# GREEN AUDIT REPORT Anandaram Dhekial Phookan College 2022-2023

During the academic year 2022-2023, a Green Audit was conducted in the college campus. A committee comprised of the following members was created for that objective.

- 1. Mr. Bijumoni Borah -Convenor
- 2. Dr. Nitin Sarma -Member
- 3. Dr. Rajib Kagyung -Member
- 4. Dr. Hrishikesh Talukdar -Member
- 5. Ms. Heena Khan -Member

#### INTRODUCTION

Green auditing is the systematic identification, quantification, recording, reporting, and analysis of various establishments' environmental diversity components. It strives to examine environmental practices both within and outside of the concerned sites that have an impact on the eco-friendly environment. A green audit can be a beneficial tool for a college to establish where and how much energy, water, or resources are being used; the institution can then examine how to adopt improvements and save money.

Additionally, it can be used to ascertain the kind and amount of waste, which is useful for recycling initiatives or for enhancing waste minimization strategies. It can raise awareness of health issues and advance ethics, values, and environmental consciousness. It gives faculty, staff, and students a greater grasp of how campus is going green. It is possible to argue that institutional self-enquiry is a natural and necessary development of a high-quality educational institution, if self-enquiry is a natural and necessary byproduct of a high-quality education. The college must thus assess its own contributions to a sustainable future. Higher education institutions' involvement in connection to environmental sustainability is growing more essential as environmental sustainability becomes a national priority. Numerous environmental and ecological problems have been brought on by the rapid urbanization and economic development at the local, regional, and worldwide levels. In light of this, it is imperative that institutions implement the Green Campus concept, which will promote sustainable development and significantly lower atmospheric carbon dioxide emissions. Every Higher Education Institution is required by law to submit an annual Green Audit Report to the National Assessment and Accreditation Council, New Delhi (NAAC). Furthermore, ensuring that higher education institutions take steps to reduce their carbon footprint and therefore help to mitigate global warming is part of their Corporate Social Responsibility.

#### **OBJECTIVES**

In recent time, the Green Audit of an institution has become a matter of paramountimportance for self-assessment of the institution which reflects the role of the institution in mitigating the present environmental problems. ADP College has been putting efforts to keep our environment clean since its inception. But the auditing of this non-scholastic effort of the college has not been documented. Therefore, the purpose of the present green audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:

- 1. To map the Geographical Location of the college
- 2. To document the floral and faunal diversity of the college

- 3. To record the meteorological parameter of Nagaon where the college is situated
- 4. To estimate the Energy requirements of the college
- 5. To document the Waste disposal system
- 6. To document the ambient environmental condition of air, water and noise of the college

## METHODOLOGY

The purpose of the green audit of ADP College is to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. The methodology include: preparation and filling up of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. Some data have also been taken from the students' research works carried out by various science departments of the college.

#### **ABOUT THE COLLEGE**

Established in 1959 by the people of Nagaon, ADP College is permanently affiliated to Gauhati University. ADP College has an adequate academic and physical infrastructure catering to the 21 subjects in Under Graduate Classes. ADP College has regular PG courses in 3 departments: Assamese, History and Herbal Science and Technology under Gauhati University.

#### VISION & MISSION STATEMENT

ADP College stands firm to reach the top among the best institutions of the country by generating fruitful social, economic, cultural and human resources through promotion of quality education and thus to mould the society to cope with changing need of time

#### **GREEN AUDITING**

The college has adopted the motto 'Green Campus' for environmental conservation and sustainability. There are main three pillars i.e. zero carbon foot print, positive impact on occupant health and performance and 100% graduates demonstrating environmental literacy. The goal is to reduce  $CO_2$  emission, energy and water use, while creating atmosphere where students can learn and be healthy.

# LAND USE ANALYSIS, ADP COLLEGE, NAGAON, ASSAM(As on 15-06-2023)

# CLASSIFICATION SCHEME FOR LAND USE ANALYSIS OF BUILT UP AREA

Level I	Level II	
	Dense	
1.Built-up land area	Moderate	
	Sparse	

Therefore, attempt has been made in this study to map land use for ADP College, Nagaon, Assam with a view to detect the land consumption in the built-up land area using both remote sensing and GIS techniques.

