

# GREEN CUM ENERGY AUDIT REPORT (2021 – 2022)



**Women's College, Tinsukia  
Durgabari, P.O. Tinsukia**

**Auditor:** Er. Bijoy Bordoloi  
Executive Engineer  
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## 1. INTRODUCTION:

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of institute. It aims at analyzing environmental practices within the institution place, which have an impact on the environment, positively or adversely. Women's College, Tinsukia, though is an academic institution offering higher education basically in Arts and Commerce streams; we believe that daily functioning of an institution with more than 1000 members would definitely have adverse impact on the environment.

The sole objective of the Audit has been to identify sectors in which we have been exerting pressure on the environment and to sort out a way to minimize it in days to come.

### COLLEGE PROFILE

- i. NAME OF THE COLLEGE (With full Address): Women's College, Tinsukia  
Durgabari, P.O. Tinsukia - 786125, Assam
- ii. AFFILIATING UNIVERSITY: Dibrugarh University
- iii. PERIOD COVERED BY THE AUDIT: **2021 - 2022**
- iv. COLLEGE INFORMATION
  - a) Date of establishment of the College : 09/07/1966
  - b) College belongs to Rural/ Urban Area : Urban Area
  - c) Whether recognized by UGC under 2f & 12B?  
(If yes give details) : Yes/No  
Letter No.:F.No.8-406/2015 (CPP-I/C), Date: Sept. 2015
  - d) Number of Students Admitted : 1245
  - e) Total individuals in the college including Teaching & Non-teaching staff : 1317
  - f) Streams/ Faculties : Arts and Commerce
  - g) E-Mail ID & Phone Number: : [wcttsk@gmail.com](mailto:wcttsk@gmail.com)  
0374 -2338826, +91 9435133583
  - h) College Web site : [www.wcttsk.ac.in](http://www.wcttsk.ac.in)

## 2. PROCEDURE:

Various categories or spheres that have been earmarked for the audit are:

- ❖ CATEGORY - A: Electricity Consumption
- ❖ CATEGORY - B: Paper Consumption
- ❖ CATEGORY - C: Water Consumption

- ❖ CATEGORY – D: Fossil Fuel Consumption
- ❖ CATEGORY – E: Consumption of Chemicals.

In this audit data have been compiled and analyzed for the period July-2021 to June-2022 as the academic Session (and hence activities in the college are at its peak) of the college falls in this period.

- ❖ Data on electricity consumption have been collected from records kept in the form of electricity bills for each month.
- ❖ Paper consumption by the College for official and academic purposes has been evaluated from office records and are authentic to our satisfaction.
- ❖ Amount of paper consumed by students have been evaluated from a random sample survey and is believed to be reasonably acceptable.
- ❖ Amount of water consumption has been calculated by taking into account the total capacity of all overhead water tanks and duration for which the water pumps have to operate per day to fill the tanks.
- ❖ Data of Fuel and Chemical consumptions are obtained from official records and are found to be satisfactorily accurate.

### 3. DATA COMPILATION & ANALYSIS:

#### 3.1 CATEGORY – A: Electricity Consumption by the College

**TABLE – 1**

Sector	Months	Units/Month	Unit Consumption per year	Av. Unit Consumption per Month
<ul style="list-style-type: none"> <li>• Administrative Block</li> <li>• Academic Blocks</li> <li>• Auditorium</li> <li>• Hostel &amp; Staff Quarter</li> </ul>	July- 2021	2908 Unit	47893 Units	3991 Units
	Aug- 2021	3311 Unit		
	Sep- 2021	3541 Unit		
	Oct- 2021	4431 Unit		
	Nov- 2021	4431 Unit		
	Dec- 2021	3448 Unit		
	Jan- 2022	2647 Unit		
	Feb- 2022	2989 Unit		
	March- 2022	3995 Unit		
	April-2022	3592 Unit		
	May-2022	5746 Unit		
	June-2022	6854 Unit		

From the above data, Per Capita Electricity Consumption by the institution = 36.37 Units.

**3.2 CATEGORY - B: PAPER CONSUMPTION BY THE SYSTEM****TABLE - 2**

(Pressure exerted to the Environment in the form of Paper Consumed: 2021-22)

Sl. No.	Type of Paper		Amount used	Total Weight
1	Copier Paper		A 4:44Pckt * 500 pcs	159.28 Kg
			Legal:10 Pckt *500 pcs	176.8 Kg
2	Duplicating Paper		Nil	NA
3	Fullscap Paper		1 Ream	3.00 kg
4	Answer Script	Internal Exam.	7299 Copies (@ 0.024 gm. per Script)	175.18 Kg
		External Exam.	6520 (@ 0.033 gm. per Script)	215.16 kg
5	Additional Sheets		13692 Nos (@ 0.012 gm. per Sheet)	164.30 kg
6	Assignment Copy		13000 Copies	260 Kg
7	Consumption by students		22410 Copies (@178 gms per copy)	3988.98 kg
8	Consumption in the office (Register, Files etc)			224.67 kg
<b>TOTAL</b>				<b>5367.37 kg</b>
<b>Per Capita paper consumption in the College:</b>				<b>4.08 kg</b>

