

# GREEN AUDIT REPORT (2020-2021)



## DAKSHIN KAMRUP COLLEGE, MIRZA

INTERNAL QUALITY ASSURANCE CELL  
DAKSHIN KAMRUP COLLEGE, MIRZA

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## CERTIFICATE

The present report is a Green Audit of D.K College Mirza conducted internally by the Green Audit Assessment team for the session 2020-21 under the aegis of IQAC, Dakshin Kamrup College, Mirza.

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## ACKNOWLEDGEMENT

The successful compilation of the Green Audit Report of Dakshin Kamrup College, Mirza, Assam has been possible for constant help and support of the Administration, Faculty, Students and Non-teaching staff of the college.

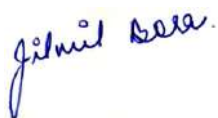
We would like to offer sincere thanks to respected Principal cum Chairperson IQAC Dr. Nabajyoti Das for his guidance throughout the course of audit.

Sincere thanks are due to the esteemed faculties and the academic Departments who have contributed the required data for the report.

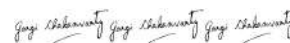
Our special word of thanks to Shabnam Shahin, Assistant Professor of the Department of Mass Communication for extending her technical help. We also acknowledge the help extended by the BSc 5<sup>th</sup> Semester Botany Hons. students for collecting the photographs for the report.

We sincerely acknowledge the technical support and guidance of Sri Homeswar Das, Head, Department of Geography.

Finally we humbly acknowledge the sincere assistance and valuable advice offered by the respected members of the IQAC.



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## PROLOGUE

Dakshin Kamrup College, Mirza, Assam is located amidst the green environs of the southern part of the mighty Brahmaputra River. The lush greenery contributed by the attractive plantations of Sal, Sissoo (Indian rosewood), Teak, Som and Nahor make the region attractive.

Established in 1961, the college has come a long way in the sphere of academics and infrastructure. Although the modern construction of the college includes Departments housed in various 3-4 storeyed buildings, the greenery of the campus captures the soul of the college.

In its commitment towards maintaining a safe and healthy environment in the campus and abiding by the regulations of NAAC, the Internal Quality Assurance Cell of Dakshin Kamrup College, Mirza has initiated the process of self assessment of the environmental quality of the campus.

Green audit follows the basic philosophy and approach summarized by the definition adopted by the International Chambers of Commerce (ICC) in its publication of Environmental Auditing (1989). The ICC defines Environmental Auditing as a management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of safeguarding the environment and natural resources in its operations.

The Government of India declared the National Environment Policy 2006 and made green audit mandatory to each industry. According to the policy it is a response to India's national commitment to a clean environment, mandated in the Constitution in Articles 48 A and 51 A (g) and strengthened by judicial interpretation of Article 21. It is recognized that the maintenance of healthy environment is the responsibility of every citizen and thus a spirit of partnership is to be realized through the environment management of the country. By realizing the need of responsibility towards environment, NAAC, under the aegis of the UGC has added the concept of environmental audit in accreditation methodologies of universities and colleges.

The Green Audit Report (2020-21) of Dakshin Kamrup College, Mirza is a continuation of the environmental quality assessment of the campus that it had initiated in 2019-20. The data acquired points to the maintenance of the environmental parameters in more or less the same level as the earlier session. In spite of limitations, this compilation indicates the overall environment in the college campus and serves as a pointer to the steps that should be undertaken for further minimizing the carbon footprint and ensuring a cleaner environment.

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## INTRODUCTION

The Green audit Report (2020-21) is the fulfilment of the commitment of Dakshin Kamrup College, Mirza towards a sustainable future. It includes the process of systematic identification, quantification, recording, reporting and analysis of components of various environmental parameters of the establishment.

In compliance with the National Assessment and Accreditation Council, New Delhi (NAAC) guidelines of an annual Green Audit in higher educational institutions and its responsibility to maintain a green campus, Dakshin Kamrup College has initiated the second annual assessment of its environmental parameters. It is also a part of its Corporate Social Responsibility to ensure that it contribute towards mitigating climate change through Carbon Foot print reduction measures.

The Covid 19 Pandemic and the ensuing Government declared Lock down periods has affected the physical functioning of the college in the current session. Nevertheless, the Green Audit assessment of the College has been carried out internally with limitations of time and resource. In the face of the threat of emerging infectious diseases, it is all the more pertinent that educational institutes pass on the value of preservation and protection of the environment to its future generations.

The Audit takes stock of the efforts to nurture environmental friendly practices like reduction of energy consumption, proper waste management, conservation of water and monitoring of its quality, and proper utilization of natural resources. It records the floral and faunal diversity within the campus which is essential for monitoring the ecological balance. It also identifies the measures to be taken for sustaining a green campus for the welfare of the community within the campus and outside.

The Green audit report is a transparent and honest attempt of self assessment of the quality of environment within the campus and is a process to instil environmental consciousness in the functions and policies of the Institute for a better and greener campus life.

