Megha Institute of Engineering and Technology for Women

Medchal, Telangana

GREEN AUDIT

(2020-2021)

Prepared by

Ecopie Services LLP

Hyderabad, Telangana

Preface

Environment is the only source that balance every organism and various other components. Any imbalance created by us would result in environmental crisis. One such bioresource are plants. They are the only resource which does carbon sequestration. India is one of the mega biodiverse country in the world. In order to protect the biodiversity, we have National and State level policies and Acts. The implementation of the same is done the respective Governments.

As citizens of the country, it is everyone's responsibility. Institutions has huge land area in their premises. And so, there is a scope for doing plantation local and indigenous species and conserve biodiversity. This also creates a scope learning within the campus. It inculcates responsibility amongst student community and leads to behaviour change for better environment.

These green areas are to be planted, maintained, and improved every year. For this to happen there is a need for assessment every year. The scope for improvement suggested during the assessment becomes action plan for the following year. This also enables students to understand the gradual and sustainable conservation required for the greenery.

In view of the above, college management has intended to conduct Green Audit and understand the outcomes of the existing greenery and sustainable practices that are to be taken up for the improvement of biodiversity in the campus. Ecopie Services LLP was involved in this entire process of auditing.

We thank College Management for giving the opportunity to conduct the Green Audit and also specially thank the college team for providing the required information.

Table of Contents

S.No.	Content	Page.No.
1	Introduction	01-03
2	Institution Profile	04-08
3	Floral Biodiversity	09-11
4	Faunal Biodiversity	12-14
5	Recommendations	15
6	Photo plates	16-23

Introduction

Plantation is concerned chiefly with environmental improvement, removal of atmospheric pollutants, controlling noise pollution, and microclimatic modification. The trees in the plantation areas provide various services, including biodiversity conservation, carbon sequestration, oxygen generation, mitigation of the effect of heat, microclimate regulation, soil stabilization, prevention of soil erosion, and groundwater recharge.

The right symbiosis of flora and fauna would support in conservation of environment in the area. Here another important aspect is planting local variety species would improve the soil fertility. Distribution of species principally depends on the climate conditions and presence of ecological parameters along with typical landform and land type.

Reaching the public requires both long-term education and a focus on near-term policies. An integrated strategy includes building a base of literacy, strengthening people's participation in decision-making processes, and engaging them in decisions that shape biodiversity, both at the personal level and in the societal policy.

Institutions plays very important role in carbon sequestration and keeping temperature low compared to the other spaces of the same area with greater environmental impact. Here audit of such greenery with help the management to improve biodiversity.

The scope includes (from genetics to species to ecosystems), the threats (from habitat loss to pollution to urbanization), and the responses of institution (in conservation of biodiversity). The assessment includes understanding present vegetation composition which includes trees, shrubs, climbers and herbaceous elements in and around campus. The inventory of faunal components including insects and birds has been done by random sampling method and visual observations in the campus. The standard for the work is followed through the identification of plants (by regional floras) and faunal components during the visit period in the campus. The focus is also given on pollution control methodology, best practice for environment conservation, etc.

Primary survey of college campus was undertaken for assessment of floral and faunal diversity. The list of plants which includes trees, shrubs, climbers, herbs have been prepared and documented for its further ecological importance. The assessment period for documentary evidences of environmental issues, various activities by the institution is 2018-19. The reconnaissance survey have been undertaken to understand the boundaries of the campus, vegetation pattern, existing floral and faunal components, various activities carried within the campus, etc. By visual primary observations on insects and birds diversity, a checklist has been prepared.

During the assessment of biodiversity we tried to understand the previous contribution of the institution in Biodiversity conservation through the involvement of students and staff members. Efforts were made to understand changes in vegetation pattern, avifaunal (birds) migration (if any) and other faunal components. The flowering pattern of trees, shrubs and climbers were observed to understand the pollinators and dispersal agents. The observation on faunal components including insects and birds has also been done by random sampling method and visual observations in the campus.

Audit objectives

- To analyze current status of flora and fauna of the campus
- To identify the area within the campus which is suitable for conservation of biodiversity.
- To mitigate other environmental issues existing in the surroundings of the campus
- To recommend possible protection, rejuvenation and conservation of local variety vegetation and other life
- To suggest the activities for the involvement of the students

Greenery of the campus seems to be visibly high and biodiversity needs to be quantified for better conservation of local species. This also serves the Goal 5 of Sustainable Development Goals (SDGs).

