

## **1. Introduction :**

The term “Green” indicates eco-friendly or not damaging the environment. Recently it was observed that in scenario people are not much caring about nature. Human activities are directly or indirectly damaging the environment and it in to different environmental issues. Change in the eco system is occurred mostly due to the increase in world population, enormous advancement in science & technology & globalization. The problems arise due to this are global warming, depletion of ozone layers, air pollution, water pollution etc. ‘Green Audit’ also called as ‘Environmental Audit’ is the most efficient & ecological way to solve such a environmental problems.

Further clean and healthy environment is one of the desired pre-requisites in any educational institution. To fulfill this, our institution emphasizes on adopting good green practices and creates environment awareness amongst all its stakeholders. Active participation of stakeholders facilitates this process of making campus eco-friendly. The strategies used to make campus eco-friendly are adopting energy conservation practices, effective waste management, waste water treatment and plantation for making the campus clean, green and healthy. Further various green practices are rain water harvesting, solar street lamps, solid and liquid waste, Greening the campus, No vehicle day. Further college has active Eco club which conducts various activities to increase awareness amongst students such as awareness rallies, different competitions. Further academic activities such as study tours/ visits to biodiversity places, camps: cleaning of campus and the nearby villages on different occasion and projects are also arranged in accordance to imply Green policy.

### **1.1 Objectives of the green audit:**

Objectives set by the institute to go green are

1. Implement term ‘Go green’ – Making the campus green in every possible way and foster environmental literacy
2. To identify and implement opportunities to save energy.
3. Encourage everybody to avoid pollution and to see that proper steps are being taken to control or to prevent pollution.

4. To reduce solid and liquid waste and adopt green methods to dispose waste and monitor the processes.
5. Health and safety practices.
6. Minimize human exposure to risks from environmental health and safety problems  
Encourage to adopt Green culture and to contribute in resource conservation

In order to achieve above objectives following action plan is prepared and activities are continuously monitored.

### **1.2 Main activities to sustain green performance are:**

- Curriculum included with Environmental studies as subject at second year for all undergraduate students
- Plantation and tree nurturing in campus
- Rain water harvesting system
- Solar panel units
- Observation of environmental nature awareness days and events through ECO club
- Architectural design for natural ventilation and more natural light
- Use of energy efficient devices
- Generators with noise guards
- Display boards to aware stakeholders to avoid wastage of water and energy
- Mock drills for switching off electrical equipments
- Use of minimum prints with utilization both sides of paper
- Disposal of solid and E waste through transfer to authorized agencies for recycling through write off
- Wormy Composting
- Use of recycled waste water for gardens and trees
- Declaration of No smoking zones in the Institute.
- Promotion of eco friendly campus and avoid litter

### 1.3 Profile of the Institute :

Institute sprawls on total area of 15175.71 sq. mts with carpet area of 7000 sq mts. which consists of administrative building with offices, departments with classrooms, laboratories, library and canteen. There is open ground of 8195 sq. mts consisting garden along with parking facility for Institute buses. The constructed area consists of five separate buildings viz. old west side building, old science building, new science building, new BCA building, administrative building and library building. Total area under class rooms; 2259 sq. mts.

Location	Urban
Campus area	3.7515 acres 15175.71 sq.mts.
Carpet area	7000 sq mts.
Old building	155.65 sq.mts.
Toilet blocks	78.42 sq.mts.
Near Urinals room	41.80 sq.mts.

**Table 1 Details of the campus area**



**Photo 1-Campus map.**

### 2. Green spaces in the campus and their maintenance :

Trees and plants are of immense importance as they maintain aesthetics and have potential to make ambience living. They have important part in our well being. A garden might serve as a tranquil retreat in everyday life. There is an accumulated evidence of the influence of

the landscapes and plants surrounding the working building on people's health, from ancient times to the present day. These landscapes are acting as 'Healing Gardens'.

Institute has substantial allocation of space for green cover layout resulting in good canopy. The garden of the institute is maintained by all the stake holders and Department of Botany is looking after it with the help of comprehensive set of garden equipment. Campus has landscaping with different ornamental plants and shady trees. Trimmed away branches, dried leaves are used to mulch the soil and to avoid evaporation after watering. The institute has made all efforts to maintain surroundings green by adding potted plants and growing plants along the length of the wall compound and planting trees in the vicinity of the college. The institute has developed a campus garden having varieties of plants of botanical interest and medicinal plants. In the terrace garden, there are number of ornamental plants as well as plants required for practical. Leaf litter is used for vermin-composting for garden plants.





