sabza	Aromatic leaves, seeds are cooling
5	Mentha viridis-pudina	Aromatic leaves
6	Citrus auranthifolia-citrus	Fruit are medicinal value
7	Rauvolfia serpentine-sarpagandha	Root and seeds are useful
8	Withania somnifera-Ashwagandha	Sleep inducing

9	Emblica officinalis-Amla	Fruits rich in vitamin C
10	Phyllanthus niruri	Complete plant is medicinal imp.
11	Tinospora cordifolia	Medicinal plant
12	Cissus quadrangularis	Stem has medicinal value
13	Cymbopogon	Used in perfumery
14	Plectranthus ambionious	Medicinal plant

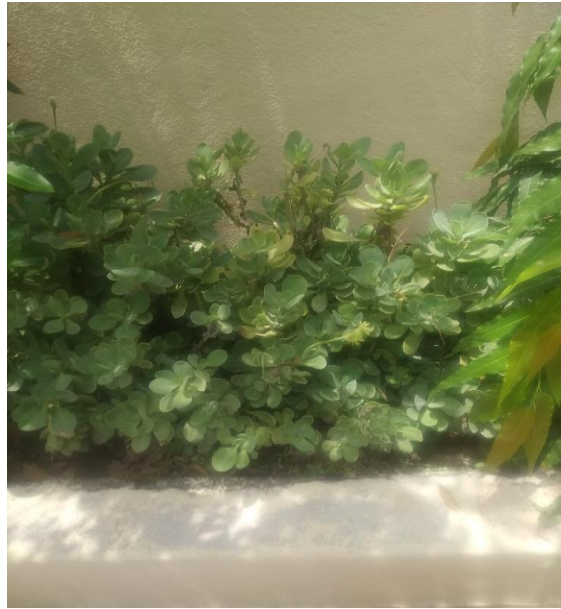
HERBS:

S.NO	NAME OF PLANT	USES
1	Common grass	Used as lawn
2	Croton	Ornamental
3	Parthenium	Weed
4	Euphorbia hirta	Weed
5	Dracaena	Ornamental
6	Hibiscus	Ornamental
7	Asters	Ornamental
8	Canna	Ornamental
9	Boerhaavia	Medicinal
10	Solanum	Fruit bearing

11	Bryophyllum	Ornamental
12	Tridax	Weed
13	Asclepias	Weed
14	Calotropis	Weed
15	Heliotropium	Weed
16	Dracaena	Ornamental
17	Tecoma stans	Ornamental
18	Tribulus terrestris	Weed
19	Antigonon leptopus	Ornamental
20	Lantana camara	Boundary plant







WATER:

Water Consumption

S.No	Area of consumption	Gallons/day
1.	Domestic purpose including canteen	17 gallons
2.	Gardening	10
3.	Laboratory	10

- Supply of municipal water is through Municipal taps which is again purified through R.O. System which is installed on the floor.
- A bore well is also present in the college premises and water is pumped to overhead tank and supplied to usable area.
- Two rain harvesting pits are constructed in the college area.



Water Quality Analysis Report by MPN method for water samples collected from Government Degree College for Women, Begumpet.

Microbiology Students of 3rd semester have performed MPN test on water samples collected from our college.

Samples:

1. Municipal water
2. Borewell water
3. RO water

Students performed MPN (Most Probable Number) method to know the water quality. In this they have taken lactose broth and inoculated water samples as per procedure.

Results:

S.NO	Sample	MPN reading	Approximate number of coliforms (upper
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			limit)
1.	Municipal water	0-0-0	10
2.	Borewell water	0-1-0	13
3.	RO water	0-2-0	5

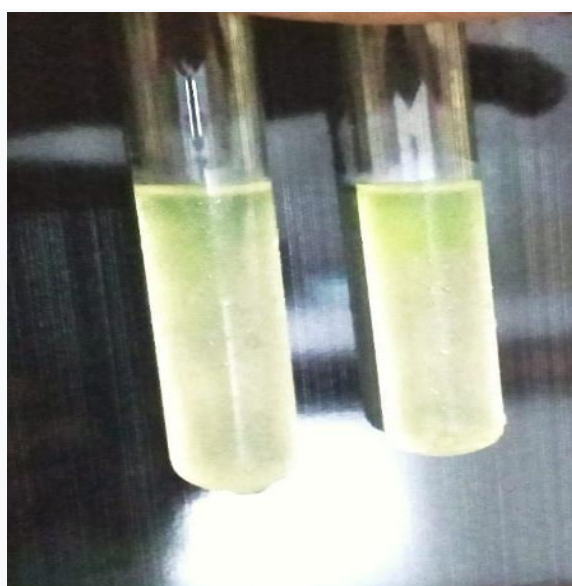
Readings shows that there is probability of presence of less number of *E.coli* cells in 100ml of RO water and 13 *E.coli* cells per 100 ml of Borewell water samples. The number of *E.coli* cells is 10 in 100 ml of Municipal water.

