

AJARA MAHAVIDYALAY AJARA

ENVIRONMENTAL INITIATIVE REPORT

2021-22



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ENVIRONMENTAL INITIATIVE REPORT

1.0: PREAMBLE:

The survival of human race depends upon the surrounding environment. Various environmental factors play critical role in well-being of all living organisms on earth. But in this era of industrialization, we are mainly focusing upon development and economic prosperity and very less attention is provided towards environment. We are continuously over-exploiting the natural resources to raise our standard of living, which in turn leads to environmental degradation. Human activities have led to various kinds of pollution such as air pollution, water pollution, soil pollution etc. This polluted environment leads to the adverse impacts on health of animals, plants and human beings. Along with different kinds of pollution which are faced at local or regional level, we are also facing global issues such as ozone layer depletion and global warming. Now all these things have resulted into increasing world-wide concern about environmental issues.

India is a developing country, which is facing the problem of population explosion. So, there is a burden on available natural resources. This population explosion has resulted in conversion of forest lands for agricultural or residential purpose. It has helped in improving the lifestyle but on the other side it is exploiting the environment. Deforestation has lead to destruction of natural habitats of animals. It has caused extinction of many plants as well as animals.

Along with this, we are also facing the issue of solid waste management. It has lead to soil pollution and groundwater pollution. Areas near cities are often used as solid waste dumping site. People living nearby these areas are facing various health problems and the waste dumping sites can also catch fire sometimes. Industries, commercial areas and residential areas are contributing to the noise pollution as well.

All these anthropogenic activities have caused profound impact on rural areas, urban areas, oceans and forest lands. This indiscriminate development is against principle of sustainable development. After 1970, impacts of these activities were taken into consideration and various conferences were held at international level and many conventions were signed. But still, the problem of environmental degradation is continuously increasing. Therefore, now there is a need of focusing on environment friendly technology. At the same time, we have to reduce the waste generation and switch to reuse and recycling. We should try for sustainable development which will foster the socio-economic prosperity and will secure the life of future generations. For this, efforts should be taken at individual, institutional, national and international level.

1.2 GENRAL INTRODUCTION:

The green initiative was first conducted in the United State of America in 1970s.

By 1992, approximately half of the local authorities of UK undertook the green audit completely or partially. The United Nations Conference on Environment and Development (UNCED), which was held at Rio de Janeiro, motivated all the countries to act cautiously to save the earth with sustainable approach. Most of the countries have accepted their national strategy for sustainable development which includes the policy and programmes aimed to promote geo-biodiversity and protect environment. This Rio spirit shows significant progress in most of the countries and they have changed and upgraded the environmental situation to the possible extent. Some of the Asian countries were also motivated from the summit and played same role within their limits. India is the first country in the world to make environmental audit compulsory. According to gazette notification, all Industries were communicated to submit the reports of the environmental audit to their concerned State Pollution Board, giving details of water, raw materials and energy resources used and products and waste generated by them in their operations from 1992.

Green initiative is a tool to protect the environment by adopting concept of conservation of natural resources.

Sustainable use can be ensured by auditing the use of ecological components. The initiative is known as regular and systematic review and appraisal of the factors and forces that contributes to realization of objectives.

University has conducted a green audit with specific goals as:

1. Identification and documentation of green practices followed by university.
2. Identify strength and weakness in green practices.
3. Analyze and suggest solution for problems identified.
4. Assess facility of different types of waste management.
5. Increase environmental awareness throughout campus
6. Identify and assess environmental risk.
7. Motivates staff for optimized sustainable use of available resources.
8. The long-term goal of the environmental audit program is to collect baseline data of environmental parameters and resolve environmental issue before they become problem.

Objectives:

1. To examine the current practices, which can impact on environment such as of resource utilization, waste management etc.
2. To identify and analyze significant environmental issues.
3. Setup goal, vision, and mission for green practices in campus.
4. Establish and implement Environment Management in various departments.

5. Continuous assessment for betterment in performance in green

1.3. BENEFITS OF GREEN INITIATIVE TO EDUCATIONAL INSTITUTIONS

There are many advantages of green audit to an Educational Institute:

1. It would help to protect the environment in and around the campus.
2. Recognize the cost saving methods through waste minimization and energy conservation.
3. Empower the organization to frame a better environmental performance.
4. It portrays good image of institution through its clean and green campus. Finally, it will help to built positive impression for through green initiatives the upcoming NAAC visit. 2.

1.4. OBJECTIVE AND SCOPE

The broad aims/benefits of the eco-auditing system would be :

- Environmental education through systematic environmental management approach
- Improving environmental standards
- Benchmarking for environmental protection initiatives
- Sustainable use of natural resource in the campus.
- Financial savings through a reduction in resource use
- Curriculum enrichment through practical experience
- Development of ownership, personal and social responsibility for the College campus and its environment
- Enhancement of College profile
- Developing an environmental ethic and value systems in young people

About College:

Vision:

To make the institution (Ajara Mahavidyalaya, Ajara) a center of academic excellence with global recognition striving hard for contributing towards the sustainable development of the region, the nation and the humanity at large.

Mission:

To build the post-independence 'New India', every individual should have knowledge, character and a sense of service and dedication. In the context of the mission of the parent Society (JES), Ajara Mahavidyalaya, Ajara should constantly strive hard to educate and train the generations of the students capable to contribute to the all-sided development of the region, the nation and the humanity at large.

Aims and Objectives:

- To propagate the cause of education and to disseminate the knowledge among the students.
- To train the students in various skills for the all-round development of their personalities.
- To inculcate moral values and discipline in students.
- To strive hard for the total Quality Improvement.
- To educate women for their emancipation and progress.
- To keep pace with the changing educational, social and global scenario.
- To make efforts to develop the college as a center for community development.

