

5.0 Green Campus Audit

Green Campus Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of various establishments. It aims to analyze environmental practices within and outside of the concerned sites, which will have an impact on the eco-friendly ambience.

Green campus audit can be a useful tool for HEIs to determine how and where they are using the most energy or water or resources; the HEIs can then consider how to implement changes and make savings. It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan. It can create health consciousness and promote environmental awareness, values, and ethics. It provides staff and students better understanding of green impact on campus. If self-enquiry is a natural and necessary outgrowth of a quality education, it could also be stated that institutional self-enquiry is a natural and necessary outgrowth of a quality educational institution. Thus, it is imperative that the HEIs evaluate its own contributions toward a sustainable future. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent.

The rapid urbanization and economic development at local, regional, and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institutes which will lead for sustainable development and at the same time reduce a sizable amount of atmospheric carbon-di-oxide from the environment. The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory that all Higher Educational Institutions should submit an annual Green Audit Report. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures.

In recent times, the Green Audit of an institution has been becoming a paramount important for self-assessment of the institution which reflects the role of the institution in mitigating the present environmental problems. Many institutions undertake lot of good measures to resolve these problems but are not documented due to lack of green documentation awareness. All these non-scholastic efforts of the administrations play an important role in ensuring the green quotient of the campus is intact.

Therefore, the purpose of the present green audit is to identify, quantify, describe, and prioritize the framework of Environment Sustainability in compliance with the applicable regulations, policies and standards.

Main Objective of Green Campus Audit:

- Geographical Location.
- Floral and Faunal diversity.
- Meteorological parameter.
- Energy Consumptions.
- Waste disposal system.
- Ambient Environmental Condition.
- Awareness & Training on Sustainability for Students.

At Conserve, we audit all the sustainable metrics as per the requirement of National Assessment and Accreditation Council, New Delhi (NAAC) and provide comprehensive reporting on the green quotient of the campus and provide strategic roadmap to institutions to further ensure that their green legacy is intact.

5.1 BIODIVERSITY AUDIT

The Biodiversity Audit Approach is an innovative, landscape-scale and evidence-based approach to delivery of biodiversity. It provides a working example of the implementation of an integrated approach to biodiversity delivery in a region. A key element has been the development of an evidence-based approach to understanding the requirements of priority species and providing guidelines for their conservation. Ecological requirements of priority species for conservation have been collated, and synthesized, integrating across numerous individual priority species to produce management guidance for multi-species assemblages. The approach: Collates and examines available evidence to understand what species are present. Objectively defines the suite of conservation priority species. Assess the recent or status of priority species. A key objective of the approach is to provide land managers and conservation advisers with guidance on how to enhance and sustain the important biodiversity. Effective management is best achieved by providing prescriptions based on sound evidence. The novel approach taken is to identify multi-species assemblages and associated flagship invertebrate and plant species, requiring similar ecological processes and conditions ('guilds'). This has the aim of integrating prescriptions for multiple species into habitat-based approaches, but through an evidence-based approach rooted in an understanding of the requirements of individual species.

This includes the plants, greenery, and sustainability of the campus to ensure that the buildings conform to green standards. This also helps in ensuring that the Environmental Policy is enacted, enforced, and reviewed using various environmental awareness programs.


5.2 BIODIVERSITY

To keep the greenery on the campus, the university regularly maintains the gardens which are looked after by concerned staff under the guidance of higher authorities of the university. Activities organized to create greenery and its conservation at the university campus is as follows-

- Plantation of diversified species, Uses of medicinal plants, Identification of plants species.
- Awareness of carbon consumption and carbon footprint program.

To create a green cover, Eco-friendly atmosphere, and pure oxygen at the university campus, a plantation program is organized every year with active participation from the university community and visitors. A committee has been formed as the Campus Horticulture Committee to keep the greeneries in the university campus. All gardens are regularly maintained and looked after by the Horticulture Section under the guidance of committee members. Various departmental activities are being carried out every year such as: -

- Plantations and other Landscaping Activities
- Maintenance of Gardens and Landscape
- Maintenance of Plantations


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The horticultural activities for landscaping and beautification of CUK are headed by a full-fledged Director who has his own team. There were transformation and redeemed of certain natural vegetation patches for requisite infrastructure development to facilitate the emerging needs for the growth of the university. However, spaces for academic, administrative and recreational areas are delineated in harmony with the landscape to ensure an eco-friendly campus. The horticulture and gardening unit is posted in the university and is looking after althea plantation and other landscaping activities within the university campus. Horticulture and gardening unit has under him a team of dedicated staff who are only dedicated to horticulture and Gardening work & develops strategies for smooth execution of plantation, maintenance, and overall protection of the landscape. Therefore, the greenery of a large area in the campus is well maintained besides keeping remnants of the natural vegetation patches undisturbed. There are block plantations, plantations along the roads side, garden space of departmental building premises, and along the residential compounds, while several tree species regenerated naturally and there are plants that cover the whole natural and scrapes. Several trees and plants are carefully selected for the plantation to provide shelter for birds and to provide a shaded walkway. Massive plantations and different landscaping beautification activities have already been carried out in different parts of the University campus.

5.3 PLANTATIONS


CUK is in a continuous process of planting trees of importance, medicinal values & fruit bearing. University on various national and international events/occasions with active participation from university communities and guests. This program helps in encouraging an eco-friendly environment that provides pure oxygen within the institute and awareness among villagers. The plantation program includes various types of indigenous species of ornamental and medicinal wild plant species. The plants have medicinal value, which faculty members of the Horticulture department, Botany department with the help of NSS students to identify with scientific names and give information about medicinal uses of the plants.