**3.3 CATEGORY - C: WATER CONSUMED BY THE SYSTEM****TABLE - 3**

(Pressure exerted to the Environment in the form of Water Consumed: 2021-22)

Sl. No.	Sector	Water Pump Specification	Water Reservoir capacity (in lt.)	Pump used per day	Average water used per day
1	Academic	1 hp	4000 lt.	1 time	4000.00 lt.
		0.5 hp	1000 lt.	1 time	1000.00 lt.
2	Administrative	1 hp	1000lt.	1 time	1000.00 lt.
3	Auditorium	1 hp	500 lt.	0.3time	142.86 lt.
<b>TOTAL</b>					<b>6142.86lt.</b>
<b>Average water consumed in the College per person per day:</b>					<b>4.4lt.</b>
4	Hostel	3 hp	6000 lt.	3 times	*17000.00 lt.

<b>Average water consumed in the Hostel per person per day:</b>	<b>113.3 lt.</b>
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\* It is assumed that as per normal practice there remains about 10% water in each reservoir at the time of refilling.

\* Total number of person in the College = 1317

\* Total boarder in the Hostel = 150

### 3.4 CATEGORY - D: FUELS CONSUMED BY THE SYSTEM

TABLE - 4

(Pressure exerted to the Environment in the form of Fuels Consumed: 2021-22)

Sl. No	Category	Month	Amount used per month (Lt.)	Av. Use per month	Environment cost
1	Diesel for Generators	July-21	NIL	46.67 lt.	<ul style="list-style-type: none"> <li>○ On the average a diesel generator emits 2.7 kg of CO<sub>2</sub> per liter consumption of diesel.</li> <li>○ From that data it can be observed that the institution emits 1512 kg of CO<sub>2</sub> gas to the atmosphere during the period under consideration.</li> <li>○ Estimated financial burden on the institution = Rs. 49,000.00</li> </ul>
		Aug-21	78.26 lt.		
		Sept.-21	NIL		
		Oct.-21	76.77 lt.		
		Nov-21	81.50 lt.		
		Dec-21	NIL		
		Jan-22	NIL		
		Feb-22	81.50 lt.		
		Mar-22	81.50 lt.		
		April-22	NIL		
		May-22	76.37 lt.		
		June-22	84.14 lt.		
	<b>Total</b>	<b>560.04 lt.</b>			
<b>Per Capita consumption of Diesel in the year under consideration:</b>					<b>0.43 Lt.</b>
2	LPG for College Canteen	July-21	NIL	4.6 kg	Estimated financial burden on the institution = Rs. 4,000.00
		Aug-21	NIL		
		Sept.-21	NIL		
		Oct.-21	NIL		
		Nov-21	NIL		
		Dec-21	NIL		
		Jan-22	NIL		
		Feb-22	NIL		
		March-22	14 kg.		
		April-22	14 kg		
		May-22	14 kg		
		June-22	14 kg.		

		<b>Total</b>	<b>56 kg.</b>		
3	Hostel (Pipe line gas)	July-21	110 SCUM	<b>110 SCUM</b>	Estimated financial burden on the institution = Rs. 42,677.00
		Aug-21	110 SCUM		
		Sept.-21	110 SCUM		
		Oct.-21	110 SCUM		
		Nov-21	110 SCUM		
		Dec-21	110 SCUM		
		Jan-22	110 SCUM		
		Feb-22	110 SCUM		
		March-22	110 SCUM		
		April-22	110 SCUM		
		May-22	110 SCUM		
		June-22	110 SCUM		
		<b>Total</b>	<b>1320 SCUM</b>		

- SCUM – Standard Cubic Metre

### 3.5 CATEGORY – E: CHEMICALS CONSUMED BY THE SYSTEM

**TABLE – 5**

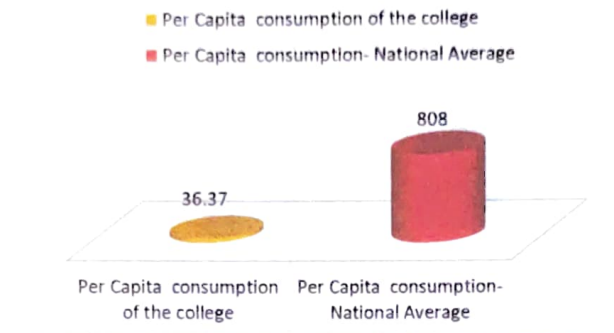
(Pressure exerted to the Environment in the form of Chemicals Consumed: 2021-22)

Sl. No.	Category	Sector	Amount used per month	Market Cost	Environmental Cost
1	Bleaching Powder	College	11Kg	Rs.1044.00	❖ These chemicals mostly pollute water and affects aquatic lives.
		Hostel	7Kg		
2	Phenyl	College	17lt	Rs.5090.00	
		Hostel	12lt		
3	Herpic	College	26lt	Rs.5750.00	
		Hostel	19lt		
4	Hand Sanitizer	College	17 lt.	Rs.3167.10	
		Hostel	13 lt.	Rs.2421.90	

