



Green Audit Report 2022-23

Nani Bhattacharya Smarak Mahavidyalaya

Jaigaon ~736182



CONTENTS

1.	<i>Green Audit Assessment Team</i>	3
2.	<i>Context and Concept</i>	4
3.	<i>Introduction</i>	4
4.	<i>Overview of the Institute</i>	5
5.	<i>Aims and Objective of the Institute</i>	6
6.	<i>Infrastructure of the Institute</i>	7
7.	<i>Green Parameters</i>	9
7.1.	<i>Waste Management</i>	9
7.2.	<i>Greening the campus by plantation</i>	11
7.3.	<i>Energy Conservation</i>	12
7.4.	<i>Water conservation</i>	13
7.5.	<i>Air Quality</i>	13
7.6.	<i>Animal Welfare</i>	15
7.7.	<i>Environmental legislative compliance</i>	16
7.8.	<i>General Practices</i>	17
7.9.	<i>Future Plan</i>	18
8.	<i>Recommendation of the Team</i>	18
9.	<i>Photographic Evidences</i>	18

1. Green Audit Assessment Team

Member	Name	Affiliation	Designation
Expert Committee For Green Audit			
University Expert	Prof. Ranjan Roy	Department of Geography & Applied Geography University of North Bengal	Professor
Internal Committee for Green Audit			
Internal Member	Swarnim Hingmang	NBSM Department of Political Science	Assistant Professor
Internal Member	Dr. Avijit Chakraborty	Co-Ordinator IQAC, NBSM Department of English	Associate Professor
Internal Member	Mahmudul Hossain	HOD, Dept. Of History NBSM	Assistant Professor
Internal Member	Biplab Biswas	HOD, Dept. Of ENVS, NBSM	SACT
Internal Member	Susmita Sarkar	HOD, DEPT. Of Geography, NBSM	SACT

2. Context and Concept

Green Audit extremely important to measure the contribution of an institute towards its sustainability. It is associated with the practice that makes impact upon the environment in the long run. Thus Green Audit though is very close to environmental audit also including the concept of three "R"s "Reduce Reuse and Recycle.

3. Introduction

In 1962 Rachael Carson wrote "silent spring" the book which focused on the indiscriminate use and the harmful effects of chemical pesticides on birds incepted the need of the use of practices not harming the environment apart from the other common factors of pollution viz. air, sound and water. It caused Global environment consciousness and later on in 1969. Congress recognized the importance of the issue and passed the National Environmental policy Act (NEPA). In 1980s Environmental protection Agency (EPA) was formed to protect human health and environment. With time while protecting environment through EPA which focused mainly to clean up the pollutants/toxins a parallel process started to reduce the use of toxic substances and reuse the products which are made from environmental resources .Thereby in one hand the objective became to stop using materials or stop adopting processes those were causing pollution and start an alternate path that used environmental friendly materials or did not create a non-biodegradable waste and that used less energy or carbon foot print. Subsequently, for any organization or institute it became important that it adopts processes that do not individually or collectively make a negative impact upon the environment and help in maintaining the Green Concept and contributing as much as it can. Thus an audit becomes indispensable to understand where an institute or organization needs to improve in earning Green points. Which the inception of the subjects like Environmental Science and Green Chemistry that target to

teach sustainability for every responsible institution or organization green audit has now become an integral part of management process. A Green Audit is thus a method of gathering data about an organization that offers a realistic evaluation of the actions the organization takes to safeguard the environment. Well-developed environmental objectives and targets should be implemented in order to limit the negative consequences to a greater extent in order to preserve the environmental friendly atmosphere of an organization.

