A. V. Education Society's
DEGLOOR COLLEGE, DEGLOOR

Green, Environment and Energy Audit Report - Upgraded Reassessment 2020-21

Assessed by

Dr. S. V. Shivanikar

Principal & Head

Department of Environmental Science

Netaji Subhashchandra Bose College, Nanded

Introduction

The purpose of reassessment of Green, Environmental and Energy audit is the systematic scrutiny of environmental performance on the campus of Degloor College's existing operations. The audit report is a comprehensive examination of management systems and facilities.

Objectives

The overall objective of audit report is to help safeguard the environment and minimize risks to human health.

- To determine how well the environmental management systems and equipment are performing
- To verify compliance with the relevant national, local or other laws and regulations
- To minimize human exposure to risks from environmental, health and safety problems
- To create peaceful ambiance

Outcomes

This audit report is implemented in a constructive way, therefore there are many benefits to be derived from the process. The audit approach will help to:

- Safeguard the environment
- To implement Environmental laws
- Organization of Environmental Awareness Programmes
- Encourage to use and protect environment
- To involve in tree plantation
- To save Energy
- Demonstratethe commitment to environmental protection to employees, the public and the authorities.

Indicator I: Campus Energy Power

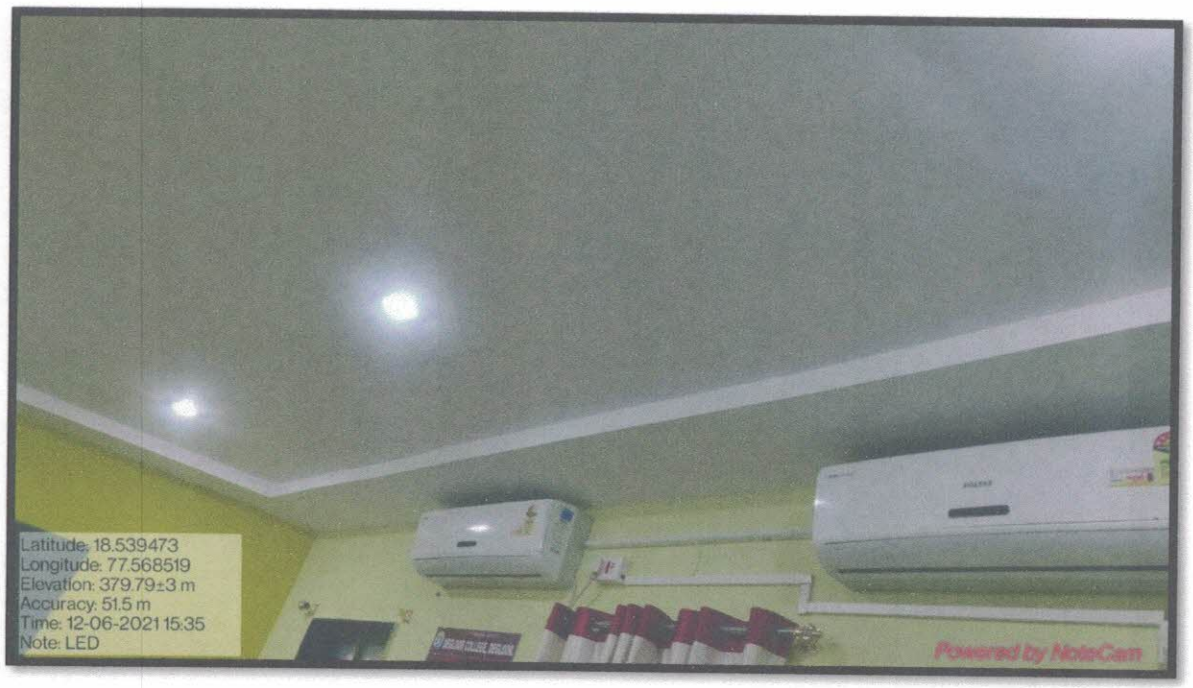
01	The electrical appliances available in campus area have been observed.
02	I have also observed the types of electrical appliances in the campus.
03	The available electrical appliances and the power saving appliances have been observed.