# LAND USE DATA OF ADP COLLEGE, NAGAON, ASSAM

Categories of Land Use	Area in Sq. Feet
1. Open Space and Plantation	45,667
2. Built Up Area	76,733
3. Total Area	1,22,400

The total area of ADP College is 1,22,400 sq. ft. out of which the built up area is 62.7 % (i.e. 76,733 sq. ft.) and open space & plantation area is 37.30 % (i.e. 45,667 sq. ft.).

BLOCK	OCK Categories of Land Used (Built Up Area)		
	Ground floor	10387	
	i. Principal's Chamber		
	ii. Vice Principal's Chamber (Administrative)		
	iii. IQAC		
	iv. Office room		
	v. Canteen		
	vi. Photostat cum store room		
	vii. Teachers common room		
	viii. Meeting room		
	ix. Botany department, laboratory, smart classroom, tissue culture lab		
	x. Biometric attendance room		
	xi. Vice Principal's Chamber(Academic)		
	xii. Drinking water		
	xiii. Washroom		
٨	First floor	9251	
А		9231	
	1 0 0 0		
	ii. Class room (no 05,06,07,08,09,10,11,16,17) iii. Confidential room		
	iv. Department of Computer Science, Computer laboratory		
	v. Department of Arabic		
	vi. Department of fashion designing		
	vii. Department of Bengali		
	viii. Department of Hindi		
	ix. Department of Sanskrit		
	x. Department of Philosophy		
	Second Floor	9251	
	i. PG Department of Assamese		
	ii. Assamese department library cum reading room		
	iii. Folklore Museum		
	iv. Classrooms (Room nos. 18,19.20,21,22,23,24,25)		
	Ground Floor:		
	i. Career counseling & placement cell office	7595	
	ii. Class room (Room No. 1, 2 &3)		
	First Floor:		
	i. Department of Zoology. Laboratory, smart class room, class room &	7595	
	museum		
	ii. Department of Geography, Laboratory, smart class room & class		
В	room.		
	iii. Wash room.		
	Second Floor:		
	i. Department of Physics, Laboratory, smart class room, reading room	7595	
	& class room.		
	<ul><li>ii. Conference Hall.</li><li>iii. Wash room.</li></ul>		
	Ground Floor:	5600	
		3000	
С	i Department of Political Science & Smart class room		
С	<ul><li>i. Department of Political Science &amp; Smart class room.</li><li>ii. B. Voc. Laboratory.</li></ul>		

# LAND USE (BUILT UP AREA) ANALYSIS

	in NCC Office	
	iv. NCC Office.	
	First Floor:	5600
	i. Department of Herbal Science & Technology & Laboratory	2000
	<b>ii.</b> Class room (MSc 1, 2, 3 & 4).	
	iii. Food processing center.	
	iv. Eco club.	
	v. Environmental cell.	
	Second Floor:	5600
	i. Herbal Sc. Laboratory	
	ii. Class room (Room No. 33 & 34)	
	Ground Floor:	2382
	i. Student's Union Office.	
	ii. Department of Education & Smart class room.	
	iii. Department of Economics & Smart class room.	
P	iv. Class Room (Room No. 35 & 36).	
D	v. Wash room.	
	First Floor:	2382
	i. Mathematics Digital Class room (Room No. 37).	
	ii. Class Room (Room No. 38 & 39).	0200
	Second Floor:	2382
	i. Class room (Room No. 40, 41 & 42).	3565
	Ground Floor:	5505
	i. Central Library	
	ii. Chemistry Laboratory-1	
_	iii. Smart class room	
Е	iv. Store room-1 (Chemistry)	
	First Floor:	3565
	i. Central Library Reading Room.	
	ii. Chemistry Departmental library cum reading room.	
	iii. Chemistry Laboratory - 2 & 3.	
	iv. Department of Chemistry.	
	v. Class Room (Room No. 50).	
	vi. Store room-2 (Chemistry).	
	Second Floor:	3565
	i. Class Room (Room No. 50, 51, 52 & 53).	2202
	ii. Central Library Reading Room.	
	Ground Floor:	6000
	i. Retired Professor's Room	0000
	ii. Gymnasium-1	
	5	
F	& Women Study Centre	
-	iv. NSS Office	
	v. Indoor Play Ground	
	vi. Teacher's Council Office	
	vii. Wash Room for Divyangjan	
	viii. Emergency Medical Room	
	First Floor:	2000
	i. Department of History	
	ii. Department of Commerce	
	iii. Guest Room	
	iv. Gymnasium-2	
	v. Reading cum Counseling Room, PG History	