4. Overview of the Institute

Nani Bhattacharya Smarak Mahavidyalaya, recognized by NBU under was established 2000 as an undergraduate college. This a grant-in aid college affiliated to the University of North Bengal. The college has around 2.22 acres of land in a rural -tribal belt to the Alipurduar district. West Bengal and this is a co-educational institution. The Institution endeavors to facilitate opportunities for educational empowerment and capacity building through promotion of quality education. The college was established with a mission of spreading higher education among the under faculties Arts. The B.A programme covers Honours in Bengali, English, Hindi, Nepali, History, Philosophy and Political Science. Besides there are 12 General stream subjects in Bengali, Nepali, Hindi, English, Philosophy, Economics, Sociology, History, Political Science, Geography, Environmental studies. These subjects enable students for competitive examinations and nurture the cultural heritage as well. The college follows transparent online system of admission on the basis of merit. The college has some extension activities of community development, Health and Hygiene Awareness, Medical Camps, Adult education and awareness, AIDS awareness through NSS wings of the college. Meritorious and poor students are given financial assistance out of poor fund, students from the St, SC, OBC and Minority communities are given State Govt. stipends. Below poverty Line students are also given financial assistance out of poor fund. The college promotes cultural activities amongst student. The college Publishes annual magazine. The college holds counseling sessions in collaboration with different organization on the issues of Drug addiction, juvenile, delinquency etc. The

library has been computerized and is well equipped. NCC unit has done commendable performance and one of its cadets has been recommended for youth Exchange Programmer .The College has career counseling cell, Anti-Ragging squad and women Harassment Redressal cell.

5. Aims and Objective of the Institute

The Institution endeavors to facilitate opportunities for educational Empowerment and capacity building through promotion of quality education and promote moral social and human values to become catalyst of social transformation and justice.

*To promote academic excellence

* To include a civic sense with ethical, moral, and social values in students and help them to grow into good citizen.

*To empower students to lead productive lives and become agents of social economic change of the community.

*To provide education among students of lower economic strata.

*To provide quality and value based higher education irrespective of caste and community.

* To provide the supports for the excellence in sports and cultural activities

*To make the campus eco-friendly and also to make the community aware of preservation of natural resources.

*To provide community service through an active NSS unit

*To make the campus ragging free.

* To provide oxygen and reduce pollution through plantation drivers inside and outside the campus

*To adopt sustainable practices and inculcate same among the students

* In everyday activities to focus on three R factors: Reduce, Recue and Recycle

* To go more on waste management and cater the society and eco-friendly campus

6. Infrastructure of the Institute

Classroom: Our College has 26 classroom and special dedicated spaces Room like the dark rooms and equipment like projection facilities on the classrooms and smart classroom Regular maintained of computer equipment is done by concerned teachers. The Library is adequately equipped with text and reference books. All library information about books is available online .Library resources are automated with ILMS, though partial automation in done efforts for full-auto-automation is in progress. Library is equipped with the CCTV cameras for overall monitoring and surveillance. All the staff members can access the Library facilities and can borrow books, Magazines, periodicals and others materials as per the rules for each category. Annual Physical verifications of stock are conducts through Library audit.

IT Infrastructure:

The College is gradually moving towards complete online facilities in e-governance such as admission accounts and Fee collection etc. During the pandemic entries teaching -learning and internal assessment has been done online .The under graduate semester End examinations have been conducted online. Classes were held online with the help of Google Meet and Google Classroom.

The institute provides sports facilities for students. Indoor games including, chess are available on campus. Outdoor games like football, volleyball, badminton and other athletic sports like shot put, javelin, high jump, long jump, running race are regularly conducted throughout the year.

A total Number computer the institute has is 12 and high performance advanced printers is 2.

The Entire campus is under CCTV surveillance which includes cameras of both bullet and dome type.

The college caters on the educational needs of the large numbers of students hailing from tea Garden and rural areas. The infrastructure facilities such as classroom , laboratories , library and common rooms facilities for both boys and girls are provided , There are also facilities for indoor and outdoor games .The college has a systematic mechanism of maintenance and upgrade of physical, academic and support facilities. The departmental heads place academic requirements like books and journals. IT facilities, organized special lectures, seminars or workshop demands along with the approximate budgets to the Teacher-in-charge. The Teacher-in-charge pleases the requisition in the meeting of the Governing Body. Finance Committee, Library committee or any others relevant committee. Financial rules of the government are strictly followed for all purchases. The conditions of the classrooms and the furniture provided for the students in the classrooms are regularly monitored. The office maintains a register for complaints, repair etc. of all facilities like furniture, electrical work, generator, building infrastructure.