Details of Electrical particulars working in the campus

Sr. No.	Name of Particulars	Previous Total Number	Present Total Number
01	Electric Fans	159	189
02	Exhaust Fans	09	11
03	Air Conditioners	02	04
04	Tubes	156	62
05	Bulbs	00	00
06	LED Lamps	00	102
07	Solar Street Lights	03	03
08	CFL Lamps	114	26
09	Sockets	474	486
10	Water Motors	04	04
11	RO Motors	01	01
12	Water Coolers	03	06
13	Computers	83	89
14	Printers	14	15
15	Xerox Machine	02	03

Recommendations:		Compliances
The college should employ several measures to save energy including;		
01	The use of electricity CFL lamps in the college office, class rooms and laboratories. Computers and instruments when not in use should be switched off.	The instructions are given to the employees to switch off electrical appliances when they are not in use. 89% CFLs are replaced by LED bulbs
02	Electricity wastage is controlled through central double switch system one at centre board (Nearby office) and another in hall, laboratories so the lights and fans can be switched off timely on each wing and floor.	Central double swich system was installed on 1st floor to prevent electricity wastage.

03	By using stickers of switch off power. These initiatives had helped to reduce the Overall energy consumption in campus. Staff and students were motivated towards energy conservation. Generator is also used as alternative source in emergency only.	The stickers indicating "switch off the power" are displayed on electrical appliance for energy conservation.



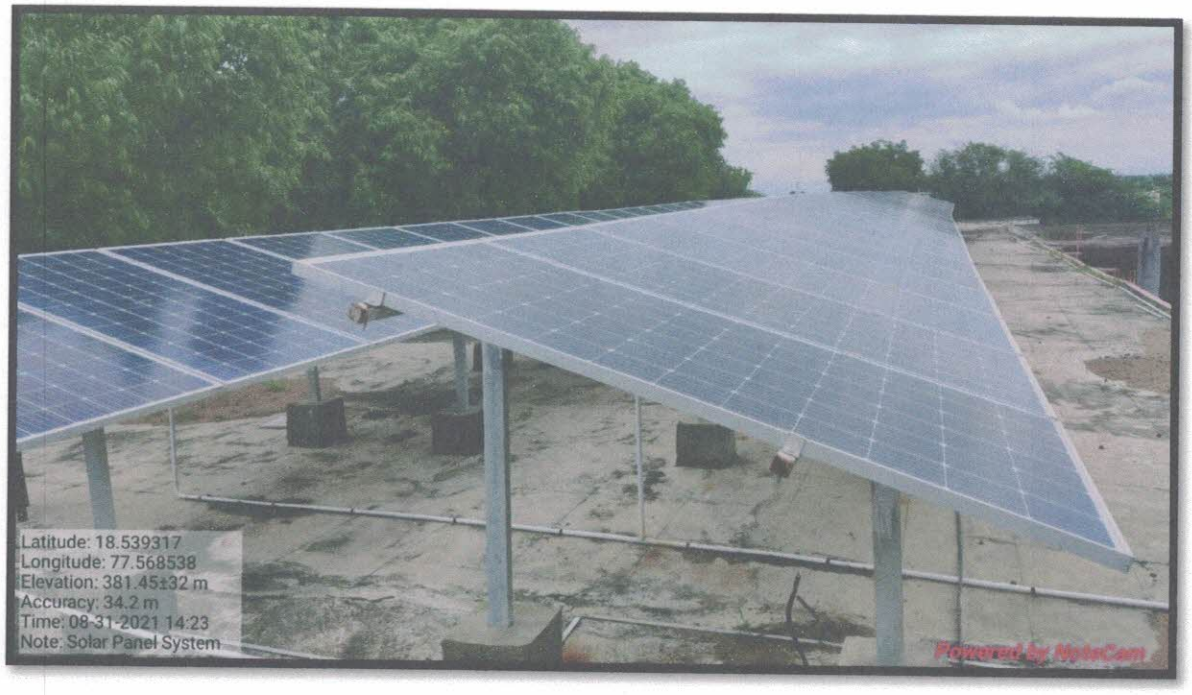
Indicator II: Use of Renewable Energy

Adoption of solar energy under renewable energy was the best course of action in the existing circumstances. Solar technologies are broadly characterized as passive or active solar technologies depending on the way these equipments capture, convert and distribute solar energy. Active solar techniques include the use of photovoltaic panels and solar thermal collectors to harness the energy. Passive solar techniques include orienting a building to the Sun, selecting materials with favourable thermal mass or light dispersing properties, and designing spaces that naturally circulate air. The identification of renewable, sustainable and affordable energy sources has led to the installation of 'Solar Park' with 30 percent subsidy from the Government. Solar energy is one of the sources for lights, fans, heaters used in the college.

