



Shikshan Prasarak Mandal's
NABIRA MAHAVIDYALAYA
Katol (MS) - 441 302

**GREEN AUDIT
REPORT
2020 - 21**

PREFACE

Today, the human society is facing severe environmental problems like climate change, greenhouse effect, energy crisis, depletion of natural resources, biodiversity loss, pollution of air, water, soil, etc. The ever-increasing population and changing life styles are increasing the severity of the environmental problems. The time has come to protect the natural environment through precise efforts. Sustainable development through higher education provides a pivotal role in nations building. Sustainable development remains barely a significant social, economic or environmental challenge for our country. Though teaching and learning must begin to reflect environmental issues, there is an emerging consensus that institution must also model sustainable practices. Such education contributes strongly to sustainable development by training and expanding young minds in researching solutions to the environmental challenges. After graduation and post graduation, the students become leaders of tomorrow and get dispersed from the world of higher education into their specific career. In doing so, they take with them the green practices and approaches they were involved with at their institutions.

The Green Audit of session -2020-21 of our campus was carried out to find out areas of strengths and weaknesses in environmental management within campus. Findings of the Green Audit Report- 2020-21 showed that the institution conserves paper, electricity and water due adaptations of its good policies, but there is a scope of improvement in electricity generation by adaptation of solar panels. Plant biodiversity is the strength of campus, large tree canopy, big and beautiful central garden and greenery in campus beautifies the campus and automatically neutralize carbon footprint. The report made some recommendations, including recycle of water, tree plantation, segregation of waste at the site which must be added in the Green Policies by college. Now College recognizes the need to function all year round in a manner which minimizes its harmful environmental impact by creating a Green policy. I know that sharing of this report widely generate greater awareness with in campus community.

ShikshanPrasarak Mandal's

Nabira Mahavidyalaya, Katol, Nagpur

Excutive Summary

Environmental and ecological crises are the fruits of rapid urbanization and blind economic development at local, regional and global level. This pushes us to adopt the system of the Green Campus at institutional levels. Our college is very concerned and unconditionally believes that there is an urgent need to address these fundamental problems for reversing the current destructive trends. The aim of this audit is to ensure that the practices followed in the campus are in accordance with the Green Policies adopted by the institution and policies standardised by the NAAC & UGC. The methodology included: preparation and filling up of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. It works on the several facets of 'Green Campus' including Water Conservation, Tree Plantation, Waste Management, Paperless Work, Alternative Energy and Mapping of Biodiversity. With this in mind, the specific objectives of the audit was to evaluate the adequacy of the management control framework of environment sustainability as well as the degree to which the Departments are in compliance with the applicable regulations, policies and standards. It can make a tremendous impact on student health and learning college operational costs and the environment. The criteria, methods and recommendations used in the audit were based on the identified risks.

Introduction

Green Audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. The 'Green Audit' aims to analyse environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience. It was initiated with the motive of inspecting the work conducted within the organizations whose exercises can cause risk to the health of inhabitants and the environment. Through Green Audit, one gets a direction as how to improve the condition of environment and there are various factors that have determined the growth of carrying out Green Audit.

Nabira Mahavidyalaya was established in 1961 by the Danshur Late Shri. Bhikulalji Nabira and the generous people of Katol. It is permanently affiliated (1986) to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur. With the aim to make students reliant it has been working tirelessly and uninterruptedly for the well-being of students and ultimately for the society is proven by the group of alumni who have been placed in all over India, in Indian army as well as in various posts.

Nabira College has an adequate academic and physical infrastructure to cater the need of undergraduate as well as post graduate students of adjoining area of Katol. We have graduate courses in Arts, Commerce and Science discipline and also have post graduate courses Mathematics, Microbiology,

Chemistry, Commerce, M. A. (English), M. A. (History) and M. A. (Marathi) under the affiliation of Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur. Our Institute is an ISO Certified (ISO 9001) which specifies an uncompromising standard in infrastructure. Our college has spacious campus with well equipped facilities for students and staffs. We have spacious and very well aerated classrooms with audio-visual teaching aids, one of the biggest library in the region and big playground for various sports activities. We have well maintained canteen, we equipped gym, beautiful yoga bhavan for all around development of the students. We have a beautiful garden with lush green plants and trees which creates a conducive academic atmosphere for teaching and learning. Our college also provides hostel facility for girls with well furnished facilities.