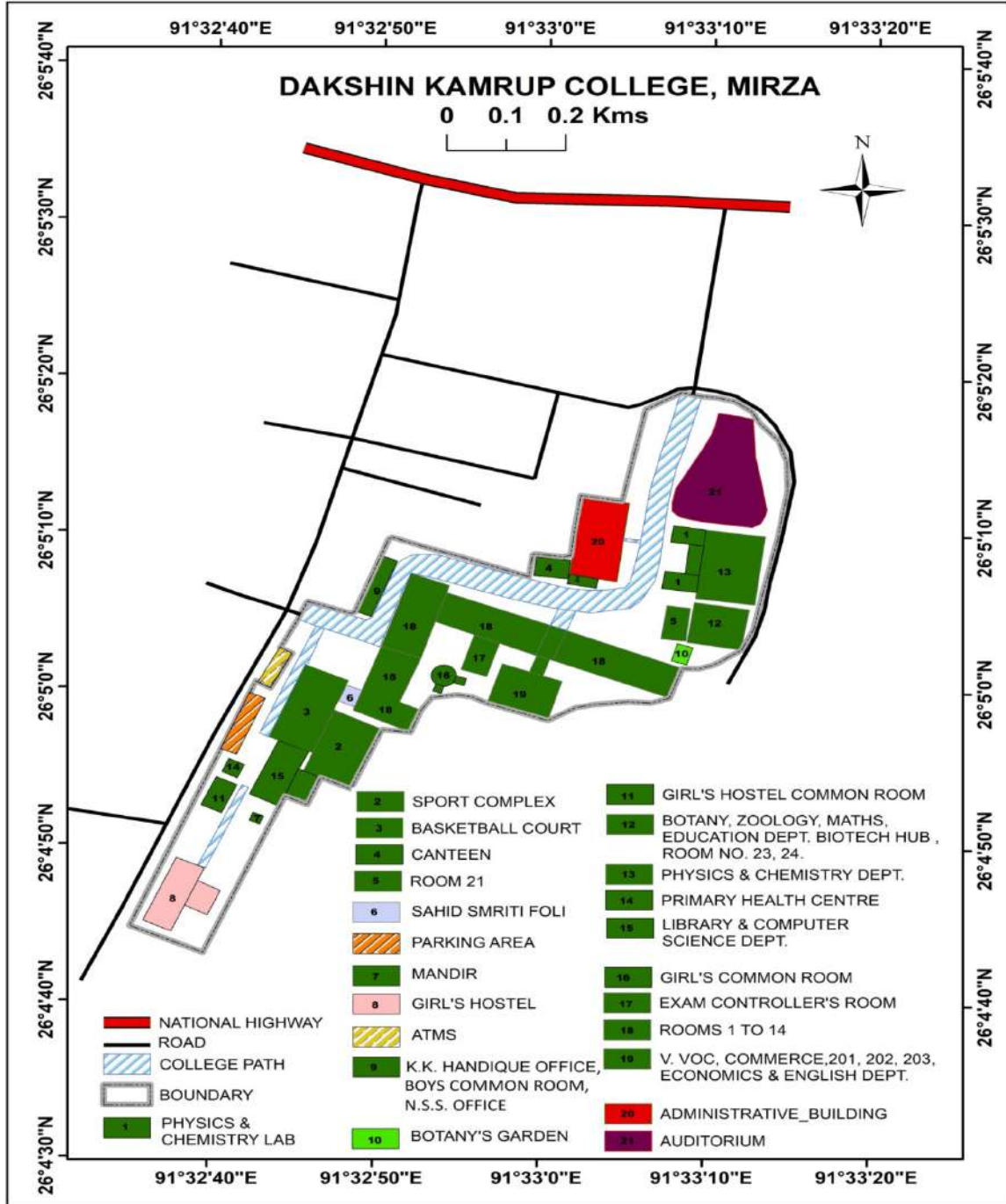


## OBJECTIVES

The main objectives of carrying the Green Audit are –

1. To document the physical profile of the college.
2. To record the meteorological parameters of the region where the college is located.
3. To document the floral and faunal diversity of the college.
4. To estimate the energy consumption of the college.
5. To estimate and document the noise level in the campus.
6. To estimate and document the water quality available in the campus.
7. To document the waste disposal system.
8. To make students realize the core of environmental consciousness for a sustainable future.

## GEOGRAPHICAL LOCATION OF DAKSHIN KAMRUP COLLEGE CAMPUS, MIRZA



Source: Data given by Department of Geography

### SATELLITE IMAGE DATA OF DAKSHIN KAMRUP COLLEGE MIRZA



## PHYSICAL PROFILE

The physical layout of the college campus can encourage positive thinking within the students and the faculty. Green spaces develop an environment which nurtures a connection with nature.

Surrounded by scattered hillocks which are extended parts of the Shillong Plateau as well as the Malaita Hills and located amidst the bustling market area of Mirza Chowk, D.K College is on the overlap between natural and manmade ecosystems.

Providing a learning environment to over 3000 students and a spacious work environment for teaching and non-teaching staff, it has a robust and well planned infrastructure. The college campus occupies a total land area of 383.47 SQ. M. The built up area is 237.67 SQ. M, accounting for 62 % of the land area. The vegetation cover accounts for 32.34% of the total area of the campus. In addition around 6% of the campus is an open area. An orchid house covering 0.68 sqm has a collection of variety of orchids. The green cover is present in patches all around the campus, along the paths, in front of the Administrative buildings and Academic Departments. Around 23.74 sqM of the campus is allocated to games and sports and accounts for the Sports complex and the Basketball court of the college. Five separate blocks houses various Academic Departments, Administrative Office, Conference halls and Library. The Administrative Building houses the Administrative Office, the Krishna Kanta Handique Conference Hall, Digital Conference Hall, the Principal's chamber, two academic departments and occupies 3.2% of the total land area. The Library and Department of Computer Science occupies one of these blocks. Five Academic departments, Institutional Biotech Hub and two common classrooms are housed in one block which occupies 7.4 sq.m. The remaining two blocks housing Academic Departments and common classrooms occupy 7.3% of the land area. The Auditorium accounts for 23.98 sq.m. There is an Examination branch covering 3.2 sq.m for conducting University examinations as well as Internal Examinations. There is also a parking area of 3.49 sq.m. ATMs, Canteen, Girls' Hostel and Girls' Common room make the campus infrastructure self sufficient and covers 2.36% of the total land area.

A detailed documentation of the physical profile of the college is done through land use mapping given as follows:

## LAND USE

Land use refers to man's activities and the various uses which are carried on and derived from land. In situations of rapid changes in land use, observations of the Earth from space give the information of human activities and utilization of the landscape (Howarth 1981). Remote sensing and GIS techniques provide new tools for advanced land use mapping and planning. Satellite imagery particularly is a valuable tool for generating land use map.

### Methodology adopted for Land use Mapping

**Arc-GIS 10.2 software** was used for land use/ land cover analysis with data obtained from GPS points and field survey. Google Earth was used for obtaining satellite image of the college campus.

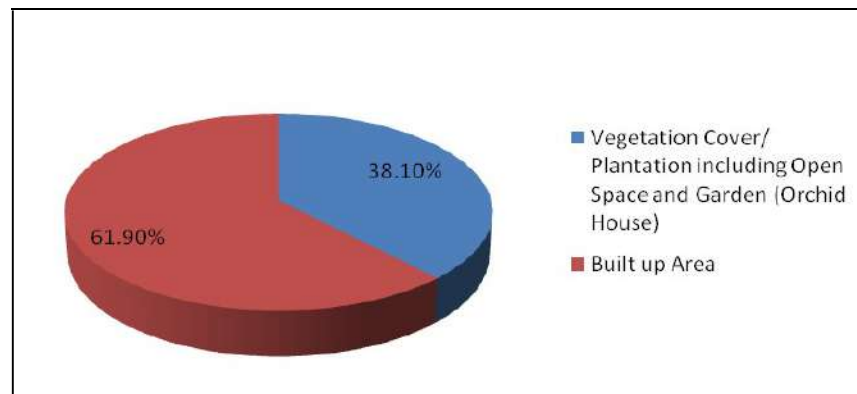
### Observation

**TABLE 1: LAND USE DATA OF D.K. COLLEGE, MIRZA, ASSAM**

| Categories of Land Use       | Area in Sq. Metres | Area in Hectares |
|------------------------------|--------------------|------------------|
| Vegetation Cover/ Plantation | 124.022            | 12.4             |
| Open Space                   | 21.784             | 2.1784           |
| Garden (Orchid House)        | 0.68               | 0.068            |
| Built up Area                | 237.67             | 23.77            |
| Total Area                   | 383.47             | 38.35            |

Source: Data gathered by Department of Geography

### LAND USE ANALYSIS (AREA IN SQ. METRES) D.K COLLEGE, MIRZA, KAMRUP, ASSAM



**Fig. 1: Break up of built up area and green cover of D.K. College Campus**

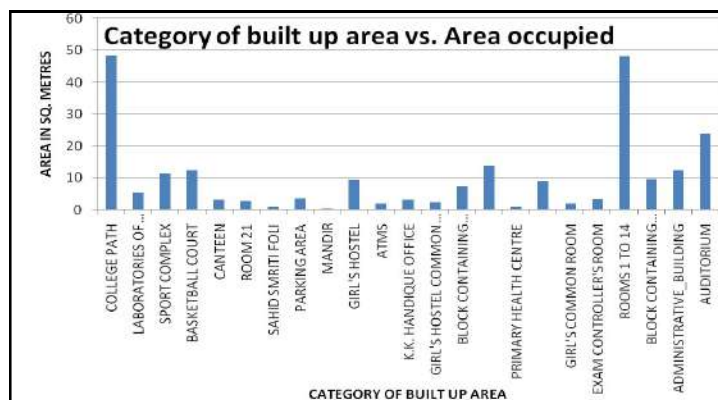
The total area of D.K College is 383.47 SQ. M out of which the built up area is 61.9% (i.e.237.67 SQ. M) and open space and plantation area including orchid house is 38.1% ( i.e 146.48 sq metres).

The different categories of built up area are given below in Table 2.