Institution Profile

Megha Institute of Engineering and Technology for women was established in the year 2008, under the umbrella of Crescent Educational Society. Eminent educationalists involved in the field of education, for over a decade, formed the governing body of the College. This institute have created new trend of innovation in the Ranga Reddy District area. The College is approved by AICTE, New Delhi, and affiliated to JNT University, Hyderabad. In the current global scenario erudite, concept rich, well-trained professionals, form the paramount stipulation of the industry. It is this forethought, that initiated the establishment of this professional institution. Exposure to constantly updated technologies, industry orientation, and proficiency in subject content has been the mantra behind the recent accomplishments. Institute has women engineering college with IIT certification. This institute has recently associated with aakaar IIT Bombay and Technex IIT Varanasi.

Vision

- To become a premier Institute ensuring women's empowerment through holistic education.

Mission

- To provide state–of–the-art infrastructure for students and faculty supporting effective teaching – learning process towards mutual development.
- To nurture and inculcate employability skillset through industry institute interaction policy.
- To equip, enrich nd transform the students to be responsible with a strong commitment to the society.

The MIETW Centre for Engineering Innovation and Development (MCEID) - empowers students to improve human lives through the advancement of technology. MCEID encourages and accelerates development of indigenous products. The centre bridges the gap between Industry and Institute. MCEID aspires to launch high-impact projects and develop visionary leaders by bringing together people from diverse backgrounds and giving them resources to learn, create and share. The Centre seeks to infuse design experiences into student learning through an array of classes and activities. MCEID holds workshops, lectures, networking events and exhibitions and hosts a competitive **MCEID Summer Internship Programme.**

The institute has library, which houses a large collections of reading materials such as textbooks, Reference books, Handbooks, Dictionaries and Motivational books. As the course books are concise and specific in nature, elaborate information from reference is the need of our inquisitive minds. MIETW has a well-stocked library with exhaustive collection of nearly 2061 of reference books, Periodicals and journals and other Motivational books. The students and users ma ke good use of the library facilities. The reading room provides an ideal atmosphere for serious reading.

The central library has a floor area of 700 Sq.Mtr. It has 2061 titles and 15163 volumes. The college is subscribed to 50 National and 35 International journals, 2000+ e-journals from DELNET INFOTRAC are also available. The college is a member of SONET, DELNET and National Digital Library of India (an attempt to overcome the serious shortage of Updated information in certain engineering disciplines).

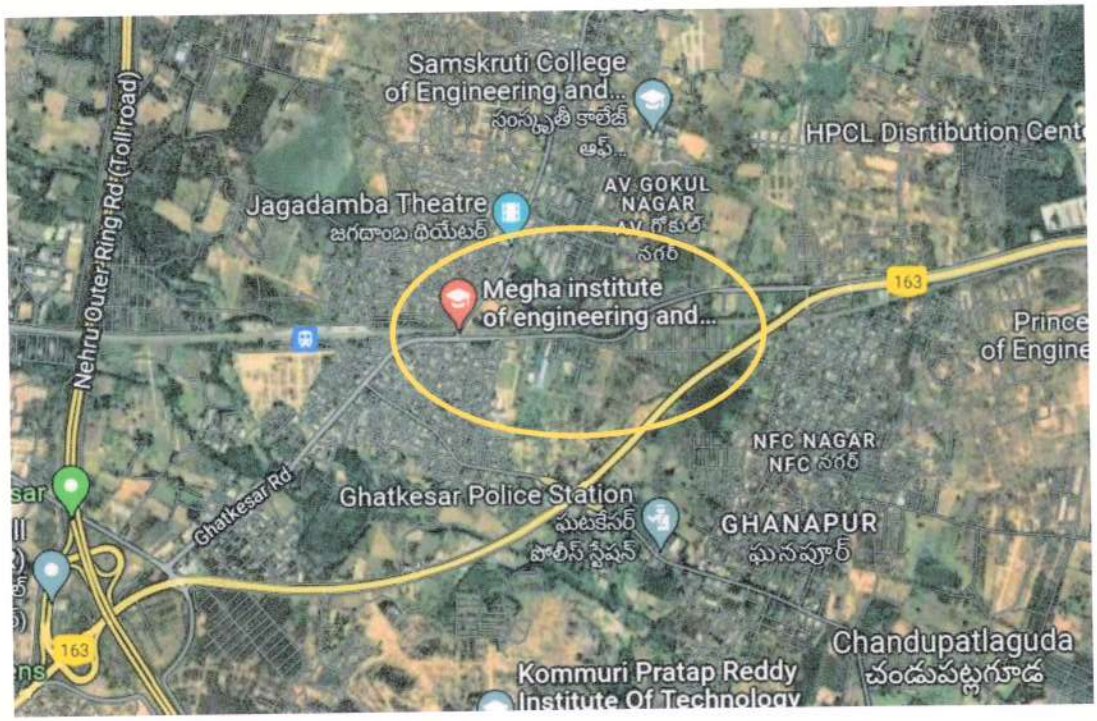
The Sports Department of MIETW is headed by a Physical Education Team supported by two Assistant Physical Directors and two Ground men. The students are participating in various events and games inside and outside the college.