7. Green Parameters

7.1 Waste Management

NBSM MAHAVIDYALAYA JAIGAON WASTE TYPE AND MANAGEMENT



Solid waste: We are trying to work with minimum papers, mostly working with soft copies and PDF. The waste papers however are used for rough work as much as we can and /or used as fuel in hand made oven (chulha) to make daily refreshment. The rest of the non-biodegradable waste bins. The wooden damaged /old outdated items are recycled by reconstructing into different models and at the most when nothing can be done; in case of broken wooden materials those are used as fuels to cook during social/cultural gathering when lunch is arranged could not be possible much during pandemic.

Liquid waste: we don't have a management system to deal with liquid waste inside our college especially the chemicals

* In preparations and synthesis wherever the use of organic solvents is unavoidable, the solvent used are relatively non-toxic and it is distilled to recycle and reuse.

E-Waste:

The institute runs with AMC for the computers and accessories. There is a provision of buy in case. However, the items which do not fall under categories are dismantled from parts and analyzed.

7.2 Greening the campus by Plantation

Ornamental Plants

S.NO	SCITIFICNAME	FAMILY	COMMONNAME	TOTAL
4	<i>CORDYLINEFRUTICOSA</i>	ASPARAGACEAE	PALMLILY	1
5	<i>DIEFFENBACHIASEGUINE</i>	ARACEAE	DUMBCAT	1
6	<i>DRACACEAEANGUSTIFLOLIA</i>	ASPARAGACEAE	DRAGONPLANT	1
12	<i>NYCTANTHESARBORTRISTIS</i>	OLEACEAE	PARIJAT/SEULI	2
13	<i>POLYALTHIALONGIFOLIA</i>	ANNONACEAE	DEBDARU	1
14	<i>PULMERIAALBA</i>	APOCYNACEAE	KATHGOLAP	1
15	<i>SOLENOSTEMONSCUTELLARIOIDES</i>	LAMIACEAE	COLEUS	1

Shade And Fruit Trees

S.NO.	SCIENTIFICNAME	FAMILY	COMMON NAME	TOTAL
1	<i>ALOEVERA</i>	LILIACEAE	ALOEVERA	3 CLUSTERS
3	<i>AZADIRACHTAINDICA</i>	MELIACEAE	NEEM	1
5	<i>CITRUSLIMON</i>	RUTACEAE	LEMON	1
6	<i>CURCUMALONGA</i>	ZINGIBERACEAE	HALUD	2(INCLUSTERS)
10	<i>OCIMUMTENUIFLORUM</i>	LAMIACEAE	TULASI	1(INCLUSTERS)

Medicianl Plants

S.NO.	SCIENTIFICNAME	FAMILY	COMMON NAME	TOTAL
1	<i>ALOEVERA</i>	LILIACEAE	ALOEVERA	7-9CLUSTERS
2	<i>ANDROGRAPHISPANICULATA</i>	ACANTHACEAE	KALAMEGH	MORETHAN 7(IN CLUSTERS)
3	<i>AZADIRACHTAINDICA</i>	MELIACEAE	NEEM	5
4	<i>CATHARANTHUSROSEUS</i>	APOCYNACEAE	NAYANTARA	MORETHAN26(INCLUSTERS)
5	<i>CITRUSLIMON</i>	RUTACEAE	LEMON	2
6	<i>CURCUMALONGA</i>	ZINGIBERACEAE	HALUD	5(INCLUSTERS)

Numbers of Trees

No. of trees: 2

No. of shrubs: 10 (approx.)

Prof. Dr. Anna Marie Helmenstine in her report mentions “A tree of 100 ft. tall and 18 inch diameter produces 6000 pounds of oxygen annually” which is = 2724 kg per year.

(Ref:<http://thouhtco.com/how-much-oxvEen-does-one-tree-produce>).