	Second Floor:	2000
	i. Class Room (Room No. 43, 44, 45 & 46)	
	Ground Floor:	3800
	i. Girl's Common Room.	
	ii. Agro Herb.	
	iii. Meeting Room.	
	iv. Class Room (Room No. 47).	
G	First Floor:	3800
	i. Computer Hub.	
	ii. Smart class room and Finishing School & Skill Development center	
	(Room No. 49).	
	Second Floor:	2400
	i. Girl's Hostel-2 extension	
Assam	i. Department of Mathematics.	3200
Type-1	ii. Mathematics Computer Laboratory.	
	iii. Mathematical Reading Room.	
	iv. Department of Statistics.	
	v. Laboratory of Statistics Department.	
Assam	i. Department of Tea Technology	750
Type-2		
Heritage	Ground Floor:	2296
Building	i. Bio Tech. Hub (IBT Hub)	
	ii. Boy's Common Room. First Floor:	2206
	i. Permanent Evaluation Centre (Exam Zonal Office).	2296
	ii. Class Rooms (two).	
Others	ATM	100
	Orchid Garden	225
	Cycle Stand (East)	500
	Cycle Stand (West)	500
	Go down of 8 <sup>th</sup> Assam Bn NCC office	1350
Accam typ	esecurity quarter	450
	n Auditorium	6103
Auditoriui		0105
Girls'	Ground and first floor	
Hostel no		6500
Girls'	Ground, first and second floor	
Hostel no	2	

#### FINDINGS

ADP College, which was established in the year 1959, has an eco-friendly environment. It has a long legacy of healthy environmental practices including periodic plantation, their preservation and maintenance. Its land use is such that 56.26 % of the total area is occupied by open land and plantation that generates a better and sustainable campus environment.

## FLORAL DIVERSITY

ADP College is within the geo-position of latitude 26.6528<sup>0</sup> N and longitude 92.7926<sup>0</sup> E in Nagaon, Assam, India. It encompasses an area of about 15.04 acres. The area is immensely diverse with a variety of tree species performing a variety of functions. Most of these tree species are planted in different periods of time through various plantation programmes organised by the college authority and have become an integral part of the college. The trees of the college have increased the quality of life, not only for the college fraternity but also the people around of the

college in terms of contributing to our environment by providing oxygen, improving air quality, climate amelioration, conservation of water, preserving soil, and supporting wildlife, controlling climate by moderating the effects of the sun, rain and wind. Leaves of the trees absorb and filter the Sun's radiant energy, keeping things cool in summer. Many animals are dependent on these trees mainly for food and shelter. Flowers and fruits are eaten by monkeys, and nectar of the flower is a favorite of birds and many insects. Leaf - covered branches keep many animals, such as birds and squirrels, out of reach of predators. Different species display a seemingly endless variety of shapes, forms, texture and vibrant colors. Even individual trees vary in their appearance throughout the course of the year as the seasons change. The strength, long life-span and regal stature of trees give them a monument-like quality. They also remind us the glorious history of our institution. We often make an emotional connection with these trees and sometime become personally attached to the ones that we see every day. A thick belt of large shady trees in the periphery of the college have found to be bringing down noise and cut down dust and storms. A recent study has revealed that the rich diversity of 336 no of tree of 48 species belonging to 27 families have sequestrated a total of 362.65 ton of organic carbon. Thus, the college has been playing a significant role in maintaining the environment of the entire Nagaon town and its surrounding areas. The following are the tree species with whom we are being attached-