**Photo 2-View of garden in campus**

### 2.1 Common trees in campus:

Varieties of trees occurring in surrounding area of the institute are as follow. There are big old trees in various places in campus which are maintained considering their ecological services. Some of the commonly available tree species in campus are as follow.

Sr. No.	Name of the Plant	Common Name	Origin
1.	<i>Acalyphahispida. Burm.f.</i>	Acalypha	Euphorbiaceae
2.	<i>Acrocarpus sps.</i>		Fabaceae
3.	<i>Acampepraemorsa (Roxb.) Blatt.&amp;McC.</i>	Bande	Orchidaceae
4.	<i>Adenantherapavonina</i>		Fabaceae
5.	<i>Adhatoda zeylanica Medik.</i>	Adulsa	Acanthaceae
6.	<i>Adenium Sps.</i>		Apocynaceae
7.	<i>Aegle marmelos(L). Corr.</i>	Bel.	Rutaceae
8.	<i>Agalonema commutatum Schott.</i>	Agalonema	Araceae
9.	<i>Agalonema pseudobracteatum</i>		Araceae
10.	<i>Agave Americana L. var. Americana</i>	Ghaypat	Agaceae
11.	<i>Albizzia lebbek(L). wild</i>	Shirish	Fabaceae
12.	<i>Allamanda cathartica L.</i>	Allamanda	Apocynaceae
13.	<i>Alstonia macrophylla Wall. Ex. G.Don</i>		Apocynaceae
14.	<i>Aloe vera (L). Burm.</i>	Korphad	Asphodelaceae
15.	<i>Andrographis paniculata(Burm.f.f.). Wall. ex.</i>	Kalmegh India	Acanthaceae

	<i>Nees</i>		
16.	<i>Aphanostachys rohitaka</i>		Meliaceae
17.	<i>Antiaris taxicaria</i>	Chandkota ( Australia)	Moraceae
18.	<i>Aralia papyrifera</i> Hook.	Aralia	Araliaceae
19.	<i>Araucaria</i>		Araucariceae
20.	<i>Aristolochi aringens</i>	Badakvel	Aristolochiceae
21.	<i>Artocarpus heterophyllus</i> Lam.	Phanas ( Jackfruit)	Moraceae
22.	<i>Asparagus oficalis</i> L.	Shatawri	Aspargaceae
23.	<i>Azolla Sps.</i>		Salviniaceae
24.	<i>Averrhoa bilimbi</i> L.	Bilumbi	Oxiliadaceae
25.	<i>Azadirachta indica</i> Juss.	Margosa	Meliaceae
26.	<i>Bahumia purpurea</i> L.	Apata	Fabaceae
27.	<i>Barleria prionitis</i> L.	Koranti	Acanthaceae
28.	<i>Bauhinia acuminata</i>	Kanchan	Bignoniaceae
29.	<i>Bignonia venusta</i> (Ker.-Gawl.) Malers	Sankrantvel	Fabaceae
30.	<i>Bismarkia nobilis</i> Hilder.		Araceae
31.	<i>Bixa orellana</i> L.	Shendari	Bixaceae
32.	<i>Bougainvillea spectabilis</i> wild.	Boganvel	Nyctaginaceae
33.	<i>Bryophyllum pinnatum</i> Oken.	Panphuti	Crassuliaceae
34.	<i>Calathea zebrina</i>	Zebra plant	Mananataceae
35.	<i>Caryota urens</i> L.	Bherali Mad	Araceae
36.	<i>Caesalpinia pulcherima</i> (L). Sw.	Sankasur	Caesalinaceae
37.	<i>Careya arborea</i>	Kumbhi	Lecythidaceae
38.	<i>Caladium bicolor</i> (Ait.ex.Dryand.) Vent.Descr.		Araceae
39.	<i>Clausena anisata</i>		Rutaceae
40.	<i>Calliandra haematocephala</i> Hassk.	Powder puff	Fabaceae
41.	<i>Callistemon citrinus</i> (Curtis) Skeel	Golden brush	Myrtaceae
42.	<i>Callophyllum inophyllum</i> L.	Undi	Calophyllaceae
43.	<i>Calotropis gigantea</i> (L). R.Br. Rui	Rui	Apocynaceae
44.	<i>Canna orchioides</i> Bailey	Kardal	Cannaceae
45.	<i>Cassia fistula</i> L.	Bahava	Fabaceae
46.	<i>Cassia siamea</i> Lam.	Kasovel	Fabaceae
47.	<i>Chlorophytum comosum</i>	Safed Musali	Fabaceae
48.	<i>Chrysalidocarpus lutescens</i> undel.	Buterfly Palm	Aspargaceae
49.	<i>Citrus aurantifolia</i> (Christm.JDanz.) Swing	Limbu	Araceae