7.3. Energy Conservations

Sl.No	Items (Energy) x Number	New Items Installed	Total Energy Consumed / Saved per year
1.	Fluorescent Tube light(40 Watts) x(70 in classrooms +6 in Library , 10 Corridors ,staff room , 8 Office And toilet =94	LED tube Light (20 watts x 10)	$(40 \times 40) \times (10 \times 20) = 1600 \text{ watt} \times 200 \times 7 \times 26 \text{ days} \times 12 \text{ Joules per year} = 69,88,80,000 \text{ Joules}$ (assuming 7 hours on average of usage)
2	Celling fan and exhaust fan (65 watts) x 90 in classrooms +5 in library 10 with corridors , 9 staffroom And toilet =114	Old fan repaired =5 in numbers	$(114 \times 65) = 7410 \text{ watt} \times 7 \times 26 \text{ days} \times 12 \text{ Joules per year} = 1,61,83,440 \text{ Joules}$ (assuming 7 hours on average of usage)
3.	Pump Submersible 01 (1hp)	NA	Consumed: $1500 \text{ Watt} \times 1 \times 3 \times 3600 \text{ s} = 1,62,00,000 \text{ Joules per day} \times 26 \text{ days} \times 12 = 5,05,44,00,000 \text{ Joules (assuming 3 hours on average of usage)}$
4	CCTV with monitor cameras 14 (3 watts to 5 Watts) Monitor 01 (30 watt) Power Supply (330 Watt) DVR (50 Watt)	NA	Consumed (assuming 24 hours on average of usage) $4 \text{ watt} \times 14 + 330 \text{ watt} + 50 \text{ watt} = 436 \text{ watt} \times 3600 \times 24 \text{ hour} \times 30 \times 12 = 13,56,13,44,000 \text{ Joules}$
5	Printers 2(340 Watts) Printers 5 (250 Watts)	Energy efficient star rated high performance printer Brother 380 Watt replacing old printers	Consumed (assuming 3 hours on average of usage): $340 \text{ watt} \times 2 + 250 \text{ Watt} \times 5 \times 3600 \times 3 \text{ hour} = 2,08,44,000 \text{ Joules/ Day} \times 26 \times 12 = 6,50,33,28,000 \text{ Joules}$

Energy Consumed 2022-2023: 25,834,135,440 Joules

7.4. Water Conservation

Usage: The institute uses water mainly for drinking, Toilet purpose and in gardening. Nearly 10000 liters of water is used of which a major fraction of drinking water is supplied by government which is further purified with UV/RO treatment and served to the students and the staff members.

7.5. Air Quality

The campus is nearly half kilometer away hustle and bustle of Asian highway and is enriched by green high density leaf tress. The Combination of these keeps the campus and Away from air and sound pollution. The rooms are spacious and airy with sufficient natural day light. The campus provides a good amount of oxygen to its nearby habitat and acts as a screen for carbon dioxide which tries to come from nearby vehicles of highway .All the vehicles used by the faculties are BS6 and hence most energy efficient and least polluting . Uses of electric vehicles and bicycle are encouraged .The campus has got 6289.3 sq. m. of green zone which is occupied by lush green outfield and plantain.

Buildings including the administrative block, library academic buildings covers 2616.131 Sq. m. Top view of the college is shown in the Fig (satellite view from Google map)

Figure: Satellite view



The following table gives the quantitative details:

Sl. No	Questionnaires	Answer number
1	Well ventilated /aerated rooms	26
2	Room facing /ventilation faces away from the nearest busy road	26
3	Window : floor ratio	1:6 average
4	Doors facing windows aiding cross aeration	Yes
5	Air conditions installed	No
6	Institute owned vehicle (bus ,van ,cars)	No
7	Faculty owned vehicle	yes
	4 wheeler (cars)	Yes , 1
	2 wheeler (scooters and bike)	Yes, 13
8	Number of Ac vehicles	Yes , 1
9	Vehicles Fuel type (diesel /Petrol)	Yes , both
10	Are vehicles with pollutions free certificate ?	yes
11	Number of Electric Vehicles	Nil
12	Air Quality monitoring program (If any)	Not so far
13	Students suffer from respiratory problems inside campus	No
14	Air purifying Trees (high density leaves with large surface area to absorb carbon dioxide and dust	No