Vision and Mission Statement:

VISION: Nabira Mahavidyalaya, Katol commits to ensure all round development of students' personality, awakens in them the light of knowledge by dispelling the darkness of ignorance, helps them become self reliant and moulds them into better persons physically, socially and ethically.

MISSION

- To stimulate the academic atmosphere to enhance quality of teaching-learning and research by using modern modes of education.
- To introduce new programmes keeping the current needs of students and society.
- To help students become self reliant
- To offer opportunities to grow educationally and ethically.
- To uplift economically weaker and oppressed class in rural areas.

The vision and mission are displayed in the college campus on boards.

Green audit is one of such concepts or principles introduced to make the educational institute environmentally sustainable. Green audit is a tool to assess general practices implemented by organization in term of its impact on environment. Green audit also throws a light on adverse practices which are responsible for degradation of environment. It shows strength and weakness of organization towards conservation of environment. It is helpful to recognize the need to function around the year in a manner to minimize its harmful environmental impact. It means Green Audit is the base line survey to decide the green policy.

Objectives of the Study

Nowadays, Green Audit of an educational campus is considered very important since it is important part a developed society; and also, a major source for inculcating good practices among the students despite their studies. Plantation drive has always been with our institution right from the beginning but unrecorded. Thus, the objective of this present Green Audit is to recognize, quantify, depict and prioritize

framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are as under:

- To map the Geographical Location of the College Campus
- To map the Floral and Faunal diversity of the college
- To estimate the energy requirements of the college
- To analyze the waste disposal system
- To analyze environmental condition of air, water and noise
- To introduce and create awareness among the students to feel a concern for environment and to maintain it educationally conducive.

Methodology:

The purpose of the green audit of Nabira Mahavidyalaya is to satisfy and verify the norms of the green audit from ecological point of view.

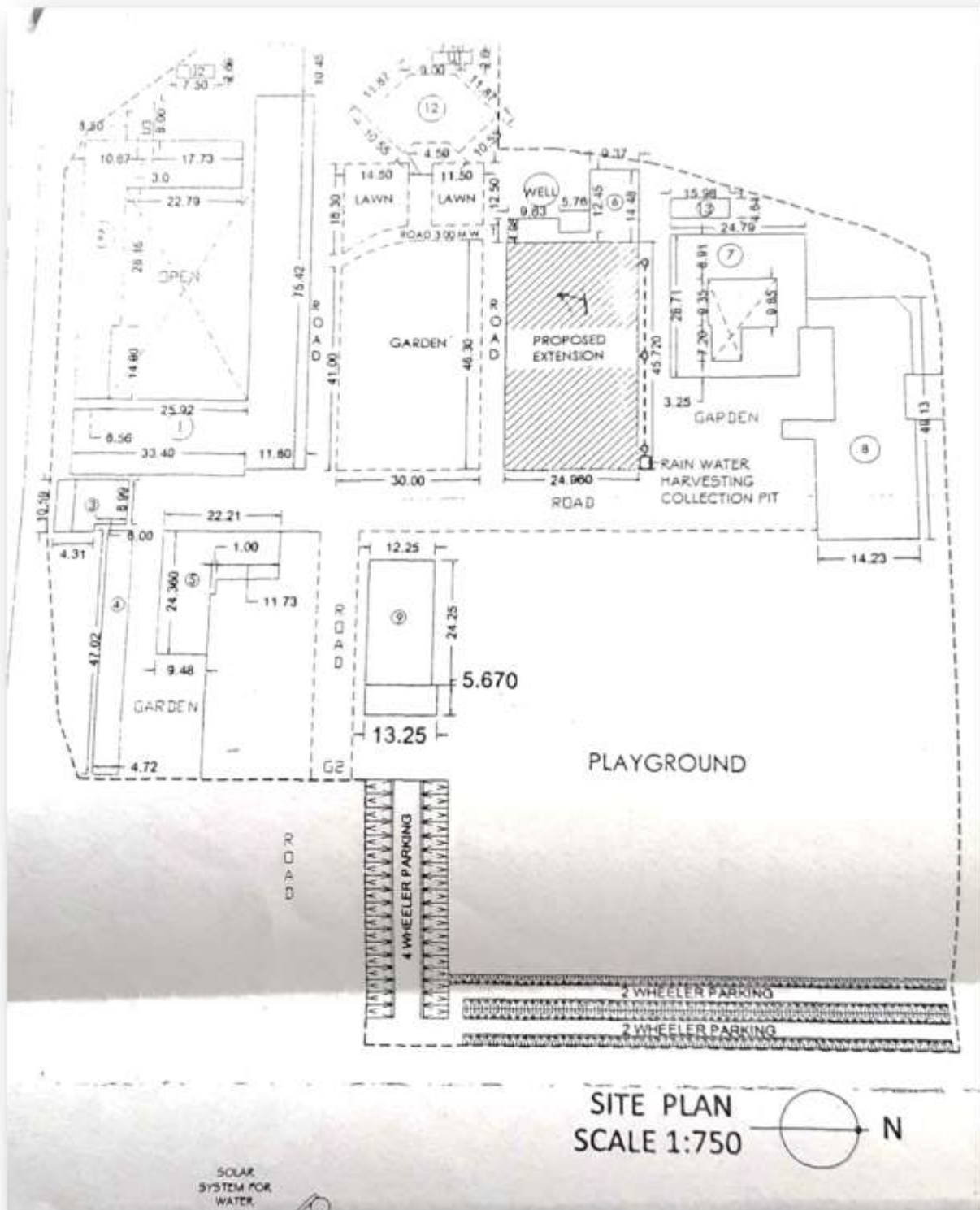
The methodology includes:

- Physical inspection of the campus.
- Observation and review of documents.
- Interviewing key persons and data analysis.
- Organizational level efforts.
- Creating awareness.
- Analysis of access to light and air.
- Cooling and ventilation.
- Operation of electronic equipments.
- Water management.
- Water quality.
- Renewable energy.
- Transportation.
- Carbon footprint.
- Waste management.
- Plantation details.

OBSERVATIONS

GEOGRAPHICAL LOCATION OF CAMPUS





MAP OF THE BUILDING

Land use:

Sustainable land management is “an adoption of land use systems that, through appropriate management practices, enables land users to maximize the economic and social benefits from the land, while maintaining or enhancing the ecological support functions of the land resources.”

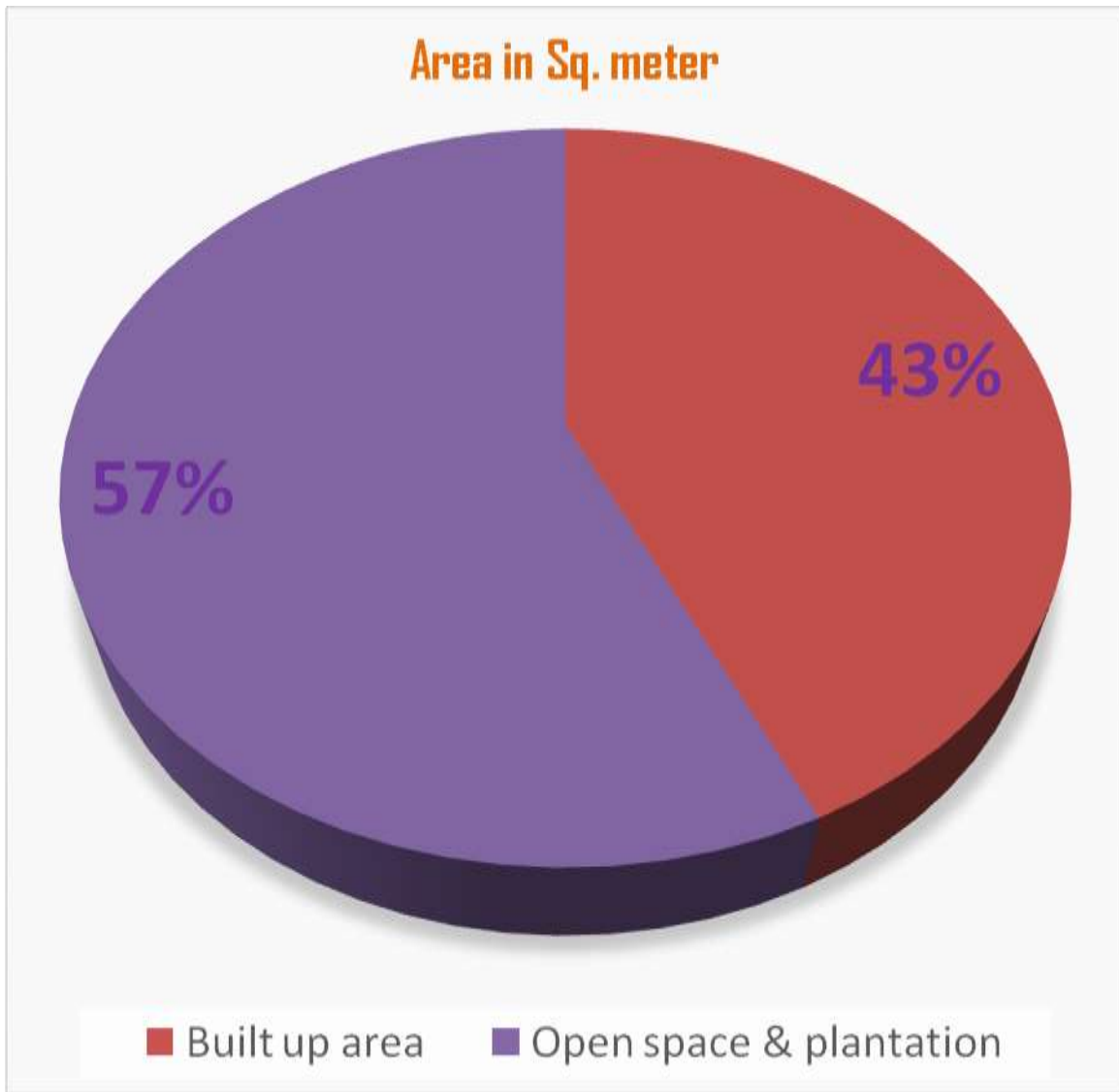
Classification scheme for land use analysis of built-up area:

Level-I	Level-II
1. Built-up land area	1.1 Dense 1.2 Moderate 1.3 Sparse

Thus, attempt has been made in this study to give land use plan i.e., land used for construction and open land in the college campus.

Land use data of Nabira Mahavidyalaya, Katol:

Land use Categories	Area in Sq. metres
Built up area	11549.597
Open space and plantation	15341.764
Total area	26891.361 sq. metres (6.645 acres)



Graphical representation of land use data of Nabira Mahavidyalaya, Katol.

Land use (built up area) analysis:

S. No.	Categories of land use	Area in sq. metres