50.	<i>Clerodendron serratum</i>	Bharangi	Rutaceae
51.	<i>Cocos nucifera</i> L.	Coconut	Araceae
52.	<i>Codiaeum euquenedrapps</i>	Uroton	Euporbiaceae
53.	<i>Cordyline stricta</i> Landl.		Asparagaceae
54.	<i>Curcuma longa</i> L.	Turmeric	Zingiberaceae
55.	<i>Cardyline terminalis</i> Kunth.		Agavaceae
56.	<i>Cymbopogon citrates</i> (DC.) Stapf.	Gavaticaha	Poaceae
57.	<i>Crossandra infundibuliformis</i> (L). Nees	Aboli	Acanthaceae
58.	<i>Cycas revoluta</i> .	Cycus	Cycadaceae
59.	<i>Dalbergia sisso</i> Roxb.ex.Dc	Shisav	Fabaceae
60.	<i>Delonix regia</i> (Hook.) Raf.	Gulmohar	Cesalpinaceae
61.	<i>Dendrobium lutea</i>	Orchid	Orchidaceae
62.	<i>Dianthus chinensis</i> L.		Caryophyllaceae
63.	<i>Diffenbachia picta</i> Schott.	Dumb cane	Araceae
64.	<i>Diffenbacia amoena</i>		Araceae
65.	<i>Diffenbactia exotica</i>		Araceae
66.	<i>Diffenbactia tropic show</i>		Araceae
67.	<i>Dracaena deremensis</i>		Asparagaceae
68.	<i>Draceana marginata</i>		Asparagaceae
69.	<i>Draceana fragrans</i> (L). Ker. Gawl		Asparagaceae
70.	<i>Elettaria cardamomum</i> (L). Maton	Vilaychi	Zingiberaceae
71.	<i>Emblica officinalis</i> Gaertn.	Awla	Phyllanthaceae
72.	<i>Epiphyllum macropetalum</i> Brittan & Rose	Brahmakamal	Cactaceae
73.	<i>Epiphyllum oxypetalum</i> (DC). Haw	TridhariNivdung	Euphorbiaceae
74.	<i>Euphorbia willi</i>		Euphorbiaceae
75.	<i>Ficus benghalensis</i> L.	Banyan	Moraceae
76.	<i>Ficus benamina</i> L.		Moraceae
77.	<i>Ficusracemosa</i> L.	Umbar	Moraceae
78.	<i>Furcraea foetida</i> L.	Green aloe	Aspargaceae
79.	<i>Frerea indica</i>	Shindel Makudi	Apocynaceae
80.	<i>Filicium decipiens</i>		Clusiaceae
81.	<i>Garcinia indica</i> (Thou.) Chois	Kokam	Zingiberaceae
82.	<i>Globba bulbifera</i> L.		Zingiberaceae
83.	<i>Grevillea robusta</i> A.Cunn.ex. R.Br.	Silver Oak	Proteaceae