**TABLE 2: LAND USE (BUILT UP AREA) ANALYSIS**

| Sl. No. | CATEGORIES OF BUILT UP AREA  | Area in m <sup>2</sup> |
|---------|--|------------------------|
| 1.      | BOUNDARY   | 383.48                 |
| 2.      | COLLEGE PATH   | 48.45                  |
| 3.      | LABORATORIES OF DEPARTMENTS OF PHYSICS AND CHEMISTRY   | 5.20                   |
| 4.      | SPORT COMPLEX  | 11.35                  |
| 5.      | BASKETBALL COURT   | 12.40                  |
| 6.      | CANTEEN  | 3.05                   |
| 7.      | ROOM 21  | 2.67                   |
| 8.      | SAHID SMRITI FOLI  | 0.90                   |
| 9.      | PARKING AREA   | 3.49                   |
| 10.     | MANDIR   | 0.33                   |
| 11.     | GIRL'S HOSTEL  | 9.30                   |
| 12.     | ATMS   | 1.83                   |
| 13.     | K.K. HANDIQUE OFFICE   | 3.03                   |
| 14.     | GIRL'S HOSTEL COMMON ROOM  | 2.31                   |
| 15.     | BLOCK CONTAINING DEPARTMENTS OF BOTANY, ZOOLOGY, MATHS, EDUCATION, INSTITUTIONAL BIOTECH HUB, ROOM NO. 23, 24. | 7.40                   |
| 16.     | BLOCK CONTAINING DEPARTMENTS OF PHYSICS AND CHEMISTRY  | 13.66                  |
| 17.     | PRIMARY HEALTH CENTRE  | 0.81                   |
| 18.     | BLOCK CONTAINING LIBRARY AND DEPARTMENT OF COMPUTER SCIENCE  | 8.85                   |
| 19.     | GIRL'S COMMON ROOM   | 1.88                   |
| 20.     | EXAM CONTROLLER'S ROOM   | 3.23                   |
| 21.     | ROOMS 1 TO 14  | 48.16                  |
| 22.     | BLOCK CONTAINING DEPARTMENTS OF B. VOC, COMMERCE, ECONOMICS AND ENGLISH, ROOM NO.S 201,202,203                 | 9.45                   |
| 23.     | ADMINISTRATIVE BUILDING  | 12.43                  |
| 24.     | AUDITORIUM   | 23.99                  |

Source: Data gathered by Department of Geography



**Figure 2: Space occupied (in sq. metres) by different categories of built up area**

### Comment

D.K College Mirza, established in 1962 has an infrastructure that has an eco friendly character. It has always adhered to healthy environmental practices including periodic plantation, their preservation and maintenance. The land use mapping has indicated that 38.1% of its area is open and has green cover that supports a sustainable and healthy campus environment.

### FLORAL DIVERSITY IN THE CAMPUS

The college campus has a spread out botanical garden housing a variety of plant species from a wide spectrum of plant families. These have medicinal, economic and ornamental significance in the college campus and impart greenery and fresh air in the campus.

The culture of conserving and propagating the diversity of the plant species is also instilled in the stakeholders. The college has a proud heritage of taking plantation drives within the campus and in the adjoining areas as well.

The plant species present in the campus is listed in Table 3.

**Table 3: List of Floral species present in the college campus**

| Sl. No. | Name of the plant species  | Family          | Common name     |
|---------|--|-----------------|-----------------|
| 1.      | <i>Tectona grandis</i> L. F  | Verbenaceae     | Segun           |
| 2.      | <i>Duranta repens</i>  | Verbenaceae     | Duranta         |
| 3.      | <i>Terminalia cuneata</i> Roth (= <i>T.arjuna</i> Roxb.)                     | Combretaceae    | Arjun           |
| 4.      | <i>Terminalia chebula</i> Retz.  | Combretaceae    | Xilikha         |
| 5.      | <i>Azadirachta indica indica</i> A. Juss.                                    | Meliaceae       | Mahaneem        |
| 6.      | <i>Melia azedarach</i> L.  | Meliaceae       | Ghoraneem       |
| 7.      | <i>Albizia lucidior</i> (Steud.) Nielson ex Hara                             | Mimosaceae      | Moj             |
| 8.      | <i>Samanea saman</i> (Jacq.) Merr.   | Mimosaceae      | Siris           |
| 9.      | <i>Syzygium cumini</i> (L.) Skeels   | Myrtaceae       | Jaam            |
| 10.     | <i>Psidium guajava</i> L.  | Myrtaceae       | Madhuriaam      |
| 11.     | <i>Delonix regia</i> (Bojer.) Raf.   | Caesalpiniaceae | Krishnasura     |
| 12.     | <i>Cocos nucifera</i> L.   | Arecaceae       | Narikol         |
| 13.     | <i>Dyopsis lutescens</i> (H. Wendl)  | Arecaceae       | Momai Tamol     |
| 14.     | <i>Michelia champaca</i> L.  | Magnoliaceae    | Titasopa        |
| 15.     | <i>Dalbergia sissoo</i> Roxb. Ex. DC.  | Fabaceae        | Sisoo           |
| 16.     | <i>Butea monosperma</i> (Lamk) Taub.   | Fabaceae        | Palas           |
| 17.     | <i>Aegle marmelos</i> (L.) Corr.   | Rutaceae        | Bael            |
| 18.     | <i>Polyalthia longifolia</i> (Sonner.) Thw.var. <i>Longifolia</i>            | Annonaceae      | Devadaru        |
| 19.     | <i>Polyalthia longifolia</i> (Sonner.) Thw.var. <i>pendula</i> (Sonner.) Thw | Annonaceae      | Devadaru        |
| 20.     | <i>Pinus kesiya</i> Royle. Ex Gordon.  | Pinaceae        | Saralgos        |
| 21.     | <i>Magnolia hodgsonii</i> (Hookf& Th.) Keng                                  | Magnoliaceae    |                 |
| 22.     | <i>Mimusops elengi</i> Roxb.   | Sapotaceae      | Bokul           |
| 23.     | <i>Aquilarium alaccensis</i> Lam.  | Thymelaeaceae   |                 |
| 24.     | <i>Platycladus orientalis</i> (L.) Franco (= <i>Thujaorientalis</i> L.)      | Cupressaceae    | Thuja           |
| 25.     | <i>Murraya paniculata</i> (L.) Jack  | Rutaceae        | Kaminikanchan   |
| 26.     | <i>Murraya koenigii</i> (L.) Spreng  | Rutaceae        | Norosingho      |
| 27.     | <i>Mesua ferrea</i> L.   | Clusiaceae      | Nahor           |
| 28.     | <i>Mussaenda sp.</i>   | Rubiaceae       | Masunda         |
| 29.     | <i>Ixora coccinea</i> L.   | Rubiaceae       | Rongial         |
| 30.     | <i>Alternanthera brasiliiana</i> (L.) Kuntze                                 | Amaranthaceae   | Bishalya Karani |
| 31.     | <i>Tradescantia spathacea</i> Sw.  | Commelinaceae   | Boat Lily       |
| 32.     | <i>Zephyranthes candida</i> (Lindl.) Herb                                    | Amaryllidaceae  | Lily            |
| 33.     | <i>Nyctanthes arbor-tristis</i> L.   | Oleaceae        | Sewali          |
| 34.     | <i>Euphorbia ligularia</i> Roxb.   | Euphorbiaceae   | Siju            |
| 35.     | <i>Costus speciosus</i> (Koen.ex Retz.) Sm.                                  | Costaceae       | Jomlakhuti      |
| 36.     | <i>Kalanchoe pinnata</i> (Roxb.) Pers.                                       | Crassulaceae    | Duportenga      |
| 37.     | <i>Bryophyllum pinnatum</i> Roxb.  | Crassulaceae    | Pategoja        |
| 38.     | <i>Canna sp.</i>   | Cannaceae       | Parijat         |
| 39.     | <i>Rauvolfia tetraphylla</i> L.  | Apocynaceae     | Sarpogondha     |



|     |  |             |           |
|-----|--|-------------|-----------|
| 40. | <i>Asparagus racemosus</i> Willd.            | Liliaceae   | Sotmul    |
| 41. | <i>Catharanthus roseus</i> (L.) G. Don.      | Apocynaceae | Nayantara |
| 42. | <i>Machilus bombycina</i> King. Ex. Hook. f. | Lauraceae   | Som       |
| 43. | <i>Ficus religiosa</i> Linn.                 | Moraceae    | Aahot     |

Source: Data given by Department of Botany

The maintenance and nomenclature of the variety of species in the spread out Botanical Garden is done by the Department of Botany D.K College, Mirza. The greenery presented by the variety of species in the campus instils a spirit of plant nurturing and conservation among the different stakeholders of the college. It provides a congenial environment to learning as well as relaxation and maintains a healthy ecosystem.