1.	Administration Block	2876.10
2.	Classrooms	602.49
3.	SPM office	117.81
4.	Store	226.18
5.	MBA	916.44
6.	Pharmacy (Dept. in MBA building)	916.44
7.	Laboratories (Retained structure)	872.32
8.	CR/ADMN. (BEd.)	603.50
9.	Gymnasium	297.00
10.	Staff Quarters	587.88
11.	Library	363.37
12.	Toilet	74.14
13.	Yoga centre (G+1)	142.79

Floral and faunal diversity of the Nabira Mahavidyalaya:

Floral diversity:

Nabira Mahavidyalaya is within the geo-position between latitude 21.274740°N and Longitude 78.581110°E at Katol in the District of Nagpur, Maharashtra, India. It comprises an area of about 6.645 acres. The campus of Nabira Mahavidyalaya is enriched with diversity of plants which serves multiple functions for college and for adjoining locality. Most of the species of trees are pretty old. The diversity of tree of the premises plays very important role in increasing and maintaining quality life. They maintain the high oxygen level, improves air quality index, keep pleasant climate, conserves water, improves soil quality, supports variety of birds and animals. Large shady trees in the premises protect us from noise pollution and air pollution also. A recent survey of plant diversity reveals that we have different families of large trees which sequester lots of organic carbon. Thus, the college campus plays very important role in maintaining and conserving plants of various species and creating an aesthetic ambience for all of us.