The following play facilities are available in the campus for girls like Cricket, Basketball, Volleyball, Throw Ball, Table Tennis, Badminton, Kho-Kho, Foot Ball, Caroms, Chess, Gym etc.

A Safe and Secure Residential Facility with homely environment is available for students.

- Spacious and Airy rooms are available.
- Basic necessities like Bed with mattress and pillows, Table, Almirah, Hot water, attached washrooms are available.
- Medical Facilities available.
- Clean and spacious Mess available with dining area where fresh meals provided for Breakfast, Lunch and Dinner.
- Power Back-up facility.

A fleet of 18 buses in a very good condition transfer the students from various parts of the city to the college and back to their localities.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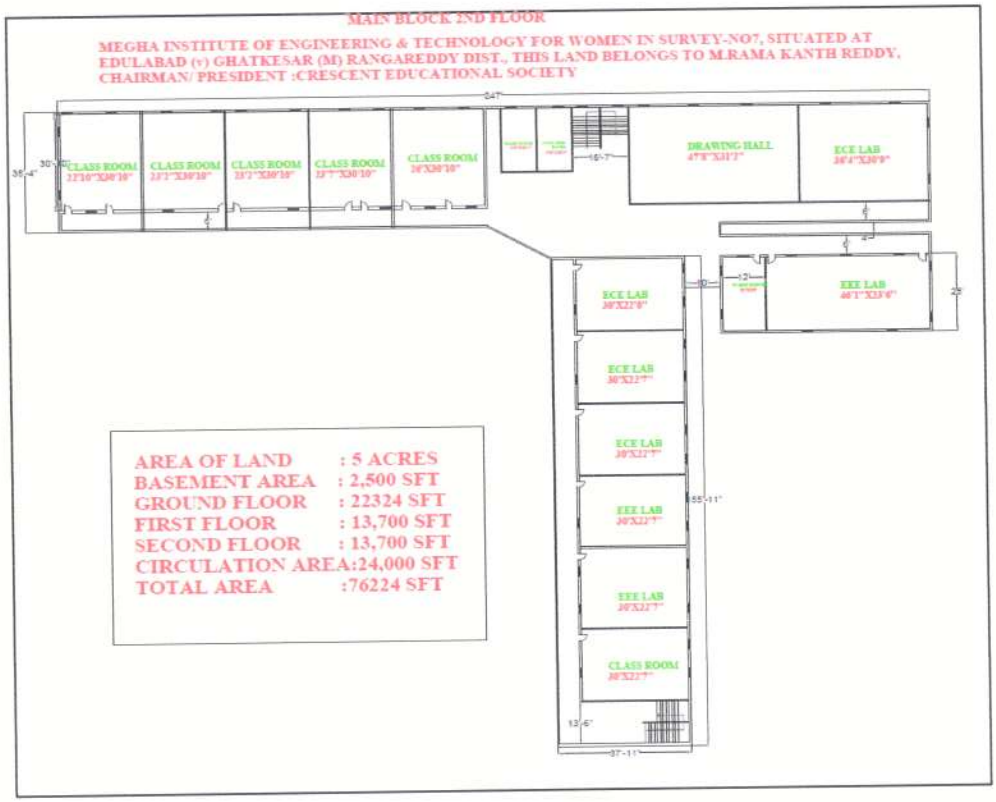