### Plants of Medicinal Importance:

The floral diversity of the campus includes plants of medicinal importance too.

Some of the plants of medicinal importance in the campus are:

**Table 3(a): List of important medicinal plants in the campus**

| Name of the Plant Species                                   | Family       | Health Benefits  |
|---|--------------|--|
| <i>Terminalia chebula</i> Retz.<br>Vern: Xilikha            | Combretaceae | Increase appetite, digestive aid, liver stimulant, stomachic, gastrointestinal pro kinetic agent, and mild laxative  |
| <i>Azadirachta indica indica</i> A. Juss.<br>Vern: Mahaneem | Meliaceae    | Used for intestinal worms, stomach upset, loss of appetite, skin ulcers, diseases of the heart and blood vessels (cardiovascular disease), fever, diabetes, gum disease (gingivitis), and liver problems.                                      |
| <i>Aegle marmelos</i> (L.) Corr.<br>Vern: Bael              | Rutaceae     | Good for digestion and has laxative properties, has antimicrobial activity and manage bacteria induced diarrhoea and cholera; reduces cholesterol and manages diabetes; anti cancerous and immunity booster                                    |
| <i>Murraya koenigii</i> (L.) Spreng<br>Vern: Norosingho     | Rutaceae     | Antioxidant, antimicrobial, antidiabetic, anticancerous, hepatoprotective, antihelminthic  |
| <i>Nyctanthes arbortristis</i> L.<br>Vern: Sewali           | Oleaceae     | Antioxidant, antimicrobial, hepatoprotective, Immunity booster, digestive, laxative  |
| <i>Kalanchoe pinnata</i> (Roxb.) Pers.<br>Vern: Duportenga  | Crassulaceae | Used in stomach disorder, jaundice, pain, cuts and wounds, diarrhoea and fever   |
| <i>Rauwolfia tetraphylla</i> L.<br>Vern: Sarpogondha        | Apocynaceae  | Used as a remedy for snake and other poisonous bite, blood pressure, diabetes, piles, malaria, wound, helminthiasis, hypertension, vomiting, insomnia, skin diseases, mental disorders, cough, fever   |
| <i>Catharanthus roseus</i> (L.) G. Don.<br>Vern: Nayantara  | Apocynaceae  | Used for relieving muscle pain, depression of the central nervous system, also used for applying to wasp stings and to heal wounds. Its application ranges widely from the prevention of diabetes to treatment of stomach ache; Anti cancerous |



### ORCHID HOUSE

An orchid house is also maintained by Advanced level Institutional Biotech Hub, D.K. College, Mirza. The main objective of this orchid house is the collection and conservation of local orchid species of the region.

**Table 3(b) ORCHIDS CONSERVED IN THE DBT SPONSORED ORCHID HOUSE  
(UNDER BIOTECH HUB SCHEME)**

| SL. No. | Name                                     |
|---------|--|
| 1       | <i>Dendrobiumaphyllum</i>                |
| 2       | <i>Ryncostylisretusa</i>                 |
| 3       | <i>Arundinagraminifolia</i>              |
| 4       | <i>Dendrobium sp. (hybrid varieties)</i> |
| 5       | <i>Cymbidium sp</i>                      |
| 6       | <i>Bulbophyllum sp.</i>                  |
| 7       | <i>Aeridesmultiflora</i>                 |

#### **Comment on the Segun (*Tectona grandis*) vegetation of the adjoining areas of the College:**

The greater Palasbari area in Kamrup district where the college is located is traditionally famous for its Segun (*Tectona grandis*) trees that form the Tropical moist deciduous forest. Climatic conditions of Kamrup region have also preferred Segun and its associates. It is one of the most important timber yielding plants and has known medicinal properties. The leaves of these trees also act as source of non timber forest product.

Students are sensitized for its conservation and management in its natural habitat to protect the green heritage that this region is bestowed with.

## FAUNAL DIVERSITY IN THE COLLEGE CAMPUS

The documentation of the variety of faunal species present in the College campus was done by the Department of Zoology. A variety of invertebrate and vertebrate species have been found in the campus exhibiting a healthy coexistence. The status of its present existence regarding frequency of spotting in the campus as common, uncommon or rare was also recorded.

**Table 4: List of Faunal species Present in the campus**

| Sl.No. | Type of fauna         | Scientific name               | Common name                    |                                      |
|--------|-----------------------|-------------------------------|--------------------------------|--------------------------------------|
| 1      | <b>Annelida</b>       | <i>Pheretim aposthuma</i>     | Earthworm                      |                                      |
| 2      |                       | <i>Nereis pelagic</i>         | Nereis                         |                                      |
| 3      |                       | <i>Hirudinaria granulose</i>  | Leech                          |                                      |
| 4      | <b>Mollusca</b>       | <i>Pila globosa</i>           | Pila                           |                                      |
| 5      | <b>Arthropoda</b>     | <i>Scolopendra abnormis</i>   | Scolopendra                    |                                      |
| 6      |                       | <i>Culex pipiens</i>          | Mosquitoes                     |                                      |
| 7      |                       | <i>Iridomyrmex purpureus</i>  | Ants                           |                                      |
| 8      |                       | <i>Anax junius</i>            | Dragon fly                     |                                      |
| 9      |                       | <i>Acheta domesticus</i>      | Cricket                        |                                      |
| 10     |                       | <i>Gryllus campestris</i>     | Stick and Leaf Insects         |                                      |
| 11     |                       | <i>Lepis masaccharina</i>     | Silver Fish                    |                                      |
| 12     |                       | <i>Sympetrum flaveolum</i>    | Dragonflies                    |                                      |
| 13     |                       | <i>Millipede</i>              | Millipedes                     |                                      |
| 14     |                       | <i>Termite</i>                | Termite                        |                                      |
| 15     |                       | <i>Periplanata americana</i>  | Cockroach                      |                                      |
| 16     |                       | <i>Vespula vulgaris</i>       | Wasp                           |                                      |
| 17     |                       | <i>Apis dorsata</i>           | Honey bees                     |                                      |
| 18     |                       | <i>Mantis religiosa</i>       | Praying mentis                 |                                      |
| 19     |                       | <b>Mammal</b>                 | <i>Funambulus palmarum</i>     | Indian palm squirrel                 |
| 20     |                       |                               | <i>Pipistrellus coromandra</i> | Indian Pipistrelle/Little Indian Bat |
| 21     |                       |                               | <i>Pteropus giganteus</i>      | Indian flying fox                    |
| 22     |                       |                               | <i>Herpestes javanicus</i>     | Indian mongoose                      |
| 23     | <i>Macaca mulatta</i> |                               | Rhesus monkeys                 |                                      |
| 24     |                       | <i>Rattus sp.</i>             |                                |                                      |
| 25     | <b>Aves</b>           | <i>Corvus splendens</i>       | House crow                     |                                      |
| 26     |                       | <i>Treron phoenicopterus</i>  | Yellow-legged Green Pigeon     |                                      |
| 27     |                       | <i>Upupa epops</i>            | Common Hoopoe                  |                                      |
| 28     |                       | <i>Streptopelia chinensis</i> | Spotted dove                   |                                      |
| 29     |                       | <i>Acridotheres fuscus</i>    | Jungle myna                    |                                      |
| 30     |                       | <i>Dendrocopos atratus</i>    | Striped breasted woodpecker    |                                      |
| 31     |                       | <i>Gracupica contra</i>       | Asian pied starling            |                                      |
| 32     |                       | <i>Copsychus saularis</i>     | Oriental magpie robin          |                                      |
| 33     |                       | <i>Dicrurus macrocercus</i>   | Black drongo                   |                                      |
| 34     |                       | <i>Pycnonotus cafer</i>       | Red vented bulbul              |                                      |
| 35     |                       | <i>Psilopogon asiaticus</i>   | Blue throated barbet           |                                      |
| 36     |                       | <i>Pycnonotus jocosus</i>     | Red whiskered bulbul           |                                      |
| 37     |                       | <i>Eudynamys scolopaceus</i>  | Asian koel                     |                                      |
| 38     |                       | <i>Psittacula krameri</i>     | Rose ringed parakeet           |                                      |
| 39     |                       | <i>Acridotheres tristis</i>   | Common myna                    |                                      |
| 40     |                       | <i>Passer domesticus</i>      | House sparrow                  |                                      |
| 41     | <b>Reptiles</b>       | <i>Calotes versicolor</i>     | Indian garden lizard           |                                      |
| 42     |                       | <i>Hemidactylus frenatus</i>  | Asian house gecko              |                                      |
| 43     |                       | <i>Hamidactylus brooki</i>    | Brook's house gecko            |                                      |
| 44     |                       | <i>Eutropis multifasciata</i> | Common sun skink               |                                      |