We have around 173 varieties of plant species belonging to various herbs, shrubs and trees families. Department of Botany have well maintained medicinal garden with 40 species of medicinal plants. Following table represents the list of plant and total number of plants species present in campus.

College Campus Plant Diversity Index Table

Sr. No.	Name of the plant	Total Numbers
1	Teak (<i>Tectona grandis</i>)	71
2	Christmas tree (<i>Araucaria</i> sp.)	23
3	Mehndi / Hina (<i>Lawsonia inermis</i>)	Multiple
4	Jungle geranium (<i>Ixora coccinea</i>)	17
5	Palm sp.	11
6	<i>Bougainvillea</i> sp.	9
7	Shatavari (<i>Asparagus racemosus</i>)	5
8	Weeping Fig (<i>Ficus benjamina</i>)	38
9	Century Plant / American Aloe (<i>Agave americana</i>) (with yellow stripe)	13

10	Century Plant / American Aloe (<i>Agave americana</i>) (green leaf)	2
11	Caribbean agave (<i>Agave angustifolia</i>)	12
12	<i>Agave heterantha</i>	07
13	Queen Sago (<i>Cycas circinalis</i>) (Endangered species)	4
14	Sago palm (<i>Cycas revoluta</i>)	27
15	<i>Acacia</i> sp.	3
16	Bamboo sp.	32
17	Indian bael (<i>Aegle marmelos</i>)	3
18	She-Oak (<i>Casuarina cristata</i>)	3
19	Red Bottle brush (<i>Callistemon citrinus</i>)	5
20	Traveller's Palm (<i>Ravenala madagascariensis</i>)	1
21	Poinsettia (<i>Euphorbia pulcherrima</i>)	21
22	Christmas flower / snow bush (<i>Euphorbia leucocephala</i>) (white petals)	28
23	Crown of Thorns / Christ plant (<i>Euphorbia milii</i>)	10
24	Copperleaf / Jacob's Coat (<i>Acalypha wilkesiana</i>)	Multiple
25	Casava (<i>Manihot esculenta</i>)	1
26	Guava (<i>Psidium guajava</i>)	13
27	Schott (<i>Araceae</i> sp.)	2
28	Rose (<i>Rosa</i> sp.)	42
29	Little Ruby (<i>Alternanthera dentata</i>)	Multiple
30	<i>Lantana camara</i>	Multiple
31	Groundsel (<i>Senecio vulgaris</i>)	Multiple

32	Coat-buttons or Tridax daisy (<i>Tridax procumbens</i>)	Multiple
33	Ironweed and Poovamkurunnila (<i>Cyanthillium cinereum</i>)	Multiple
34	Money plant / Devil's ivy (<i>Epipremnum aureum</i>)	Multiple
35	The Creeping Wood Sorrel /Sleeping Beauty (<i>Oxalis corniculata</i>)	Multiple
36	Sitafal (<i>Annona squamosa</i>)	5
37	Mogra / Jasmin (<i>Jasminum sambac</i>)	9
38	Egyptian Star Cluster (<i>Pentas lanceolate</i>) (Purplish Pink)	1
39	<i>Dahliasp.</i>	17
40	Heart of Jesus (<i>Caladium bicolor</i>)	1
41	<i>Dracaena fragrans</i>	1
42	Mango (<i>Mangifera indica</i>)	40
43	Ashoka (<i>Saracaasoca</i>)	61
44	Kate Koranti (<i>Barleria prionitis</i>)	2
45	Barberry (<i>Berberis vulgaris</i>)	1
46	Fairy Lily / Magic Lily (<i>Zephyranthes citrina</i>)	Multiple
47	St Bernard's Lilli (<i>Anthericum lilliange</i>)	4
48	Hawkweed (yellow flower) (<i>Hieracium caespitosum</i>)	Multiple
49	Neem (<i>Azadirachta indica</i>)	22
50	Gulmohar (<i>Delonix regia</i>)	28
51	Pipal (<i>Ficus bengalensis</i>)	3
52	Cassia Tree (<i>Senna siamea</i>)	1
53	Royal Palm (<i>Roystonea oleracea</i>)	39