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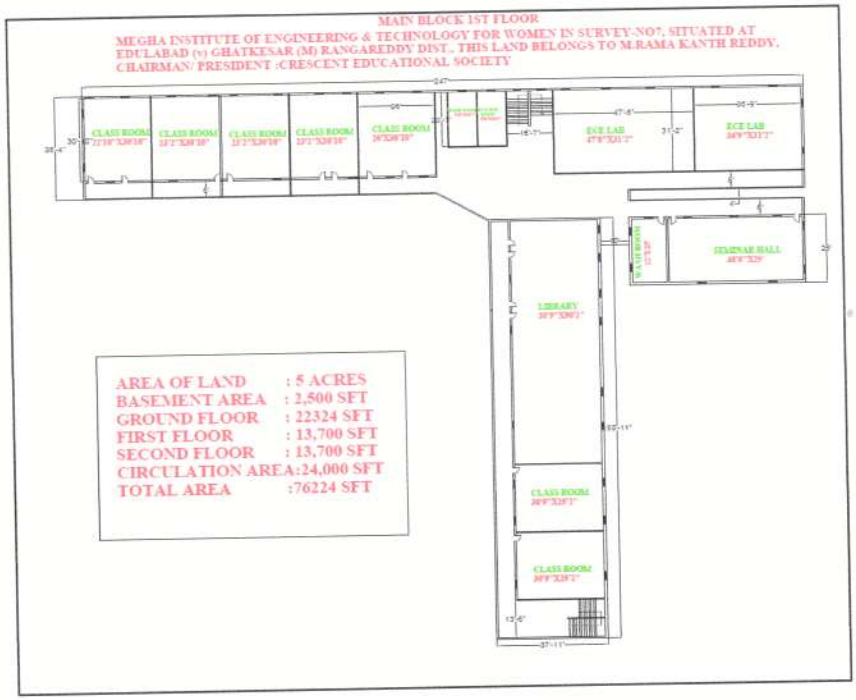
MEGHA INSTITUTE OF ENGINEERING & TECHNOLOGY FOR WOMEN IN SURVEY-NO7, SITUATED AT EDULABAD (v) GHATKESAR (M) RANGAREDDY DIST., THIS LAND BELONGS TO M.RAMA KANTH REDDY, CHAIRMAN/ PRESIDENT :CRESCENT EDUCATIONAL SOCIETY
CLASS ROOM
DRAWING HALL
ECE LAB
EEE LAB
AREA OF LAND : 5 ACRES
BASEMENT AREA : 2,500 SFT
GROUND FLOOR : 22324 SFT
FIRST FLOOR : 13,700 SFT
SECOND FLOOR : 13,700 SFT
CIRCULATION AREA:24,000 SFT
TOTAL AREA :76224 SFT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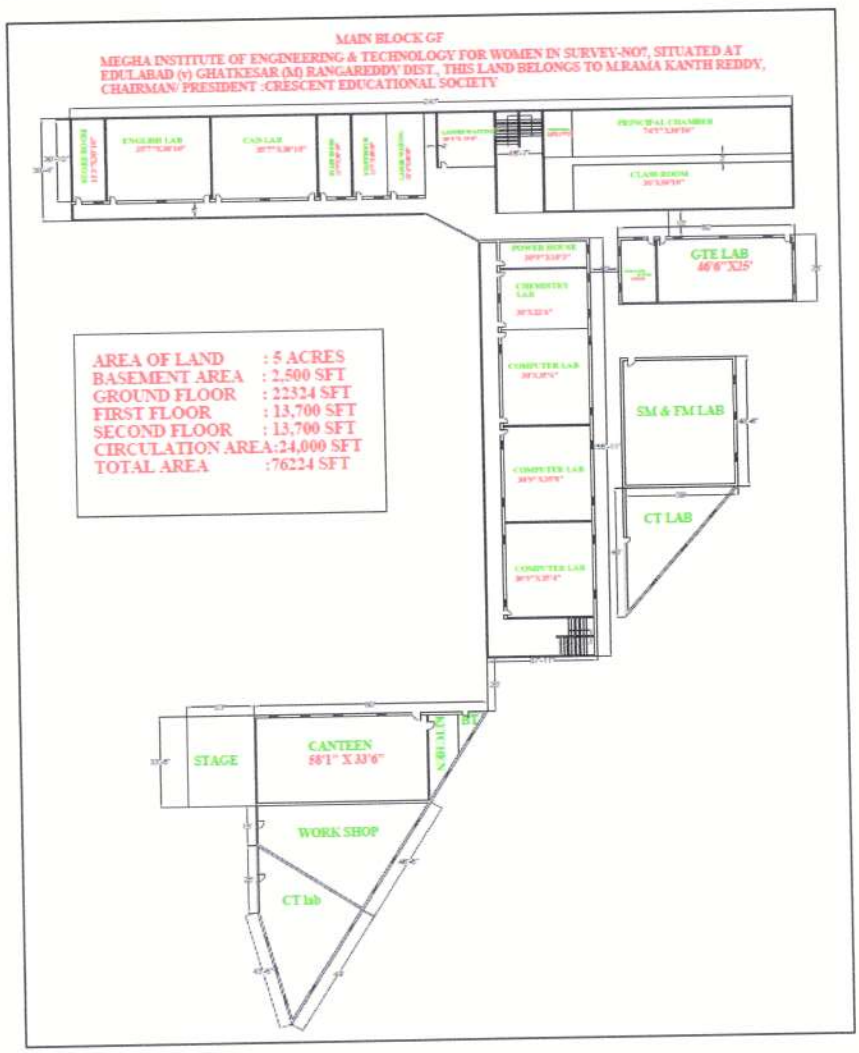
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ENGLISH LAB
CAD LAB
PRINCIPAL CHAMBER
CLASS ROOM
GTE LAB
46'6" X25'
CHEMISTRY LAB
COMPUTER LAB
SM & FM LAB
CT LAB
STAGE
CANTEEN
58'1" X 33'6"
WORK SHOP
CT lab
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Floral Biodiversity