|    |                         |                                    |                             |
|----|-------------------------|------------------------------------|-----------------------------|
| 45 |                         | <i>Veranus bengalensis</i>         | Common Indian monitor       |
| 46 |                         | <i>Ramphotyphlops brahminus</i>    | Brahminy blind snake        |
| 47 |                         | <i>Typhlops diardii</i>            | Diard's Blind Snake         |
| 48 |                         | <i>Amphiesma stolata</i>           | Buff striped keelback       |
| 49 |                         | <i>Coelognathus radiatus</i>       | Copper-headed trinket snake |
| 50 |                         | <i>Ptyas korros</i>                | Indo-Chinese rat snake      |
| 51 |                         | <i>Lycodon aulicus</i>             | Indian wolf snake           |
| 52 |                         | <i>Rhabdophis subminiatus</i>      | Red-necked keelback         |
| 53 |                         | <i>Xenochrophis piscator</i>       | Checkered keelback          |
| 54 | <b>Amphibia</b>         | <i>Duttaphyrynus melanostictus</i> | Asian common toad,          |
| 55 |                         | <i>Uperodon globulosus</i>         | Indian balloon frog         |
| 56 |                         | <i>Hoplobatrachus tigerinus</i>    | Asian bullfrog              |
| 57 |                         | <i>Minervarya pierrei</i>          | Pierre's wart frog          |
| 58 |                         | <i>Minervarya nepalensis</i>       | Nepal wart frog             |
| 59 |                         | <i>Polypedates leucomystax</i>     | Common tree frog            |
| 60 | <b>Butterflies</b>      | <i>Eurema hecabe</i>               | Common grass yellow         |
| 61 |                         | <i>Catopsilia pomona</i>           | Lemon emigrant              |
| 62 |                         | <i>Appias albina</i>               | Common albatross            |
| 63 |                         | <i>Catopsilia pyranthe</i>         | Mottled emigrant            |
| 64 |                         | <i>Pieris canidia</i>              | Indian cabbage white        |
| 65 |                         | <i>Delias pasithoe</i>             | Red-base jazabel            |
| 66 |                         | <i>Gandaca harina</i>              | The yellow                  |
| 67 |                         | <i>Graphium agamemnon</i>          | Tailed jay                  |
| 68 |                         | <i>Papilio clytia</i>              | Common mime                 |
| 69 |                         | <i>Papilio nephelus</i>            | Yellow Helen                |
| 70 |                         | <i>Papilio polytes</i>             | Common Mormon               |
| 71 |                         | <i>Danaus genutia</i>              | Stripped tiger              |
| 72 |                         | <i>Castalius rosimon</i>           | Common pierrot              |
| 73 |                         | <i>Prosotas nora</i>               | Common lineblue             |
| 74 |                         | <i>Surendra quercetorum</i>        | Common acacia blue          |
| 75 |                         | <i>Jamides bochus</i>              | Dark cerulean               |
| 76 |                         | <i>Catochrysops strabo</i>         | Forget-me-not               |
| 77 |                         | <i>Iraota timoleon</i>             | Silver streak blue          |
| 78 |                         | <i>Junonia hierta</i>              | Yellow pansy                |
| 79 |                         | <i>Junonia iphita</i>              | Chocolate pansy             |
| 80 |                         | <i>Junonia lemonias</i>            | Lemon pansy                 |
| 81 |                         | <i>Junonia atlites</i>             | Grey pansy                  |
| 82 |                         | <i>Euploea core</i>                | Common crow                 |
| 83 |                         | <i>Euploea klugii</i>              | King crow                   |
| 84 |                         | <i>Phalanta phalantha</i>          | Common leopard              |
| 85 |                         | <i>Hypolimnna bolina</i>           | Great eggfly                |
| 86 |                         | <i>Neptis hylas</i>                | Common sailer               |
| 87 |                         | <i>Ariadne merione</i>             | Common castor               |
| 88 | <i>Mycalesis visala</i> | Long-branded bushbrown             |                             |

Data source: Department of Zoology

### Comment

The green space in the campus supports diverse vertebrate and invertebrate species. It gives opportunity for humans in the campus to connect with the wildlife in their natural habitat and survive in peaceful coexistence.

## WEATHER AND AIR QUALITY IN THE CAMPUS

### Methodolgy for acquiring data

The data acquired is mainly from the websites

a) [www.worldweatheronline.com](http://www.worldweatheronline.com)

b) [Airquality.com](http://Airquality.com)

([https://airquality.com/place/india/kamrup/7e374e8e?lang=en&standard=aqi\\_us](https://airquality.com/place/india/kamrup/7e374e8e?lang=en&standard=aqi_us))

### Observation:

#### Weather Report

The monthly average data of maximum and minimum temperatures, rainfall and humidity were collected for the period of 24 months January 2020- December 2021 and presented in Table 5.

**Table 5: Monthly average of Temperature, Rainfall and Humidity in the College during 2020-2021**

| Sl. No. | Year | Months    | Average Temperature (in °C) |         | Rain Days | Average Humidity (in%) |
|---------|------|-----------|-----------------------------|---------|-----------|------------------------|
|         |      |           | Maximum                     | Minimum |           |                        |
| 1       | 2020 | January   | 24                          | 11      | 3         | 79                     |
| 2       |      | February  | 24.8                        | 12      | 4         | 65                     |
| 3       |      | March     | 30.0                        | 15.8    | 8         | 57                     |
| 4       |      | April     | 32.3                        | 23      | 12        | 60                     |
| 5       |      | May       | 34.6                        | 25      | 13        | 78                     |
| 6       |      | June      | 34.8                        | 30      | 24        | 83                     |
| 7       |      | July      | 33.4                        | 29      | 23        | 85                     |
| 8       |      | August    | 33                          | 26      | 22        | 82                     |
| 9       |      | September | 32                          | 26      | 23        | 79                     |
| 10      |      | October   | 32                          | 22      | 14        | 73                     |
| 11      |      | November  | 28.3                        | 18      | 6         | 72                     |
| 12      |      | December  | 27                          | 14.2    | 4         | 68                     |
| 13      | 2021 | January   | 26                          | 12      | 5         | 67                     |
| 14      |      | February  | 30                          | 15      | 3         | 52                     |
| 15      |      | March     | 33                          | 18      | 9         | 44                     |
| 16      |      | April     | 35                          | 21      | 19        | 57                     |
| 17      |      | May       | 35                          | 23      | 28        | 69                     |
| 18      |      | June      | 34                          | 25      | 29        | 81                     |
| 19      |      | July      | 32                          | 25      | 31        | 87                     |
| 20      |      | August    | 33                          | 25      | 30        | 85                     |
| 21      |      | September | 33                          | 24      | 28        | 84                     |
| 22      |      | October   | 31                          | 20      | 18        | 81                     |
| 23      |      | November  | 28                          | 16      | 8         | 77                     |
| 24      |      | December  | 26                          | 13      | 6         | 74                     |