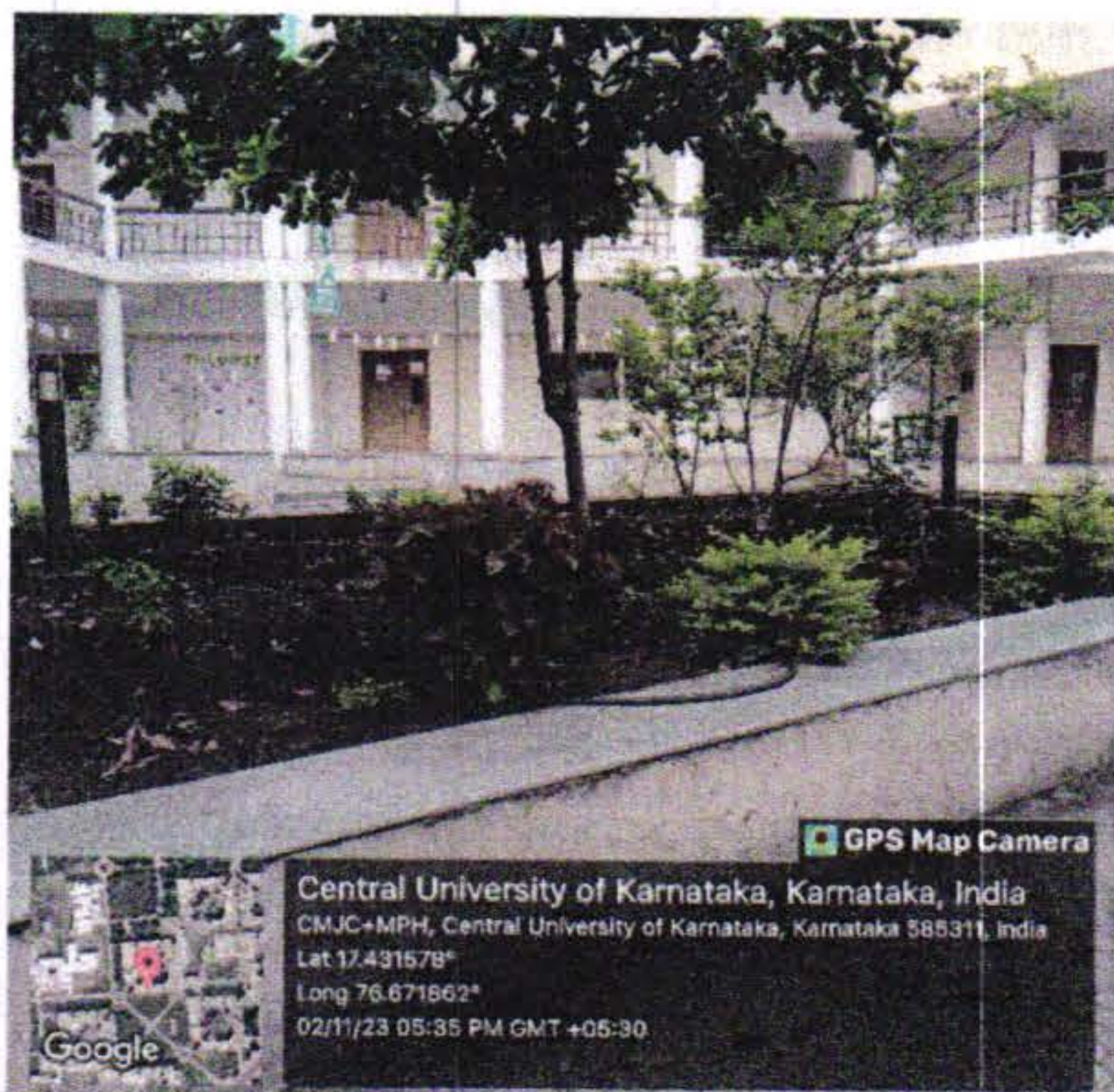
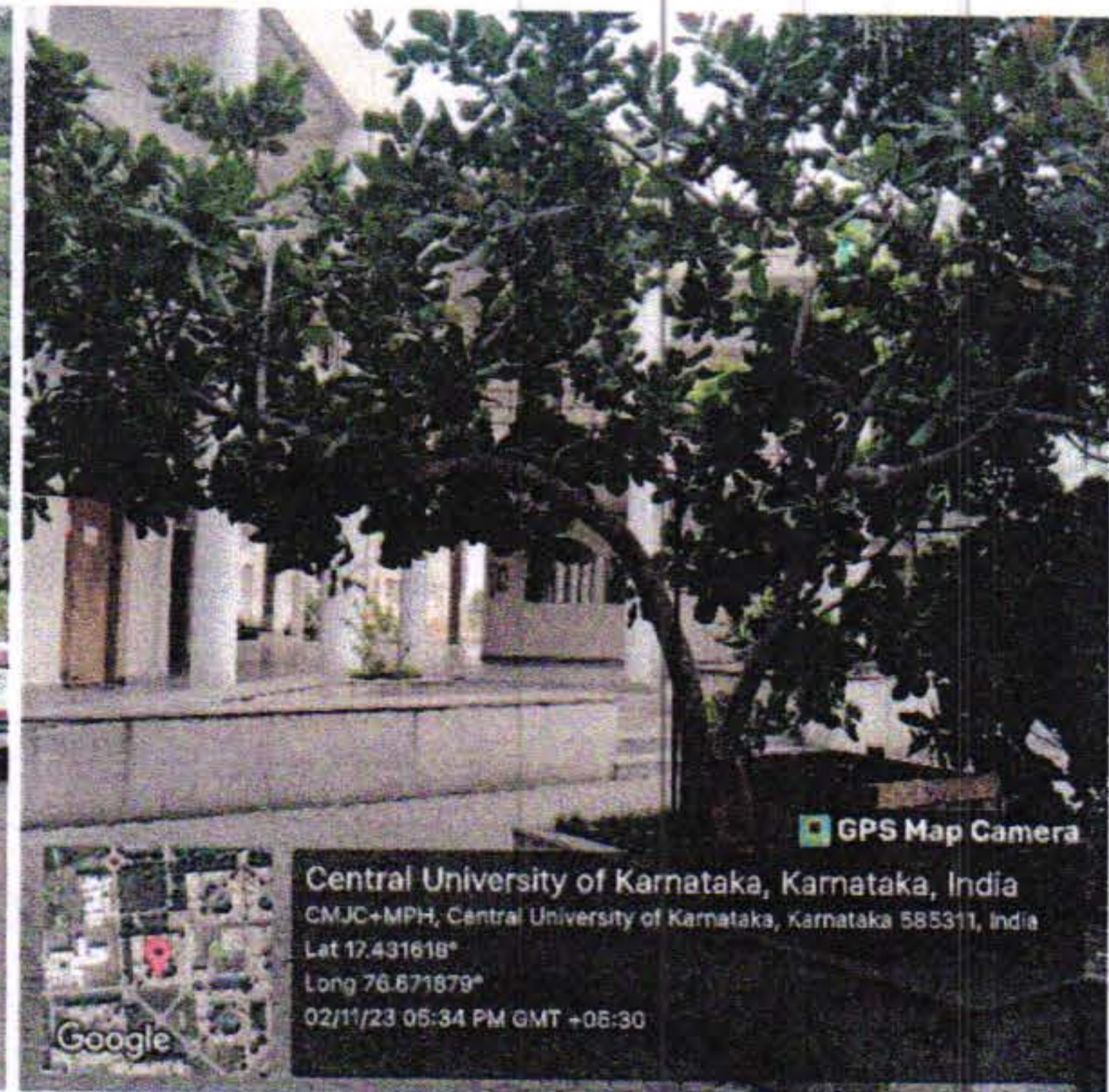
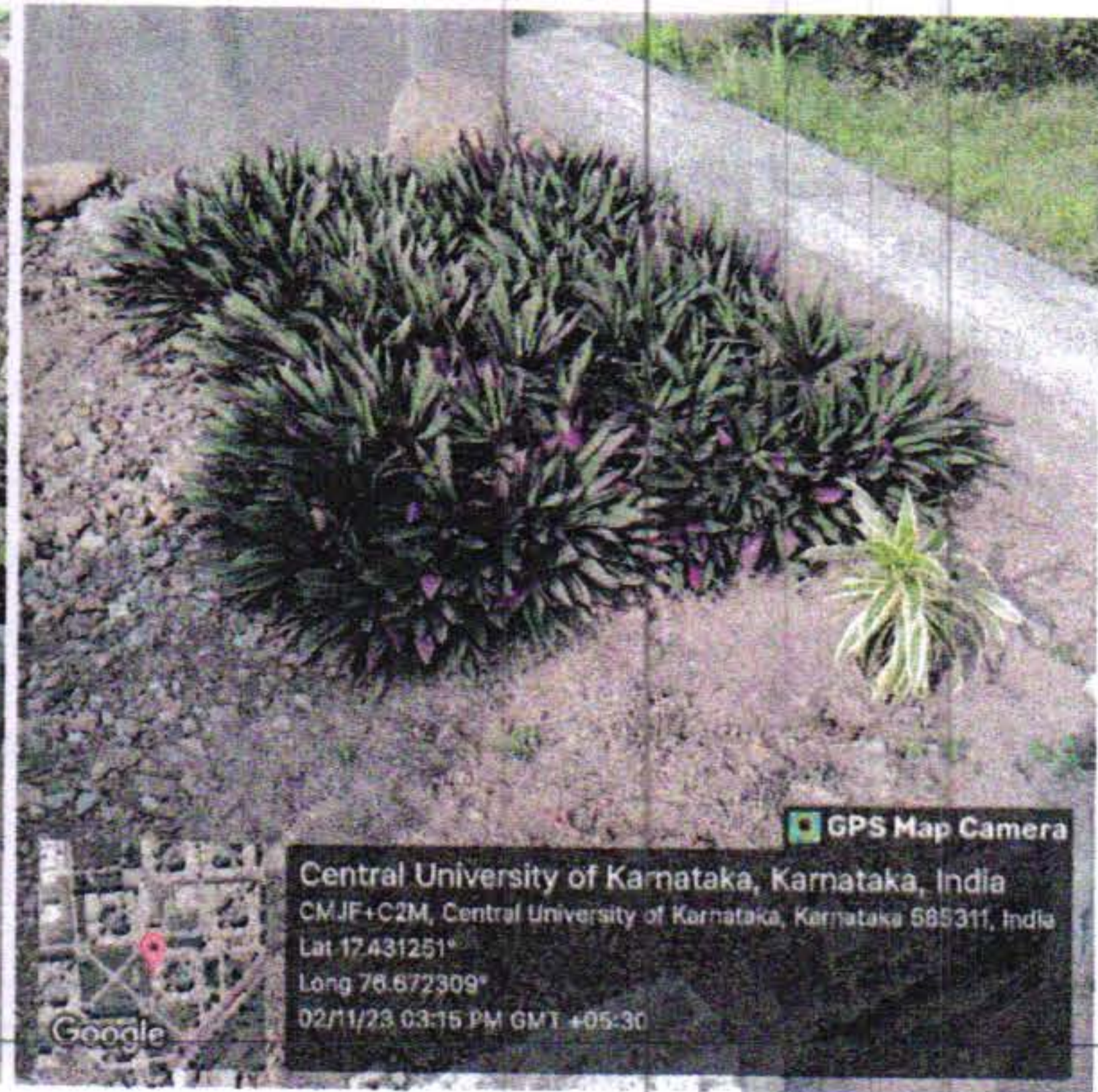