2.0 ENVIRONMENTAL POLICY:

“Clean campus and plastic free campus”

ENVIRONMENTAL MISSION:

- To imbibe awareness of plastic use and create interest for use of cotton.
- To convince importance of water in life and its proper use.
- To turn towards economical use of power energy and oil.
- To develop sense of using solar energy in various fields and save energy
- To implement buy back policy for E-wastage.
- To create consciousness of tree plantation and its proper cultivation.

ENVIRONMENTAL MISSION:

For effective implementation of the Environmental Policy, the College has constituted Environmental forum. The structure of the forum is given in below :

1. Principal name – Dr. Sadale A.N.
2. IQAC Coordinator – Dr. Potadar K.G.
3. Faculty Member- Dr. Ballal A.S.
4. Faculty Member- Smt. Shete L.D.
5. Student Representative - Miss Parit S. N.
6. Student Representative – Mr.Chougale A. P.

COLLEGE PROFILE:

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- To strive hard for the total Quality Improvement.
- To educate women for their emancipation and progress.
- To keep pace with the changing educational, social and global scenario.
- To make efforts to develop the college as a center for community development.

NAME AND ADDRESS OF COLLEGE:

Year of establishment of the college	1982
Principal	Dr. Sadale A.N.
Name of college	Ajara Mahavidyalaya, Ajara
Address	Near Bajar Maidan, Ajara, Tal-Ajara, Dist-Kolhapur
City	Ajara
State	Maharashtra
Phone No	(02323)246372
Website	ajaracollege@rediffmail.com

Details of Programmes Offered by the College:

Programme Level	Name of Programme
UG	B.A.
UG	B.COM
UG	B.Sc.
UG	B.C.A
PG	M.A.
PG	M.COM.

Table No. 1 : Number of students enrolled during 2021-22

Sr. No.	Class	Male	Female	Total admissions
1	B.A.I	81	62	143
2	B.A.II	55	47	102
3	B.A.III	28	39	67
4	B.COM.I	49	117	166
5	B.COM.II	57	95	152
6	B.COM.III	47	83	130
7	B.SC.I	60	37	97
8	B.SC.II	79	61	140
9	B.SC.III	84	69	153
10	B.C.A.I	21	14	35
11	B.C.A.II	20	16	36
12	B.C.A.III	08	17	25
13	M.A.I	05	02	7
14	M.A.II	00	00	00
15	M.COM.I	18	26	44
16	M.COM.II	12	18	30

Summary of admission during 2021-2022

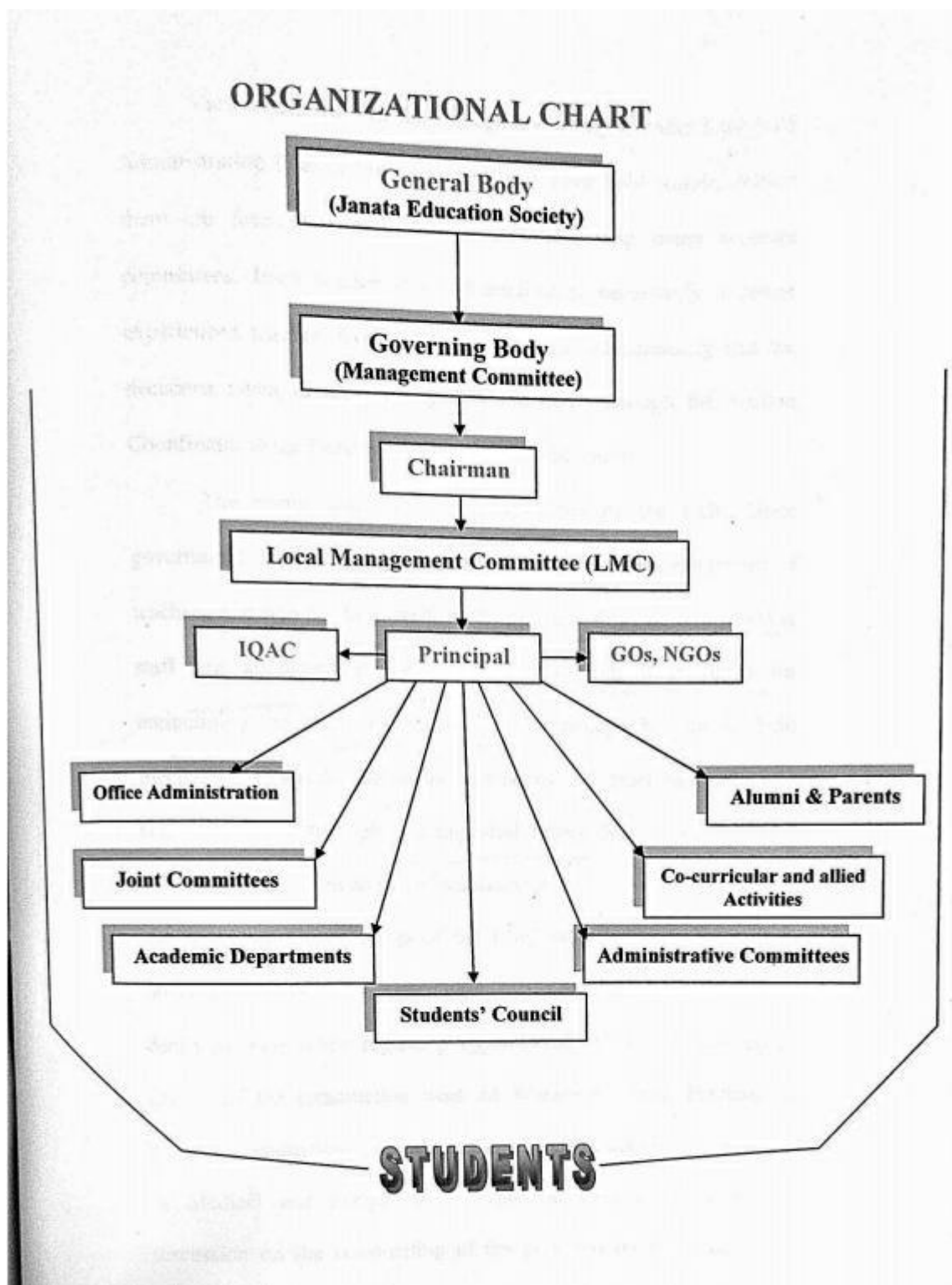
Year	Male	Female	Total Admission
2021- 22	624	703	1327

