

Green Audit Report

Government Institute of Science, Aurangabad

Page | 1



Picturesque view of the Institute from the Aurangabad cave

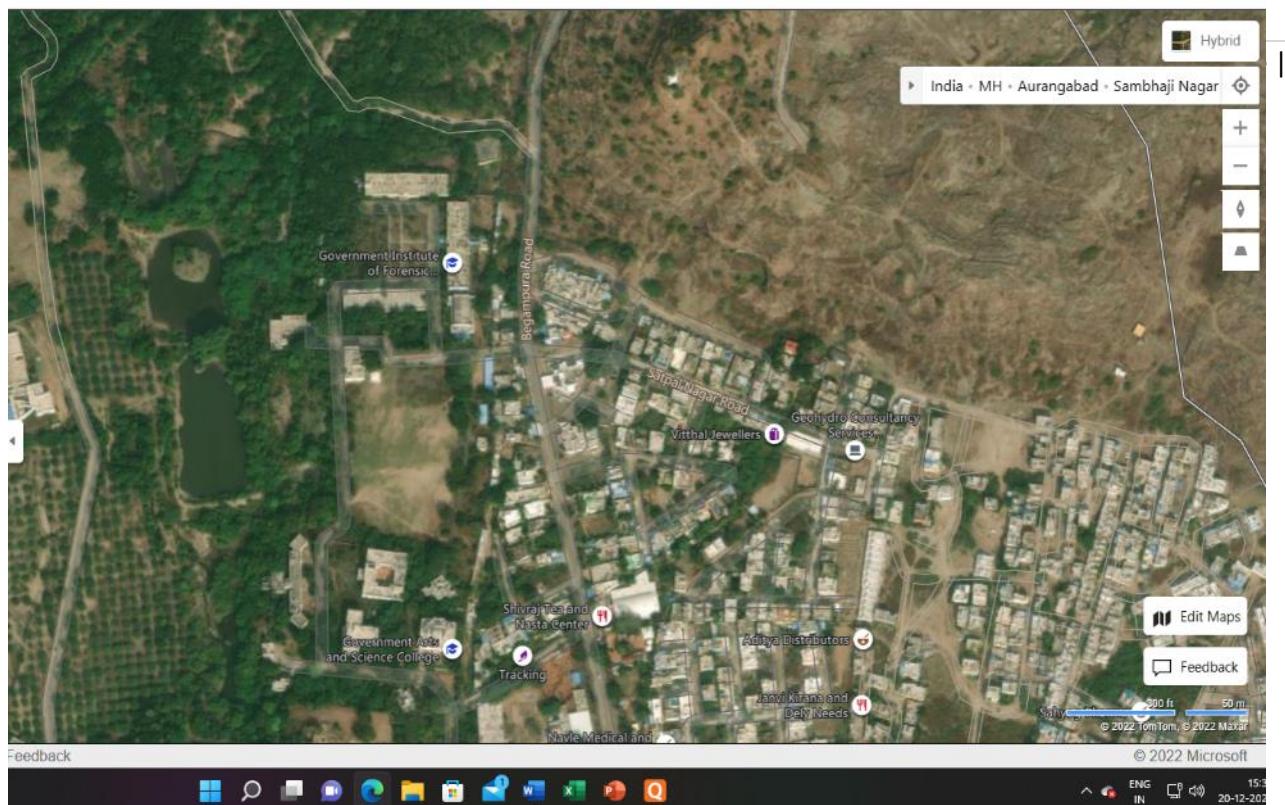
INTRODUCTION:

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of institute. It aims to analyse environmental practices within and outside of the concerned place, which will have an impact on the eco-friendly atmosphere. Green audit is a valuable means for the institution to determine how and where they are using the most energy or water or other resources. The college can then consider how to implement changes and make savings. 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. 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 CO₂ 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.