84.	<i>Haemelia patiens Jacq.</i>		Rubiaceae
85.	<i>Haemanthu skatharinae</i>	May lily	Amaryllidaceae
86.	<i>Hibiscus rosa-sinensis L.</i>	China rose	Malvaceae
87.	<i>Hydrangea macrophylla( Thunb.)Ser.</i>		Hydrangaceae
88.	<i>Holigarna grahamii( Wight)</i>		Anacardiaceae
89.	<i>Helxine soleirolii</i>		Urticaceae
90.	<i>Heptapleurum arboricola</i>		Aralliaceae
91.	<i>Heliconia angustifolia</i>		Heliconiaceae
92.	<i>Ixora coccinea</i>		Rubiaceae
93.	<i>Ixora mysorensis</i>		Rubiaceae
94.	<i>Ixora lutea</i>		Rubiaceae
95.	<i>Jacaranda acutifoliaHumb. &amp;Bonpl.</i>	Nilgulmohar	Bignoniaceae
96.	<i>Jasminum auriculatumVahl.</i>		Oleaceae
97.	<i>Jatropha gossypifolia</i>	Aarand	Euphorbiaceae
98.	<i>Kalanchoe pinnata (Lam.) Pers.</i>	Panphuti	Crassuliaceae
99.	<i>Kalanchoe verticillata Elliot.</i>		Crassuliaceae
100.	<i>Lagerstroemea reginae Roxb.</i>	Tamhan	Lythraceae
101.	<i>Lantana camara L.</i>	Ghaneri	Verbanaceae
102.	<i>Lawsonia inermis L.</i>	Heena	Lythraceae
103.	<i>Leucaena latisiliquagilis (L).</i>	Undirmari	Mimosaceae
104.	<i>Limnanthem umgesneroides</i>		Menyanthaceae
105.	<i>Mangifera indica L.</i>	Mango	Anacardiaceae
106.	<i>Mesua ferea</i>		Callophyllaceae
107.	<i>Mimusops elengi L.</i>	Bakul	Sapotaeae
108.	<i>Michaelia champaka L.</i>	Sonchapha	Magnoliaceae
109.	<i>Mirabilis jalapa L.</i>	Gulbakha	Nyctaginaceae
110.	<i>Monstera deliciosa Lie bm</i>		Araceae
111.	<i>Morus alba L.</i>	Tuti	Moringaceae
112.	<i>Moullava spicata</i>		Moringaceae
113.	<i>Murraya paniculata(L). Jack</i>	Kunti	Rutaceae
114.	<i>Mussavenda glabratta(Hook...f.) Hutch</i>		Rubiaceae
115.	<i>Nerium indicum Mill.</i>	Kanher	Arocauraceae
116.	<i>Neriu molender</i>	Yellow Olender	Iomaripsidaceae
117.	<i>Nephrolepis exactata</i>	Amruta	Icacinaceae
118.	<i>Nothapadytes foetida</i>		Oleaceae

119.	<i>Nycanthes arbor-tristis L.</i>	Parijatak	Oleaceae
120.	<i>Opuntia elatior Mill.</i>	Nivdung	Cactaceae
121.	<i>Ocimum tenuiflorum L.</i>	Tulsi	Lamiaceae
122.	<i>Ocimum sp.</i>	Kapurtulsi	Lamiaceae
123.	<i>Pandanus Sps</i>	Kevada	Pandanaeae
124.	<i>Pentas lanceolata(Forsk.) Schum.</i>	Pomtas	Rubiceae
125.	<i>Philodendron lacerum Schott.</i>		Araceae
126.	<i>Phoenix roebelenii</i>		Palmaceae
127.	<i>Phyllanthus acidus(L.) Skeels</i>		Euphorbiaceae
128.	<i>Piper betle L.</i>		Rubiaceae
129.	<i>Piper longum L.</i>	Pimpali	Araceae
130.	<i>Peperomia magnoliaefolia</i>		Piperaceae
131.	<i>Phlox Sps</i>		Araceae
132.	<i>Philodendron bipinnatifolium</i>		Polemoniaceae
133.	<i>Pistia stratiotes L.</i>		Araceae
134.	<i>Platycerium alcicorne</i>	Staghorn fern	Polypodiaceae
135.	<i>Plumbago zeylanica L.</i>	Chitrak	Plumbaginaceae
136.	<i>Pleomele reflexa variegata</i>	Song of ludri	Aspargaceae
137.	<i>Plumeria alba L.</i>	Pagoda tree	Apocynaceae
138.	<i>Podocarpus macrophylla</i>		Podocarpaceae
139.	<i>Poinsettia pulcherrima</i>		Euphorbiaceae
140.	<i>Polyalthia longifolia(Sonner.) Thw.</i>		Annonaceae
141.	<i>Pointiana regia</i>	Gulmohar	Fabaceae
142.	<i>Pongamia pinnata (L.) Pierre</i>		Fabaceae
143.	<i>Pothos scandens L.</i>	Money plant	Araceae
144.	<i>Pyrostegia venusta</i>		Bignoniaceae
145.	<i>Premna integrifolia</i>	Agnimanth	Verbanaceae
146.	<i>Quisqualis indica L.</i>		Combrataceae
147.	<i>Roystoma regia (H.B.Qk) Cook</i>	Bottle palm	Araceae
148.	<i>Rhoeo spathacea (SW.) Stearn</i>		Commelinaceae
149.	<i>Sansevieria cylindrical Boj</i>		Agavaceae
150.	<i>Sansevieria trifasciata Drain. laurentii</i>		Agavaceae
151.	<i>Setcreasea purpurea Boom.</i>		Commelinaceae
152.	<i>Spathiphyllum maunaloa</i>		Araceae
153.	<i>Syngonium auritum Schott.</i>		Araceae