The number of plant species becoming extinct is increasing at an alarming rate. Because ecosystems are in a delicate balance and because seed plants maintain close symbiotic relationships with animals, whether predators or pollinators, the disappearance of a single plant can lead to the extinction of connected animal species. A real and pressing issue is that many plant species have not yet been catalogued; their place in the ecosystem is unknown. These unknown species are threatened by logging, habitat destruction, and loss of pollinators. They may become extinct before we have the chance to begin to understand the possible impacts resulting from their disappearance. Efforts to preserve biodiversity take several lines of action, from preserving to sustaining the efforts.

Institution become good place for doing plantation with lot of biodiversity and green campus is the best place to learn for the students. The following are the list of species available in the campus:

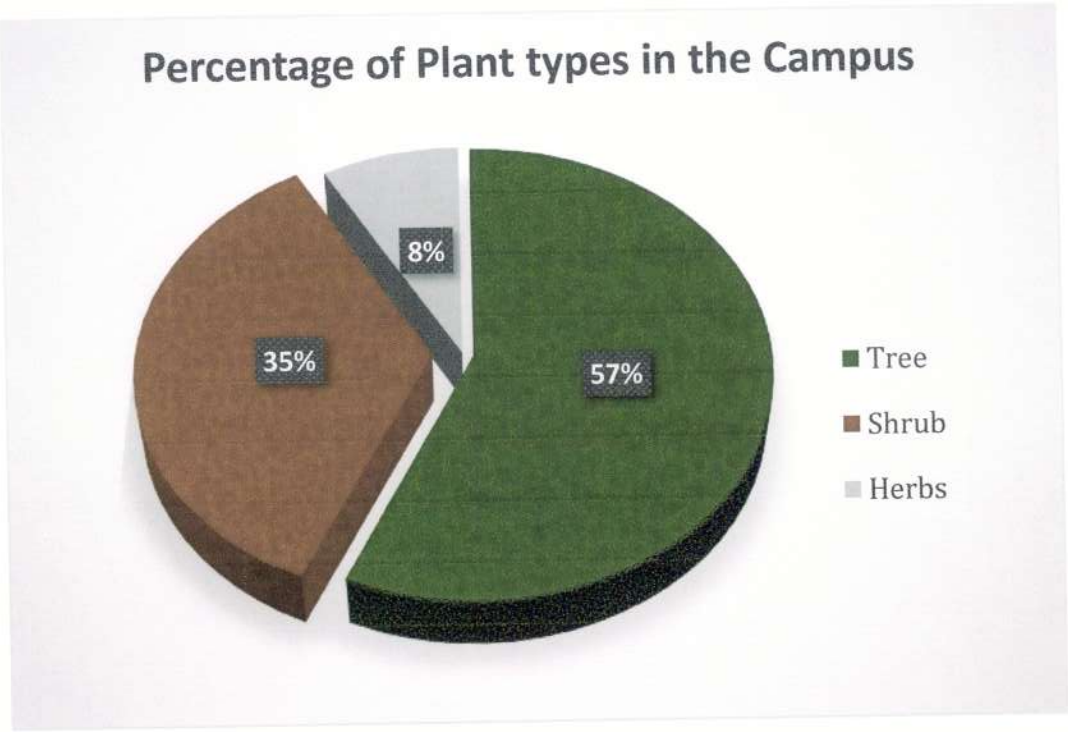
S.NO	Tree names	Scientific Name	Type	Uses
1	Almonds	*Prunus dulcis*	Tree	Fruit
2	Mango	*Mangifera indica*	Tree	Fruit
3	Narinja	*Citrus x sinensis*	Tree	Fruit
4	Sapota	*Manilkara zapota*	Tree	Fruit
5	Lemons	*Citrus limon*	Tree	Fruit
6	Coconuts	*Cocos nucifera*	Tree	Fruit
7	Thujalu	*Thuja occidentalis*	Tree	Fruit
8	Jack fruit tree	*Atrocarpus heterophyllus*	Tree	Fruit
9	Guava	*Psidium guajava*	Tree	Fruit
10	Red Clover	*Trifolium pratense*	Tree	Ornamental
11	Trailing Lantana	*Lantana motevidensis*	Shrub	Ornamental
12	Black plum	*Syzygium cumini*	Tree	Fruit