54	Karanji Tree / Pongame Oil Tree (<i>Pongamia pinnata</i> / <i>Millettia pinnata</i>)	7
55	Saptaparni / Devil's Tree (<i>Alstonia scholaris</i>)	59
56	Mauritius hemp (<i>Furcraea foetida</i>)	28
57	Badam Tree (<i>Prunus dulcis</i>)	9
58	Palash Tree (<i>Butea monosperma</i>)	1+
59	Sisam / Indian rosewood (<i>Dalbergia sissoo</i>)	1
60	Neelgiri (<i>Eucalyptus tereticornis</i>)	8
61	(Acacia Coral) <i>Adenanther apavonina</i>	2
62	Chicory (<i>Cichorium intybus</i>)	1
63	Macarthur palm (<i>Ptychosperma macarthurii</i>)	31
64	Areca palm (<i>Dyopsis lutescens</i>)	96
65	Ran-wange creeper (<i>Diplocyclos palmatus</i>)	1
66	Lemon (<i>Citrus limon</i>)	5
67	Golden Shower (<i>Cassia fistula</i>)	7
78	Sonpatta / Aapta Tree (<i>Bauhinia racemose</i>)	4
79	Madhumalati / Rangoon creeper (<i>Combretum indicum</i>)	5
70	Garden Croton (<i>Codiaeum varingatum</i>)	8
71	Indian Shot / Edible Canna (<i>Canna indica</i>)	Multiple
72	Pygmy date palm (<i>Phoenix roebelenii</i>)	3
73	Sathon Tree (<i>Millettialeucantha</i>)	4
74	<i>Ecbolium viride</i> (Purple)	4
75	Water-Willow (<i>Justicia viridis</i>)	1

76	Yellow Bells (<i>Tecoma stans</i>)	3
77	Jambhul / Jamun /Java Plum (<i>Syzygiumcumini</i>)	3
78	Malabar Spinach / Vine Spinach (<i>Basella alba</i>)	1
79	Kassod tree (<i>Senna siamea</i>)	2
80	River tamarind (<i>Leucaena leucocephala</i>)	7
81	Indian Abutilon / Indian Mallow (<i>Abutilon indicum</i>)	2
82	Amla / Indian gooseberry (<i>Phyllanthus emblica</i>)	2
83	Jungle Jalebi / Chichbilai / Manila tamarind (<i>Pithecellobium dulce</i>)	2
84	Ber / Indian Plum (<i>Ziziphus mauritiana</i>)	1
85	Persian Silk Tree (<i>Albizia julibrissin</i>)	6
86	Yellow Oleander / Lucky Nut (<i>Cascabela thevetia</i>)	4
87	Ceylon date (<i>Phoenix pusilla</i>)	1
88	<i>Ceratozamia mexicana</i>	26
89	Asparagus Fern / Foxtail Fern (<i>Asparagus densiflorus</i>)	1
90	Rhais excels (Broodleaf leady)	7
91	<i>Dracaena</i> sp.	2
92	Coconut tree (<i>Cocos nucifera</i>)	3
93	Thuja (Vidya) (<i>Thuja occidentalis</i>)	5
94	<i>Terminalia catappa</i> (Indian almond)	2
95	<i>Dypsissp.</i>	2
96	Thatch Screwpine (<i>Pandanus tectorius</i>)	2
97	Kadunimb / Godnimb	1