*Data gathered by Department of Geography*

**Comment**

The weather pattern was normal and according to the usual pattern in the region. The warmest month was June with the highest average maximum temperature of 34.8°C and 34°C in 2020 and 2021 respectively. The coldest month with the lowest average minimum temperature (27°C and 26°C in 2020 and 2021) was December. Month with the highest relative humidity was July while the month with the lowest relative humidity was March in both 2020 and 2021. Monsoon started in April and highest rainfall was recorded in June. The month with the lowest rainfall was January 2020 and 2021.

**AIR QUALITY IN KAMRUP: D.K. COLLEGE, MIRZA**

Air quality monitoring is utmost necessary for sound health of staff and students and learning environment of the educational institution.

**Observation:**

**TABLE 6: AVERAGE DATA OF AIR QUALITY FROM 1<sup>st</sup> January 2020 to 31<sup>st</sup> December 2020 and 1<sup>st</sup> January 2021 to 31<sup>st</sup> December 2021**

| Sl. No.  | PARAMETERS              | Average reading          |                          | AQI (AirQuality Index ) |           | REMARKS      |
|--|-------------------------|--------------------------|--------------------------|-------------------------|-----------|--------------|
|  |                         | 2020                     | 2021                     | 2020                    |           |              |
|  |                         |                          |                          | 2020                    | 2021      |              |
| 1  | Humidity                | 69.41                    | 68.0 %                   | NA                      | NA        | ---          |
| 2  | Air Temperature (°C)    | 19.6                     | 17                       | NA                      | NA        | ---          |
| 2  | Wind Speed (m/s)        | 5.45                     | 5.4                      | NA                      | NA        | ---          |
| 3  | Wind Direction (Degree) | 190                      | 190.0                    | NA                      | NA        | ---          |
| 4  | Barometric Pressure     | 1016 hPa                 | 1016.0 hPa               | NA                      | NA        | ---          |
| 5  | NO <sub>2</sub>         | 65.36 µg/m <sup>3</sup>  | 65.36 µg/m <sup>3</sup>  | AQI = 81                | AQI = 81  | Moderate     |
| 6  | O <sub>3</sub>          | 23 µg/m <sup>3</sup>     | 18.3 µg/m <sup>3</sup>   | AQI = 18                | AQI = 18  | Good         |
| 7  | CO                      | 1140.0 µg/m <sup>3</sup> | 1140.0 µg/m <sup>3</sup> | AQI = 57                | AQI = 57  | Severe       |
| 8  | SO <sub>2</sub>         | 13.98 µg/m <sup>3</sup>  | 13.98 µg/m <sup>3</sup>  | AQI = 13                | AQI = 13  | Good         |
| 9  | PM <sub>10</sub>        | 146.0 µg/m <sup>3</sup>  | 146.0 µg/m <sup>3</sup>  | AQI = 100               | AQI = 100 | Satisfactory |
| <p><b>Note:</b> NA-Not Applicable<br/> * Air Quality Index<br/> * PM<sub>10</sub> is particulate matter 10 micrometres or less in diameter<br/> * NO<sub>2</sub>= Nitrogen Dioxide<br/> * O<sub>3</sub> = Ground-level ozone<br/> * CO = <u>Carbon Monoxide</u><br/> * SO<sub>2</sub> = Sulphur Dioxide<br/> * µg/m<sup>3</sup> = Micrograms per Cubic Meter of Air<br/> * hPa = Hectopascal (100 × 1 Pascal) Pressure Units</p> |                         |                          |                          |                         |           |              |

*Data gathered by Department of Geography*

**Comment**

The overall air quality index can be mentioned as **Satisfactory (AQI 100 for PM<sub>10</sub>)**. The ambient air quality may be maintained by the plantation within and around the campus.

D.K. College being located adjacent to the main market area of Mirza, Kamrup, there is considerable movement of commercial vehicular traffic around it. The use of DG sets during electricity failure, dust from construction activities and emission from vehicular traffic are also the sources of air pollution and may have resulted in higher CO content in the air as observed in the table.

A holistic approach is required to reduce the emissions around the campus and ensure pure air quality.

### ELECTRICAL POWER CONSUMPTION IN THE CAMPUS

This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliance, natural gas and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment.

D K College, being one of the largest colleges in this region consumes mainly electrical energy to maintain its volumetric activities throughout the year.

A comparison between the energy consumed by the college during 2020 and 2021 is presented as bar diagram in Fig. 1

Within this time frame the maximum energy consumed in a single month was recorded as 16242 KWh (January, 2020), while the minimum was 7300 KWh (July, 2021). Though minimum value of energy consumed was recorded as 7300 KWh but this could be the result of the lock down when there were no offline classes within the college campus. The college authority is continuously working on reducing the consumed energy value by replacing more energy consuming electrical appliances with more environment friendly and energy efficient appliances (for example old filament bulbs, CFL bulbs and tube lights are replaced by low energy consuming LED bulbs, and bulky high-power consuming fans are replaced by energy efficient fans) within the college campus. As a result, a decline in energy consumption for the year 2021 is observed as compared to the year 2020. On an average the college has consumed 10812.58 and 8374 KWh energy per month for the year 2020 and 2021 (up to December), respectively.

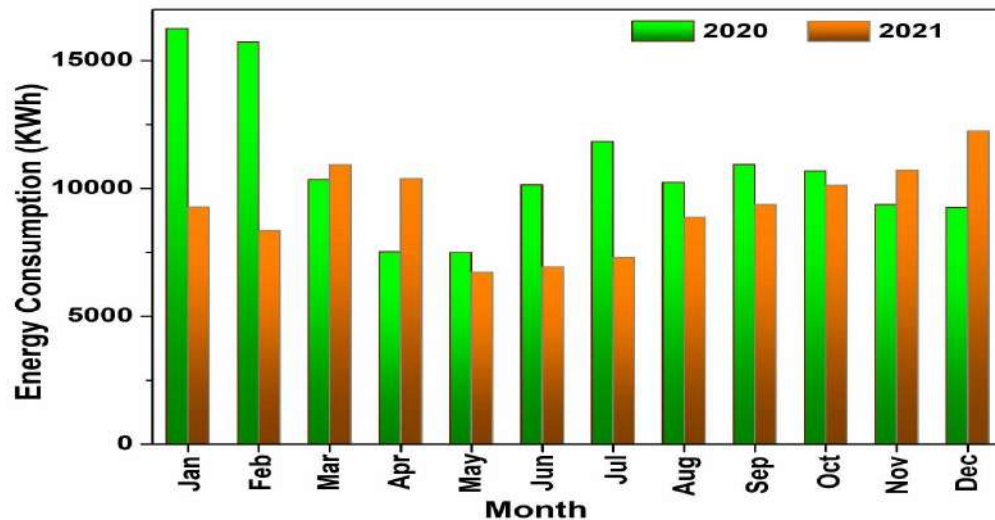


Figure 3: Month wise energy consumed by the college over the years 2020 and 2021.