Sr No.	Solar Energy Sources	Status in 2015-16	Present Status
01	Do you have solar street lights in your campus?	No	Yes – 03
02	Do you have solar lights in your college building?	No	25.185 Solar Panel System Installed on 21.09.2019
03	Do you have solar inverters in your college?	No	
04	Do you have solar DP in your college campus?	No	
05	Do you have solar cookers in your college?	No	
06	Do you have solar heaters in your college building?	No	
07	Do you have solar motor pumps in your college?	No	

Recommendations:		Compliances
01	College should plan to use Non conventional sources of energy such as Solar Street lights, Solar lights, Solar inverters, in the campus to save the use of conventional sources of energy i.e., reduction in electricity.	Yes, College use non conventional solar energy to save the use of conventional sources of energy i.e. reduction in electricity.
02	Institute should install Solar water heater and solar cookers in the ladies hostel.	Institute has installed Solar Water heater in women's hostel and ready to use other

		solar equipment.
03	Solar motor pump should be used for garden irrigation.	Now all Water pump sets on the campus use solar energy
04	The stickers should be placed for preventing wastage of energy.	The stickers indicating "switch off the power" are displayed on electrical appliance for energy conservation.



Indicator III: Roof Water harvesting

The institution has enacted the projects of roof water harvesting. The project of roof water harvesting is in operation. Rain water which precipitates on roof is collected and filtered through pipes and released in Tubewell. Roof water harvesting is observed beneficial to conserve the wastage of water and it also recharge bore water (ground water level) This practice is unique and it is model for the society. College will get advantage of this practice in future.

01	Whether the institution has installed rain water harvesting unit at college campus?	Yes
	If yes, give the details –	
	The institution has installed total eight (10) Rain Water Harvesting units at college campus.	

02. **Provide the total requirement of water per day in campus**

Total requirement of water per day in campus are given below:

Academic year	Consumption of water / day for drinking and sanitation	Consumption of water / day for gardening	Total consumption / day	Total annual usage of water by considering 300 days working
2015-16	**05 lit Per person X strength of students (1220) = 6100 Litres**	**3000 litres**	**9100**	**2730000 Litres (721268.163 Gallons)**
2020-21	05 lit Per person X strength of students (1747) = **8735Litres**	3000 litres	11735	**3520500 Litres (930017.7103 Gallons)**

Detailed calculations of RWH are given below:

		2015-16	2020-21
A	(Catchment area of building where Roof water harvesting is done)	157.93 Sq. M	157.93 Sq. M.
R	Inches of rain or Annual rain fall in a area	376 inches	395 inches
G	Total amount of collected rain water G = (A) x (R) x 600 gallons /1000 G = 157.93 x 395 x 600 /1000	35629.008 Gallons (134855.795 Litres)	37429.41 Gallons (141685.72968Litres)

Conclusion:			
		2015-16	2020-21
01	Total usage of water in the college per annum	**721268.163 G**	**930017.7103 G**
02	Total amount of collected rain water per annum	**35629.008 G**	**37429.41 G**
03	% age of water conserved	About 18%	About 24.84%

Hence the %of water conserved during the last five years increased by 6.84%

Recommendations:		Compliances
01	Rainwater harvesting should be done on each building.	The rain water harvesting had been done on college building. It will be done on the other buildings like library, women's and men's hostels in future
02	Provide information and take feedback on water use for campus users.	The stakeholders are satisfied with water management on the campus because we have resolved water problem mentioned by stakeholders in the feedback

Indicator IV: Plantation

Tree plantation means planting trees and plants. The purpose of tree plantation is to save the endangered environment and to beautify our campus and life. Trees are valuable gifts of nature. They are known as the best friends of human beings. They benefit us in various ways. The lives of men and other animals and insects are inconceivable without the existence of trees in the world.