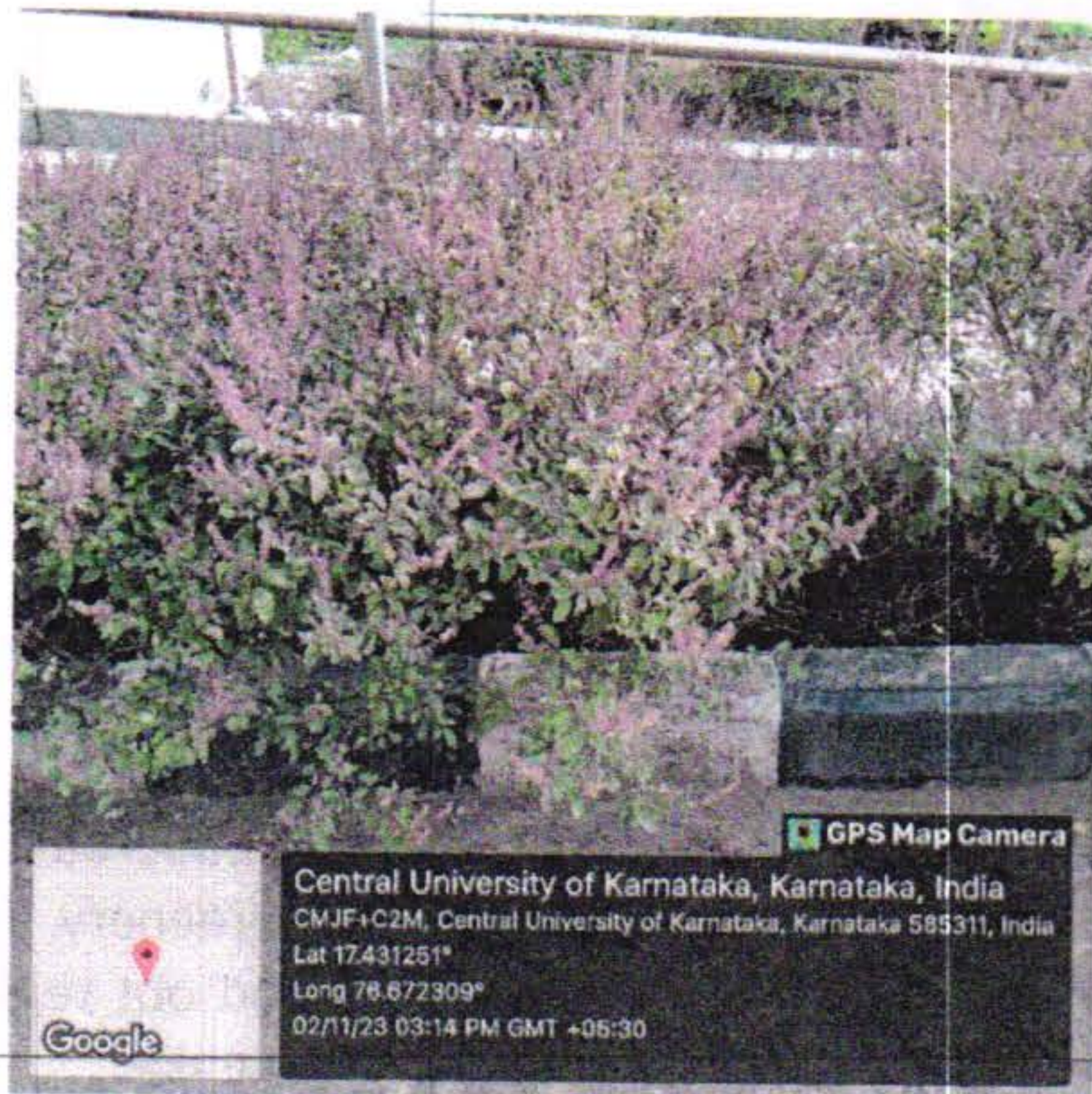
5.4 LANDSCAPING AND GARDENING ACTIVITIES