7.6. Animal Welfare:

SL NO	BIOLOGICAL TYPES	ANIMAL SPECIES FOUND	HABITAT
1	VERTEBRATES (AVIS)	BIRDS	TREES
2		CROW	
3		SPARROW	
4		MAINA	
5		DOYEL	
6		WOODPECKER	
7	VERTEBRATES (MAMMALS)	MONKEY (EVERYDAY)	
8	VERTEBRATES (MAMMALS)	RATS	NEARBY CANTEEN
		DOG	OPEN FIELD
		COW	
		GOAT	
13	VERTEBRATES (AMPHIBIANS)	FROGS (TOAD)	UNDERGROUND HOLES
14	VERTEBRATES (REPTILES)	SNAKES(POISONOUS)	SEEN
15		RAT SNAKES(NON POISONOUS)	UNDERGROUND HOLES
16		CAMELEON	TREES
17		HONEY BEES	TREE/BUILDING SUNNSHED
19		GRASS HOPPER	GRASS FIELD
20		ANTS	FIELD
21		COCKROACHES	STORE ROOMS
22		BEETLE	TREE LEAVES AND GRASS COVER
23	INVERTEBRATES(ANNELID)	EARTH WORM	OPEN GROUND FIELD
		CENTIPEDES	TREE BASE
24	INVERTEBRATES(MOLMSCA)	SNAILS	PLANTS /BUSHES/TREES)

7.7. Environmental legislative compliance:

SL No	Questionnaires	Answer
01	Awareness of environmental laws and maintaining different aspects of environmental management	Yes
02	Rules imposed inside the campus to protect the ecosystem and environmental	1.Plantation drive is done routinely by NSS 2.Least use paper and most of the official documents are shared in PDF through electronic /Social media
03	Air quality monitoring	Not Yet done due to lack of device
04	Drinking water quality check	TDS and PH are routinely checked by the Department Of Geography
05	Biomedical wasted	Biomedical wastes are generated by the blood donation camps. Vaccination camps organized by NSS. These wastes are disposed of by the professionals of the medical team
06	Stack monitoring Of DG	No
07	Fire extinguishers	No

7.8. GENERAL PRACTICES:

SL No	Questionnaires	Answer
1	Students and the Faculties are made aware of environmental protection act and laws	Yes
2	Implementation of acts to protect the environmental	Yes a) the environment laws followed by the institute are: b) Environment protection Act 1986 c) The water Act 1981 d) The Constitution Act of 1976(GOI)
3	Energy minimization	Yes Dedicated staff ,members to monitor the Misuse of electricity and report Installing of solar lights for campus lighting
4	Active engagement of students and Faculties to protected the energy	Yes a)Both engage in plantation b) Plant saplings are gifted to recourse persons or guests.
5	Celebration of World environmental day , earth day and Ozone day	Yes a)World environmental day is observed on 5th June b) Earth day is observed on 22 nd April. c) World water day is observed on 22 nd March e)National youth day is observed on 12 January
6	Recognition /certifications of environmental friendliness of the campus	No
7	Any renewable energy sources inside the campus	Yes Solar energy assisted high focusing lights to lit the campus
8	Does the institute conduct green audit or energy audit of its campus	Yes
9	NAAC accreditation	No.

7.9 Future Plan:

Gardening within the campus, New tree plantations, Medicinal Garden, Rainwater harvesting, Participation in Banmahatsav, Campaigning program related to save water, save earth; Dengue problems .

8. Recommendation of the Team

- *A medicinal plants hub should be created with all plants of medicinal importance
- *Plants ownership programs should be introduced in the institute
- *Water usages meter have to install to monitor water usages and wastages
- *star rated ceiling fans to be installed

9. Photographic Evidence

Campus Greenery:





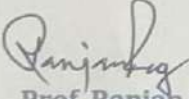
Tree Plantation



Electrical Items:



Signature of the External Expert Member

 06/8/2024
Prof. Ranjan Roy

Department of Geography & Applied Geography

University of North Bengal

Prof. (Dr.) Ranjan Roy
Professor
Dept. of Geography
&
Applied Geography
University of North Bengal