Table No. 2: Total strength of students and staff on campus during the last year

Year	Students	Teaching staff	Non – Teaching Staff	Total
2021- 2022	1327	19	28	1374

- **COLLEGE ORGANOGRAM:**

Organogram of the college is given in below : Figure 1



3.0 THE SCOPE OF THE GREEN AUDIT IS DEFINED IN TERMS OF:

3.1. Geographical Location of the College Campus

3.2. Its Environmental Aspects.

3.1. Geographical Location:

Physical Infrastructure:

DETAILS OF AREA:

Location	Rural hilly area
Campus area in square	5 Acres
Built up area in square	2714 Sq. meters

LAND USE PATTERN OF COLLEGE:

Land use pattern	Area(m²)
Total area	5 Acres
Area occupied by buildings	2714 Sq. meters
Ground	4200 Sq. meters
Botanical garden	800 Sq. meters

Geographical details of the college area including, boundary pillar with Global Positioning System Coordinates with elevation of the area is given in table no. 3.

Table No. 3: Geographical details of the college area

Boundary Pillar (BP) No.	Latitude (N)	Longitude (E)	Elevation (m) MSL
1	16 ⁰ 06' 50.99"	74 ⁰ 12' 29.47"	671
2	16 ⁰ 06' 51.01"	74 ⁰ 12' 32.08"	668
3	16 ⁰ 06' 49.46"	74 ⁰ 12' 30.91"	667
4	16 ⁰ 06' 49.01"	74 ⁰ 12' 31.12"	667
5	16 ⁰ 06' 48.01"	74 ⁰ 12' 31.00"	666
6	16 ⁰ 06' 46.38"	74 ⁰ 12' 30.28"	666
7	16 ⁰ 06' 50.29"	74 ⁰ 12' 28.97"	667

Location of the college area is shown on Google Earth map (Figure No. 2)



3.2 SCOPE OF GREEN AUDIT IN TERMS OF ENVIRONMENTAL ASPECTS:

- 3.2.1. Energy Conservation:** Energy conservation is the effort made to reduce the consumption of energy by using less of an energy service. This can be achieved either by using energy more efficiently (using less energy for a constant service) or by reducing the amount of service used
- 3.2.2. Use of Renewable Energy:** Renewable energy is useful energy that is collected from renewable resources, which are naturally replenished on a human timescale, including carbon neutral sources like sunlight, wind, rain, tides, waves, and geothermal heat.
- 3.2.3 Efforts for Carbon Neutrality:** carbon-neutral (or carbon neutrality) is the balance between emitting carbon and absorbing carbon emissions from carbon sinks.
- 3.2.4 Plantation:** It is usually large group of plants and especially trees under cultivation
- 3.2.5 Water Management:** Water management is the control and movement of water resources to minimize damage to life and property and to maximize efficient beneficial use.
- 3.2.6 Hazardous Waste management:** Hazardous waste management involves reducing the number of hazardous substances produced, treating hazardous wastes to reduce their toxicity, and applying sound engineering controls to reduce or eliminate exposures to these wastes.
- 3.2.7 E-Waste Management:** E-waste or Waste Electrical and Electronic Equipment are loosely discarded, surplus, obsolete, broken, electrical or electronic devices
- 3.2.8 Quality of water, air and noise:** Water quality describes the condition of the water, including chemical, physical, and biological characteristics, usually with respect to its suitability for a particular purpose such as drinking or swimming.

3.2.1. ENERGY CONSUMPTION:

Electricity is used for illuminating the rooms, fans, computers, Laboratory equipment, and pumps and for cooling rooms (AC).

Number of rooms under use in college: 37

Details of various sources of energy consumption are given in table No.4.

Table No.4: Sources of Energy Consumption

Sr. No.	Energy sources	Electricity/generator/solar lamps
a.	No. of laptops	03
c.	No. of computers	85
d.	No. of CFC bulbs	97
e.	No. of UPS	03
f.	No. of fans	67
g.	No. of fridge	03
h.	No. of generators	03
i.	No. of A.C.	06
j.	No. of LED bulbs	108
k.	Electric pump 1 HP	02
l.	No. of Smart T. V	05
m.	No. of printers and Xerox machines	06

3.2.2ENERGY REQUIREMENT: sanctioned load (17.20 kw)

Electricity supplied from the Maharashtra State Electricity Board is the main source energy for the activities on the campus. In addition to the regular supply, energy consumed (KW) during the last year is shown in tabular as well as graphical form.

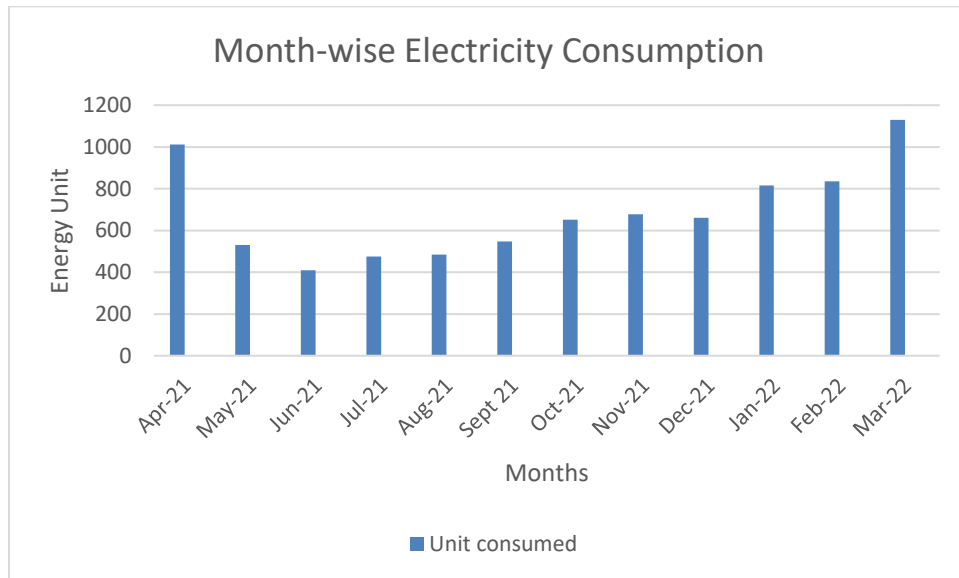
Electricity supplied from the Maharashtra State Electricity Board is the main source energy for the activities on the campus. In addition to the regular supply, energy consumed (KW) during the last year is shown in tabular as well as graphical form,