**Installation of Solar plate- a green initiative for Alternative Energy**

In one of its green practices for energy conservation, A 20 KW Grid connected Rooftop Solar Power Plant with battery backup has been installed at D K College, Mirza. This plant will be used to power up newly constructed rooms in the science block. The plant also has a VRLA battery which can give backup up to 3 hours or more depending upon the load when the Supply from grid is unavailable.



Fig. Installed Solar Panel



## NOISE LEVEL IN THE CAMPUS

The human ear is constantly being assailed by manmade sounds from all sides, and there remain few places in populous areas where relative quiet prevails. But when even pleasant sounds became too loud, they became unwanted noise. There are two basic properties of sound: loudness and frequency.

Loudness is the strength of sensation of sound perceived by the individual. It is measured in terms of Decibels. It is a unit for expressing the relative intensity of sound on scale from zero to about 120 dB for the average pain level. The loudest sound a person can stand without discomfort is about 80 dB at a distance of 3 ft. on the other hand, frequency is defined as the number of vibrations per second. It is measured in Hertz.

Table 7 gives the standard noise level of different places and concurrences.

**Table 7: Standard Noise level**

| Cause         | Level of Noise |
|---------------|----------------|
| Leaves Fall   | 20 db          |
| Quiet Whisper | 30 dB          |
| Quiet Park    | 40 dB          |
| Quiet Library | 50 dB          |
| Conversation  | 60 dB          |
| Busy traffic  | 70 dB          |
| Busy Street   | 80 dB          |
| Factory       | 90 dB          |
| Subway train  | 100 dB         |
| Rock Music    | 110 dB         |
| Thunder       | 120 dB         |

**MATERIALS, STUDY AREA AND METHODS:** Noise measuring app, was used to measure the noise level.

**DESCRIPTION OF THE COLLEGE SITE:** The site of Dakshin Kamrup college is bounded to the north by various book shops, mall, restaurants etc, residential properties to the east, road with various book stalls, shops, restaurants etc to the west and residential house and hostel to the south.

**Methodology:** The noise level in different locations within college campus has been recorded with the sound meter app. This app uses the microphone of mobile to measure noise level in decibels (dB) by displaying the reading in three different values such as min/avg/max. This app standardizes the noise level in decibels (dB) according to American Academy of Audiology, ranging from 0 dB to 120 dB, where 60 dB is considered as “normal conversation”. The information related to the app is given below.

**App Info:** Name: Sound meter (by Tools dev), Version 2.4.4, updated on 15 Nov, 2021.

The measurement of noise level has been carried out using the above mention app at different locations within the college campus in working hours. The time taken for each measurement is 60 s. The collected data are presented in the table below in three different headings as min/max/avg values.

**Table 8: Intensity of noise at different locations of D. K. College, Mirza during working hours**

| Sl. No. | Place                        | Measurement Time (Sec.) | Minimum Value (dB) | Maximum Value (dB) | Average Value (dB) |
|---------|------------------------------|-------------------------|--------------------|--------------------|--------------------|
| 1.      | Physics department           | 60                      | 50                 | 72                 | 63                 |
| 2.      | Chemistry department         | 60                      | 58                 | 74                 | 63                 |
| 3.      | Zoology department           | 60                      | 54                 | 69                 | 64                 |
| 4.      | Assamese department          | 60                      | 61                 | 72                 | 65                 |
| 5.      | Political science department | 60                      | 65                 | 77                 | 67                 |
| 6.      | History department           | 60                      | 57                 | 69                 | 63                 |
| 7.      | English department           | 60                      | 58                 | 74                 | 64                 |
| 8.      | Library                      | 60                      | 50                 | 64                 | 62                 |
| 9.      | College front gate           | 60                      | 63                 | 85                 | 75                 |
| 10.     | College back gate            | 60                      | 58                 | 80                 | 71                 |
| 11.     | College Canteen              | 60                      | 55                 | 74                 | 64                 |
| 12.     | Boys common room             | 60                      | 49                 | 65                 | 61                 |

*Data Source: Data gathered by Department of Physics*

## Conclusion

It is found that the average value of loudness in the maximum locations of the college campus is slightly above the 60 dB limiting value. The loudness level has been measured in the range of 60-65 dB, in nine different locations including Departments of Physics, Chemistry, Zoology, and Boys' common room. Loudness level higher than 65 dB has been detected within three different locations with a maximum average value of 75 dB in the College front gate. This is due to large assembling of people during entry and exit and also adjoining market area. Overall, the college campus has a safe noise level slightly higher than that of the loudness level of normal conversation and therefore suitable for teaching-learning process.

### STATUS OF WATER QUALITY IN THE CAMPUS

Groundwater is the only source of water for all in the campus of D.K College.

Water Quality testing for different parameters was done by standard methods.

Three groundwater samples were collected from three sources as follows.

Sample 1: Groundwater source: Collected from Department of Chemistry situated in the main College campus

Sample 2: Groundwater source: Collected from D.K. College Girls' hostel campus

Sample 3: Groundwater source: Collected from D.K. College Boys' hostel campus

The results of the quality testing of different parameters and methodology used for each are given below in Table 9.

#### Comment:

Although there was slight variation in the parameters as compared to last audit, all the parameters are safely within the permissible limit for drinking water as prescribed by World Health Organization (WHO).

**Table 9: WATER ANALYSIS REPORT OF D.K. COLLEGE**

| Sl. No. | Parameters     | Unit  | Methodology        | Results  |          |          | WHO Standards for Drinking water |                           |
|---------|----------------|-------|--------------------|----------|----------|----------|----------------------------------|---------------------------|
|         |                |       |                    | Sample 1 | Sample 2 | Sample 3 | Desirable Limit                  | Maximum Permissible Limit |
| 1       | pH             |       | pH meter           | 7.0      | 7.1      | 7.1      | 6.5-8.5                          | No relaxation             |
| 2       | Conductivity   | µs/cm | ConductivityMeter  | 148      | 180      | 160      |                                  | 400                       |
| 3       | Turbidity      | NTU   | Turbidity meter    | 2        | 2        | 2        | 1                                | 5                         |
| 4       | Alkalinity     | mg/l  | Titrimetric        | 198      | 54       | 106      | 200                              | 600                       |
| 5       | Total Hardness | mg/l  | Titrimetric        | 152      | 44       | 96       | 300                              | 600                       |
| 6       | Calcium        | mg/l  | Titrimetric        | 108      | 28       | 62       | 75                               | 200                       |
| 7       | Magnesium      | mg/l  | Titrimetric        | 44       | 16       | 34       | 30                               | 100                       |
| 8       | Chloride       | mg/l  | Titrimetric        | 2        | 4        | 2        | 250                              | 1000                      |
| 9       | Sulphate       | mg/l  | Spectrophotometric | 3.9      | 2.2      | 2.6      | 200                              | 400                       |
| 10      | Nitrate        | mg/l  | Spectrophotometric | 0.1      | 0.1      | 0.1      | 45                               | No relaxation             |
| 11      | Phosphate      | mg/l  | Spectrophotometric | BDL      | BDL      | BDL      | 0.05                             | 0.1                       |
| 12      | Fluoride       | mg/l  | Spectrophotometric | 0.2      | 0.1      | 0.1      | 1.0                              | 1.5                       |
| 13      | Iron           | mg/l  | Spectrophotometric | 0.2      | 0.1      | 0.1      | 0.3                              | No relaxation             |
| 14      | Arsenic        | mg/l  | Spectrophotometric | BDL      | BDL      | BDL      | 0.01                             | 0.05                      |

**BDL= Below Detection Limit**

*Data Source: Department of Chemistry*

## WASTE MANAGEMENT AUDIT

Solid Waste audit covers the generation of solid waste, its collection and disposal.

The audit focuses on the volume of wastes accumulated in the campus and assesses whether the way in which it is treated or disposed-off is environmentally sensitive.

