

Late Babasaheb Varhade Education Society, Amravati's

**MAHATMA JYOTIBA FULE COMMERCE, SCIENCE AND
VITTHALRAO RAUT ARTS COLLEGE,
BHATKULI, DIST. AMRAVATI (M.S.)**



Affiliated to Sant Gadge Baba Amravati University, Amravati (M.S.)

Re-accredited by NAAC with Grade "B"

Website: <https://www.mjfbhatkuli.org/>



NAAC 3rd Cycle

Self Study Report

Supporting Documents

of

Criterion VII - Institutional Values and Best Practices

7.1.3

Quality audits on environment and energy regularly undertaken by the Institution; The institutional environment and energy initiatives are confirmed through the Green audit / Environment audit, Energy audit, Clean and green campus initiatives, Beyond the campus environmental activities



LATE BABASAHEB VARHADE EDUCATION SOCIETY, AMRAVATI'S
**MAHATMA JYOTIBA FULE COMMERCE, SCIENCE
AND VITTHALRAO RAUT ART'S COLLEGE,**
BHATKULI, DIST. AMRAVATI – 444602.



Accredited by NAAC with 'B' Grade

Web Site: www.mjfbhatkuli.org.in

Email: principal.bhatkuli@gmail.com

Dr. Aakash A. Varhade
President

Dr. K. S. Jamdhade
Principal

Date: 14/05/2023

DECLARATION

This is to declare that the information, reports, true copies, numerical data, etc. furnished in this file as supporting documents is verified by IQAC and found correct.

Hence this certificate.

IQAC Coordinator

Principal

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Clean Campus Initiatives

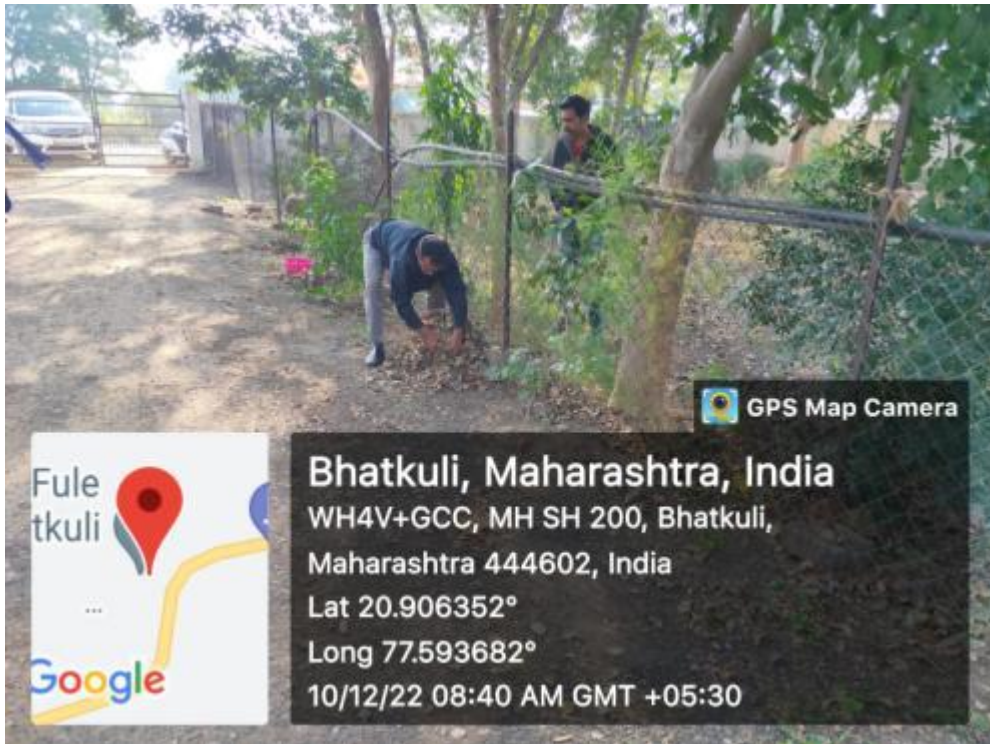
The college has established and integrated sustainable waste management approach to minimize waste production. Dustbins are placed at various places in the campus for proper collection of waste.

Solid Waste Management:

The paper waste is reduced by circulating the documents and information through e-mail, WhatsApp groups and websites. The answer sheets of unit tests/common tests, pages/papers of assignments, projects, etc. submitted by the students are returned to the students after evaluation for self assessment and to reduce the bulk paper waste by proper individual disposal.

The college campus has a separate location for the solid waste management. As far our institute is concerned, the solid waste includes papers, vegetable waste, leaf litter and other organic bio-degradable waste produced from the Departments in the campus such as Botany, Home Economics and Zoology (if any). In view of the clean campus, various degradable materials is collected and disposed in the solid waste management tank. This has not only reduced the waste but also created a healthy campus. The other sort of inorganic waste which cannot be processed in the campus solid waste management tank is given to the routine waste collection vehicle operated by the local Nagar Panchayat. In practice, the collected matter get decomposed in the tank and later utilized as manure for greenery in the campus.





Solid Waste Management Practice



Solid Waste Management Unit

Liquid Waste Management

The college offers Home Economics and Chemistry subjects. The practical procedure performed in the subject Home Economics produces a considerable amount of organic liquid waste. The Department has a practice of separation of solid and liquid waste at their primary level. The liquid waste from the Department is carried by the pipeline to a separate tank for disposal. Such isolation and degradation practice allows maintaining healthy and clean campus.

While the liquid waste generated from subject Chemistry is inorganic in nature and considerably hazardous. So, a separate waste disposal tank has been built to dispose liquid waste produced in various activities in the Chemistry Department.

Also, a proper drainage facility is available to manage liquid waste of washrooms.



Liquid Waste Management Unit

E-Waste Management

The electronic waste of the institute which commonly includes circuit boards, chips, broken computer monitors, mouse, etc. are disposed as per its conditions. It is handed over to skilled persons for dismantling or recycling.

Green Campus Initiatives

Restricted entry of automobiles

The college has strict rules for the entry of automobiles in the campus area. The parking for students and the staff is made available outside the college campus. This practice has created pollution free campus and helped to maintain greenery for aesthetic environment.



Ban on use of Plastic

The college campus has completely banned the use of plastics as per the directions of the Government. Still to avoid any chance, dustbins are kept at frequent distance in the college campus. Any plastic and related waste from the dustbins are collected, separated and given to the collection vehicle operated by the Nagar Panchayat.