Table No. 5: Energy consumption during the Year 2021-22

Consumer No-255010029081

Sr. No.	Months	Energy Units	Amount
1	Apr 21	1012	8227.86
2	May 21	530	11835.74
3	June 21	410	15422.65
4	July 21	475	4016.61
5	Aug 21	485	8161.8
6	Sept 21	547	12773.71
7	Oct 21	651	5349.29
8	Nov 21	678	5544
9	Dec 21	661	5416.5
10	Jan 22	815	6570.6
11	Feb 22	836	6744.37
12	Mar 22	1130	8940.43
Total		8230	99003.56

Figure 4 : Graphical representation of energy consumption during 2021-22



Energy conservation measures taken up by the College:

From the energy consumption pattern, it is found that there was increase of energy consumption in month of October to February as compared other months. Thereafter, energy consumption is gradually decreasing in May to August. Maximum energy requirement was 836 Units during February and minimum 410 units was in June, in energy consumption during the last two years is mainly switching over the use of LED bulbs in place high energy consuming 40-Watt tube lights.

The requirement is met from the Maharashtra Electricity Board. College is aware of environmental impacts of consumption of conventional energy supplied by MSEB. Hence, college has adopted following measures to minimize the energy consumption.

1. Switching over to the use of LED bulbs as a replacement to conventional high energy consumption bulbs
2. College has encouraged use of e-mail instead of sending notices and faxing documents.
3. Most of the fans carry three stars rating of electrical appliances.
4. Increased use of flat-screen LCD monitors rather than CRT monitors
5. Awareness amongst students was carried out and accordingly sign boards are displayed at strategic locations for conservation of energy and students positively responding.

3.2.3: USE OF RENEWABLE ENERGY:

Use of solar system: College has installed solar water heater in the ladies hostel.

Solar Energy: Percentage of annual power requirement of the Institution met by the renewable energy sources (current year data):

Annual power requirement met by renewable energy sources (in KWH): Presently college has installed solar heater in the lady's hostel.

Total power requirement	Renewable energy source	Renewable energy generated and used	Percentage
183393.4 KWH/Year	Solar Heater	288 KWH/Year	0.15



Solar system installed on top of ladies' hostel

College should initiate more efforts to use renewable energy for lighting rooms and street.

Annual power requirement met through LED bulbs (in KWH):

No. of Bulbs	Watt	Power requirement (KWH)
2	6	12
37	9	333
1	12	12
2	14	28
66	18	1188
108		1573

1. Number of LED Tubes: 108 consumes 1573 watts
2. Effective use per day: 8 hrs
3. Energy consumption: 1000 watts if used 8 hrs /day, it consumes 8.0 units of electricity. Therefore, energy consumption of 108LED bulbs = $1573 \text{ watts} \times 8/1000 = 12.58 \text{ units / day}$. Considering effective working days as 300 days, energy consumed by LED bulbs would be $300 \times 12.58 = 3774 \text{ units / year}$.

Annual power requirement met through LED bulbs is 20.89% of the total energy requirement.

3.2.4:Efforts for Carbon neutrality:

Thinking about carbon footprints is a simple way of thinking about ways to reduce environmental pollution. By reducing our carbon footprints, each one of us can contribute to making the earth a safer, better place to live. Estimates suggest that almost half of our carbon footprint is due to electricity and 17% is due to lighting alone.

Carbon footprint is the amount of Green House Gases like carbon dioxide, methane, nitrous oxide emissions emitted by a building, organization etc. It relates to the amount of greenhouse gases we are producing in our day-to-day lives through burning fossil fuels for electricity, heating, transportation etc.

At Ajara Mahavidyalya Ajara, carbon footprint for indoor lighting in office building is considered. The performance of the building by using LED lights reduces the building carbon foot print. The carbon foot print is for –

1. Incandescent Light
2. CFL
3. LED Lights

Electricity:

By and large, half of our carbon footprint is due to electricity and 17 % is due to lighting alone. Electricity in turn can be produced by coal, natural gas, petroleum, and other. Electricity is produced from different sources and how much GHG released is shown is shown in table no. 6.

Table No. 6: Electricity produced from different sources

Source	Million metric tons of CO₂ emission for 1 year	Electricity generation (Billion kWh) for 1 year
Coal	1788	1882
Petroleum	106	119
Natural gas	337	562
Other	14	22
Non fossil fuels	None	1106
Total	2245	3621

Since close to 2245 million metric tons of CO₂ emitted by total electricity generation per year. A single kilowatt-hour of electricity will generate 619 grams of CO₂ emissions.

1. Incandescent Light

Incandescent lamp is a source of light which produce light when the filament is being heated. It can release 80% electrical energy converted into heat energy. We can calculate how much CO₂ will be emitted by 40-watt incandescent bulb.