Trees absorb carbon dioxide and give us oxygen without which no living being can live. Trees give us shade, medicine, food, fruits, furniture, fuel etc. Trees also keep the weather cool and cause rainfall. They also bind soil and thus prevent erosion. Trees are part and parcel of our life. So, it is our duty to plant more trees and takes care of them in order to maintain balance between man and nature. To make the country economically developed and to save the globe from green house effect, we should plant trees on a large scale.

A campus is beautifully designed with Medicinal plants, herbs, and some tree plants are also cultivated in the campus. The college is very fortunate because college has enough space to cultivate more and more trees in college

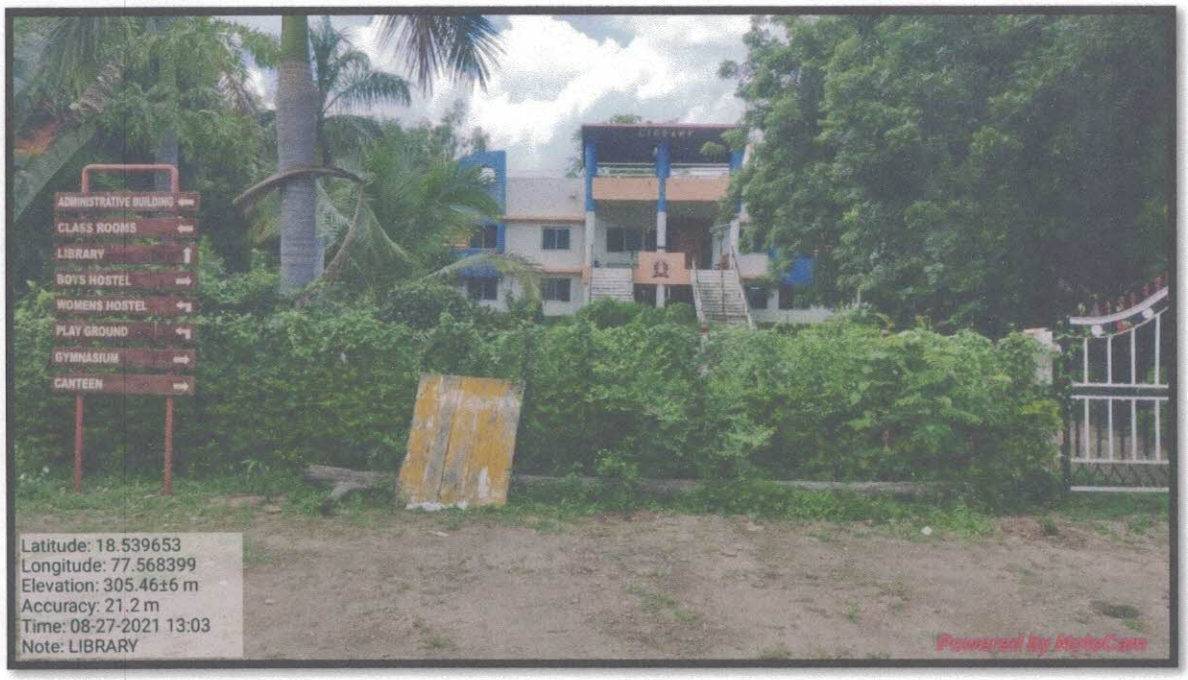
Distribution of campus land area is as below

Sr No	**Description of area for particulars**	**Area occupied for particulars in meters (in %)2015-2016**	**Area occupied for particulars in meters (in %) 2020-21**
01	Degloor College Degloor Total Campus area	91863.64 Sq. M	91863.64 Sq. M.
02	Built up area	6012.38Sq. M	6012.38Sq. M.
03	Total Play Ground	32374.9Sq. M	32374.9Sq. M.
04	Total Plantation covered	22423.04 Sq. M.	24523.04 Sq. M.
05	Total Botanical Garden	1858.06 Sq. M.	856.06 Sq. M.
06	Total Green covered in college campus	24281.1 Sq. M.	25379.10Sq. M.