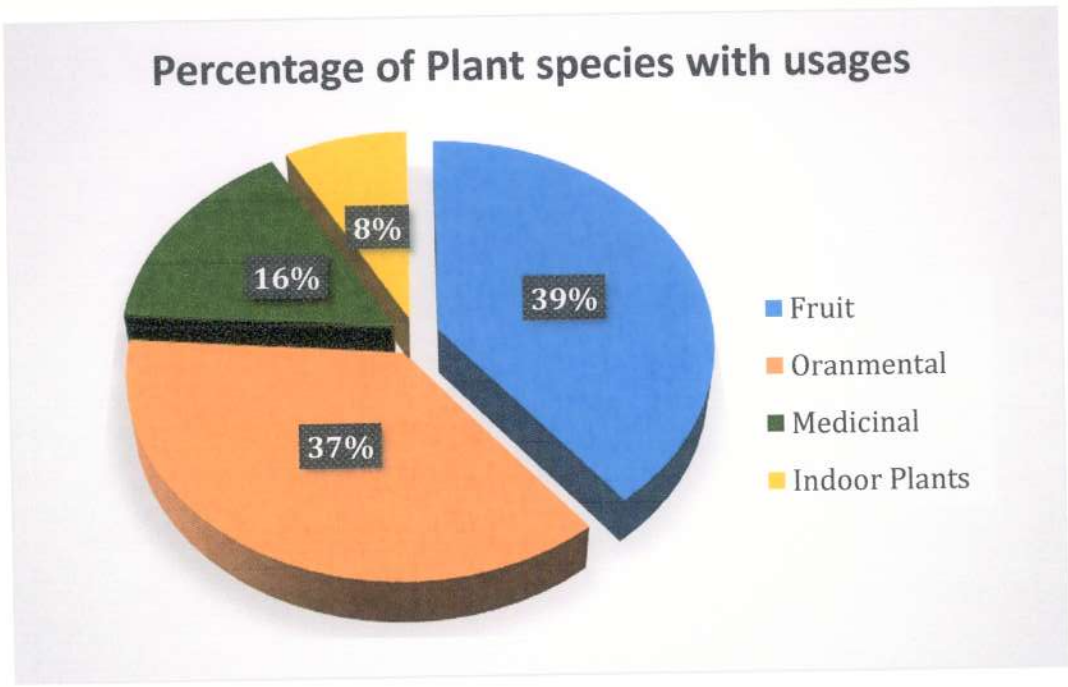
13	Goose berry	*Ribes uva-crispa*	Shrub	Fruit
14	Neem	*Azadirachta indica*	Tree	Medicinal
15	Papaya	*Carica papaya*	Tree	Fruit
16	Ganneru	*Nerium oleander*	Shrub	Ornamental
17	Custard Apple	*Annona squamosa*	Tree	Fruit
19	Pomegranate	*Punica granatum*	Shrub	Fruit
20	Jasmine	*Jasminum*	Shrub	Ornamental
21	Avacado	*Persea americana*	Tree	Fruit
22	Black siris	*Albizia odorantissima*	Tree	Medicinal
23	Screw pine	*Pandanus veitchii*	Shrub	Croton
24	Sulfur cosmos	*Cosmos sulphureus*	Herb	Ornamental
25	Banyan	*Ficus microcarpa*	Tree	Medicinal
26	Lantanas tree	*Lantana Camara*	Shrub	Ornamental
27	Royal poinciana	*Delonix regia*	Tree	Ornamental
28	Honeysuckle	*Tecoma capensis*	Tree	Ornamental
29	Chinese ixora	*Ixora chinensis*	Shrub	Ornamental
30	Sago palm	*Cycas revoluta*	Shrub	Medicinal
31	Golden trumpet	*Allamanda cathartica*	Shrub	Ornamental
32	White frangipani	*Plumeria pudica*	Shrub	Ornamental
33	Copper Plant	*Acalypha wilkesiana*	Shrub	Croton
34	Oriental Arborvitae	*Platycladus orientalis*		Medicinal
35	Rubber Fig Tree	*Ficus elastica*	Tree	Ornamental
36	Paper flower	*Bougainvillea glabra*	Shrub	Ornamental
37	Cook pine	*Araucalia columnaris*	Tree	Medicinal
38	Moses in the cradle	*Tradescantia spathacea*	Herb	Croton
39	Beach spider lilly	*Hymenocallis littoralis*	Herb	Ornamental