Power Consumption- 40 watts

- Operation per day- 10 hours
- Power Consumption per annum-146000 watt
- Electricity per hour (kwh) - 0.04 (1 kWh=619g CO₂ can be released)
- Lighting Carbon Emission per year/lamp (146*619g) -90.3 kg.

A single 40 watts incandescent bulb will generate 90.3 kilograms of CO₂ for every year. The reduction of carbon footprint is none for this lamp.

2. Compact Fluorescent Light

CFL produce less heat and more visible light compare than incandescent lamp. We can calculate how much CO₂ will be emitted by 14-watt incandescent bulb.

Power Consumption- 14 watts

- Operation per day- 10 hours
- Power Consumption per annum-51100 watt
- Electricity per hour (kwh) – 0.014 (1 kWh=619 g CO₂ can be released)
- Lighting Carbon Emission per year/lamp- (51.1*619g) - 31.6 kg.

A single 14 watts CFL lamp will generate 31.6 kilograms of CO₂ for every year. The reduction of carbon footprint is none for this lamp. CFL contains harmful mercury which creates mercury emission. Estimated suggestion led lights only will reduce our carbon foot print over than other lights.

3. LED Lights

LED lights consumes low power and energy efficient over than other lights. Not even a single point we can't compare led lights with other lighting. We can calculate how much CO₂ will be emitted by 8-watt LED lamp -

- Power Consumption- 8 watts
- Operation per day- 10 hours
- Power Consumption per annum-29200 watt
- Electricity per hour (kwh) – 0.008 (1 kWh=619 g CO₂ can be released)
- Lighting Carbon Emission per year/lamp (29.2 *619g) - 18 kg.

A building's carbon footprint from led lighting can be reduced by 68%.

- Reduction in Carbon Footprint (tons)-0.122(12.28 kg)

The 8-watt LED equivalent will only be responsible 18 kilograms of CO₂ over the same time span.

Table No. 7: Carbon foot prints

	Incandescent Bulb	LED light
Power Consumption(watt)	40	8
Electricity(kwh)	0.04	0.008
Hours of Operation Per Day	10	10
Carbon Emissions (tons) per year/lamp	0.903	0.18
Reduction in Carbon Footprint (tons) / lamp	--	0.12

- LED light can reduce our carbon footprint by 0.12 tons per year.
- Led light does not contain mercury; it is a big benefit for this lamp.
- Incandescent, it is 5.8 mg from power plant.

The 8-watt LED equivalent will only be responsible 18 kilograms of CO₂ over the same time span.

Based on above comparisons, LED emerges as the BEST option to reduce carbon footprint.

At Ajara Mahavidyalaya, Ajara , all together there are 37 rooms (including, class rooms, offices, labs etc.) 195 LED lamps .

Details of CO₂ emitted from these lights is given in table 8.

Table No. 8: Details of CO₂ emitted due to bulbs

Bulbs LED	Watt	Power consumption WH/day @ 8hr	Equivalent
2	6	96	
37	9	216	
1	12	96	
2	14	224	
66	18	9054	
108		10136	197 Bulbs of 8 Watt
Incandescent			
28	40	1120	
7	200	1400	
35		2520	63 bulbs of 40 Watts
CFL			
26	36	936	
31	40	1240	
30	5	150	
7	15	105	
3	18	54	
97		2485	178 bulbs of 14 Watts
240			

Light	No. of bulbs	CO₂ emitted per lamp / year	Total CO₂ emitted per year
Incandescent	63 of 40 watts	90.3 kg	5688.9
CFL	178 of 14 watts	31.6 kg.	5624.8
LED (Tubes)	197 of 8 watts	18 kg.	3546.0
		Total	14859.7

CO₂ emitted from utilizing all types of bulbs per year is 14,859.7 kg/yr. Presently, College has taken initiative to replace Incandescent bulbs and CFL bulbs by LED. During the last year energy consumption of LED bulbs against the total energy requirement has been decreased. This has shown substantial reduction in the CO₂ emission per year. If all 240 bulbs are replaced by 8-Watt LED bulbs, CO₂ emitted per year would be $240 \times 18 \text{ kg} = 4320 \text{ kg / year}$. This means college can reduce CO₂ by 10539.7 kg / year (14859.7 kg- 4320 kg). It is suggested to replace all

bulbs by LED bulbs in a phase manner. Further, all the fans should be replaced in phased manner energy efficient five-star rating fans.

3.2.5:Plantation:The college campus area is 106.6sq. mt. Total number of plants as on 2021-22 is about more than 100. Details of plantation with respect to Botanical name, English name and local name is given table no. 9.

Plant Diversity on the college campus: As part of afforestation, plantation on campus was carried out. Details of plantation showing the number of trees along with its local and scientific names is given in the following table:

DETAILS OF PLANTATION IN COLLEGE:

Table no. 9: List of Plants in campus area

Sr. No.	Local Name	Scientific name	Quantity
1	कड़ुमेहंदी(KaduMehandi)	<i>Clerodendron inermis</i>	Many
2	घुली (Ghuli)	<i>Trema orientalis</i>	01
3	साबुदाणा (Sabudana)	<i>Tapioca indica</i>	01
4	सीट्रोनेला (Cironella)	<i>Citronella spp.</i>	03
5	लिंबू (Lemon)	<i>Citrus medica</i>	02
6	बकोरा (Bakora)	<i>Ixoracoccinia</i>	02
7	आवळा (Avala)	<i>Emblica officinalis</i>	01
8	पेरू (Guava)	<i>Psidium guava</i>	01
9	जाम्बूळ (Jambul)	<i>Syzigium jambolana</i>	01
10	शंकासूर (Sankasur)	<i>Caesalpinia pulcherrima</i>	01
11	कर्दळ (Kardal)	<i>Canna indica</i>	Many
12	घायपात (Ghaypat)	<i>Sensveria marginata</i>	01
13	घायपात (Ghaypat)	<i>Sensveria variegata</i>	01
14	काटेसावर (Katesawar)	<i>Bombax ceiba</i>	01
15	आंबा (Mango)	<i>Mangifera indica</i>	01
16	सायकस (Cycas)	<i>Cycas circinalis</i>	02
17	बिगोनिया (Bignonia)	<i>Bignonia spp.</i>	02
18	दालचिनी (Dalchini)	<i>Cinnamomum zeylanicum</i>	03
19	निर्गुडी (Nirgudi)	<i>Vitex negundo</i>	02
20	फणस (Jack Fruit)	<i>Artocarpus heterophyllus</i>	01