Ban on Use of Plastics

Landscaping with trees and plants

The college has a very luxurious green campus. The campus is surrounded by tall evergreen trees from all the sides. The main vegetation part is Margosa trees.



Luxurious Green College Campus



Lawn Grass Landscape

Beyond the Campus Environmental Promotion and Sustainability Activities

The current era is witnessing a lot of enthusiastic celebrations of festivals and various religious days. One of such holy and great festival is Shri Ganesh Chaturthi. The traditional practice includes worship of Shri Ganesh Idols during the festival of 10 days. Usually the idols are made of plaster of Paris. After the festival, these idols are immersed in the water bodies. This has been creating a lot of concern in maintaining a healthy state of water bodies.

In view of this, WECS (Wildlife Environment and Conservation Society), Amravati is prominent body working in this area of concern. The Department of Zoology has established MoU with WECS. One of the activities carried out under their MoU is making awareness about no use of plaster of paris idols and promotion of idols made of normal clay. The students and faculties of the Zoology Department have shown active participation in this area of general concern.





During the assessment period, the NSS unit of the college has also served its duties by promoting and doing various awareness activities in the neighborhood.

नवभारत

उपक्रम भातकुली में महात्मा ज्योतिबा फुले व राऊत कला महाविद्यालय का आयोजन

श्रमदान, बौद्धिक सत्रों से मना रासेयो शिविर

■ भातकुली (सं). स्थानीय महात्मा ज्योतिबा फुले साहित्य, विज्ञान व विद्युत्कार्य राऊत कला महाविद्यालय के राष्ट्रीय सेवा योजना दल द्वारा विशेष निधारी प्रपत्रसेकर शिविर का आयोजन दलक ग्राम वडी (तह. भातकुली) में उत्सव से किया गया. 4 से 11 मार्च तक आयोजित इस शिविर का उद्घाटन स्व. बबबासाहेब वहाडे शिक्षा संस्था के बोधार्थक तथा संत गाडगे बाबा कला व साहित्य महाविद्यालय, यलगाव को पूर्व प्राध्याप्य प्रा. डॉ. अनुराधा वहाडे के हस्तोक्तिया गया. अध्यक्ष स्थान पर महाविद्यालय के प्राध्याप्य डॉ. के. एस. जगनाथे तथा प्रमुख अतिथि के रूप में राजा तेलमारे, पुलिस पाटील व गोपाल शेवले मंचस्थान थे. सात दिवसीय कार्यक्रम की रूपरेखा राष्ट्रीय सेवा योजना कार्यक्रम अधिकारी प्रा. डॉ. नीरज मेहता ने इस समय प्रस्तुत की.

विभिन्न उपक्रमों का आयोजन

शिविर के दौरान छात्रों के ब्यक्त से बनेकर प्रश्नोत्तर कार्यक्रमों आयोजित किए गए. साथ ही गीत की सराई, स्वस्थता जांच भी की गई. राष्ट्रीय कौशलकार और ग्राम गीत प्रचारिका कला के साथ राष्ट्रीय समूह प्रयोगकर प्रकला नाचे ने कौशल के वाद्ययंत्रों पर वाद्ययंत्र, सांख्यिक जगत्कला, अर्थव्यवस्था उपकरण, नक्षत्रचित्र, तैमिक समानता अदि पर जागरूकता फैलाने, शिविर के दौरान बौद्धिक सत्र में विविध मानवशरीर के व्यवस्थान हुए. जिसमें प्रमुखतः से डॉ. अंबादास फुले व प्रा. डॉ. संजया मारले के राष्ट्रीय सेवा योजना व युवा पिछे इन विषय पर. प्रा. डॉ. अम्य वैठ व प्रा. डॉ. रवि साखरकर ने स्वस्थ भ्रमता अभिमान का महत्व, ज्योत्सना शेटे, प्रा. डॉ. गजानन डेवरेते, क्षेत्रीय समन्वयक, प्रा. डॉ. श्याम सोमवेली व प्रा. डॉ. इंद्रनील रामपूत ने महिला सहकारिता अदि विषय पर, सुदर्शन याग व प्रा. डॉ. अनिता टिडके ने सशिवान का महत्व अदि विषयों पर मार्गदर्शन किया.

आदर्श स्वयंसेवक-सेविका का सत्कार

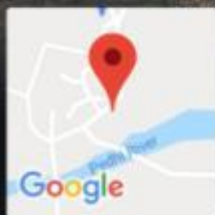
महाविद्यालय के प्राध्याप्य डॉ. के. एस. जगनाथे की अध्यक्षता में हुए समान समारोह में वडी गाव की सराब सुनील देवरे, गोपाल देवरे, ज्योत्सना शेटे, मुकेशचक्रिण, विजय शाय, दादी, सुनील शेटे प्रमुखतः से अतिथि थे. इस समारोह में राऊतकला-स्वासेविका के रूप में छात्रा-अनेकर सुनील तथा फलती मेहता को सम्मानित किया गया. शिविर की रिपोर्ट पढन प्रा. डॉ. सुनील शेटे, महिला कार्यक्रम अधिकारी ने किया. सुसंवादन समीक्षा शेटे तथा सुनील शिविर तथा कार्यक्रम का अन्तर्गत दर्शन रखते सहायक कार्यक्रम अधिकारी प्रा. सुनील वानखडे ने किया. शिविर की सराब का मिला पूष्ण शिवरते, सुनील शेटे, रविचंद्र शेटे, प्राध्याप्य वानखडे, कल्याण वानखडे, ऋजुज कला, फजन शेटे, अतुल शेटे, अक्षय दाहाडी, प्रमथ शेटे, गोपाल तेलमारे, लक्ष्य राजन, छात्री देवपूष्ण, तुलन भानुश्री, सुनील शेटे, अक्षय शेटे, अक्षय शेटे, अक्षय शेटे, अक्षय शेटे सुदर्शन शेटे शिविर के सभी शिवरते, महाविद्यालय के शिक्षक शिक्षकाल परमशरीर सभे छात्रावली ने विशेष परिभवा दिए.