In addition, to carry out different plantation programs, efforts were also made by the Horticulture Section, CUK for beautification of different parts of the university campus by the development of flower gardens and other landscaping activities such as the development of lawns, hedges, ornamental and avenue plantations, etc. Several green areas have also been developed within the University campus. Moreover, plantation of different types of medicinal plants on the existing area of different locations of the University campus has also been done for further beautification of the landscape.

MAINTENANCE OF GARDENS AND LANDSCAPE

In addition to new plantation drives and landscaping/beautification activities, all essential maintenance work (like lawn, hedge, existing plants /shrubs, growing of seasonal flowers) for previously developed flower and other gardens, as well as other locations of the university campus, is done regularly under the supervision of Horticulture Section. The university has a separate Horticulture department.


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Greenery Maintained by CUK

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5.5 MAINTENANCE OF PLANTATIONS

Apart from the maintenance of gardens, all previously planted trees (like roadside and other plantations) in different locations of the university campus are regularly nurtured by cleaning, fertilization, watering, etc.

5.6 HOUSE PLANTS

House plants do not just look good – they can make us feel good, too. Studies have shown that house plants-

- Boost our mood, productivity, concentration, and creativity.
- Reduce our stress, fatigue, sore throats, and colds.
- Help clean indoor air by absorbing toxins, increasing humidity & producing oxygen.
- Add life to sterile space, give privacy and reduce noise levels.

Considering the different benefits of houseplants, currently, various types of House plant pots are replaced in the interior space of different administrative offices and Academic buildings, Guest House, Library, Auditorium and other amenity centers for beautification, greenery, and purifying the air. Essential maintenance works of these houseplants are carried out regularly under the supervision of the Life Science department, Central University of Karnataka.

5.7 Campus Involvement

For sustainable use of resources and for the mission of “GO-GREEN” it is necessary that the students, faculty, and administration welcome it. CUK has an environment that invites opportunities to better its community through campus organizations. The green initiative started on the campus many years ago. The University students are actively participating and solely concerned with the environment. These students, under the guidance of faculties strive to create an environmentally friendly campus. Their purpose is to create awareness and eventually act on that awareness. University is also actively conducting environmental awareness programs on campus regularly.

5.8 Environmental Conservation Program

University is very active in the practical education of the students regarding environmental conservation. The University has arranged visits to their faculties to the Wildlife Institute of India (WII), Botanical Garden, Sanctuaries, Zoological Park sacred groves in order to educate their students. The University also took their students to different National Parks to educate the students of Conservation of Wildlife.

5.9 BIODIVERSITY OF FLORA FAUNA ASSOCIATED WITH IN University CAMPUS

5.9.1 Introduction

Biodiversity is one measure of the health of biological systems. Life on earth today consists of many millions of distinct biological species. Biodiversity is not consistent across the earth. It is consistently rich in the tropics, and it is less rich in Polar Regions where conditions support much less biomass. A complex relationship exists among the different diversity levels.

Identifying one level of diversity in a group of organisms does not necessarily indicate its relationship with other types of diversities. Rapid environmental changes typically cause extinctions. Most species that have existed on earth are now extinct. The period since the

emergence of humans has displayed an ongoing reduction in biodiversity. Named the Holocene extinction, the reduction is caused primarily by human impacts, particularly the destruction of plant and animal habitats.

5.9.2 Need for biodiversity conservation

Conservation is the protection, preservation, management, or restoration of wildlife and natural resources such as forests and water. Through the conservation of biodiversity, the survival of many species and habitats which are threatened due to human activities can be ensured. Other reasons for conserving biodiversity include securing valuable Natural Resources for future generations and protecting the wellbeing of ecosystem functions. Plant genetic resources are the product of natural evolution and human intervention. In-situ biodiversity conservation includes the conservation of habitats, species, and ecosystems where they naturally occur. The conservation of elements of biodiversity out of the context of their natural habitats is referred to as ex-situ biodiversity conservation.

5.10 Fauna Survey

The term fauna represents all the animal species found in a particular region at a particular time. These are the naturally occurring animal species of the area. It can be measured by taking a number of quadrats and recording presence/absence in each, or in each of the subdivisions of the quadrat. Fauna use many different parts of the environment. Some are ground-dwellers, others arboreal and some live underground or in rock crevices.

5.10.1 Pilot fauna survey

Animal species present around each of the building locations were assessed. Places such as in and around the university vicinity, in the soil and on the vegetation around the university were checked and noted.

5.10.2 Questionnaire based fauna survey

An assessment of animal species commonly cited around the study university area by pupils and workers of the university was also conducted through a structured interview schedule (questionnaire). The respondents were allowed to express the names of the animal species in their local language (Kannada, Hindi or English).

Bird species-Class Aves

Genus	Species	Family	Common name
<i>Psittacula</i>	<i>krameri</i>	Psittadidae	Rose-ringed parakeet
<i>Dendrocitta</i>	<i>vagabunda</i>	Corvidae	Tree Pie
<i>Sturnus</i>	<i>pagodarum</i>	Sturnidae	Brahminy Myna
<i>Dicrurus</i>	<i>macrocerus</i>	Dicruridae	Black Drongo
<i>Turdoides</i>	<i>striata</i>	Leiothrichidae	Jungle babbler

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Fruit Trees Planted in 2023		
7.	Custurd apple (<i>Anona squamosa</i>)	219
8.	Indian jajube (<i>Zizipus spp.</i>)	221
9.	Singapore Cherry (<i>Muntingia spp.</i>)	130

Timber trees Planted in 2022		
1.	Mahogany (<i>Swietenia macrophylla</i>)	1300
2.	Peepal tree (<i>Ficus religiosa</i>)	200
3.	Banyan tree (<i>Ficus benghalensis</i>)	200
4.	Neem tree (<i>Azadirachta indica</i>)	100
5.	Rain tree (<i>Pithecolobium saman</i>)	200

Timber trees Planted in 2023		
1.	Pongamia (<i>Pongamia pinnata</i>)	200
2.	Peepal tree (<i>Ficus religiosa</i>)	200
3.	Banyan tree (<i>Ficus benghalensis</i>)	150
4.	Neem tree (<i>Azadirachta indica</i>)	300
5.	India Elm (<i>Holoptela integrifolia</i>)	150

Timber trees Planted with the help of an NGO		
1.	Mahogany (<i>Swietenia macrophylla</i>)	2075
2.	Peepal tree (<i>Ficus religiosa</i>)	200
3.	Banyan tree (<i>Ficus benghalensis</i>)	300
4.	Jamun (<i>Syzygium cumini</i>)	300
5.	Neem tree (<i>Azadirachta indica</i>)	300
6.	Pongamia (<i>Pongamia pinnata</i>)	150
7.	Rain tree (<i>Pithecolobium saman</i>)	200

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CUK planted 7362 trees in 2022 & 2023 i.e., well good in number and it will also increase greenery in CUK campus