154.	<i>Saraca asoca</i> (Roxb.) Wild		Fabaceae
155.	<i>Schefflera roxburghii</i> . Gamble		Araliaceae
156.	<i>Stachytarpheta jamaicensis</i> Vahi.		Verbanaceae
157.	<i>Sterculia foetida</i> L.		Sterculiaceae
158.	<i>Sterlitzia reginae</i>		Sterculiaceae
159.	<i>Swietenia mahagoni</i> (L.) Jacq.		Meliaceae
160.	<i>Tectonia stans</i>		Bigniniaceae
161.	<i>Tecomella ps</i>		Bignoniaceae
162.	<i>Terminalia catappa</i> L.		Combrataceae
163.	<i>Terminalia cuneata</i> Roth.	Arjun, Sadala	Combrataceae
164.	<i>Tetrastigma voinie-janum</i>		Vitaceae
165.	<i>Tinospora cordifolia</i>		Menispermaceae
166.	<i>Tinospora malabaricum</i>		Menispermaceae
167.	<i>Thrinax barbadensis</i> Lodd.	Fan palm	Palmaceae
168.	<i>Thevetia neriifolia</i> . Juss		Apocynaceae
169.	<i>Tradescantia cristata</i> L. <i>fasciculata</i> Heyne ex. Roth		Commelinaceae
170.	<i>Thunbergia fragrans</i>		Thunbergiaceae
171.	<i>Vitis quadrangularis</i> Wall.ex Wight &Arn.		Vitaceae
172.	<i>Withania somnifera</i> (L.) Dunal		Solanaceae
173.	<i>Yucca gloriosa</i> L.		Agavaceae
174.	<i>Zamia Sps</i>		Zamiaceae
175.	<i>Zephyranthu sgrandiflora</i> Lindi.		Amaryllidaceae
176.	<i>Zelorina pendula</i>		
177.	<i>Zingiber officinale</i> Rocs.	Ginger	Zingiberaceae
178.	<i>Phoenix sylvestris</i> (L.) Roxb.		Areaceae

**Table 2-Common trees available in the campus**

## 2.2 Medicinal plants in campus

Along with these plants various medicinal plants are also available in the campus which are maintained by the department of preserved and looked after Botany. List of medicinal plants are given below.

179	<i>Aegal marmelos</i> ( L.)Carr.	Bel.	Rutaceae
180	<i>Adhatoda zeylanica</i> medic.	Adulsa	Acanthaceae

181	<i>Agave Americana L.</i>	Ghyapat	Agavaceae
182	<i>Aoeveravera L.</i>	Korphad	Liliaceae
183	<i>Andrographis paniculata ( Burm. F)</i>	Kalmegh	Acanthaceae
184	<i>Aphanostachysrohitaka</i>	Rohitak	Meliaceae
185	<i>Antiaris toxicaria</i>	Chandkota	Moraceae
186	<i>Barleria prionitis L.</i>	Acanthaceae	Acanthaceae
187	<i>Kalanchoepinnatum ( Lam )Pers</i>	Panphuuti	Crassulaceae
188	<i>Moullava spicata</i>	Vakaeri	Cesalpinaceae
189	<i>Cleodendron serratum</i>	Bharang	Verbacnaceae
190	<i>Careya arborea</i>	Kumbha	Lecythedaceae
191	<i>Clausena anisata</i>		Rutaceae
192	<i>Cassia fistula.L.</i>	Bhava	Cesalpinaceae
193	<i>Curcuma longa</i>	Haladi	Zingiberaceae
194	<i>Cymbopogon citratus( DC) Staf.</i>	Gavatichaha	Poaceae
195	<i>Crossandr undualefolia</i>	Aboli	Acanthaceae
196	<i>Elettaria cardamonum( L.)Matom.</i>	Velchi	Zyngiberaceae
197	<i>Ficus benghalensis L.</i>	Vad	Moraceae
198	<i>Garcinia indica (Thou)Chois</i>	Kokam	Clusiaceae
199	<i>Globba bulbifera L.</i>		Zingiberaceae
200	<i>Holigara grahami</i>	DongriBibba	Anacardiaceae
201	<i>Jasminumu auriculatum</i>	Jai	Oleaceae
202	<i>Lantana camera L.</i>	Ghaneri	Verbanaceae
203	<i>Mesua ferrea</i>	Nagkesar	Callophyllaceae
204	<i>Morus alba L.</i>	Juti	Moraceae
205	<i>Murraya paniculata ( L.)Jack.</i>		Rutaceae
206	<i>Nerium indicum mill.</i>		Apocynaceae
207	<i>Nothapodytes foetida</i>		Icacinaceae
208	<i>Nyctanthes arbortritis L.</i>	Parijat	Oleaceae
209	<i>Ocimum tenuiflorum</i>	Tulsi	Lamiaceae
210	<i>Tinospora chinensis</i>		Menispermaceae
211	<i>Tinosporacordifolia</i>		Menispermaceae
212	<i>Vitis quadrangulis</i>	Khandvel	Vitaceae
213	<i>Costus picta</i>	Koshthakolijan	Costaceae