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epaper.enavabharat.com





NSS Activity on 'Block the water, Drain the water / पाणी अडवा पाणी जिरवा'



Amravati, Maharashtra, India
Unnamed Road, Maharashtra 444602, India
Lat 20.826564°
Long 77.564048°
06/03/22 09:20 AM

GPS Map Camera







NSS Activity on Creation Dumping Pit for Solid Waste Management





Student Rally in Town on Cleanliness Drive

Audit Reports

Late Babasaheb Varhade Education Society, Amravati's
Mahatma Jyotiba Fule Commerce, Science and
Vitthalrao Raut Art's College,
Bhatkuli, District: Amravati.
(Affiliated to Sant Gadge Baba Amravati University, Amravati)



GREEN AUDIT REPORT

2022-2023



INTERNAL QUALITY ASSURANCE CELL (IQAC)

Dr. Sachin K Tippot
Head, Dept. of Environmental Science,
Smt. Narsamma A. C. Sc. College, Kiran Nagar Amravati.

Certificate

To,

The Principal,

Mahamta Jotiba Fule Commerce, Science and Vitthalrao Raut Art's College

Bhatkuli Dist. Amravati


Sir,

As per your letter, MJF/MV/BHT/11209 (A) 2022 dated on 16/8/22 regarding to undertake Green Audit of your institute, I the undersigned pleased to issue this certificate about different aspects covered during the audit. The aspects which are thoroughly explored during the onsite visits are 1. *Biodiversity survey including possible flora and fauna*, 2. *Rain water harvesting*, 3. *Organic waste management* and 4. *Energy audit*. The details of each and every aspect are attached herewith.

I hope that the finding of this audit would be used in creating awareness about biodiversity conservation as well as other environmental issues among the different stakeholders of your institute. The audit report also enriches your campus potential toward environmental conservation and management as per NAAC guidelines.

I appreciate the involvement of students, Principal, faculty members as well as the management toward waste management, water conservation, energy conservation and making the campus green. For the future green health of the institute there are few recommendations please tried to overcome.

With regards,


Yours,
Head
Dept. of Environmental Science
Arts, Science & Commerce College
Kiran Nagar, Amravati
Dr. Sachin K Tippot



Green Audit Assessment Team

Internal

Dr. S. D. Mahalle

Department of Commerce and Management

Dr. S. P. Kalbende

Department of Botany

External

Dr. S. K. Tippat

Head

Department of Environmental Science
Arts, Commerce and Science College,
Kiran Nagar, Amravati.

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ACKNOWLEDGEMENT



Aerial View of College Campus (Source: Google Earth)

IQAC and Green Audit Assessment Team thanks to the Principal, Mahatmta Jyotiba Fule Commerce, Science and Vitthalrao Raut Art's College, Bhatkuli for assigning the task of Green Audit of this college to us. We appreciate the cooperation that we got from all the faculties and students during the entire process. Our special thanks are due to the Principal Dr. K. S. Jamdhade for his warm support and encouragement from the very beginning till the end of the process.

Dr. Sachin K. Tippat

Co-Ordinator,

Green Audit Team

Smt. Narsamma Arts, Commerce and science College,

Kiran nagar, Amravati

1. Introduction:

The rapid environmental degradation at local, regional and global level is leading us to global "Environmental poverty". Stabilization of human population, adoption of environmentally sound and sustainable technologies, reforestation and ecological restoration are crucial elements in creating an equitable and sustainable future for all humans in harmony with nature and natural resources. The main objective to carry out green audit is to check green practices followed by institution and to conduct a well formulated audit report to understand where we stand on a scale of environmental soundness.

Green audit is the procedure of systematically identifying, quantifying, recordings, reporting and analyzing the environmental diversity components of any organization. It aims to analyze the environmental practices inside and outside of the relevant place, which will have an impact on the environment. Green audit can be a useful tool for a college to determine how and where they are using the available resources; the college 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 college 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.

Government of India through its National Environment Policy (2006) has made mandatory for every organization to have green audit / environmental audit in their organization. University Grants Commission has mentioned "Green Campus, Clean Campus" mission mandatory for all higher educational institutes.

2. Objectives:

In recent time, the Green Audit of an institution has become one of the important features of self assessment of the institution. An institutional Green Audit reflects the degree of sensitivity its stakeholders has towards environment. The college has been putting efforts to keep our environment clean since its inception. But the auditing of this non-scholastic effort of the college has not been documented. Therefore, the purpose of the present green audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:

- Identification of problems which will affect the effective institutional processes.
- To document the floral and faunal diversity of the college.
- to recognize the initiative taken by organization towards environmental conservation
- To popularise waste reuse and the use of recycling methodology on campus.
- To document the significance and effectiveness of Waste disposal system.
- To estimate the Energy requirements of the college
- To suggest the best protocols for adding to sustainable development

3. About College:

Mahatma Jyotiba Fule Commerce, Science and Vitthalrao Raut Art's College, Bhatkuli run by the Late Babasaheb Varhade Education Society, Amravati and is affiliated to the Sant Gadge Baba Amravati University, Amravati. Hon'ble Late Dr. Anil alias Bhausaheb Varhade, Founder President, established the society in 1984 and later, this college came into being from the session 1993-94 under the able leadership of Mr. M. N. Sarpatwar, first Principal of the college (Officiating). During this period, another philanthropic residing in the Bhatkuli area Late Shri Vitthalrao Raut admired these efforts made contribution for the development of this institution. He donated a piece of land of 2 acres in 1998; where this college campus is situated. The vision was further cohered, adhered and cuddled by Hon'ble Dr. Akash A. Varhade, President of the Society, who shouldered the responsibility to complete his father's goals of empowering rural region through education. Currently, the college is working under the able leadership of Dr. K.S. Jamdhade, Principle, since 2007.

The vibrancy and vitality with which the stakeholders have nurtured the institution is highly heartening. With the passage of time, the institution gained an admirable momentum and prospered and progressed by leaps and bounds with 3 full-fledged faculties of Arts, Commerce and Science. The college offers Masters in 4 subjects, viz. Chemistry, Mathematics, Commerce and Marathi. Also, offers Doctoral degree program in three subjects, English, Commerce and Physics. In the Bachelors of Science degree program, college offers four combinations of the subjects, viz. Chemistry, Botany, Zoology; Chemistry, Physics, Mathematics; Electronics, Computer, Mathematics and Electronics, Computer, Physics. Dissemination of good knowledge and education is directly proportionate to the excellent teachers available in the institution. The highly scholastic and resourceful faculty comprises of 27 full-time teachers with 22 of them holding doctoral degrees and 09 are NET/JRF/SET/GATE qualified.