S.No	Name of the plant species	Numb er	Family	Common Name
1.	Anacardium accidentale L.	2	Anacardiaceae	Kaju Badam
2.	Areca catacheau	2	Arecaceae	Beetle nut
3.	Artocarpus heterophyllus	6	Moraceae	Jackfruit
4.	Azadirachta indica	15	Meliaceae	Neem
5.	Borassus flabellifer	1	Arecaceae	Tall Palm
6.	Caesalpinia pulcherrima	15	Fabaceae	Peacock Flower
7.	Calliandra haematocephala Hassk.	2	Fabaceae	Powder puff tree
8.	Cassia fistula	4	Fabaceae	Golden Rain Tree
9.	Cocos nucifera	10	Arecaceae	Coconut
10.	Eucalyptus sp.	1	Myrtaceae	Gums trees
11.	Ficus benghalensis	6	Moraceae	Banyan Tree
12.	Gmelina arborea	1	Verbenaceae	Gomari
13.	Mangifera indica	8	Anacardiaceae	Mango
14.	Mimusops elengi	40	Sapotaceae	Bakul
15.	Phoenix sylvestris	29	Arecaceae	Silver Date Palm
16.	Phyllanthus emblica	6	Phyllanthaceae	Amlakhi
17.	Psidium guajava	1	Myrtaceae	Guava
18.	Samania saman Merr	4	Fabaceae	Rain Tree
19.	Syzygium cumini	2	Myrtaceae	Jamun tree
20.	Tectona grandis	22	Lamiaceae	Teak
21.	Zizyphus jujuba	6	Rhamnaceae	Bogori
22.	Aegle marmelos	1	Rutaceae	Bael
23.	Albizia lebbek	8	Fabaceae	women's tongue tree
24.	Alstonia scholaris	6	Apocynaceae	Devil tree
25.	Aquilaria agalocha	10	Thymeliaceae	Sasi goch
26.	Araucaria sp	5	Araucariaceae	Christmas tree

27.	Averrhoa carambola	1	Oxalidaceae	Star fruit
28.	Bombax ceiba	1	Malvaceae	Red cotton Tree
29.	Bougainvillea spectabilis Willd.	8	Nyctaginaceae	Kagaz phul
30.	Butea monosperma	6	Fabaceae	Bastard Teak
31.	Butea monosperma	4	Fabaceae	Palash
32.	Callistemon sp.	2	Myrtaceae	Bottle Brush Tree
33.	Calotropis gigantea	1	Apocynaceae	Madar
34.	Cedrus atlantica	1	Pinaceae	Atlas
35.	Citrus maxima	1	Rutaceae	Pomello(Robab tenga)
36.	Cupressus sempervirens	10	Cupressaceae	Pencil pine
37.	Cycas revoluta	1	Cycadaceae	Japanese sago palm
38.	Dalbergia sissoo	2	Fabaceae	Sisu
39.	Delonix regia	14	Fabaceae	Krishnachura
40.	Dracaena fragrans	5	Asparagaceae	Jalukar Mahi
41.	Elaeocarpus floribundus Bl.	4	Elaeocarpaceae	Rudrakhsha
42.	Grevillea robusta	5	Proteaceae	Silver Oak
43.	Lagerstroeni speciosa	19	Lythraceae	Ajar Tree
44.	Litchi chinensis	1	Sapindaceae	Litchi
45.	Mesua ferrea	4	Calophyllaceae	Nahar
46.	Michelia champaca	2	Magnoliaceae	Tetachapa
47.	Neolamarckia cadamba	2	Rubiaceae	Kadam
48.	Nyctanthes arbor-tristis L.	3	Nychtaginaceae	Sewali phul
49.	Olea europaea	1	Oleaceae	Olive
50.	Polyalthia longifolia	4	Annonaceae	Ashoka Tree
51.	Pterospermom acerifolium	1	Sterculiaceae	Hatipolia
52.	Sapthodea campanulata	4	Bignoniaceae	Fountain Tree
53.	Syzygium cumini (L.) Skeels	2	Myrtaceae	Jamu gach
54.	Syzygium myrtifolium (Roxb.) Walp.	5	Myrtaceae	Ornamental syzygium
55.	Tamarindus indica	1	Fabaceae	Tamarind
56.	Tecoma stans (L.) Juss. ex Kunth	2	Binoniaceae	Yellow Bells
57.	Terminalia arjuna	2	Combretaceae	Arjun
58.	Terminalia bellirica (Gaertn.) Roxb.	2	Combretaceae	Bhomora
59.	Terminalia chebula	2	Combretaceae	Xilikha ( Haritaki)

# **GLIMPSES OF ADP COLLEGE CAMPUS**



#### Fig: Main entry of college campus

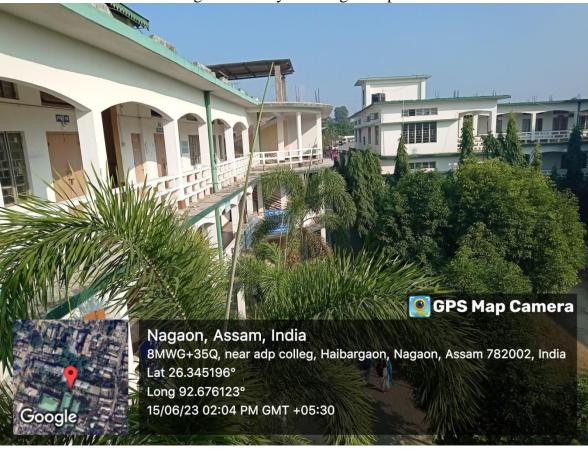


Fig: View inside the college campus.