Leafy Plants along with Border of College Campus



Drip irrigation system for plants



Cycas revoluta (Gymnosperm)



Cedrellatoona



Grewiarobusta



Feather palm



Feather Palm



Tremaorientalis



Alstoniaschoolaris



Feather Palm



Eucalyptus globules

Considering the rich plant diversity of the Ajara area with lots of medicinal plants in the forest area, it is advised to go for plantation of same medicinal plants on campus which is widely available in the forest. Some of the recommended plants are given in table no.10.

Table no. 10: List of recommended medicinal Plants

Ajara Medicinal plants and their uses

Sr. No.	Scientific name	Common Name	Family	Medicinal Uses
1.	<i>Asparagus racemosus</i>	Shatavari	Liliaceae	Refrigerant, antiseptic, appetite, leprosy, beneficial for intelligence as well as on memory modulatory
2.	<i>Adhatodavasica/ Justicia adhatoda</i>	Adulsa	Acanthaceae	Useful in all sorts of cough and cold, bronchitis, gonorrhea, fever, jaundice.
3.	<i>Azadirachta indica</i>	Kadu limb	Meliaceae	Antiseptic, astringent, anthelmintic, leprosy, piles, toothache

4.	<i>Bauhinia purpurea</i>	Apata	Caesalpinaceae	Gripping pains from the stomach and bowels, diarrhea, laxative, flatulence
5.	<i>Embllica officinalis</i>	Amala or Awala	Euphorbiaceae	Laxative, anemia, diabetes, diarrhea, dysentery, diuretic, antioxidant
6.	<i>Anacardium occidentale</i>	Kaju	Anacardiaceae	Mild purgative, diarrhoea, mouth ulcer, diuretic, palpitation of heart, rheumatic pericarditis, toothache
7.	<i>Aegle marmelos</i>	Bel	Rutaceae	Laxative, asthma, antidote-snake poison, chronic diarrhea, astringent, carminative, Jaundice
8.	<i>Bombax ceiba / B. malabaricum</i>	Katesavar	Bombacaceae	Menorrhagia, aphrodisiac, haemostatic, astringent, diarrhea, dysentery, demulcent, pimples
9.	<i>Butea monosperma</i>	Palas	Fabaceae	Analgesic, aphrodisiac, anthelmintic, piles, anti-inplantation, leprosy, diarrhea
10.	<i>Calotropis gigantea</i>	Rui	Asclepiadaceae	Intermittent fever, dysentery, diaphoretic, cold, cough, anthelmintic, expectorant
11.	<i>Centella asiatica</i>	Brahmi	Apiaceae	Diuretic, tonic for improving memory, good for hair growth and check hair fall, blood purifier, rheumatism, piles, laxative
12.	<i>Clitoria termatea</i>	Gokharna	Fabaceae	Diuretic, cathartic, laxative, purgative, ulcer, gonorrhea, piles
13.	<i>Dioscorea bulbifera</i>	Kadu karanda	Dioscoreaceae	Boils, sores, jaundice, piles, abdominal pains, syphilis, ulcer
14.	<i>Eclipta alba</i>	Maka	Asteraceae	Tonic, emetic, cathartic, hair tonic, skin diseases, antiviral spasmogenic
15.	<i>Helicteres isora</i>	Murad sheng	Sterculiaceae	Demulcent, astringent, gripping of bowels and flatulence of children, stomach infections,

				dysentery
16.	<i>Hemidesmus indicus</i>	Anantmul	Asclepiadaceae	Fever, rheumatism, urinary disease, leprosy, leucoderma, piles, epileptic fits in children
17.	<i>Leucas aspera</i>	Shankroba	Lamiaceae	Laxative, anthelmintic, bronchitis, jaundice, paralysis, scabies, cough and cold.
18.	<i>Nothapodytesnimmoniana</i>	Amrita or Narkya	Olacaceae	Anticancer
19.	<i>Plumbago zeylanica</i>	Chitrak	Plumbaginaceae	Appetizer, dyspepsia, leprosy, rheumatism, carminative, tonic, scabis
20.	<i>Semecarpus anacardium</i>	Bibba	Anacardiaceae	Epilepsy, nervous debility, rheumatism, skin diseases, piles, abortifacient, antifertility, sprain
21.	<i>Terminalia bellerica</i>	Behada	Combretaceae	Laxative, antipyretic, narcotic, astringent, bronchitis, tonic
22.	<i>Terminalia chebula</i>	Hirda	Combretaceae	Diuretic, cardi tonic, expectorant, asthma, ulcer, dental caries
23.	<i>Tinospora cordifolia</i>	Gulvel	Menispermaceae	General debility, urinary disorders, cough, stomachic, chronic diarrhea, dysentery, anodyne, cardi tonic.
24.	<i>Vitex negundo</i>	Nirgudi, ningad	Verbenaceae	Headache, rheumatism, mosquito repellent, vermifuge, catarrh, toothache, eye diseases
25.	<i>Woodfordia floribunda</i>	Dhayati	Lythraceae	Leucorrhoea, toothache, astringent, vermifuge, leprosy

3.2.6: Water Management:

Demand Analysis of water requirement: Residential based population on the campus and off the campus is given table No.11.

Table No. 11: Population strength on campus

Year	Students	Teaching staff	Non – Teaching Staff	Total
2021-2022	1327	19	28	1374

During the past year maximum strength of population on degree college campus was in the 1374.