4. Biodiversity Audit

➤ BIODIVERSITY SURVEY OF INSTITUTE

Biodiversity provides a variety of environmental services from its species that are essential at the global, regional and local level. The production of oxygen, reduction of carbon dioxide, reduction in soil erosion, maintaining the water cycle, maintaining the bio-geo-chemical cycles and controlling soil, water and air pollution are some important services of plants. Therefore, preservation of biological resources is essential for the nature's wellbeing and the long term survival of mankind.

Floral Diversity of Institutional Campus

Mahatma Jyotiba Fule Commerce, Science and Vitthalrao Raut Art's College, Bhatkuli is one of the pioneer institute of Amravati Districts, Maharashtra, India. It has permanent affiliation with Sant Gadge Baba Amravati University, Amravati. It encompasses an area of about **2.00 acre** on Daryapur road near Bhatkuli city as an academic and administrative infrastructure. Beside that the institute has **3.00 acre** land to carry out various sports as well as green initiatives. The city campus of the institute represents several trees, medicinal as well as ornamental floral species. Whereas, the additional wide wild area of the institution is immensely diverse with a variety of tree, shrubs, herbs as well as climbing species performing a variety of ecological functions. Most of these tree species are planted in different periods of time through various

plantation programmes organised by the authority and have become an integral part of the college. The trees of the college have increased the quality of life, not only the college fraternity but also the people around of the college in terms of contributing to our environment by providing oxygen, improving air quality, climate amelioration, conservation of water, preserving soil, and supporting wildlife, controlling climate by moderating the effects of the sun, rain and wind. The Leaves absorb and filter the Sun's radiant energy, keeping things cool in summer. Many animals are dependent on these trees mainly for food and shelter. Flowers and fruits are eaten by monkeys, and nectar is a favourite of birds and many insects. Leaf – covered branches keep many animals, such as birds and squirrels, out of reach of predators. Different species display a seemingly endless variety of shapes, forms, texture and vibrant colours. Even individual trees vary in their appearance throughout the course of the year as the seasons change. The college is developing botanical garden having several ecological sections along with adequate exotic plant species.

The flora of both localities of the institute is critically surveyed during late rainy season. Identification of flora was done with the help of taxonomic floras, literature and internet. Digital photographs were taken for some of the floral species to illustrate the green and ornamentation of the institute.

The biodiversity survey has revealed that the diversity of trees in the campus area is of about 24 different species belonging to 15 families. The multiple individuals (More than 200) of such a tree flora have not only imparted the greenery but also sequestered a satisfactory amount of organic carbon. Beside trees the campus also enriches the biodiversity through 19 shrubby species belonging from 13 different taxonomic families.

The wild wide area of the institution also shows seasonal floral diversity which is not only the significant part as an ecosystem but also satisfies the academic ecological desirability. The area represents more than 15 species of climbers comprising with 8 families and 45 wild rains fed herbaceous species belonging to 20 different families.

Thus, as part of welfare the institute has been playing a significant role in maintaining the environment of the entire Bhatkuli City and its surrounding areas. The tabulated details of the floral diversity are attached herewith...

A. Table: List of Trees in Campus

Sr.No.	Name of Plant	Family	Common Name	No. of Individuals
1	<i>Azadirachta indica</i>	Meliaceae	Kadu Nim	50
2	<i>Acacia arabica</i>	Mimosaceae	Babhul	01
3	<i>Acacia leucophloea</i>	Mimosaceae	Hiwar	03
4	<i>Acacia farnesiana</i>	Mimosaceae	Bangali Babhul	03
5	<i>Annona suamosa</i>	Annonaceae	Sitaphal	03
6	<i>Bauhinia purpurea</i>	Caesalpiniaceae	Kanchan	06
7	<i>Calliandra haematocephala</i>	Mimosaceae	Red powder puff	04
8	<i>Cassia siamea</i>	Caesalpiniaceae	Kashid	20
9	<i>Casuarina equisetifolia</i>	Casuarinaceae	Saru	01
10	<i>Citrus lemon</i>	Rutaceae	Limbu	02
11	<i>Dalbergia sissoo</i>	Fabaceae	Sissoo	26
12	<i>Delonix regia</i>	Fabaceae	Goldmohar	02
13	<i>Ehretia laevis</i>	Boraginaceae	Datrang, Khanduchkka	11
14	<i>Eugenia jambolana</i>	Myrtaceae	Jambhul	07
15	<i>Holoptelea integrifolia</i>	Ulmaceae	Papra	08
16	<i>Leucaena latisiliqua</i>	Mimosaceae	Subabhul	01
17	<i>Mimusops elengi</i>	Sapotaceae	Bakul	01
18	<i>Nyctanthes arbor-tristis</i>	Nyctaginaceae	Parijatak	02
19	<i>Phyllanthus emblica</i>	Euphorbiaceae	Anwla	03
20	<i>Polyalthia longifolia</i>	Annonaceae	Ashoka	05
21	<i>Pongamia pinnata</i>	Papilionaceae	Karanj	20
22	<i>Roystonea regia</i>	Aracaceae	Royal Palm	02
23	<i>Tecoma stans</i>	Bignoniaceae	Tecoma	03
24	<i>Bismarckia nobilis</i>	Palmae	Bismarckia palm	01

B. Table: List of Shrubs in Campus

Sr.No.	Name of Plant	Family	Common Name
1	<i>Acalypha wilkesiana</i>	Euphorbiaceae	Copper plant
2	<i>Agave americana</i>	Agavaceae	Century Plant
3	<i>Aloe vera</i>	Liliaceae	Korphad
4	<i>Asparagus racemosus</i>	Liliaceae	Shatawari
5	<i>Calatropis gagentia</i>	Asclepiadaceae	Mandar
6	<i>Calatropis procera</i>	Asclepiadaceae	Rui

7	<i>Catharanthus roseus</i>	Apocyanaceae	Sadaphull
8	<i>Clerodendron inerme</i>	Verbinaceae	Mehandi
9	<i>Duranta repens</i>	Verbinaceae	
10	<i>Hibiscus rosa sinensis</i>	Malvaceae	Jasvand
11	<i>Ixora coccinea</i>	Rubiaceae	Scarlet flame
12	<i>Jasminum sambac</i>	Oleiaceae	Mogra
13	<i>Lantana camera</i>	Verbinaceae	Haldikunku
14	<i>Murraya paniculata</i>	Rutaceae	Madhumalti
15	<i>Pedillanthus tithimoloidis</i>	Euphorbiaceae	Amta
16	<i>Thuja orientalis</i>	Cuppressaceae	Vidya
17	<i>Vitex negundo</i>	Verbinaceae	Nirgudi
18	<i>Zizipus jujuba</i>	Rhamnaceae	Bor
19	<i>Furcareia foetida</i>	Asparagaceae	Green Aloe