### 4. OBSERVATIONS & CONCLUDING REMARKS:

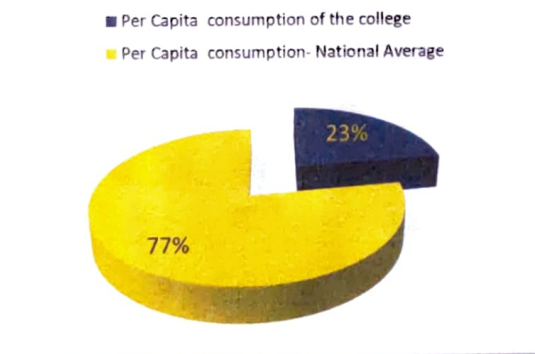
- 4.1 **CATEGORY – A:** Electricity Consumption in the college (36.37 Units) is found to be well below the national average (808 Units). More use of Solar Powered lights has helped the institution reduce its electricity consumption during nights.

### Per Capita Electricity Consumption in kWh (2021-22)



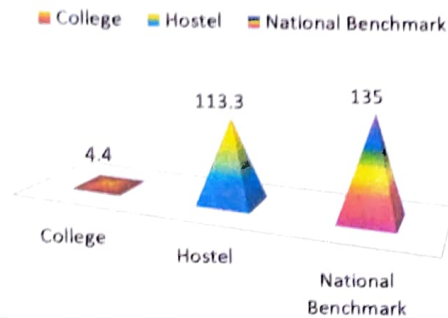
4.2 **CATEGORY – B:** Per Capita Paper consumption by the college is 4.08 kg, which is well below the national average. As we know per capita paper consumption in India is 14 Kg. and the Global average is 57 Kg.

### Per Capita paper consumption in kg (2021-22)



4.3 **CATEGORY – C:** Also to be noted that as per Ministry of Housing and Urban Affairs, **135 litre per capita per day (lpcd)** has been suggested as the benchmark for urban water supply. On that scale the per capita per day use of water in the Hostel (as well as in the college) is below the national bench mark, which is an encouraging sign.

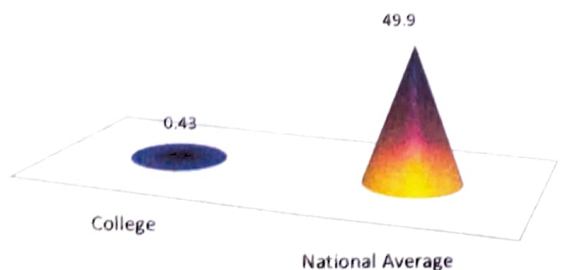
**Per Capita per day Consumption of Water in Litre (2021-22)**



4.4 **CATEGORY –D:** Per Capita use of diesel in India in a year is 49.9 litres (equivalent to 499 kWh). In the college, it is found that it uses **0.43 litres** of diesel per capita per year, which is equivalent to 4.3

kWh. This is clearly far below the national average. This small consumption is due to the fact that the College uses diesel generators only as the electricity backup and that too only when it is necessary.

**Per Capita Consumption of Diesel in Lt. (2021-22)**

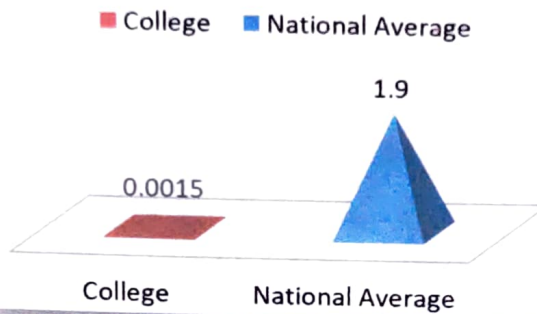


#### **Emission of Greenhouse Gas by the College:**

On the average a diesel generator emits 2.7 kg of CO<sub>2</sub> per liter consumption of diesel. From that data it can be observed that the institution emits 1512 kg (~1.67 tons) of CO<sub>2</sub> gas to the atmosphere during the period under consideration. Hence, per capita emission of CO<sub>2</sub> in the college is 0.0014 tons. Per Capita CO<sub>2</sub> emission in India in a year is around 1.90 tons. From this data it can be observed that the college as a whole emits less CO<sub>2</sub> than per capita national value.



### Per Capita CO<sub>2</sub> emission in ton (2021-22)



4.5 **CATEGORY -E:** As the College is an Arts faculty institution, there is minimum use of chemical, which is necessary for cleaning purposes to maintain hygiene standard. The pandemic of COVID-19 has compelled the institution to maintain optimum use of Sanitizers, which is a chemical having adverse effect on environment.

1. Date: 16/08/2022

2. Place: Jinsukia

Signature:

Name: BIJOY BORDOLOI

Seal:

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Umrongeo Division, Umrongso