98	Dalimb / Pomegranate (<i>Punica granatum</i>)	4
99	<i>Jatropha integerrima</i>	2
100	Firebush (<i>Hamelia patens</i>)	3
101	Snake Plant / Mother-in-law's Tongue (<i>Dracaena trifasciata</i>)	1
102	Pedilanthus (<i>Euphorbia tithymaloides</i>)	1
103	Vinca rosea / Madagascar Periwinkle (<i>Catharanthus roseus</i>)	9
104	Broadleaf Lady Palm / Bamboo Palm (<i>Rhapis excelsa</i>)	1
105	Windmill Palm (<i>Trachycarpus fortunei</i>)	1
106	<i>Roulphiglla tetraphylla</i>	1
107	Ashwagandha (<i>Asparagus racemosus</i>)	1
108	Sweet flag (<i>Acorus calamus</i>)	1
109	Hibiscus sp.	3
110	Lajjalu / Shame-Plant (<i>Mimosa pudica</i>)	20
111	Dumb-cane (<i>Dieffenbachia seguine</i>)	1
112	Nirgudi (<i>Vitex negundo</i>)	1
113	Behada (<i>Terminalia bellirica</i>)	1
124	Bael / Bengal Quince / Golden Apple / Stone Apple / Stone Apple / Japanese Bitter Orange (<i>Aegel marmelose</i>)	1
125	Khas (<i>Chrysopogon zizanioides</i>)	3
126	Godlimb / Curry Tree (<i>Murraya koenigii</i>)	3
127	Karwand / Carandas Plum / Karanda (<i>Carissa carandas</i>)	1
128	Adulsa / Adhatoda / Vasa / Vasaka / Malabar nut (<i>Justicia adhatoda</i>)	1

129	Turmeric (<i>Curcuma Longa</i>)	5
130	Arjun (<i>Terminalia arjuna</i>)	1
131	Guggul / Indian Bdellium Tree (<i>Commiphora mukul / Commiphora wightii</i>)	1
132	Ghrita - Kumari (<i>Aloe vera</i>)	10
133	Kalmi / Tezpat / Tezapatta / Indian Bay Leaf / Malabar Leaf / Indian Bark / Indian Cassia / Malabathrum (<i>Cinnamomum tamala</i>)	1
134	TaunTree (<i>Pometia pinnata</i>)	1
135	Devil's Backbone (<i>Cissus quadrangularis</i>)	1
136	Mulethi / Jesthmadh (<i>Glycyrrhiza glabra</i>)	1
137	Manoranjitham (<i>Artabotrys hexapetalus</i>)	1
138	Elephant ears / Taro (<i>Colocasia sp.</i>)	2
139	Eastern redbud (<i>Cercis canadensis</i>)	1
140	Devil's Pepper (<i>Rauvolfiatetraphylla</i>)	2
141	Lime Berry (<i>Triphasiatrifolia</i>)	1
142	Lajjalu / Shame-Plant (<i>Mimosa pudica</i>)	10
143	Lambogo Criculata	1
144	Sadafuli / Milkwood (<i>Tabernaemontana sp.</i>)	1
145	<i>Vinca rosea</i>	1
146	Common Reed (<i>Phragmites australis</i>)	Many
147	Asparagus (<i>Asparagus officinalis</i>)	Many
148	Godlimb / Curry Tree (<i>Murraya koenigii</i>)	1
149	Sugarcane	10

150	Krishna Kamal / Yellow passionflower (<i>Passiflora lutea</i>)	1
151	Nerium (<i>Nerium oleander</i>)	2
152	Kunda / Star Jasmine (<i>Jasminum pubescens</i>)	2
153	Kate Korati / Vajradanti / Porcupine Flower (<i>Barleriaprionitis</i>)	1
154	DudhMogra (<i>Jasminum sambac</i>)	1
155	Barbary Fig Cactus (<i>Opuntia ficus-indica</i>)	2
156	Globe Cactus (<i>Mammillaria</i> sp.)	1
157	Cactus (<i>Cereus jamacaru</i>)	2
158	Ti Plant / Palm Lily (<i>Cordyline fruticose</i>)	3
159	Umber / Cluster Fig Tree / Indian Fig Tree (<i>Ficus racemosa</i>)	4
160	Khas / Vetiver (<i>Chrysopogon zizanioides</i>)	1
161	Yellow Alder (<i>Turnera ulmifolia</i>)	1
162	PatharKuchi / Air plant / Life plant / Miracle Leaf (<i>Bryophyllum pinnatum</i>)	5
163	Purple Heart (<i>Tradescantia pallida</i>)	2
164	Lady Fern (<i>Athyrium filix-femina</i>)	20
165	Ponytail palm / Elephant's Foot (<i>Beaucarnea recurvata</i>)	1
166	Caricature Plant (<i>Graptophyllum pictum</i>)	2
167	Garden croton (<i>Codiaeum variegatum</i>)	2
168	Jambhul / Jamun /Java Plum (<i>Syzygium cumini</i>)	1
169	Dalimb / Pomegranate (<i>Punica granatum</i>)	1
170	Yellow Margin Orchid / Golden Leaf-edge Orchid / Golden-edged Orchid (<i>Cymbidium floribundum</i>)	3