OBJECTIVES: In recent time, 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. The institution is putting efforts to keep our environment clean since its inception as it is in the vicinity of the famous Aurangabad caves and nearby the Dr. Babasaheb Ambedkar Marathwada University, Aurangabad. 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-

- ✓ To map the Geographical Location of the institution



- ✓ To document the floral and faunal diversity of the institute

Geographical Location of the Institution :Latitude and Longitude $19^{\circ}54'39''$ N $75^{\circ}18'51''$ E

Location map of the Government Institute of Science, Aurangabad Source

<https://www.bing.com/maps?q=Govt+institute+of+Science+Aurangabad&F>



Page | 4

Department of Microbiology and Department of Biotechnology



Boys Hostel Building



ge | 5

Minority Girls Hostel Building



List of Plants in the Institute Campus

Sr. no	Botanical name	Family
1	<i>Abrusprecatorius</i>	Fabaceae
2	<i>Abutilon</i>	Malvaceae
3	<i>Acaicanilotica</i>	Mimosaceae
4	<i>Acalypha indica</i>	Euphorbaceae
5	<i>Acalypha malabaica</i>	Euphorbiaceae
6	<i>Acanthospermumhispidum</i>	Asteraceae
7	<i>Achyranthes aspera</i>	Amaranthaceae
8	<i>Adhatoda vesica</i>	Acanthaceae
9	<i>Aegelmarmelos</i>	Rutaceae
10	<i>Agave Americana</i>	Agavaceae
11	<i>Ageratum conyzoides</i>	Asteraceae
12	<i>Ailanthus excels</i>	Simaroubaceae
13	<i>Albezzialebbeck</i>	Mimoceae
14	<i>Aloe vera</i>	Lilaceae
15	<i>Alstoniascholaris</i>	Apocynaceae
16	<i>Alternantherasessilis</i>	Amaranthaceae
17	<i>Alysicarpus</i>	Fabaceae
18	<i>Andrographis echiooidesRoxb</i>	Acanthaceae
19	<i>Annona reticulate</i>	Annonaceae
20	<i>Annona squamosa L.</i>	Annonaceae
21	<i>Argemone maxicana</i>	Papavaraceae
22	<i>Argyreiaacymosa</i>	Convolvulaceae
23	<i>Asparagus racemosus</i>	Asparagaceae
24	<i>Atylosiascarabaeoides</i>	Fabaceae
25	<i>Azadirachta indica</i>	Meliaceae
26	<i>Balaniatisaegyptiaca</i>	Balnatiaceae
27	<i>Bambusa vulgaris</i>	Poaceae
28	<i>Barleriaprionitis</i>	Acanthaceae
29	<i>Bauhinia recemosa</i>	Caesalpiniaceae
30	<i>Bauhinia variegata</i>	Caesalpiniaceae
31	<i>Biophytumsenstivum</i>	Oxalidaceae
32	<i>Boerhaviadiffusa</i>	Nyctanginiaceae
33	<i>Bougainvillea spectabilis</i>	Nyctanginiaceae
34	<i>Bryophyllumcalycinum</i>	Crassulaceae
35	<i>Butea monosperma</i>	Fabaceae
36	<i>Caesalpinia pulcherrima</i>	Caesalpiniaceae
37	<i>Calotropis gigantean</i>	Ascleapidaceae
38	<i>Calotropis procera</i>	Asclepiadaceae
39	<i>Carrisacongesta</i>	Apocyanceae
40	<i>Caryotaurens</i>	Areaceae
41	<i>Cassia absus</i>	Caesalpiniaceae