Fig. Aerial view of college



Fig: Campus of the college.



Fig: Green campus of the college

# FAUNAL DIVERSITY

ADP College is situated in the Assamese district of Nagaon, close to the meeting point of the Indo-Malayan and Himalayan biodiversity hotspots, on the northern bank of the Brahmaputra River. The ADP College located in the Nagaon district experiences a monsoon-like climate due to

its Sub-Tropical climate. The peak temperature is measured in early May or early June, right before the monsoon season begins. The wet South-West Monsoon that strikes the northern Himalayan foothills from late June to August is the main source of the heavy summer rains. The climate of ADP College and the Nagaon district as a whole is ideal for a diverse range of flora and wildlife to support the area's rich biodiversity. The faunal Diversity of ADP College campus has been studied and documented as below-

FAUNAL GROUP	SCIENTIFIC NAMES	
SPIDERS	Myrmachne orientalis (Family Salticidae); Nephila plipes (Family- Nephilidae); Heteropoda sp (Family-Sparassidae); Phintella vitatta (Family Salticidae)	
MOTHS & BUTTERFLIES	Antheria assmensis;Bombyx mori;Philosamia ricini; Junonia atlite atlites ; Commander (Moduza procris procris);Ethope himachala Melanitis leda leda ; Paltoporia paraka paraka; Ypthima baldus Acraea terpsicore ; Elymnias hypermnestra undularis ; Mycalesi perseus blasius ; Tanaecia lepidea lepidae;Euploea core core	
OTHER INSECTS	Apis indica; Apis dorsata; Apis florae, Crocothemis erythraea (Scarlet dragonfly); Pantala flavescens (wandering glider)	
AMPHIBIANS	Duttaphrynus melanostictus (Assian common toad), Leptobrachium smithi; Fejervarya pierrei; Hoplobatrachus tigerinus; Hylarana tytleri; Humerana humeralis; Hylarana leptoglossa; Polypedates leucomystax.	
REPTILES	Calotes versicolor; Hemidactylus frenatus; Hemidactylus brookii; Hemidactylus platyurus; Hemidactylus flaviviridis; Gekko gecko; Eutropis multifasciata; H. Sphenomorphus maculates Enhydris enhydris; Xenochrophis schnurrenbergeri; Xenochrophis cerasogaster; Rhabdophis subminiatus; Amphiesma stolatum; Chrysopelea ornate	
BIRDS	Acridotheres tristis (Common myna); Streptopelia orientalis (Oriental Turtle Dove); Athene noctua ( little owl ); Pycnonotus cafer (Red- vented Bulbul)	
MAMMALS	Macaca mulatta (The rhesus macaque); Sciurus carolinensis (Eastern gray squirrel); Pteropus giganteus (The Indian flying fox)	

#### Waste Disposal

Waste disposal are the activities and actions required to manage waste from its inception to its final disposal. This includes the collection, transport treatment and disposal of waste, together with monitoring and regulation of the waste management process.

The waste from all around the college is separated daily as wet and dry waste in different bags which are disposed separately. Dry waste includes paper, carboard, glass, tin, cans etc. On the other hand; wet waste refers to organic waste such as vegetable, peds, left over food etc. Separation of waste is essential as the amount of waste being generated today causes immense problem. The material was composed and evaluated as a fertilizing material. Disposal of this waste results in the production of good quality production manner that can be used as soil amendments and source of plant nutrients.

With smart initiatives like "Think Green Campus Model", waste management is helping colleges to achieve a higher level of environmental performance. By reusing or recycling we are contributing to the conservation of natural resources, saving energy, helping to protect the environment, reducing landfill. We will also reduce our impact on the environment by minimizing the carbon emission associated with both disposing of old product and obtaining new ones. A.D.P. College adopts environment friendly practices and takes necessary action such as-Energy conservation, waste recycling, carbon neutral etc. The biological reusable waste are processed as organic manner, for the plants available in the college campus and the other solid waste generated in the college campus is taken to the community bin of Nagaon municipality for recycling and disposal.