C. Table: List of Climbers in Campus

Sr.No.	Name of Plant	Family	Common Name
1	<i>Capparis horrida</i>	Capparidacea	Waghata
2	<i>Cardiopermum helicacabum</i>	Sapindaceae	Ballon vine
3	<i>Clitoria ternatea</i>	Papilionaceae	Gokarni
4	<i>Cocculus hirsutus</i>	Menispermaceae	Wasan vel
5	<i>Cucumis melo</i>	Cucurbitaceae	Sherni
6	<i>Cuscuta reflexa</i>	Cuscutaceae	Amarvel
7	<i>Diplocyclos palmatus</i>	Cucurbitaceae	Shivlingi
8	<i>Hemidesmus indicus</i>	Asclepiadaceae	Anantmool
9	<i>Ipomoea heterophylla</i>	Convolvulaceae	
10	<i>Ipomoea muricata</i>	Convolvulaceae	Bhanvra
11	<i>Pergularia daemia</i>	Asclepiadaceae	Vine
12	<i>Rhynchosea minima</i>	Papilionaceae	Burn-mouth vine
13	<i>Teramnus labialis</i>	Papilionaceae	Rabbit vine
14	<i>Tinospora cordifolia</i>	Menispermaceae	Gulvel
15	<i>Trichosanthes cucumerina</i>	Cucurbitaceae	Jangli Padwal

C. Table: List of Seasonal Flora associated with wild campus

Sr.No.	Name of Plant	Family
1	<i>Acalypha indica</i>	Euphorbiaceae
2	<i>Achyranthus aspera</i>	Amarantaceae
3	<i>Alternanthera sessalis</i>	Acanthaceae
4	<i>Amarantus spinosus</i>	Amrantacdeae
5	<i>Amarantus viridis</i>	Amrantacdeae

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6	<i>Blumea lacera</i>	Asteraceae
7	<i>Boerhavia diffusa</i>	Nyctaginaceae
8	<i>Boerhavia pungens</i>	Nyctaginaceae
9	<i>Casia tora</i>	Caesalpiniaceae
10	<i>Cleome viscosa</i>	Caparidaceae
11	<i>Commelina benghlensis</i>	Cannaceae
12	<i>Croton bonplandium</i>	Euphorbiaceae
13	<i>Cynadon dactylon</i>	Poaceae
14	<i>Cyperous rotundus,</i>	Cyperaceae
15	<i>Datura indica</i>	Solanaceae
16	<i>Datura metal</i>	Solanaceae
17	<i>Echinops echinatus,</i>	Asteraceae
18	<i>Enicostema axillare</i>	Gentianaceae
19	<i>Euphorbia geniculata</i>	Euphorbiaceae
20	<i>Euphorbia heterophyla</i>	Euphorbiaceae
21	<i>Euphorbia hirta,</i>	Euphorbiaceae
22	<i>Goniogyna hirta,</i>	Papilionaceae
23	<i>Indigofera linai</i>	Papilionaceae
24	<i>Indigofera linifolia,</i>	Papilionaceae
25	<i>Jatropha gossypifolia</i>	Euphorbiaceae
26	<i>Malachra capitata</i>	Malvaceae
27	<i>Meremia gangetica</i>	Convolvulaceae
28	<i>Oxalis corniculata</i>	Oxaloidae
29	<i>Papaver somniferum,</i>	Papaveraceae
30	<i>Parthenium hesterophorus</i>	Asteraceae
31	<i>Physalis minima</i>	Solanaceae
32	<i>Peristropheae bicalculata,</i>	Acantahaceae
33	<i>Phylanthus simplex</i>	Euphorbiaceae
34	<i>Polygonum plebejum,</i>	Polygonaceae
35	<i>Rhyncosea minima</i>	Papilionaceae
36	<i>Sida chordata</i>	Malvaceae
37	<i>Sida linifolia</i>	Malvaceae
38	<i>Solanum xanthocarpum,</i>	Solanaceae
39	<i>Soncus asper</i>	Asteraceae
40	<i>Tephrosea purpurea</i>	Papilionaceae
41	<i>Tephrosea villosa</i>	Papilionaceae
42	<i>Tribulus terrestris</i>	Menispermaceae
43	<i>Tricodesma zeylanica,</i>	Scrophulariaceae
44	<i>Tridax procumbance</i>	Asteraceae
45	<i>Vicoa indica,</i>	Asteraceae
46	<i>Withania somnifera</i>	Solanaceae

D. Birds Diversity:

Among all wildlife, birds are one of the most common wildlife in urban areas such as neighbourhoods and cities, and many bird populations have been declining as a result of landscape changes due to urban expansion. At the local level, these major changes include high rates of land conversion into urban uses and increasing human pressure on biodiversity due to rapid population growth.

Due to the important role that birds play in maintaining ecosystems and supporting biodiversity, many seek their protection to manage biological threats and efficiently protect the environment.

Birds fulfil many ecological functions in their habitats. For instance, they are bio indicators of healthy ecosystems. In addition, insectivorous species and raptors regulate disease vectors, including mosquitoes and rodents. Scavenger birds, such as the Pied Crow (*Corvus albus*), contribute to biomass recycling and to some degree reduce levels of disposable wastes. Frugivorous birds play an important role in seed dispersal of fleshy fruit-producing plants. Birds are also important in plant pollination as demonstrated by sunbirds, which participate in crossbreeding of flowering plants, especially those with bird-pollination syndrome.

The wide and wild campus of the present institute becomes the habitat of several local birds. The large tree flora along with their natural rewards not only satisfies the feeding demand of the bird fauna but also provide habitats for their nesting.