42	<i>Cassia auriculata</i>	Caesalpiniaceae
43	<i>Cassia fistula</i>	Caesalpiniaceae
44	<i>Cassia siamea</i>	Caesalpiniaceae
45	<i>Cassia tora</i>	Caesalpiniaceae
46	<i>Cassia uniflora</i>	Caesalpiniaceae
47	<i>Casuarina equisetifolia</i>	Casuarinaceae
48	<i>Cissus quadrangularis</i>	Vitaceae
49	<i>Citrus aurantium</i>	Rutaceae
50	<i>Cleome viscosa</i>	Cleomaceae
51	<i>Cocculus hirsutus</i>	Menispermaceae
52	<i>Commelinabemghalensis</i>	Commelinaceae
53	<i>Convolvulus arevensis</i>	Convolvulaceae
54	<i>Cordia diacotoma</i>	Boraginaceae
55	<i>Crotalaria</i>	Fabaceae
56	<i>Croton bonplandianum</i>	Euphorbiaceae
57	<i>Cynodon dactylon</i>	Poaceae
58	<i>Cyonotis fasciculata</i>	Commelinaceae
59	<i>Dalbergia sissoo</i>	Fabaceae
60	<i>Datura ferox</i>	Solanaceae
61	<i>Datura inoxia</i>	Solanaceae
62	<i>Datura metel</i>	Solanaceae
63	<i>Datura stramonium</i>	Solanaceae
64	<i>Delonix regia</i>	Caecalpinaceae
65	<i>Desmanthus virgatus</i>	Mimosaceae
66	<i>Diplocyclos palmatus</i>	Cucurbitaceae
67	<i>Duranta erecta</i>	Verbenaceae
68	<i>Ecbolium viride</i>	Acanthaceae
69	<i>Emblica officinalis</i>	Euphorbiaceae
70	<i>Enicostema axillare</i>	Gentianaceae
71	<i>Eragrostis ciliaris</i>	Poaceae
72	<i>Eucalyptus globulus Labill</i>	Myrtaceae
73	<i>Euphorbia glandiflora</i>	Euphorbiaceae
74	<i>Euphorbia hirta</i>	Euphorbiaceae
75	<i>Ficus amplissima</i>	Moraceae
76	<i>Ficus recemosa</i>	Moraceae
77	<i>Ficus religiosa</i>	Moraceae
78	<i>Gliricidia sepium</i>	Fabaceae
79	<i>Hamelia patens</i>	Rubiaceae
80	<i>Hemidesmus indicus</i>	Apocynaceae
81	<i>Hibiscus rosa-sinensis</i>	Malvaceae
82	<i>Hibiscus trilobata</i>	Malvaceae
83	<i>Hyptis suaveolens</i>	Lamiaceae
84	<i>Indigofera cordifolia</i>	Fabaceae
85	<i>Indigofera glandulosa</i>	Fabaceae
86	<i>Indigofera linifolia</i>	Fabaceae

87	<i>Ipomea</i>	Convolvulaceae
88	<i>Ipomea nil.</i>	Convolvulaceae
89	<i>Jasminum arborescence</i>	Oleaceae
90	<i>Jatropaintegerrima</i>	Euphorbiaceae
91	<i>Jatropha gassypifolia</i>	Euphorbiaceae
92	<i>Justicia difussa</i>	Acanthaceae
93	<i>Lagascamollis</i>	Asteraceae
94	<i>Lantana camara</i>	Verbinaceae
95	<i>Launaea procumbence</i>	Asteraceae
96	<i>Lavandula bipinnata</i>	Lamiaceae
97	<i>Lawsonia inermis</i>	Lythraceae
98	<i>Leonotis nepetifolia</i>	Lamiaceae
99	<i>Lepedogathistrinervis</i>	Acanthaceae
100	<i>Leucas aspera</i>	Lamiaceae
101	<i>Malvastrum coromandelianum</i>	Malvaceae
102	<i>Mangifera indica</i>	Anacardiaceae
103	<i>Martynia annua</i>	Martantaceae
104	<i>Melia azedarach</i>	Meliaceae
105	<i>Mimosa pudica</i>	Mimoaceae
106	<i>Murrayakoenigii</i>	Rutaceae
107	<i>Murrayapaniculata</i>	Rutaceae
108	<i>Nerium indicum</i>	Apocynaceae
109	<i>Nymphaea nouchali</i>	Nymphaeaceae
110	<i>Oscimum americanum</i>	Lamiaceae
111	<i>Oscimum basilicum</i>	Lamiaceae
112	<i>Oxalis corniculata</i>	Oxalidaceae
113	<i>Parthenium hysterophorus</i>	Asteraceae
114	<i>Phyllanthus niruri</i>	Euphorbiaceae
115	<i>Physalis minima</i>	Solanaceae
116	<i>Pisidium guayava</i>	Myrtaceae
117	<i>Pithecellobium dulce</i>	Fabaceae
118	<i>Polyalthia longifolia</i>	Annonaceae
119	<i>Polygala arvensis</i>	Polygylaceae
120	<i>Pongamia pinnata</i>	Fabaceae
121	<i>Prosopis juliflora</i>	Mimosaceae
122	<i>Pulicaria angustifolia</i>	Asteraceae
123	<i>Pupalialaapacea</i>	Amranthaceae
124	<i>Quisqualis indica</i>	Combretaceae
125	<i>Ricinus communis</i>	Euphorbiaceae
126	<i>Santalum album</i>	Santalaceae
127	<i>Sapota achras</i>	Sapotaceae
128	<i>Sasbania aculeate</i>	Fabaceae
129	<i>Setaria pumila</i>	Poaceae
130	<i>Sida acuta</i>	Malvaceae
131	<i>Solanum diaphyllum</i>	Solanaceae