**Table 3 Medicinal plants in the campus.**

These and other species of flowering plants occur in the campus enhancing scenic view. Other flora contributing beauty as well as lush greenery in the campus constitutes ornamental plants which add beauty and aesthetics.



**Photo 3 Green canopy formed by tall trees in the campus.**

### **2.3 Future scope of informative garden development**

- To start Green campus Initiative for the institute
- Naming plants with displaying common and scientific names
- Information of plants in both English and local language
- Increase number of medicinal plants

### **3. Present Energy consumption and conservation measures:**

At present monthly need of electricity of the college is 1519.13 Kwh (Units). Electricity utilized for operating various laboratory equipments, computers, lighting, cooling systems such as refrigerator in few rooms, fans and exhausts and copying machines at office and examination room etc. Wherever possible energy efficient devices are used by the institute. Classrooms are provided with broad windows for natural lighting and ventilation thereby reducing power consumption. In order to save electricity, reduce power consumption and become energy compliance and follow green approach a hybrid wind and solar panel system are installed on the roof top of science building and nearby. This is used to supply electricity for one room of Computer Science department. Further college has a generator, 6 online UPS backups for regulation of electricity.



**Photo 4- Hybrid solar and wind power plant.**



**Photo 5-Large windows provided for natural ventilation reducing power consumption.**

#### **4. Present water consumption and conservation measures :**

Monthly average water consumption of the Institute is 1,05,000 Liters. Use of water is for toilets, washing, laboratories and gardening. Purified drinking water facility is provided on the campus for students and staff. Institute has facilitated drinking water by Reverse Osmosis (R. O.) processes used throughout the year. Waste water from RO plant is mixed in tanks which is reused for lavatory. The waste water except chemistry lab is used for gardening purpose. Besides two drinking water supply connections constant water supply is assured through the two bore wells which is a natural source of water available for the complete year. For ground water recharge, a system is installed near new BCA building and bore well. Flow of the water is made towards the bore recharge place by using paver blocks.

Following measures are being taken to save water

- Shade net is prepared to check water evaporation in terrace garden.
- Leakages are fixed to reduce water waste.
- Drip irrigation is implemented for usage of water in economical way.

- Pieces of bricks and coir used for filling earthen pots to check water evaporation and mulching of flower beds to reduce water usage.
- Crevices of paving blocks check the runoff water on floor and percolate to recharge ground water which helped bore well use up to month of May instead of reduced level of bore well in month of March.

#### **4.1 Rain water harvesting (RWH) system:**

Rain water harvesting system is installed in chemistry and science building and collected in storage tanks and utilized in emergency purpose. Institute has well working RWH system by which 126.81 sq. mts of roof area is covered. Utilization of RW is for gardening, toilets and washing purpose. Two storage tank of capacity 2000 Liters each are used for RWH. Institute has initiated ground water percolation/recharge practice in which two bore wells and one open well has benefited.

**Water harvesting Potential of Institute's RWH system = Rainfall (mm) x Area of Catchment x Runoff Coefficient**

$$450 \text{ mm} * 126.81 \text{ sq. mts} * 0.7 = 39945 \text{ L per year.}$$

Thus RWH system of the Institute contributes almost 39945 L of harvesting of water per year which is used during rainy days rest of which percolates.



**Photo 6-RWH system provided with centralized storage tanks.**

## 5. Present fuel consumption and conservation measures :

Fuel in the form of petrol, diesel or LPG is required mainly for vehicles and Electricity Generator set. Average monthly consumption of petrol is 1200 L and diesel is 585 L by vehicles. All the stakeholders are requested to carry out regular periodic maintenance of vehicles. They are further instructed to drive vehicle with maximum efficiency at optimum speed to save fuel and avoid overconsumption. Generator set of 3500 W is used during power failures using LPG. Four 4 LPG cylinders per month are required for practical purpose and 1 cylinder by annually is used for generator. Generator set is periodically maintained and checked for fuel consumption and smooth operation regularly.