#### Transportation

Being a largest campus in the region and located centrally, A.D.P. College faculty, staff and students commute on their own. The college is dedicated to provide its students and stuff all the comfort and convenience to help them to achieve their targets. The students are encouraged to use bicycles, two wheelers rather than four wheelers which leads to fuel saving and also the contribution of pollutants to atmosphere is less.

# **ELECTRICAL POWER CONSUMPTION**

ADP College, being one of the largest colleges of Assam, consumes on an average 7852 kW-hr (units) of electricity per month which turns out to be 94224 kW-hr per year only to maintain its volumetric activities throughout the year. There is one Solar Plant in the college but it is not functional at present. The college authority is planning to make it functional. The consumption of LED bulbs and LED tubes to the net power consumption is 18.43 %.

There are total of 432 nos. of LED bulbs, 213 nos. of tubes, 25 nos. of CFL bulbs and 502 nos.of fans in the entire college campus. The authority keeps on replacing the old filament bulbs, CFL bulbs and tube lights by low energy consuming LED bulbs and LED tubes and bulky high power consuming fans by energy efficient fans in order to keep the electricity consumption of the college as low as possible.



Fig: Grid connected solar PV plant

**Orchidarium:** The department of Botany has been maintaining a botanical garden and an Orchidarium which harbors various medicinal plants and orchids.

# **Medicinal Plant collection:**

The department of Zoology has been collecting a number of medicinal plants in pots.

Sl. No.	Common name	Botanical Name	
1	Tulsi	Ocimum sanctum	
2	Saguni lota	Tinospora cordifollia	
3	Sal konwari	Aloe vera	
4	Kol	Musa paradisiaca	
5	Panaunowa	Boerhaevia diffusa	
6	Sewali	Nyctanthes arbor-tritis	
7	Dupartenga	Bryophylum	
8	Tengesi Tenga	Oxalis corniculata	
9	Aparajita	Clitoria tinctoria	
10	Jamu	Syzygium cumini	
11	Nayan tora	Vinca rosea	
12	Narasingha	Murayya coenigii	
13	Lajuki lota	Mimosa pudica	
14	Durun	Leucas aspera	
15	Bongali Dhania	Eryngium foetidum L.	
16	Manimuni	Centella asiatica	
17	Gima sak	Glinus oppositifolius (L.) Aug. DC.	
18	Dalim	Punica granatum L.	
19	Pirali paleng	Talinum fruticosum (L.) Juss.	

#### Rearing of local fishes in aquarium collected by Zoology Department

Sl. No	Scientific Name	Local Name
1	Channa punclata	Goroi
2	Mystus fengara	Singara
3	Clarius batraws	Magur
4	Donio retio	Darikona
5	Heteropneustis fasciala	Khalihona
6	Puntius sophore	Puthi
7	Puntius ticto	Puthi
8	Anabas testudineus	Kawoi
9	Mystus vittatus	Singara

#### Suggestions:

- 1. Green area should be increased.
- 2. Solar plant should be made working.
- 3. More medicinal plants should be planted in botanical garden.
- 4. Cactus garden should be setup.
- 5. Incinerator should be setup to reduce the hazardous contaminates.
- 6. Biodegradable waste such as leaf litter can be recycled by a vermicomposting.

#### Action taken on the Green Audit Report:

- 1. Green area will be preserved as there is no space for increasing it
- 2. The college administration has replaced all existing CFL bulbs with LED bulbs in phases.
- 3. Rain water harvesting plant has been set up in the college premises.
- 4. Solar plant has been repaired and connected to power grid.
- 5. Herbal garden has been setup.

Report prepared by under mentioned members

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- 1. Mr. Bijumoni Borah -Convenor
- 2. Dr. Nitin Sarma -Member Notip Suma. -Member
- 3. Dr. Rajib Kagyung
- 4. Dr. Hrishikesh Talukdar -Member 5. Ms. Heena Khan

-Member

Report verified & four Salisfactory

A.D.P. College Nagaon (Assam)

Principal Khagarijan College Nagaon (Assam) (Dr. Ramesh Nath) External Evaluator

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