132	<i>Solanum virginianum</i>	Solanaeae
133	<i>Spathodea campanulata</i>	Bignoniaceae
134	<i>Tamarindus indica</i>	Ceasalpinaceae
135	<i>Tecoma stans</i>	Bignoniaceae
136	<i>Tectona grandis</i>	Verbenaceae
137	<i>Tephrosia purpurea</i>	Fabaceae
138	<i>Termenalia bellirica</i>	Combritaceae
139	<i>Terminalia catappa</i>	Combritaceae
140	<i>Thevetia peruviana</i>	Apocynaceae
141	<i>Thunbergia fragrans</i>	Acanthaceae
142	<i>Tinospora cordifolia</i>	Menispermaceae
143	<i>Tribulus terrestris</i>	Zygophyllaceae
144	<i>Tridex procumbens</i>	Asteraceae
145	<i>Triumfetta rotundifolia</i>	Tiliaceae
146	<i>Vernonia cinera</i>	Asteraceae
147	<i>Vigna trilobata</i>	Fabaceae
148	<i>Vinca rosea</i>	Apocynaceae
149	<i>Vitex negundo</i>	Verbinaceae
150	<i>Withania somnifera</i>	Solanaceae
151	<i>Xanthium strumarium</i>	Asteraceae
152	<i>Ziziphus jujuba</i>	Rhamnaceae

Quantitatively analysis of the plant data from the campus using Shannon-Weaver Diversity Index