Water Tanks for Landscape

S.No	Water tanks list	Capacity	Location	Purpose
1	Tanker	5500ltr	In front of college	Sprinkling for grass
2	tanker	5500ltr	labs	Running turbines

The water used for landscape is being done through sprinklers. The quantity of water being used currently is high and can be reduced with proper management.





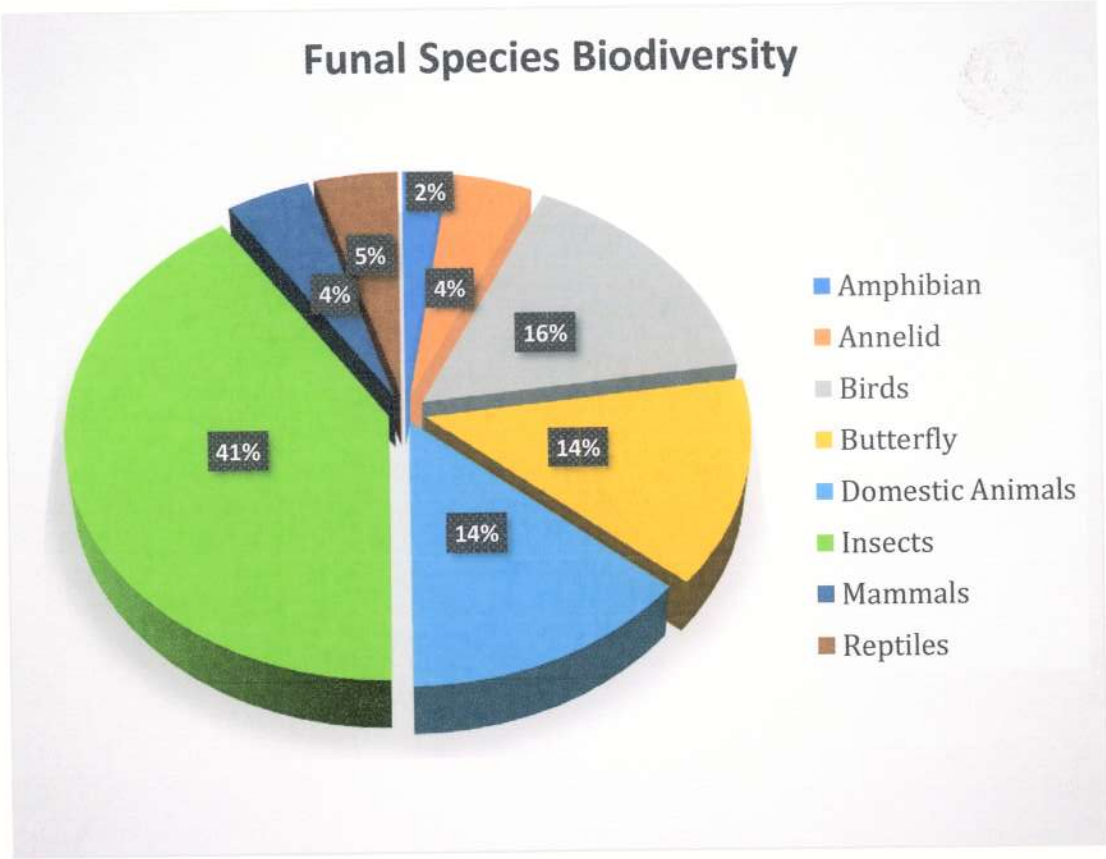
- 56% of the total species are trees and 39% of the plants are fruit bearing in the campus.
- The usage of pesticides and fertilizers is high. This can be replaced with manure prepared in the campus through composting process.