Conclusion:	
2015-16	Total green covered in college campus is about 21%
2020-21	Total green covered in college campus is about 22%

Final Conclusion: Total green covered in college campus increased by **1%**

Recommendations:		Compliances
01	Endangered and Threatened species of the area should be conserved.	It is decided that some rare and medicinal herbs should be planted along with regular plantation on the campus.
02	More plantation should be done on open space	Tree-Plantation Programmes are organised every year frequently.



Indicator V: Solid Waste

First the solid waste generated in college campus is separated in to two parts 01. Decomposable solid waste 02. Non decomposable solid waste. Non- decomposable solid waste is further separated in to two parts Polythene bags and other non-decomposable material is separated and sold to vendors before disposing the organic wastes. Broken glass, and plastic, rubber and other materials are disposed into municipal dump bins to be recycled. The organic waste is dumped in to decomposing pit for organic decomposition.

01	Is there any mechanism developed by the institution regarding solid waste management?	Yes
02	How Classification of Solid waste generated in the college campus is done?	
	First the solid waste generated in college campus is separated in to two parts 01. Decomposable solid waste 02. Non decomposable solid waste.	
03	How do the institute dispose of the non-decomposable waste?	
	The non-decomposable waste generated in college is collected by municipal dump van.	
04	Whether the decomposable waste is properly treated?	Yes
05	What is the management mechanism of decomposable waste?	
	The college has constructed two decomposition pits for the disposal of decomposable waste and dump the decomposable wastes in decomposition pits.	

Recommendations:		Compliances
01	Everyone in the college campus should aware about Reuse, Reduce and Recycle processes.	The decision is taken to reduce and recycle the wastage on the campus. The single use plastic is banned on the campus.
02	The approach of work culture should be towards paper less campus.	We have decided to use less paper work on the campus.

Solid & Liquid Waste Management

Indicator VI: Conservation of Environment

What kind of awareness programmes are undertaken by the college regarding conservation of environment?
The college runs Environmental Studies course designed by SRTM University, Nanded for UG – III students. In addition to that the expert lectures and special camps are organized by NSS& NCC.

Procedure Performed by

Recommendations:		Compliances
The college should employ several measures to save energy including;		
01	The use of electricity CFL lamps in the college office, class rooms and laboratories. Computers and instruments when not in use should be switched off.	89% CFL lamps are replaced by LED lamps in the college office, class rooms and laboratories. The instructions are given to the teaching and non-teaching to switch off the computers and electrical instruments, when they are not in use
02	Electricity wastage is controlled through central double switch system one at	The suggestion is implemented and followed.

	centre board (Nearby o11ffice) and another in hall, laboratories so the lights and fans can be switched off timely on each wing and floor.	
03	By using stickers of switch off power. These initiatives had helped to reduce the Overall energy consumption in campus. Staff and students were motivated towards energy conservation.	Yes, The stickers indicating "switch off the power" are displayed on electrical appliance for energy conservation.

Declaration by the Head of the Institution

I am aware that the above information provided by the college will be validated by the Environmental Audit Committee during the visit & it is true.

ADAT VYAPARI EDUCATION SOCIETY'S DEGLOOR COLLEGE, DEGLOOR * Dist.Nanded *

Date: 6.12.2021

Principal

Dr. Anil Chidrawar
I/C Principal
A.V. Education Society's
Degloor College, Degloor Dist.Nanded

Further Recommendations

The maximum Recommendations of the previous Environmental Audit have been successfully implemented. However, the following recommendations are given for more progress:

1. Rain Water harvesting units should be installedon each building separately on the campus as soon as possible.

2. Replace the remaining tubes and CFLs by LED lamps.

3. Increase the solar street lamps.

4. Increase the area of plantation.

Dr. S. V. Shivanikar
Principal & Head
Department of Environmental Science
Netaji Subhashchandra Bose College, Nanded

Principal
N.S.B. College, Nanded.

A. V. Education Society's
DEGLOOR COLLEGE, DEGLOOR

Photo Gallery

Green, Environment and Energy Audit Report - Upgraded Reassessment 2020-21

Assessed by

Dr. S. V. Shivanikar
Principal & Head
Department of Environmental Science
Netaji Subhashchandra Bose College, Nanded