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Sl. No.	Species Name	Common Name	Family	Habit
1	<i>Melothria scabra</i>	Cucamelon	Cucurbitaceae	climber
2	<i>Melothria pendula</i>	Creeping-cucumber	Cucurbitaceae	Climbing shrub
3	<i>Abutilon indicum</i>	Monkey bush	Malvaceae	Herb
4	<i>Agave angustifolia</i>	Variegated caribbean agave	Agavaceae	Herb
5	<i>Agave vilmorinala</i>	Agave	Asparagaceae	Herb
6	<i>Agermone maxicana</i>	Mexican poppy	Papaveraceae	Herb
7	<i>Alternanthera sessilis</i>	Brazilian spinach	Amaranthaceae	Herb
8	<i>Andrographis echiioides</i>	False water willow	Acanathaceae	Herb
9	<i>Boerhavia erecta</i>	Erect spiderling	Nyctaginaceae	Herb
10	<i>Calendula arvensis</i>	Field marry gold	Asteraceae	Herb
11	<i>Cassia occidentalis</i>	Coffee Weed	Fabaceae	Herb
12	<i>Cassia sericea</i>	oneleaf senna	Fabaceae	Herb
13	<i>Cassia sophera</i>	Kasondi Senna	Fabaceae	Herb
14	<i>Cassia tora</i>	Pawad	Fabaceae	Herb
15	<i>Clitoria ternatea</i>	Butterfly pea	Fabaceae	Herb
16	<i>Crassula ovata</i>	Jade plant	Crassulaceae	Herb
17	<i>Crotalaria hebecarpa</i>	Fuzzy fruited rattlepod	Fabaceae	Herb
18	<i>Croton bonplandianus</i>	Ban tulsi	Euphorbiaceae	Herb
19	<i>Curcuma longa</i>	haldi	Zingiberaceae	Herb
20	<i>Cyanthillium albicans</i>	Western ghats vernonia	Asteraceae	Herb
21	<i>Cyanthillium cinereum</i>	Little ironweed	Asteraceae	Herb
22	<i>Cymbopogon citratus</i>	Lemon grass	Gramineae	Herb
23	<i>Dactyloctenium aegyptium</i>	Durban crowfoot	Poaceae	Herb
24	<i>Eragrostis unioloides</i>	Chinese love grass	Poaceae	Herb
25	<i>Erigeron canadensis</i>	Horseweed	Asteraceae	Herb

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Sl. No.	Species Name	Common Name	Family	Habit
26	<i>Euphorbia hirta</i>	Asthma plant	Euphorbiaceae	Herb
27	<i>Gaillardia pulchella</i> Foug.	Indian blanket	Asteraceae	Herb
28	<i>Gomphrena globosa</i>	Bachelor's-button	Amaranthaceae	Herb
29	<i>Heteropogon contortus</i>	Black spear grass	Poaceae	Herb
30	<i>Impatiens balsamina</i> L.	Balsam	Balsaminaceae	Herb
31	<i>Indigofera cordifolia</i>	Heart-leaf indigo	Fabaceae	Herb
32	<i>Indigofera linifolia</i>	Narrow-leafed indigo	Fabaceae	Herb
33	<i>Ipomoea indica</i>	blue dawn flower	Convolvulaceae	Herb
34	<i>Ipomoea obscura</i>	Obscure morning glory	Convolvulaceae	Herb
35	<i>Ipomoea purpurea</i>	Morning Glory	Convolvulaceae	Herb
36	<i>Malva nicaeensis</i>	Mallow of nice	Malvaceae	Herb
37	<i>Ocimum tenuiflorum</i>	Holy basil	Liliaceae	Herb
38	<i>Pennisetum pedicellatum</i>	Desho grass	Poaceae	Herb
39	<i>Pentanema indicum</i>	Sonkadi	Asteraceae	Herb
40	<i>Pentas lanceolata</i>	Eyypttrain starcluster	Rubiaceae	Herb
41	<i>Polygonum arenastrum</i>	Oval-leaf knotweed, door weed	Polygonaceae	Herb
42	<i>Pulicaria paludosa</i>	Spanish false fleabane	Asteraceae	Herb
43	<i>Senna uniflora</i>	Oneleaf senna	Fabaceae	Herb
44	<i>Sphagneticola trilobata</i>	Wedelia	Asteraceae	Herb
45	<i>Tagetes minuta</i>	Southern cone marry gold	Asteraceae	Herb
46	<i>Trachyspermum ammi</i>	Ajwain	Apiaceae	Herb
47	<i>Tradescantia spathacea</i>	Oyster plant	Commelinaceae	Herb
48	<i>Tribulus terrestris</i>	Goathead	Zygophyllaceae	Herb
49	<i>Trichodesma zeylanicum</i>	Cattle bush	Boraginaceae	Herb
50	<i>Tridax procumbens</i>	Coatbuttons	Asteraceae	Herb
51	<i>Xanthium orientale</i>	Common cocklebur	Asteraceae	Herb

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Sl. No.	Species Name	Common Name	Family	Habit
52	<i>Xanthosoma sagittifolium</i>	Elephant ear	Aracaceae	Herb
53	<i>Xanthosoma violaceum</i>	Blue taro	Arecaceae	Herb
54	<i>Zingiber officinale</i>	Ginger	Zingiberaceae	Herb
55	<i>Ipomoea quamoclit</i>	Hummingbird vine	Convolvulaceae	Herb
56	<i>Themeda triandra</i>	Kangaroo grass	Poaceae	herb
57	<i>Chrysanthemum indicum</i>	Indian chrysanthemum	Asteraceae	Herb or Sub-shrub
58	<i>Tradescantia pallida</i>	Purple heart	Commelinaceae	herb-shrub
59	<i>Tradescantia spathacea</i>	Moses-in-the-cradle	Commelinaceae	herb-shrub
60	<i>Tradescantia zebrina</i>	Inchplant	Commelinaceae	herb-shrub
61	<i>Epipremnum aureum</i>	Money plant	Araceae	Herb-shurb
62	<i>Monstera ssp</i>	Mostera	Araceae	Herb-shurb
63	<i>Centella asiatica</i>	Bhramhi	Apiaceae	Herm
64	<i>Ficus recemosa</i>	Cluster fig	Moraceae	Large Shrub
65	<i>Nerium oliander</i>	Oleander	Apocynaceae	Mounted shrub
66	<i>Solenostemon scutellarioides</i>	Beef steak plant	Lamiaceae	Perennial herb
67	<i>Euphorbia milli</i>	The crowns of thorns	Euphorbiaceae	Perennial shrub
68	<i>Kalachoe pinnata</i>	Cathedral bells	Crassulaceae	Perennial shurb
69	<i>Cryptostegia grandiflora</i>	Indian Rubber vine	Apocynaceae	Perennial-vine
70	<i>Cathranthus roseus</i>	Bright eyes nithya kalyani	Oleaceae	Semi-woody shrub
71	<i>Acalypha wilkesiana</i>	Copper leaf green	Euphorbiaceae	Shrub
72	<i>Achyranthus aspera</i>	Devil's horsewhip	Amaranthaceae	Shrub
73	<i>Aeschynomene indica</i>	Indian Joint vetch	Fabaceae	Shrub
74	<i>Annona squamosa</i>	Custard apple	Annonaceae	Shrub
75	<i>Azima tetracantha</i>	Bee sting bush	Salvadoraceae	Shrub
76	<i>Calotropis procera</i>	Giant milkweed	Asclepidaceae	Shrub
77	<i>Citrus limon</i>	Lemon	Rutaceae	Shrub