Faunal Biodiversity

The world's biodiversity includes all living organisms (animals, plants, fungi, and microbial groups inclusive of genetic diversity and ecosystem/landscape diversity) in their interactive state contributing to a multitude of services of relevance to sustain the ecological integrity for the benefit of the humankind. It defines biodiversity as the variability among living organisms from all sources including, inter alia (among other things), terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems". Hence the faunal biodiversity has to be conserved from everyone. Again, institution premises become good place to start small conservation activities. Several species would be visiting the institution premises seasonally or annually or anytime. Institutions can list and see how they can conserve them in their premise. Here in the Megha Institute of Engineering and Technology for Women also has the scope for doing conservation. The following are the list of fauna in the campus or visiting the campus:

SNo	Type	Local Name	Scientific Name
1	Butterfly	Common Emigrant	*Catopsilia pomona Fabricius*
2	Butterfly	Grass Yellow Butterfly	*Eurema hecabe Linnaeus*
3	Butterfly	Common Wanderer	*Pareronia valeria*
4	Butterfly	Common Fevering	*Ypthima baldus*
5	Butterfly	Crimson Rose	*Pachliopta hector Linnaeus*
6	Butterfly	Common Mormon	*Papilio polytes Linnaeus*
7	Insects	Honeybee	*Apis mellifera*
8	Insects	Fire Ant	*Solenopsis invicta*
9	Insects	Ant	Formicidae
10	Insects	Butterfly	Rhopalocera
11	Insects	Mosquito	Culicidae
12	Insects	Housefly	Musca domestica
13	Insects	Centipede	*Theatops californiensis*
14	Insects	Teelu	*Hottentotta tamulus*
15	Insects	Dragonfly	*Sympetrum flaveolum*
16	Insects	Miduthalu	*Caelifera*(Grass hopper)
17	Insects	Thene teega	*Apis mellifera* (honey bee)

18	Insects	Paper Wasp	*Polistes exclamens*
19	Insects	Bug	Hemiptera
20	Insects	Cricket	*Gryllus pennsylvanicus*
21	Insects	Praying Mantis	*Mantis religiosa*
22	Insects	Dry wood Termite	*Cryptotermes cavifrons*
23	Insects	Dung Beetle	*Phanaeus vindex maclachlan*
24	Insects	Cockroach	Blattodea
25	Birds	Crow	Corvus
26	Birds	Pigeon	Columba Livia Domestica
27	Birds	Sparrow	Passerdia
28	Birds	Parrot	Psittaciformes
29	Birds	Palapitta (Roller bird)	Corvus
30	Birds	Crane	Grudae
31	Birds	Kokila (Cuckoo)	Cuculidae
32	Reptiles	Common house gecko	*Hemidactylus frenatus*
33	Reptiles	Garden Lizard	*Calotes versicolor*
34	Mammal	Indian Bush Rat	*Golunda ellioti*
35	Mammal	Monkey	*Cercopithecidae*
36	Domestic Animal	Dog	*Canis lupus*
37	Domestic Animal	Pilli (cat)	*Felis catus*
38	Domestic Animal	Goat	*Capra aegagrus hircus*
39	Domestic Animal	Buffalo	*Bubalus bubalis*
40	Domestic Animal	Cow	*Bos taurus.*
41	Domestic Animal	Pig	*Sus Scrofa Domesticus*
42	Amphibian	Indian Toad	*Duttaphrynus melanostictus*
43	Annelid	Earthworm	Lumbricus terrestris
44	Annelid	Snail	Gastropoda



High percentage i.e., 41% of insects are found in the campus. As the campus has lot of fruit plants butterflies also visit. Amongst the total species these contribute 14% and similarly domestic animals contribute 14%. Further 16% are birds visiting the campus.

Recommendations

1. Biodiversity of the campus has to be planned as per the soil and climate conditions with local species.
2. The wild vegetation needs to be identified and conserved. Signboards could be put displaying "Conservation area".
3. Plantation of exotic species has to be avoided
4. Patches of wild-flower habitats have to be fenced and protected from reclamation.
5. There is a need to development of college nursery.
6. Plan for the Butterfly Park, Medicinal plant Park, etc.
7. Garden needs to plant indigenous flowering plants which flower for whole year and readily available for insects and birds.
8. Avoid the burning of leaf litter in the campus.
9. Prevent the use of chemical fertilizers and pesticides.
10. Compost unit has to be established and manure is to be used for plants.
11. If possible, there should be the arrangement of artificial ponds as a source of potable water specially in summer season
12. Invasive weeds need to be eliminated /controlled.
13. Signboards could be displayed on plants in the campus area.
14. Workshop on 'Biodiversity' could be conducted in coming period of time.