## 6. Environmental monitoring :

Ambient air monitoring of the campus is carried out periodically to check level of the Suspended Particles and gases like SO<sub>x</sub> and NO<sub>x</sub>. Level of these pollutants is assessed which helps to identify trend of these pollutants. Institute has Respirable dust Sampler (RDS) unit to carry out this monitoring as per guidelines. Noise level in the campus is also checked periodically.

## 7. Waste collection and disposal :

Dry and wet waste is segregated before disposal. Any strong solutions used are neutralized before their disposal. Appropriate measures are taken to dispose of toxic wastes.

**Solid waste:** It includes trash papers, packaging material, scrap metals, unused material. Recyclable potential of specific waste is considered before its disposal. Minimal use of paper printing is promoted. Similarly both side print is introduced. It helps to save paper which is crucial in conservation. Waste papers used for Xeroxing, typing, printing are collected and reused for writing, printing, Xeroxing to save papers. For this, notices are given to faculty and students. Bulk waste paper is sold for recycling. Waste from canteen is collected by municipal waste collection system regularly.

**Electronic waste:** It includes equipment nearer to end of life, replaced electronic devices and old appliances which may not be used since long time due to less energy efficiency or out dated . Disposal of computer units and other Electronic devices is facilitated through certification from competent person. Write off of the scrap material is done after authorization by the नजर

मुल्यांकन Eye Evaluation committee. Mahalaxmi Recycler Pvt. Ltd., Kolhapur procure the waste and scrap from college for recycling.

**Biological waste:** College has collaboration with IGM hospital to dispose biological waste, however the waste from zoology department at disposed safely in a pit. Biodegradable waste is utilized in bio-composting and the compost obtained from vermin-culture pit is used for garden.

## 8. Efforts to sensitize students and staff

### 8.1 Awareness creation to avoid misuse of resources

Institute through its mandatory activities promotes display of Do's and Don'ts in canteen and various places where water is used. Periodic check up of conduits for leakages is carried by concerned department in anticipation. Various occasional events are observed for staff and students to commemorate importance of water.





**Photo 7-Display of boards in college.**

## **8.2 Awareness in students about environmental issues:**

Awareness in any person is result of education and knowledge. When it is given through explanatory ways using day today illustrations it helps to makes him wise and decisive.

Second year curriculum of all branches (Arts, Commerce and Science, Computer Application) has compulsory environmental subject and field work as per University and honorable SC mandate. It helps to create awareness through education in students and help them to think about environmental problems. It emphasizes understanding relation with nature and its influence on mankind and vice a versa.

Every year second year students undergo industrial or nature visit to study relevant problem and he has to prepare a project report on environmental issues. This helps them to nurture interest in nature and its connectivity to mankind is understood. It builds critical thinking skills and helps students make informed and responsible decisions. Visual aids are used to videos on Environmental issues such as global warming, deforestation, acid rain and with other relevant themes. It help raise awareness in students about environmental issues which depicts through discussion and interactions.

Visual aids helps to educate and sensitize students on environmental matters. It also creates ecofriendly attitude among them. Interaction with students about their perspective on these issues and problem solving is carried out.

Further college has established Paradise Nature Club and Eco Club through which lectures and various programs are organized in order to increase environmental awareness. Various days related environment are observed by arranging guest lecture based on particular

theme. Listed below are the activities carried out by the institution in order to maintain Green Campus.

- A national conference on biodiversity conservation for livelihood conducted on 14<sup>th</sup> and 15<sup>th</sup> December 2012.
- Save Environment Rally in collaboration with Shivaji University.
- Vanya Jiva Saptah (Wild Life Week) in collaboration with the Forest Department (1<sup>st</sup> to 7<sup>th</sup> October).
- Tree plantation programme.
- Vermi Composting Unit.
- Use of non-conventional energy like solar and wind energy.
- Poster presentation on ozone depletion on the occasion of International Ozone Day.
- Panchganga river ghat cleaning for plastics & solid waste.
- Kala odha cleaning programme.
- Guest lecture and slide show on Wild Life week, climate change, biodiversity conservation.
- Biodiversity exhibition.
- No vehicle day on second and fourth Saturday of each month.

## **9. Some outcomes of all these practices :**

- Rise in green cover on campus
- Water independence in maximum days in the year
- Awareness in students about conservation
- Decreased fuel usage.
- Decrease in pollution due to decreased fuel usage.