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Sl. No.	Species Name	Common Name	Family	Habit
78	<i>Clerodendrum chinense</i>	Glory-bower	Lamiaceae	Shrub
79	<i>Codiaeum variegatum</i>	Garden croton	Euphorbiaceae	Shrub
80	<i>Codiaeum variegatum</i>	Variegated croton	Euphorbiaceae	Shrub
81	<i>Combretum indicum</i>	Rangoon creeper	Combretaceae	Shrub
82	<i>Dracaena trifasciata</i>	Snake plant	Asparagaceae	Shrub
83	<i>Duranta erecta</i>	Golden dewdrops	Verbenaceae	Shrub
84	<i>Euphorbia heterophylla</i>	Mexican Fire plant	Euphorbiaceae	Shrub
85	<i>Euphorbia tithymaloides</i>	Devil's backbone	Euphorbiaceae	Shrub
86	<i>Euphorbia tithymaloides</i>	Slipper flower	Euphorbiaceae	Shrub
87	<i>Hibiscus micranthus</i>	Tiny flower hibiscus	Malvaceae	Shrub
88	<i>Hibiscus phoeniceus</i>	Brazilian rosemallow	Malvaceae	Shrub
89	<i>Ipomea batatas</i>	Sweet potato	Convolvulaceae	Shrub
90	<i>Kalanchoe pinnata</i>	Cathedral bells	Crassulaceae	Shrub
91	<i>Lantana camara</i>	Spanish flag	Verbenaceae	Shrub
92	<i>Murraya koenigii</i>	Curry leaf	Rutaceae	Shrub
93	<i>Nyctanthes arbor-tristis</i>	Parijat	Oleaceae	Shrub
94	<i>Pongamia pinnata</i>	Indian beech	Fabaceae	Shrub
95	<i>Punica granatum</i>	Pomegranate	Lythraceae	Shrub
96	<i>Rosa chinesis</i>	Bengal rose	Rosaceae	Shrub
97	<i>Saccharum officinarum</i>	Sugar cane	Gramineae	Shrub
98	<i>Senna auriculata</i>	Avaram senna	Fabaceae	Shrub
99	<i>Solanum lycopersicum</i>	Tomato	solanaceae	Shrub
100	<i>Solanum melongena</i>	Baigun	solanaceae	Shrub
101	<i>Solanum tuberosum</i>	Potato	solanaceae	Shrub
102	<i>Tabernaemontana pandacaqui</i>	Windmill bush	Apocynaceae	Shrub
103	<i>Thuja occidentalis</i>	Arbovite	Cupressaceae	Shrub
104	<i>Adenium obesum</i>	Adenium	Apocynaceae	Shrub, tree

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Sl. No.	Species Name	Common Name	Family	Habit
105	<i>Ipomoea carnea</i>	Behaya	Convolvulaceae	Shurb
106	<i>Ixora coccinea</i>	viruchi, kiskaara, kepale	Rubiaceae	Shurb
107	<i>Nerium oleander</i>	Nerium	Apocynaceae	Shurb
108	<i>Dracaena trifasciata</i>	Snake plant	Asparagaceae	Shurb
109	<i>Lablab purpureus</i>	Hyacinth bean	Fabaceae	Shurb
110	<i>Jathropa integrifolia</i>	Peregrina	Euphorbiaceae	Small tree
111	<i>Crossandra infundibuliformis</i>	Firecracker flower	Acanthaceae	Sub-shrub
112	<i>Datura innoxia</i>	Indian apple	Solanaceae	Sub-shrub
113	<i>Acacia dealbata</i>	Acacia	Fabaceae	Tree
114	<i>Acacia nilotica</i>	Acacia	Fabaceae	Tree
115	<i>Anacardium occidentale</i>	Cashew	Anacardiaceae	Tree
116	<i>Artocarpus heterophyllus</i>	Jackfruit	Moraceae	Tree
117	<i>Artocarpus heterophyllus</i>	Kathal, Jack fruit	Moraceae	Tree
118	<i>Azadirachta Indica</i>	Neem	Meliaceae.	Tree
119	<i>Bauhinia purpurea</i>	Kachnar	Fabaceae	Tree
120	<i>Bougainvillea ssp</i>	Paper flowe	Nyctaginaceae	Tree
121	<i>Caesalpinia pulcherrima</i>	Peacock Flower	Fabaceae	Tree
122	<i>Carica papaya</i>	Papaya	Caricaceae	Tree
123	<i>Cascabela Thevetica</i>	Kaner	Apocynaceae	Tree
124	<i>Casia</i>			Tree
125	<i>Cassia fistula</i>	Golden shower	Fabaceae	Tree
126	<i>Conocarpus erectus</i>	Button wood	Combretaceae	Tree
127	<i>Cycus revoluta</i>	Saggo	Cycadaceae	Tree
128	<i>Dalbergia sissoo</i>	Shisham	Fabaceae	Tree
129	<i>Delonix regia</i>	Gulmohar	Fabaceae	Tree
130	<i>Eucalyptus melliodora</i>	Eucalyptus	Myrtaceae	Tree
131	<i>Ficus benghalis</i>	Banyan tree	Moraceae	Tree
132	<i>Ficus benjamina</i>	Weeping fig	Moraceae	Tree
133	<i>Ficus carica</i>	Anjeer	Moraceae	Tree
134	<i>Ficus religiosa</i>	Peepal	Moraceae	Tree
135	<i>Hedyscepe canterburyana</i>	Umbrella palm	Aracaceae	Tree
136	<i>Hibiscus rosa-sinensis</i>	Orhul	Malvaceae	Tree
137	<i>Leucaena leucocephala</i>	River tamarind	Fabaceae	Tree
138	<i>Livistona chinesis</i>	Fountain palm	Arecaceae	Tree

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Sl. No.	Species Name	Common Name	Family	Habit
139	<i>Mangifera Indica</i>	Mango	Anacardiaceae	Tree
140	<i>Manilkara Zapota</i>	Sapodilla	Sapotaceae	Tree
141	<i>Manilkara zapota</i>	Sapota, chiku	Sapotaceae	Tree
142	<i>Millingtonia hortensis</i>	Indian cook tree	Bigmoniaceae	Tree
143	<i>Monoon longifolia</i>	False ashoka	Annonaceae	Tree
144	<i>Peltophorum pterocarpum</i>	Copper Shower pod	Fabaceae	Tree
145	<i>Phoenix dactylifera</i>	Date palm	Areaceae	Tree
146	<i>Platycladus orientalis</i>	Morpankhi	Cupressaceae	Tree
147	<i>Psidium Guajava</i>	Guava	Myrtaceae	Tree
148	<i>Ravenala madagascariensis</i>	East-west palm	Aracaceae	Tree
149	<i>Senegalia chundra</i>	Red cutch tree	Mimosaceae	Tree
150	<i>Senna multiglandulosa</i>	Glandular senna	Fabaceae	Tree
151	<i>Strelitziaceae</i>	Bird of paradise	Zingiberaceae	Tree
152	<i>Swietenia mahagoni</i>	mahogany	Meliaceae	Tree
153	<i>Syzygium cumini</i>	Blackberry	Myrtaceae	Tree
154	<i>Tectona grandis</i>	Teak	Lamiaceae	Tree
155	<i>Tectona grandis</i>	Teak wood	Lamiaceae	Tree
156	<i>Vachellia farnesiana</i>	Needle bush	Fabaceae	Tree
157	<i>Vachellia nilotica</i>	Gum arabic tree	Fabaceae	Tree
158	<i>Vachellia tortilis</i>	Umbrella thorn	Fabaceae	Tree
159	<i>Ziziphus mauritiana</i>	Jujube	Rhamnaceae	Tree
160	<i>Ziziphus mauritiana</i>	Ber	Meliaceae	Tree
161	<i>Heteropogon triticeus</i>	Giant spear grass	Cyperaceae	Tussock grass

According to data provided by the CUK. The university has 161 types of spices.