Sr. No	Families	Species in campus	Number in sample (count)	Relative abundance "Pi"	LN "Pi"	Pi * LN(Pi)	10
1	Acanthaceae	<i>Justicia adhatoda</i>	20	0.030487805	-3.49043	-0.106415504	
2	Anacardiaceae	<i>Mangifera indica</i>	3	0.004573171	-5.38755	-0.024638179	
3	Annonaceae	<i>Annona squamosa</i>	7	0.010670732	-4.54025	-0.048447796	
4	Annonaceae	<i>Annona reticulata</i>	1	0.00152439	-6.48616	-0.00988744	
5	Apocynaceae	<i>Plumeria</i>	1	0.00152439	-6.48616	-0.00988744	
6	Arecaceae	<i>Palm tree</i>	1	0.00152439	-6.48616	-0.00988744	
7	Bignoniaceae	<i>Tecoma stans</i>	15	0.022865854	-3.77811	-0.086389724	
8	Cactaceae	<i>Cactus</i>	2	0.00304878	-5.79301	-0.017661627	
9	Caricaceae	<i>Carica papaya</i>	5	0.007621951	-4.87672	-0.037170144	
10	Combretaceae	<i>Terminalia bellirica</i>	1	0.00152439	-6.48616	-0.00988744	
11	Cycadaceae	<i>Cycas</i>	1	0.00152439	-6.48616	-0.00988744	
12	Fabaceae	<i>Polyalthia longifolia</i>	50	0.076219512	-2.57414	-0.196199526	
13	Fabaceae	<i>Leucaena leucocephala</i>	50	0.076219512	-2.57414	-0.196199526	
14	Fabaceae	<i>Sambucus nigra</i>	2	0.00304878	-5.79301	-0.017661627	
15	Fabaceae	<i>Guilandina bonduc</i>	2	0.00304878	-5.79301	-0.017661627	
16	Fabaceae	<i>Pithecellobium dulce</i>	3	0.004573171	-5.38755	-0.024638179	
17	Fabaceae	<i>Saraca asoca</i>	1	0.00152439	-6.48616	-0.00988744	
18	Fabaceae	<i>Dalbergia sissoo</i>	249	0.379573171	-0.96871	-0.367695526	
19	Fabaceae	<i>Pongamia pinnata</i>	27	0.041158537	-3.19032	-0.131309064	
20	Fabaceae	<i>Acacia Arabica</i>	14	0.021341463	-3.8471	-0.082102818	
21	Fabaceae	<i>Senna marilandica</i>	18	0.027439024	-3.59579	-0.098664943	
22	Fabaceae	<i>Acacia farnesiana</i>	6	0.009146341	-4.6944	-0.042936597	
23	Fabaceae	<i>Earleaf acacia</i>	6	0.009146341	-4.6944	-0.042936597	
24	Fabaceae	<i>Delonix regia</i>	13	0.019817073	-3.92121	-0.077706934	
25	Fabaceae	<i>Abrus precatorius</i>	1	0.00152439	-6.48616	-0.00988744	
26	Fabaceae	<i>Butea monosperma</i>	3	0.004573171	-5.38755	-0.024638179	
27	Lythraceae	<i>Lawsonia inermis</i>	2	0.00304878	-5.79301	-0.017661627	
28	Malvaceae	<i>Hibiscus rosa-sinensis</i>	2	0.00304878	-5.79301	-0.017661627	
29	Meliaceae	<i>Azadirachta indica</i>	102	0.155487805	-1.86119	-0.289392033	
30	Meliaceae	<i>Khaya sinegelensis</i>	1	0.00152439	-6.48616	-0.00988744	
31	Meliaceae	<i>Ailanthus excelsa</i>	7	0.010670732	-4.54025	-0.048447796	
32	Moraceae	<i>Ficus religiosa</i>	1	0.00152439	-6.48616	-0.00988744	
33	Moraceae	<i>Ficus benghalensis</i>	2	0.00304878	-5.79301	-0.017661627	
34	Moringaceae	<i>Moringa oleifera</i>	1	0.00152439	-6.48616	-0.00988744	
35	Myrtaceae	<i>Syzygium cumini</i>	6	0.009146341	-4.6944	-0.042936597	
36	Myrtaceae	<i>Eucalyptus</i>	6	0.009146341	-4.6944	-0.042936597	
37	Phyllanthaceae	<i>Phyllanthus emblica</i>	1	0.00152439	-6.48616	-0.00988744	
38	Poaceae	<i>Bambusa vulgaris</i>	2	0.00304878	-5.79301	-0.017661627	
39	Punicaceae	<i>Punica granatum</i>	1	0.00152439	-6.48616	-0.00988744	
40	Rhamnaceae	<i>Ziziphus mauritiana</i>	9	0.013719512	-4.28894	-0.058842113	

41	Rosaceae	<i>Almond</i>	3	0.004573171	-5.38755	-0.024638179
42	Rutaceae	<i>Murrayakoenigii</i>	2	0.00304878	-5.79301	-0.017661627
43	Rutaceae	<i>Citrus limon</i>	1	0.00152439	-6.48616	-0.00988744
44	Rutaceae	<i>Aegle marmelos</i>	1	0.00152439	-6.48616	-0.00988744
45	Santalaceae	<i>Santalum album</i>	1	0.00152439	-6.48616	-0.00988744
46	Sapindaceae	<i>Sapindusmukorossi</i>	1	0.00152439	-6.48616	-0.00988744
47	Sapotaceae	<i>Manilkara zapota</i>	1	0.00152439	-6.48616	-0.00988744
48	Verbenaceae	<i>Tectona grandis</i>	1	0.00152439	-6.48616	-0.00988744
		Total	656	1		-0.31321515
				(Above should equal 1!!)		0.31321515
					H' =	1.367815786

Page | 11

The campus is diverse in floral and fauna c



Paradise Fly catcher



Indian Peacock (Pavacristatus)



Page | 12

Rattle snake



Black Drongo Black Crowned sparrow lark



Red Vented Bulbul