171	Pudina / Apple Mint (<i>Mentha suaveolens</i>)	2
172	Boat Lily / Moses-in-the-cradle (<i>Tradescantia spathacea</i>)	3
173	White Spider Lily (<i>Lycoris radiata</i>)	2

Faunal Diversity of Nabira Mahavidyalaya, Katol:

Nabira College is located at Katol, which has suitable soil for citrus family which enriches with citrus fruits and different types of fruits like guava, papaya, different types of berries, leafy vegetables and different types of flowers which are the main source of attraction for birds, bees, and different animals. the climatic condition of Nagpur district is favourable for various flora and fauna to enrich biodiversity. the faunal diversity of our college is as under:

Green Waste Management:

Our campus is a lush green campus. We have a big central garden and medicinal garden of botany department and all the campus is covered with big green trees. So, we have lots and lots of green leaves waste generated every day in the campus area. To dispose this green waste, we have vermicompost unit at our campus. Whole the green waste is put into the pit and the compost generated is of very high quality. We use this organic manure in our campus for our vegetation.

Clean Drive:

Every year we conduct many cleanliness drives. All the students, NCC and NSS students all participate in these programs. Not only in our campus we also organised cleanliness drives in surrounding local areas. The main aim is to educate them about the importance of keeping their surrounding clean and neat.

Clean Energy and Energy Conservation:

As a part of clean energy drive, we have initially implanted small solar lights with automated sensor based on/off mechanism. Our aim is to increase the use of solar energy and reduce the dependency on regular electric energy. We have also replaced 95% of campus CFL lights with the LED lights.

Conclusion: Considering the fact that the institution is predominantly an education temple, there is significant environmental research both by faculty and students. The environmental awareness initiatives are substantial. The installation of solar panels and system are noteworthy. Besides, environmental awareness

programmes initiated by the administration shows how the campus is going green. Few recommendations are added to curb the menace of waste management using eco-friendly and scientific techniques. This may lead to the prosperous future in context of Green Campus & thus sustainable environment and community development.

Recommendations

Reduce the absolute amount of waste that is produced from college staff offices. Make full use of all recycling facilities provided by government authority and private suppliers, including glass, cans, white, coloured and brown paper, plastic bottles, batteries, print cartridges, cardboard and furniture. Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated.

Important and confidential paper documents after their validity to be sent for pulping. Vermicomposting should be adopted on at least 200-400 sq. ft. of land.

Review periodically the list of trees planted in the garden, allot numbers to the trees and keep records.

Promote environmental awareness as a part of course work in various curricular areas, independent research projects, and community service.

Create awareness of environmental sustainability and take actions to ensure environmental sustainability.

Establish a College Environmental Committee that will hold responsibility for the enactment, enforcement and review of the Environmental Policy.

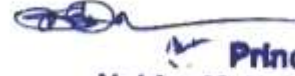
External Agency



(Dr Raju Yadav)



Dr S. K. Navin



Principal Nabira Mahavidyalaya,
Katol
Nabira Mahavidyalaya Katol

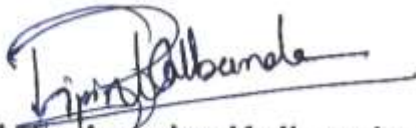


Dr Vikas Barsagade

IQAC, Coordinator
Co-Ordinator
IQAC, NMV Katol



Dr Trupti Khedkar
Internal Auditor



Dr Bipinchandra Kalbande
Internal Auditor



Dr Reena Meshram
Internal Auditor