In borewell water samples, green colored pigment is observed at the top of many tubes. It suggests that there is *Pseudomonas* bacteria and the color is due to production of pyocyanin, a water soluble pigment.

In RO water, there is no growth thus no turbidity, no gas production and even no colour seen.



Gas production by *E.coli* in bore well water sample



Production of pyocyanin, water-soluble green pigment of *P. aeruginosa*

Hazardous Waste:

Hazardous waste represents a significant risk to human health and ecological imbalance. It includes waste from laboratories

The measures taken to disposal hazardous waste are:

- No expired chemicals existing laboratories.
- The broken glass ware is disposed by taking permission of principal.

- Botany lab dissected materials is used in composting and chemical produced is almost nil.
- Zoology lab dissected material is dumped in dumping pits and buried properly.
- The waste from microbiology and biotechnology labs is disposed through the method of autoclaving and later the glass ware is washed thoroughly.

Solid waste

The solid waste is segregated at source by providing separate dust bins for biodegradable and plastic waste .

Waste segregated from different labs is dumped in separate dump yard.

The observed waste from different areas include:

S.No	Source of waste	Quantity/day	Method of disposal
1.	Canteen waste	2 Big buckets	Organic composting
2.	Tree waste	6 Big buckets	Organic composting
3.	Plastic waste	1 big basket	Municipal Disposal
4.	Solid from labs	3 small buckets	Organic composting

Energy:

Energy consumption and conservation is an important scope of green audit.

Our college architectural design is based up on use of natural lighting and ventilation to save extra power from bulbs and fans.

Fluorescent bulbs are replaced with CFL bulbs .

The college has canopy of trees and plants that make environment carbon dioxide free and to maintain health of in mates. The garden has palm trees neem trees and others which provide shade and reduce temperature in environment and also give a beautiful ambience.

Energy is conserved by using natural light in the classrooms.

AT GDCW Begumpet a solar generator is being installed in open area with a capacity of 5KV . The benefit is when the normal power supply is off then the power generated from the solar generator switches on automatically to important consumption points. These are great replacement for traditional gas powered models. They do not put any noxious fumes and are virtually silent making them perfect.

An ELCB-Earth Leakage circuit breaker is also installed in the college campus . It is a safety device with high earth impedance to voltages to prevent shock.

It detects small stray voltages on the metal enclosures of electrical equipment and interrupts the circuit if a dangerous voltage is detected. The main purpose of ELCB is to prevent injury to humans and animals due to electric shock.

The power can be switched off in the entire floor when not in use.

There are EIGHT solar bulbs installed in front of the college building and automatically switch on during night and conserve electrical energy during whole night..

CFL bulbs are also being installed in the campus.

Recommendations:

- **One** Rainwater harvesting **pit** is established in the college campus future needs of water. Further, rainwater pits can be prepared at appropriate places identified in and around the campus.
- The public lights within the campus may be run with solar panels and the replacement of existing lights should be done with LED lamps.
- Fire safety instruments should be installed in all the buildings.
- Water Meter may be installed for monitoring of water consumption for landscape
- Reduction in use of paper work by going digital
- Avoid use of personal vehicles inside the campus.
- Formulation of Environment Policy and communicated to all faculties and other staff members.

Conclusion:

Universities and colleges have broad impact around them. The activities perused by colleges and create a variety of impact on society especially environmentally sustainable solutions. GDCW Begumpet has taken a number of positive steps to improve environment.

This reports serves to highlights colleges many accomplishments and to make recommendations for improving the colleges environmental sustainability.

The college conducts internal audit and strives to maintain eco-friendly atmosphere in the campus.

Certain recommendations were given by green audit to maintain eco- friendly ambience

- Green building for quality living.
- Know green and thick green is promoted in the campus.
- Water conservation and prevention of water wastage.

- Use of CFL bulbs.
 - Use of solar powered generators.
 - Say ' No' to Plastic.
 - Reduce – Reuse-Recycle methods are followed.
 - Global warming, biodiversity and pollution incorporated in curriculum.
- Hence GREEN AUDIT is most efficient and ecological way to solve environmental problems.