Table: List of Birds associated with campus

Sr.No.	Scientific Name of bird	Common Name	Marathi Name
1	<i>Metacillia alba</i>	White Wagtail	Pandhara parit
2	<i>Metacillia flava</i>	Yellow Wagtail	Piwla Parit
3	<i>Athene brama</i>	Spotted Owlet	Ghubad
4	<i>Accipiter badius</i>	Shikra	Shikra
5	<i>Vanellus indicus</i>	Red Wttteled Lapwing	Titwi
6	<i>Vanellus malarbaricus</i>	Yelow Wttteled Lapwing	Ran Titwi
7	<i>Eudynamys scolopacea</i>	Asian Koel	Kokila
8	<i>Centropus simensis</i>	Greter caucal	Bharadwaj
9	<i>Egretta garzette</i>	Littel egret	Bagla
10	<i>Ardeola grayii</i>	Indian pond Heron	Bhurha bagla
11	<i>Elanus caeruleus</i>	Black shoulder Kite	Kapsi
12	<i>Columbia livia</i>	Rock pegeon	Ganjli Kabuter

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13	<i>Streptopelia decaocto</i>	Euresian collar dove	Gorha Hola
14	<i>Streptopelia chinensis</i>	Spotted Dove	Kawda
15	<i>Streptopelia senegalensis</i>	Loughing Dove	Bhori
16	<i>Psittacula krameri</i>	Rose ringed Parakeet	Tota
17	<i>Halcyon smyrnensis</i>	White throated Kingfisher	Kilkila
18	<i>Alcedo atthis</i>	Common Kingfisher	Khandya
19	<i>Merops orientalis</i>	Green Bee Eater	Weda Ragho
20	<i>Coracias benghalensis</i>	Indian Roller	Nilkanth
21	<i>Dicrurus macrocercus</i>	Black Drongo	Kotwal
22	<i>Acridotheres tristis</i>	Common Myna	Myna
23	<i>Pycnonotus cafer</i>	Red-vented Bulbul	Bulbul
24	<i>Terdoides striatus</i>	Jungle babler	Satbhai
25	<i>Sturnia pagodarum</i>	Brahminy Starling	Branhi Myna
26	<i>Acridotheres tristis</i>	Common Myna	Salunki
27	<i>Oriolus oriolus</i>	Euretian Golden Oriole	Haldya
28	<i>Upupa epops</i>	Common Hoopoe	Hudhud
29	<i>Pitta brachyura</i>	Indian Pitta	Navrang
30	<i>Lonchura malberica</i>	Indian Silver bill Minia	Mal Minia
31	<i>Passer domesticus</i>	House Sparrow	Chimni
32	<i>Repirhipidura aureola</i>	White browed Fantail	Shubhra Bhuwai Nartak
33	<i>Arthrotomus sutorius</i>	Tailor Bird	Shimpi
34	<i>Copsychus saularis</i>	Robin	Dayal
35	<i>Copsychus fulcatus</i>	Indian Robin	Robin
36	<i>Nectarinia asiatica</i>	Purple Sunbird	Surya Pakshi

E. Butterfly Diversity

Butterflies play vital role in the ecosystem, there is co-evolutionary relationship between butterflies and plants, their lives are interlinked. Butterflies are also called flying flower, displaying its beauty. These insects enhance the aesthetic value of the environments by their exquisite wing colours. Butterflies are the wild indicators of the ecosystem; these insects tell us everything about the healthier ecosystem. These are effective pollinators, butterflies visit the flower to eat nectar and this is mutually beneficial relationship. Some species of butterflies migrate over long distance; carry pollen to be shared across plants which are far apart from one another. This migration of pollen induces genetic variation in plants species and in turn gives a better chance at survival against different diseases. These insects also provide food for other organisms,

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for example; birds, reptiles amphibians and also acts as biological pest control. But the population of these insects decline rapidly due to human activities, habitat destruction, uses of pesticides and unawareness of people about the importance of these “flying flowers.”

During rainy season the unused are of the institute favours the growth of several seasonal floral species. Beside that the local colonies associated with the campus has several ornamental species which provide rewards for butterflies and moth species.

Table: List of Butterflies associated with campus

Sr.No.	Scientific Name of bird	Common Name
1	<i>Catopsilia pomona</i>	Common Emigrant
2	<i>Catopsilia pyranthe</i>	Mottled Emigrant
3	<i>Eurema hecabe</i>	Common grass yellow
4	<i>Eurema undersoni</i>	One spot Grass yellow
5	<i>Eurema blanda</i>	Three spot Grass yellow
5	<i>Dannus chrysipus</i>	Plian Tiger
6	<i>Dannus genutia</i>	Stripped Tiger
7	<i>Tirumala limniace</i>	Blue Tiger
8	<i>Euploea core</i>	Common Crow
9	<i>Melanites leda</i>	Common Evening Brown
10	<i>Junonia arithiya</i>	Yellow panncy
11	<i>Junonia hierta</i>	Lemon Pancy
12	<i>Hypolimnas misippus</i>	Danaid Eggfly
13	<i>Papilio palytes</i>	Common mormon
14	<i>Delias eucharis</i>	Common Jazbel
15	<i>Jamides celeno</i>	Common Cerulean
16	<i>Pelopidas mathias</i>	Small Branded Swift
17	<i>Acraea terpsicore</i>	Towny Caster
18	<i>Hypolimnos bolina</i>	Great Eaglefly
19	<i>Barba cinnara</i>	Rice swift
20	<i>Gra[phium agamemnon</i>	Tailed Jay
21	<i>Belenois aurata</i>	Pioneer

5. Rain Water Harvesting:

Water scarcity is serious problem throughout the world for both urban and rural community. Urbanization, industrial development and increase in agricultural field & production has resulted in overexploitation of groundwater and surface water resources and resultant deterioration in water quality. The conventional water

sources namely well, river and reservoirs, etc. are inadequate to fulfil water demand due to unbalanced rainfall. Therefore, the rainwater harvesting system investigates a new water source for the community.

For the conservation of rain water the college management has initiated and executed the rooftop rainwater harvesting of pharmacy building of the campus. Rain water is collected from rooftop by down takes, connected to a common header and led to a common pit associated with at front side of the campus. The pit is dug out in the vicinity of bore well to recharge it. The dimension of pit is 10 x 6 x 8 (480 Cubic Feet). The pit is filled in sedimentary form using boulder, brick fragments, gravel and sand subsequently. The leading casing pipe is fitted with a porous drum to avoid the choke up and later the drum is dumped at top of the pit. Thus the rain water is channelized through a PVC pipe drainage system to the ground water table directly. The percolated water not only recharges the groundwater table but also provides adequate moisture to the flora in the campus during the summer season.

The total open catchment area covered under harvesting from main building amounts to **9000** square feet.