Composting solid waste is more sustainable than landfilling. Solid-waste sent to landfills undergoes anaerobic decomposition and produce landfill methane gas emissions, which is 72% stronger than CO<sub>2</sub>. Composting, however, involves aerobic decomposition and produces CO<sub>2</sub>, reduces methane gas emissions and also leads to carbon sequestration. Besides landfilling and composting, recycling is another way in which solid wastes are treated. It pertains to the recovery and reuse of plastic wastes, metal waste, etc. Recycling practice serves as a way to keep large amounts of solid waste out of landfills, conserve resources and save energy.

Hazardous waste is a label assigned to specific class of refuse which in some way is potentially dangerous to living beings and environment. These include electronic waste such as cadmium, lead and PVC on cables, bleach, paints, zinc and titanium oxide in cosmetics, asbestos, chemical laboratory waste, etc. Chemical laboratories have the potential to generate a wide range of hazardous waste: aqueous waste (cyanide, chromium VI, sulfide); organic liquids (solvents, oils); and solids (glass, sharps, resins, alloys). Efficient management of hazardous waste involves an organized system of identification, storage upon generation or containerization, collection and transportation and final treatment to disposal which depends on the physical form of wastes. Disposal of hazardous wastes includes land disposals, incineration, dumping in the sea, deep well injection, etc.

### **Waste generation and management in the campus:**

Sizeable amount of Solid wastes are generated from the College canteen, the Academic Departments and the Laboratories per day.

The wastes are segregated and the reusable solid waste are used for

- a) Vermicomposting for organic farming
- b) Mushroom Cultivation

The rest of the solid wastes are disposed off to the Community bin of Mirza area.

## WASTE MANAGEMENT THROUGH VERMICOMPOSTING

The Institutional Biotech Hub supported by DBT, Govt. of India initiated the Vermicompost Unit since 2014 in collaboration with D. K. College Science forum and KrishiVigyan Kendra, AAU, Kahikuchi. Presently, it is run by **Advanced level Institutional Biotech Hub in association with Department of Biotechnology**. The unit maintains the vermicompost production required for organic farming in D. K. College, Mirza.

The main objective of the unit is the management of the solid biodegradable waste of the campus like daily tree leaves, canteen food waste, papers etc. To carry out this process two species of earthworms *Eisenia foetida* and *Eudrilus euganae* have been used.

The vermicompost produced is mainly used as the manure for the campus garden and orchid house of the Institute. Remaining manure is sold among the faculty members to generate the revenue for the maintenance of the unit.

### **Present status on Vermicomposting and its importance in waste management:**

Foliage and Litter of different tree species which were generated in the college campus were also tried with two different species of earthworms- *Eisenia foetida* and *Eudrilus euganae*. Interestingly, it was found that decomposition rate of foliage of different tree species is different with different earthworm species and the nutrient content of the vermicompost so formed also varies. More studies are underway to accelerate the rate of vermicompost production using waste generated in the college campus which not only manage the problem of solid waste but also act as source of revenue for the College.

## MUSHROOM CULTIVATION

Advanced level Institutional Biotech Hub in association with Department of Biotechnology is also maintaining the Mushroom cultivation unit in the campus as well as spawn production unit. For cultivation of mushrooms, organic lingo cellulosic wastes such as paddy straw, rice husk and saw dust are utilized as substrates.

Mushroom is one of the best alternative sources of food. Its cultivation is not only economically viable by converting wastes into high quality protein food but also provides job opportunities to many in rural areas.

**Table 10: Yield of *Pleurotus* sp. using different substrates in Laboratory condition**

| <i>Pleurotus species</i>   | Substrate             | Yield per bag after harvesting |
|----------------------------|-----------------------|--------------------------------|
| <i>Pleurotustosretus</i>   | Rice straw            | 700 gm                         |
| <i>Pleurotustosretus</i>   | Rice straw + saw dust | 500 gm                         |
| <i>Pleurotustosretus</i>   | Rice straw + Husk     | 750 gm                         |
| <i>Pleurotusfabellatus</i> | Rice straw            | 730 gm                         |
| <i>Pleurotusdjamor</i>     | Rice straw            | 740 gm                         |
| <i>Pleurotusflorida</i>    | Rice straw            | 745 gm                         |

### Present Status of Mushroom Cultivation in the College:

Different solid waste materials available in rural area were tried as substrate for mushroom cultivation. Different substrates with varying lingo cellulosic content were used in the study. These include paddy straw, rice husk, saw dust, wooden chips, *Eichhornia*, sugarcane bagasse etc. which were used in various combination and results were quite encouraging. More studies in regard to alternative substrate for spawn culture and mushroom cultivation are underway so that mushroom cultivation can be encouraged among rural people and entrepreneurs. This would not only bring solution to solid waste management but also provide self employment generation in rural sector.

### Disposal of wastes in the Community Bin of Mirza:

The solid wastes generated in the Academic Departments and Laboratories are segregated in garbage bins kept at various points within the Departments and the college campus. These are disposed off to the community garbage disposal bins of Mirza are for recycle and reuse. However e waste and laboratory waste are yet to be handled properly and managed scientifically.

## ENVIRONMENT CONSCIOUSNESS

Environmental Education is a compulsory course imparted to all students by the Department of Environmental Science of the College in accordance with the guidelines and curriculum of the affiliating Gauhati University.

Environmental Consciousness of students is all the more necessary due to the threat of emerging infectious diseases. The Covid 19 pandemic awareness programmes were undertaken by the college authority and making of sanitizers and distribution of soaps and masks were also done among the students and the community residing around the college campus.

All stakeholders were made aware of the need to protect nature for the health and livelihood of future generations.

Creating awareness about environmental issues and the conservation of the ecosystem have become increasingly important in the life skill education of students. The student community would assume responsibility for educating others about the need for environmental protection if they are made aware of the need and ways for protecting the environment.

### CONCLUDING REMARKS

The Green Audit done on a primary scale has revealed that D.K College, Mirza has adhered to the green practices making the campus ecofriendly, congenial to teaching learning and relaxation in a healthy ambience. In spite of a considerable built up area, it has 38.1% of green and open spaces. The green cover has been a habitat to diversity of flora and fauna. The biodiversity present has acted as a major source of carbon sink, pollution reduction and has enhanced the connection to nature and peaceful coexistence with wildlife. The Air Quality Index has been found to be satisfactory indicating no significant air pollution. The noise levels in and around the Academic Departments were found to be well within normal limits making teaching learning possible in a peaceful environment. The water quality parameters in the campus were also found to be in the normal range as prescribed by WHO regulations. Concrete steps have also been taken for solid waste management. Wastes recycle and reuse is being done through vermicomposting and mushroom cultivation. Environmental consciousness and sensitivity has been imparted to students through the study curriculum as well as practically by encouraging plantation drives and clean campus drives.



### **SUGGETIONS AND RECOMMENDATIONS**

Landscaping of the campus can be done in a planned manner to increase the greenery and enhance the carbon sink.

Solid waste reuse and recycling measures can also be enhanced.

E-waste management practices should be initiated in the coming future.

Water use efficiency and conservation can be enhanced by practicing rain water harvesting.

## PHOTO GALLERY

### GLIMPSES OF THE CAMPUS



*Plate 1: Front View from Main Gate*



*Plate 2: View of Administrative Building*



*Plate 3: View of Girls' Hostel*



*Plate 4: Plantations inside the Campus*



*Plate 5: Open Green Spaces and Sitting Area near Classrooms*



*Plate 6: View of Department Buildings*



*Plate 7: View of seating arrangement amidst the greenery*



*Plate 8: Inside Campus view*



## FLORA AND FAUNA IN THE CAMPUS











## GREEN HOUSE AND VERMI COMPOST UNIT OF THE COLLEGE



## MUSHROOM CULTIVATION UNIT