College is by and large non-residential based. Water requirement for drinking and other purposes (Wash room, Plantation etc.) is calculated at the rate of 10 lit per person per day. Based on this assumption water demand analysis is given in table No. 12.

Table No. 12: Water demand Analysis

Type	Total Number of People	Requirement of water	Total Requirement of water
Non-Residential	1374	@ 10 lit / day	13740 lit / day

On an average requirement of water per day is about 13740 lit / day. This demand is met through supply of water from a well, which can yield water throughout the year. Besides, two water connection of Nagar panchayat is taken. However, two RO water purifiers are placed in college campus, for the students and staff.

Considering high rainfall in the area, college should make efforts for rainwater harvesting.

Rain water harvesting:

Type of System: - Roof top water harvesting

Type of roof : Flat roof

Table No.13: Rain Water Harvesting

Sr.No.	Details	Type surface	Area
			Sq.Mtr
1	College building	Sloping roof	App.425
2	Physics Building	Sloping roof	App.425
3	Chemistry, Library building	Sloping roof	App.425
	Total		1275

Considering the average annual rainfall of about 2500mm, it is quite possible to harvest about 25,000 lit of water per day during the effective rainfall days of the rainy season. This is more than the water requirement per day.



Presently, roof top harvesting is done only on one building and water collected is utilized for Laboratory work.

Waste water disposal method:

Total water demand for domestic consumption on college campus is 13740 litre/day. By and large, it is assumed that 30 % waste water is generated during college hours i.e., 13740 litre/day $0.3 = 4122$ litre/day. Out of 4122 litres waste water generated, part of this domestic waste water is disposed off to septic tank.

Table No. 14 No of Toilets Campus

Sr. No	No of WCs + Urinals		Total
	Male	Female	
1	7	18	25

During the last year average strength of student and staff on campus is 1331. Ratio of number of people and WCs and urinals is 1: 53.28

Male Teachers: 40 Female Teachers :06

Male students: 622 Female students: 703

Total: 666 Total: 709

Ratio of WCs+ Urinals for Male: 1: 95

Ratio of WCs + urinals for Female – 1: 39

As per the WHO guidelines the should be 1: 30 for male and 1: 20 for female. However, for all practical purpose, minimum requirement should be at least 1: 30 for female and 1: 40 for male.

Therefore, it is suggested to construct another 7 for male and 8 for female. Altogether, it expected to have 14 WCs + urinals for male and 26 for female.

Waste water is disposed of through septic tanks.

3.2.6.1: Hazardous waste management:

Hazardous waste is a waste that make it potentially dangerous or harmful human health or environment. The universe of hazardous waste is large and diverse. Hazardous waste can be liquid, solids or contained gases. There is no such hazardous waste on the campus except LPG cylinders, fumes due to digestion process in the laboratories. Some of the action taken for cleaning campus is given below:

- i) Safety valves and safe place for storing LPG cylinders

- ii) Exhaust fans against harmful gases during digestion process.
- iii) The campus has been declared as plastic free zone
- iv) The College aims to make the campus plastic-free by avoiding non-biodegradable products such as plastic glasses, cups, plates and straws in the Institute canteen and instructing students to avoid bringing plastic materials.
- v) Bins are placed in different parts of the campus for the segregation of plastic, paper and food waste.
- vi) Reusable steel plates and glasses are used in the canteen.
- vii) The college aims for an ecofriendly campus and to make this a reality, the use of ecofriendly bags and files are encouraged.
- viii) The staff and students have taken the initiative to take up campus cleaning programme through extension activities.
- ix) Students are trained to use paper bags and a promotion of the same is held.
- x) The campus is also declared tobacco free and smoking free zone.
- xi) Liquid waste from the laboratory is disposed into soak pits.

3.2.6.2:Solid Waste Management:

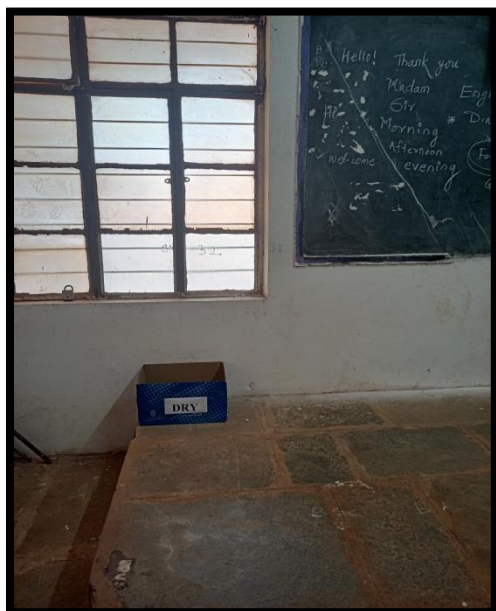
As a policy matter College has banned usage plastic bags on the campus. College has taken precautions to collect solid waste through dust bins. The dustbins are helpful to maintain clean atmosphere sanitation of college campus. Dustbins are placed on various places. Two big dustbins are on the college ground. Each classroom carries one dustbin. The main aim of using dustbins is to clean the campus, to collect waste material and to create awareness of cleanliness among the students.