Rainfall calculator: A 10 - square feet area receives 1 litre of water if the rainfall is 1 mm. The average rainfall per year is **800** mm in the district. Hence, the total volume of water received on the **9000** square feet area of the terrace (**800** mm × **9000** square feet) = **7, 00,000 litres** per year

6. Organic Waste Management:

For the sustainable development of the society it is very important to judiciously handle the environmental issues like the solid waste management. In order to manage the solid waste effectively we need to understand its composition and all the activities that follow once the waste is generated. Basically composition and characteristics of the waste depend on a whole lot of factors and also vary periodically. Different approaches can be employed for the management of the solid waste, depending upon the factors such as varying composition and quantity. The management of solid waste becomes further more necessary with increasing pollution and other hazardous consequences due to the generation of waste. Waste is growing at an exponential rate in India due to the rapid urbanization and the industrialization.

The organic waste generated at the wild area of Institute constitutes large amount of recyclables which can be recovered if proper solid waste management system is used. Thus to mitigate the problem an integrated approach can be adopted for the disposal of the waste. The organic part of the waste can be turned into manure by using sustainable practices such as composting and vermin-composting.

The present Institute has green campus area (2 acre) associated with several plants as well as wild species. Thus the floral diversity generates about 50 Kg solid organic wastes per week. Besides, the campus cleanliness activities also collect adequate organic waste periodically. Therefore, in order to mitigate the sanitary problem and to satisfy the garden manure need, institute has decided to carry out organic waste composting project.

For the project horticultural waste, such as dried leaves or plant clippings, certain amount of grass waste which is biodegradable collected from garden as well as open spaces is used. The compost pit of 8 feet X 10 feet X 6 Feet (480 cubic feet) size is constructed at the wide wild campus area of the institute. The pit is filled with plant waste, cattle dung and soil in sedimentary form once in a season. About 300 Kg. wet waste is composted after every six months to produce about 150 kg Compost manure.

7. Liquid Waste Management:

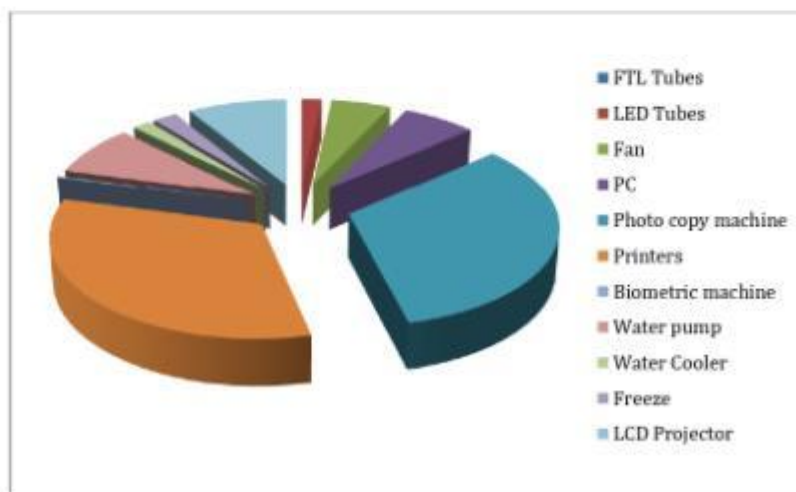
Chemical waste generated through laboratories consists of chemical substances, including laboratory chemicals, film developer, disinfectants (expired or no longer in use), solvents, cleaning agents and others types. The college has chemistry and Home economics laboratories which generate hazardous and organic waste respectively. For this the institute decided to treat the waste water by using simple softening method. According to the provided criterion the institute construct the waste management pit along with the respective laboratories. The pit has the dimensions 5 X 5 X 5 feet (125 cubic feet) which is filled with lime stone, wood charcoal, salt and sand in sedimentary pattern. The disposal pipes of the laboratory are penetrated in the pit with the net filter. The liquid waste water reaches to the pit through pipe line and percolates through sandy layer. Charcoal layer absorbed colouring matter and other organic matter. The lowest lime layer neutralizes acidic content of water. The possible soft water provide moisture to the surrounding flora of the institute.

8. Energy Audit:

The present college is a multi faculty institute running Arts, Commerce and Science faculties. Thus beside that of lights and fan the institute has PCs, projector and smart board like devices which requires electrical energy. As a social responsibility and as per the provide guidelines, the institute initiated the energy conservation motto. The college implemented the use of LED lightning system along with well ventilated infrastructure. This year the institute installed 19KWp solar roof top Plant to negotiate the MSEB load. The details of energy consumption are as under...

📌 Overall connected load:

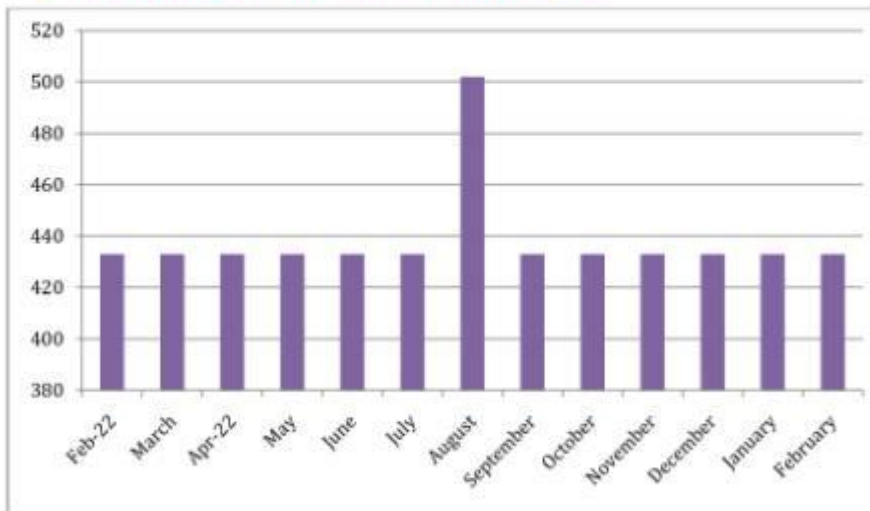
No.	Equipment	Quantity	Load; W/unit	Load in kW
1	FTL Tubes	00	0040	0.00
2	LED Tubes	80	0020	1.60
3	Fan	80	0060	4.80
4	PC	40	0150	6.00
5	Photo copy machine	02	1500	30.00
6	Printers	05	0600	30.00
7	Biometric machine	01	0020	0.20
8	Water pump	01	0750	7.50
9	Water Cooler	01	0150	1.50
10	Freeze	01	0200	2.00
11	LCD Projector	04	0200	8.00
			Total	91.60