## **10. Future efforts and continuation of these practices :**

Institute giving its prime importance to Environmental elements and social responsibility strives to improve its green performance continuously. Future endeavor will be for development of LEED or other green ranking with resource conservation, recycling, waste reduction, and environmentally sound practices.

### **10.1 Green Audit recommendations to be implemented**

- Electronic chokes in tube lights
- Replacement incandescent tube lights with LED tube lights
- LCD monitors in place of CRT
- Medicinal Plant Committee
- Spring loaded stoppers to minimize water loss
- Mock drills for switching off electrical equipments
- All waste recycling through write off
- Replacement of resistance regulator with electronic regulator

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**Membership for E waste disposal**

**Member No. MERPL/ E Waste/ 15-16/Kop/0001**

**Date : 13th Sept. 2014**

Ref No. Your email dated 18th Aug. 2014

**Member Details :**  
Company Name : Principal D.K.A.S.C. College Ichalkaranji. .  
Address : Ichalkaranji  
Pin Code :  
Contact Nos. :  
Vat Tin No. : CST Tin No. :  
FCC No. :  
MPCB Consent No.:  
Contact Person : Dr. Vinayak Ganbavale  
Membership fees Received by , UTR No.:  
Requested Quantity for collection : 100 Kgs per annum.

This is a Memorandum of mutual understanding between Mahalaxmi e Recyclers Pvt. Ltd. Kolhapur, hereafter termed as ewaste dismantler and Principal D.K.A.S.C. College Ichalkaranji. hereafter termed as client, made with an intention of environment friendly disposal of e waste collected by the client and to be disposed by the dismantler with following terms:

1. The client will inform the dismantler through mail or phone about such collection of e waste at their office and the dismantler will collect it from the said location after properly testing the same.
2. Once disposed to the dismantler, the client will not have right on any of the material disposed.
4. The dismantler will issue FORM 6 of such disposal to the client for every delivery made by the client, in prescribed format and enter the same in the passbook issued by M.P.C.B.
5. This membership is valid for lifetime.
6. All the legal issues will be dealt in the legal jurisdiction of Kolhapur District.

**Manoj Mehta.**  
Chairman & Managing Director,

Mahalaxmi e-Recyclers Pvt. Ltd.  
Plot No. J-5(Part),MIDC, GokulShirgaon,  
Kolhapur 416234

Mobile: +91-72764 11826

Email : manoj@erecyclebin.com | [www.erecyclebin](http://www.erecyclebin)



MPCB REGN. NO. : MPCB/RO(HQ)/REG-14/EWASTE/IHMD-183/Date-31st July 2014, Valid till 8<sup>th</sup> Oct. 2020  
VAT/TIN No. 27871129277V  
CST No. 27871129277C

इचलकरंजी नगरपरिषद, इचलकरंजी.  
(जि.कोल्हापूर)

फोन न. २४२१४५१ ते  
२४२१४५५  
अध्यक्ष:- २४२०४६०  
फायरफायटर:- १०१  
दवाखाना:- २४२०३११-१२  
करवसुली:- २४२१४५९  
वाहन :- २४२१४५८



जा.क्र. पापू/४४३५/१४  
नगरपरिषद कार्यालय  
इचलकरंजी - ४१६११५  
फॅक्स - (०२३०) २४३०९७७  
Email: ichwaterworks@gmail.com

प्रति,

दिनांक:- १६/१ /२०१४

मा. प्राचार्य

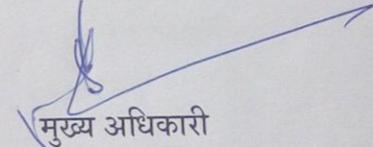
दत्ताजीराव कदम आर्टस, सायन्स अँड कॉमर्स कॉलेज  
इचलकरंजी.

विषय- ड्रेनेज विषयी सर्तीफीकेट मिळणेबाबत.

संदर्भ- आपला दि.१६/१/२०१४ रोजीचा अर्ज.

महोदय,

वरील संदर्भिय विषयास अनसुरून आपण वॉर्ड नं.१७ घर नं. ४३६  
दत्ताजीराव कदम आर्टस सायन्स अँड कॉमर्स कॉलेज इचलकरंजी या इमारतीचे ड्रेनेज  
कनेक्शन न.प. भुयारी गटर योजनेस जोडणेत आले आहे असे प्रमाणित करीत आहोत.

  
मुख्य अधिकारी  
इचलकरंजी नगरपरिषद