Solid waste collected is segregated into degradable and non-degradable

Table No. 15 List of Dustbins

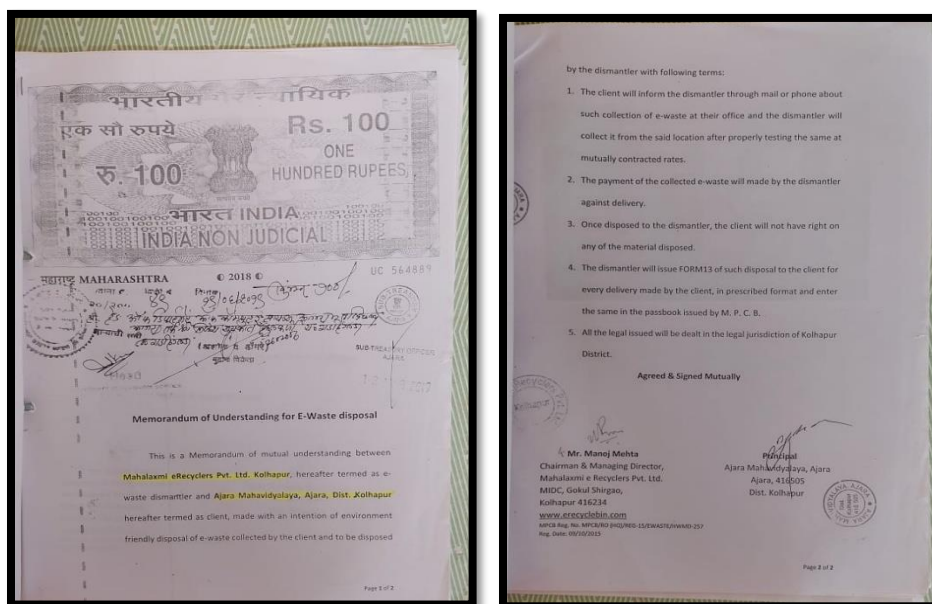
Sr. No.	Place	No. of Dustbins
1	College Ground	02
2	Class Rooms	42
3	Laboratory	04
4	Ladies Hostel	12
Total		60

Dust Bins



3.2.6.3:e-Waste Management:

Computers and their peripherals are the only source of electronic waste on the campus. As on date there are about eighty-five computers, six laptops, one scanner, eight printers and three Xerox machines and eighteen CCTVs. Piling up of e- waste is discouraged on the campus. College disposes off the old computer / peripherals under the buyback scheme with local venders. In this regard, MOU is made with M/s. Mahalaxmi E-Recylers Pvt. Ltd. Kolhapur. Copy of MOU is enclosed.



Measures for waste reduction along with photographs



Laboratory Waste (water)



Other Waste

4.0:Quality of water:

College is committed to provide good quality of water by installing water filters / RO system. Water supplied by the gram panchayat / bore well is tested for various physic-chemical and microbiological parameters from the filters / RO system. Water supplied by the to the students after filter/ RO system is moderately hard (Hardness is 120 mg/l) whereas, the highest desirable limit is 100 mg/l. Most Probable Number (MPN) is 0 / 100 ml. as against the recommended W.H.O standard of 0 / 100ml. Hence, filtered water is suitable for drinking. Copy of the analysis report is displayed on the filter as information to the students. Water collected from the well also moderately hard and with very high MPN i.e.> 2400 /100ml

5.1:Green Initiatives Programme:

College has initiated large number of Environmental awareness programme through NSS and NCC. Activities are given due publicity through local newspapers. Some of the high lights are given below:

NSS activities: Under the NSS Scheme of Shivaji University, about 100 students are enrolled for NSS. As part of Institutional Social Responsibility (ISR) college has taken part in large number of activities through NSS for personality development of students and also creating environmental and social awareness. Some of the activities taken up last years is given in table no. 16.

Table No. 16: List of NSS some activities during the year 2021-22

Details of activities by N.S.S And N.C.C.:

Sr.No.	Activity	Date	Details of activity
1	Green Pledge	15-01-2021	During “MY PLANET COMPAIGN” a pledge was given to the staff and student
2	Ground Water Literacy and Awareness	18-07-2021	A lecture on groundwater literacy and live sustainability and development by Dr. R.B. Powar
3	COVID 19 Awareness program	19-05-2021	A online lecture by Prof. Dipak Khedkar
4	Cleanness Campaign	15-12-2021	A lecture on cleanness was given by Prof. Shintre M.R.
5	No Vehicle Day	23-04-2022	A activity of no vehicle was arranged in college campus
6	World Cycle Day	03-06-2022	Celebrating world cycle day
7	Cleaning campaign	23-03-2022	Cleaning of gutters and road in N.S.S.Camp at Murude
8	Tree Plantation and Cleaning of crimination ground	26-03-2022	Trees are planted and cleaning of smashan bhumi was done by N.S.S. student at Murude

The overall objective of NSS is personality development through community service. The motto of NSS is “Not Me but You”. It underlines that the welfare of an individual is ultimately dependent on the welfare of the society on the whole.

5.2:Environment Awareness Tags:

Environmental awareness is having an understanding of the environment, the impact of human behaviour on it and the importance of its protection. Hence, college has taken some Environmental awareness measures. College has prepared following tags related to environment:

1. Clean Campus! Green Campus!
2. Keep silence
3. Lets Go Green
4. Save the Green Lungs
5. Save the Nature
6. Diagramatic representation of carbon footprint

Photographs of Environment Awareness Tags



Activities During 2021-22 (Photos)



A Pledge on My planet green plant camping on 15-10-2021



**A lecture on Cleanness campaign by Neharu Yuva Center, Kolhapur,
On 15-12-2022**



No Vehicle Day at college campus on 23-04-2022



Celebration of Worlds Cycle Day by cycle rally on 03-06-2022

6.0: Suggestions for Improvement:

College has taken good number of green initiatives for the protection of environment. However, for getting better results following suggestions may be considered by the college in phased manner.

1. Annual Power requirement met through LED bulbs 20.89 %. Further, all the fans should be replaced in phased manner energy efficient five-star rating fans.
2. Considering the present strength of the college, it is suggested to construct additional WCs + Urinals, 7 for male and 8 for female. Altogether, it expected to have 14 for male and 26 for female.
3. As there is sufficient place for storage water and roof top area more efforts be made harvest rainwater so that bore well water consumption can be reduced to save electrical energy.
4. It is recommended to construct underground storage tank for storing harvested water
5. Setting up of proper Vermi-Composting pit to convert vegetable matter and any left-out canteen waste into compost.
6. It is also suggested to use solar energy as an alternate of energy for street light