Bio-Diversity Data Analysis:

1. In Flora total 161 numbers of trees were identified by the university.
2. Precautions must be taken not only in planting trees but their survival also.
3. Some of the faculty, including students should be given the responsibility for survival of trees.
4. Regular watering & taking care of plants are important aspects for survival rate.
5. Growing trees with medicinal values & that too with fruit bearing trees will not only make the University campus as pioneer University but will provide herbal & ayurvedic medicines & fruits to the nearby community as well as their students & staffs.
6. It was also informed that due to the soil conditions the plants are not growing. Hence it is suggested to get the soil sample tested & plant only such trees which are adaptable to such

soil conditions.

7. Regular plucking of plants, which grow on buildings to be done.
8. In the field of Fauna, the animals & birds were found to be less. CUK has a large water pond that needs to be clean in regular interval of times for attracting fauna in the campus.

5.12 Oxygen emission and carbon storage capacity of tree

On the basis of

- Age
- Girth

We had conducted survey on 14 trees for calculation of oxygen emission & carbon dioxide absorption.

We have taken two online portals for calculating Oxygen Production and Carbon Storage by the trees.

a) Calculation made through 8billiontrees.com

Sr. No.	Girth of Trees from 4.5' above Ground Level	No. of Trees	Age of trees (In years)	Oxygen (in Ton)	Stores Carbon (in Ton)
1	19 1/2" - 35 1/3"	3	4	7	2
2	35 1/3" - 59"	8	5	77	29
3	59" - 74 2/3"	2	7	61	23
4	Above 98 1/3"	1	20	324	122
Total		14		469	176

REF: <https://8billiontrees.com/> (<https://8billiontrees.com/carbon-offsets-credits/carbon-offset-tree-planting-calculator-find-how-many-trees-to-plant/>).

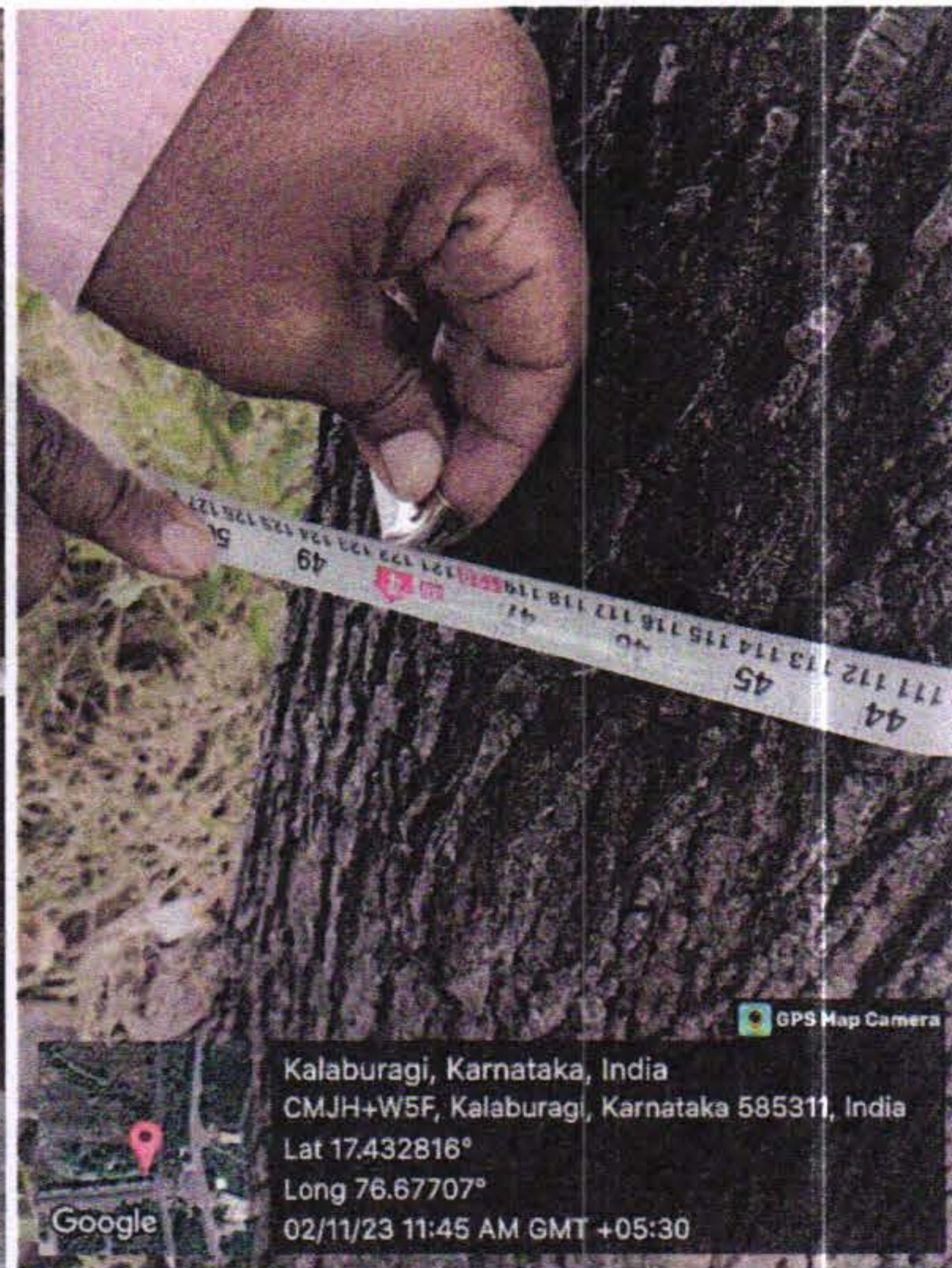
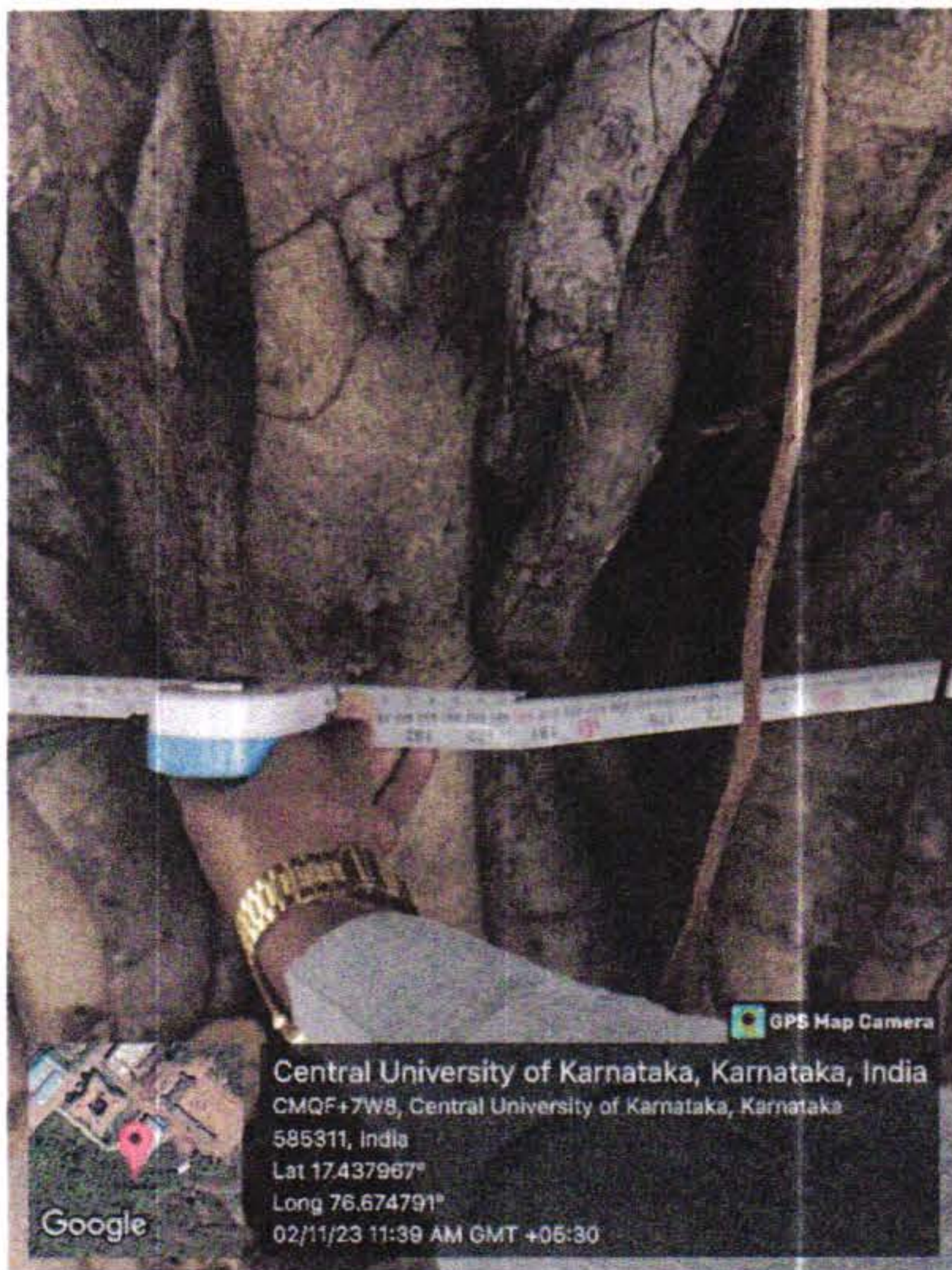