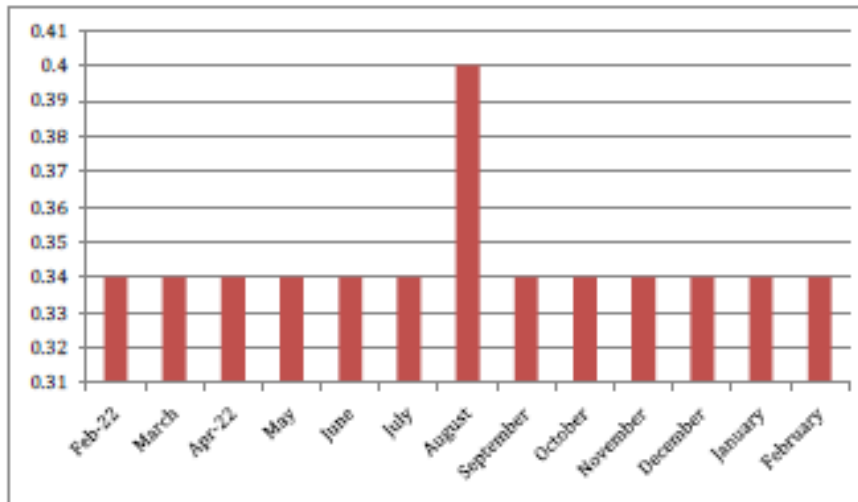
Electrical Bill Analysis: 2022-22

No.	Month	Energy consumed (kWh)	CO ₂ Emission (MT)
1	February 2022	433	0.34
2	March	433	0.34
3	April 2022	433	0.34
4	May	433	0.34
5	June	433	0.34
6	July	433	0.34
7	August	502	0.40
8	September	433	0.34
9	October	433	0.34
10	November	433	0.34
11	December	433	0.34
12	January 2023	433	0.34
13	February	433	0.34
	Total	5698	4.48

Month wise Energy Consumption 2022-23:



Month wise CO₂ Emission 2022-23:



Key Observation:

Sr. No	Parameter	Energy consumed kWh	CO ₂ Emission (MT)
1	Maximum	502	0.40
2	Minimum	433	0.34
3	Average	474	0.37
4	Total	5698	4.48

Carbon Foot printing:

A carbon foot printing is defined as the total green house gas emission due to various activities.

Basis for computation of CO₂ Emission:

The basis for calculation for CO₂ emission due to electrical energy is: 1 unit (kwh) of electrical energy releases 0.8Kg of CO₂ into atmosphere.

✦ Usage of Alternate Energy Sources:

The College has 80 nos. 20 W LED tubes in place of normal FTL Tubes

❖ Energy conservation Proposal:

- It is recommended to install 5 kWp roof top Solar PV plant
- 1 kWp Solar plant generate 4 (kWp) of electrical energy per day; 120 (kWp) per month and 4800 (kWp) per year
- No. of working hours per day 7
- Annual working Days 280

Sr. No.	Particular	Per day energy generation	Annual energy generation	Annual energy consumption
1	Installation of 5 kWp Solar plant	20 (kWp)	73000 ((kWp)	5698 (kWp)

8. Green Initiative of the Institute:

For the partial fulfillment of academic, practical and social responsibilities institute carried out various activities during the audited period. Celebration of some days related to environmental conservation and management not only creates awareness among society but also enriches the basic concepts among students.

The activities are.....

1. World Ozone Day
2. National Science Day
3. World Environmental Day
4. Geography Day
5. Biodiversity Day
6. Solid waste ir-radiation and management
7. Solid waste management

➤ **Recommendations:**

During the audit it was revealed that the institute has adequate campus area to satisfy the green initiatives requirement. The institute organizes various extra as well as extension activities which not only satisfies their social and academic needs but also enriches their national responsibilities. However the institute must have enriched their campus with some decent things as under...

1. Plantation of some indigenous plant species along campus area.
2. Installation of water harvesting network along remaining buildings.
3. Development of botanical garden with some exotic species.
4. Installation of 5 kWp solar power system.

Green Environment of the Institute

Annexure 1



Front views of the Institute



Side views of the Campus showing avenue plantation and lawn skirting



Back view of the Campus



Medicinal plant species section of the Institute



Healthy habit of *Agave americana*

Tree flora

Annexure 2



Delonix regia



Cassia siamea



Holoptelea integrifolia



Bauhinia purpurea



Dalbergia sissoo



Mimusops elengi



Azadirachta indica



Tecoma stans



Eugenia jambolana



Casuarina equisetifolia



Polyalthia longifolia



Calliandra haematocephala



Citrus lemon



Acacia farnesiana



Bismarckia nobilis



Roystonea regia

Shrubby flora

Annexure 3



Thuja orientalis



Calatropis procera



Duranta repens



Pedillanthus tithimoloidis



Catharanthus roseus



Agave Americana



Furcarea foetida



Murraya paniculata

Seasonal herbs

Annexure 4



Alternanthera sessalis *Acalypha indica* *Ageratum conyzoides* *Achyranthus aspera*



Amaranthus spinosus *Alysicarpus procumbens* *Aereva lanata* *Acasia Arabica*



Amaranthus viridis *Boerhavia diffusa* *Calatropis procera* *Capsicum anum*



Casia tora

Cleome viscosa

Corchorus trilocularis

Eclipta alba



Euphorbia hirta

Euphorbia prostrata

Gonolobus hirta,

Indigofera linifolia,



Merremia gangetica

Mirabilis jalapa

Oxalis corniculata

Phyllanthus niruri



Physalis minima



Malachra capitata



Rhynchosea minima



Solanum xanthocarpum,



Sida acuta



Vicoa indica



Soncus asper



Vernonia cinera



Vinca rosea



Bassela alba

Bird Fauna Associated with Campus

Annexure 5



Pycnonotus cafer



Sturnia pagodarum



Terdoides striatus



Upupa epops



Eudynamys scolopacea (male + female)



Merops orientalis

Neophoron perenopterus



Coscybus saularis



Streptopelia senegalensis



Columba livia



Nectarinia asiatica



Halcyon smyrnensis



Centropus sinensis



Passer domesticus (female)

Water Harvesting Network

Annexure 6



Rain water harvesting Pit



Sedimentary filling of Harvesting Pit



Water Harvesting pipeline network associated with common Pit

Organic Waste Management

Annexure 7



Organic waste management through Composting

Green initiatives of the College

Annexure 8



Tree Plantation Programmes during the assessment period



Celebration of National Science Day by Bird Watching



Celebration of Ozone Day by Poster Competition



Participation in Eco-friendly Ganesh Festival Campaigning



Water-shade Management during NSS Camp