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b) Calculation made through Omnicalculator

Sr. No.	Girth of Trees from 4.5' above Ground Level	No. of Trees	Age of trees (In years)	Oxygen (in Ton)	Stores Carbon (in Ton)
1	19 1/2" - 35 1/3"	3	4	6.00	2.25
2	35 1/3" - 59"	8	5	69.92	26.22
3	59" - 74 2/3"	2	7	55.03	20.64
4	Above 98 1/3"	1	20	294.11	110.29
Total		14		425.06	159.40

REF: <https://www.omnicalculator.com/> (<https://www.omnicalculator.com/ecology/tree-benefits>)

Also 1 carbon credit = 1 MT of CO₂ capture. (1 tree absorbs 21.77 Kgs of CO₂ annually)



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Big Girth trees at CUK Campus

Observation:

We have measured 14 trees girth for sample, and we observed these things:

1. Oxygen generation from 14 trees in a year is 469/425.06 tons.
2. Carbon storage by 14 trees in a year is 176/159.40 tons.

Methodology Of Calculation of Carbon Footprint, Carbon Credit, from trees:

The approximate amount of carbon taken up by the trees will be calculated automatically by a formula that uses the diameter (in forestry, this is called "diameter at breast height", or DBH.) Measure the circumference of each living tree in your yard at a height of 4.5 feet (4 feet, 6 inches) above the ground level.

Trees are nature's best carbon capture technology and have been working to clean the air since the first leafy frond appeared on Earth, and research shows that they are one of the best tools the planet has (at the moment) to help mitigate climate change.

But all trees aren't the same...certain species can store more carbon than others.

As natural carbon sinks (or carbon reservoirs), trees capture carbon dioxide (CO₂) from the atmosphere as they grow, but the amount of CO₂ captured by a tree depends on its size, its age, and other factors, like the tree's species and where it is growing.

The calculator above estimates the average lifetime carbon benefits of any tree, based on its size. And, it shows equivalents, so you can see just how beneficial a tree is to the planet.

It uses the most up-to-date information from academic research and USDA Forest Service 11 databases but doesn't differentiate by species.

Forests are also critical to ecosystems, providing habitat for animals and plants, many of which are vital to survival. Forests also provide a range of environmental services most people take for granted. For example, they absorb storm water and reduce flooding, protect water quality by filtering out pollutants and sediment from waterways, and provide shade to cool the cities.

Calculation of Carbon, a Tree Absorb: DIY Steps

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The calculator above will help you determine how many trees one need to plant to offset the carbon footprint. Others can also allow to compare the different types of trees and calculate how much carbon dioxide one's favorite tree can capture in a year.

If one is planting trees to offset his carbon footprint, it helps to know which species absorb the most carbon. Some tree benefits calculators determine which tree species one can grow to contribute the most carbon capture.

Follow these steps:

- **Step 1:** Determine if one is using the calculator for a single tree or a group of trees to determine how much carbon a tree captures.
- **Step 2:** Enter the trunk circumference (single tree) or the number of trees, and the approximate age of the tree(s).
- **Step 3:** View calculation results immediately, including how much oxygen the trees produce, and how much carbon emissions they store.

Price of Carbon Offsets:

The cost of a carbon offset varies widely each year, as the market fluctuates. Likewise, the type of program impacts the cost of the offset and so does the 'amount' of carbon emissions one want to erase. Carbon prices averaged (EUR) 11.40 a ton in 2008, but 90 percent of providers now set their own prices.

Examples of Carbon Offsets

Although there are countless small ways one can personally reduce emissions, the scope of this audit will discuss scalable carbon offsets. The best carbon offset programs are not only for individuals, they're perfect for business carbon offsetting, too!

Note: the first step before you buy carbon offsets is using a carbon footprint calculator to find your precise emissions.

Carbon Offset Tree Planting Projects

While one tree a day falls short of what's needed, the catchy motto "Planting a tree a day helps keep emissions at bay" certainly encourages action that can do a whole lot of good. Every little bit counts. Even one tree. In fact, maybe it's time to return to ancient wisdom: An ancient proverb says, "the best time to plant a tree is twenty years ago. The second-best time is now."

Why should anyone figure out their carbon footprint (also known as your ecological footprint)? The reason is simple... it's having a huge impact on the climate.

Discussion

The major component of an ecosystem is plants. They are major modifiers of climate and providers of community structures, and they are pathway through which energy enters the ecosystem. The plant forms a complex interaction between the biotic and abiotic entities of the environment by making use of the biotic entities as food to produce food in form of biomass for the animal communities. High diversity of animal species within the college vicinities as recorded in this study could therefore be connected to the observed high diversity of plant species.

This study has shown that the college environments have rich and abundant flora and fauna

populations which could be regarded as a biotic community consisting of the populations of different organisms interacting together. It also revealed that the activities on the study area may not be completely detrimental to the existence of the organisms. Thus, if well maintained, university activities are not entirely unfriendly to the biotic community.

Although, it is not a common practice to base ecological research on questionnaire survey, this study has revealed that the opinion of people who have been used to a particular area over a long period of time on the fauna species usually encountered in such areas should not be discarded. However, there is the need for a field survey to back up verbal responses.


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