Athul ENERGY CONSULTANTS

Athul Energy, we stand for Quality, Reliability and Efficiency

No: AEC/GAC/31

18-12-2021

Audit Certificate

This is to certify that that **M/s Pocker sahib Memorial Orphanage College Thirurangadi , Malapuram** have successfully completed the **Green Audit** of their buildings and campus conducted on 13th November 2021 for the year 2019 They have submitted all necessary data and credentials for scrutiny.

We, Athul Energy Consultants Pvt Ltd, Thrissur congratulate the Management, Executive Director, Principal, staff members and students for the successful completion and participation in the audit report process.

ATHUL ENERGY CONSULTANTS PVT. LTD. THRISSUR 680 020

Managing Director

Athul Energy Consultants Pvt Ltd

Athul Energy Consultants Pvt Ltd
CIN: U74999KL2016PTC046898
info@athulenergy.com
www.athulenergy.com

Registered Office:
4/2, Capital Legend Building
Korapath lane, Round-North
Thrissur-680020, Kerala
+91 7356111990

Branch Office:
F-7, James Square
Asian paint Chowkady, GIDC
Ankleshwar-393002, Gujarat
+91 7356111991

GREEN AUDIT – 2021

POCKER SAHIB MEMORIAL ORPHANAGE COLLEGE
TIRURANGADI, MALAPURAM

EXECUTED BY

ATHUL ENERGY CONSULTANTS PVT LTD
4th FLOOR, CAPITAL LEGEND BUILDING,
KORAPPATH LANE, ROUND NORTH, THRISSUR, KERALA-680020
Ph: +91 735611199/0-6 Web: www.athulenergy.com E-Mail: info@athulenergy.com

November 2021

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PREFACE

Every institution should be imparting knowledge about the campus environment and its surroundings through activities that follows the principles of sustainability. Hence an evaluation is needed to understand where it stands in the path to be an environment friendly, talent nurturing educational institution. This Green Audit was done with the aim to assess and rate the sustainable nature of the campus. The college vision is "to enlighten and empower women in rural and suburban society and enable them to act as agents of social transformation and acquire knowledge of self and surroundings and to make the world a better place". And in the **social goals**, it is written as **"to make the students aware of the pressing global issues and the moral responsibility to handover to the coming generation an eco-friendly life style and an earth free from pollution, filth, bigotry and corruption".** It was observed by us from the students' participation during the green audit.

ACKNOWLEDGEMENTS

We express our sincere gratitude to the management of M/s PSMO College Tirurangadi for giving us an opportunity to carry out the project of Green Audit. We are extremely thankful to all the staffs for their support to carry out the studies and for input data, and measurements related to the project of Green audit.

Dr. Azeez K Principal

Also congratulating our Green audit team members for successfully completing the assignment in time and making their best efforts to add value.

GREEN AUDIT TEAM

1. **Mr. Santhosh A**
   Registered Energy Auditor of Bureau of Energy Efficiency (BEE – Govt. of India)
   Accredited Energy Auditor No – EA 7597

2. **Mr. ASHOK KMP** GRIHA Certified Professional

Project Director - ME, Energy Engineering.

Yours faithfully Managing Director Athul Energy Consultants Pvt Ltd

The general details of the PSMO College are given below in table.

Table 1: ***GENERAL DETAILS***

1 Name of the College PSMO College

2	Address	Saudabad, Tirurangadi
		Malapuram -676306
3	Contact Person	Dr. Azeez K
4	Contact Phone numbers & Fax	0494-2460336
		0494-2460635
5	Web site & E-mail ID	www.psmocollege.ac.in mail@psmocollege.ac.in
6	Type of Building	Educational Institution
7	Annual Working Days	210
8	No: of Shifts	Day Shift (One) (9AM -4PM)
9	No: of students enrolled	1876
10	No: of teaching staff	78
11	No: of non-teaching staff	30

12	Total campus area	20.92 Acre
13	Total Built Up area M^2	11634
14	No of PG courses	16
15	No of U G courses	08
16	No of hostel students	62
17	No of plants in the college	234
18	No of plant species in college	55
19	Grounds	Football and cricket ground Basketball court, Badminton Court, Volley Ball court

EXECUTIVE SUMMARY OF GREEN AUDIT

❖ PSMO Management taken considerable effort for maintaining the green and sustainable campus.

❖ All the varieties of living eco systems such as trees of varies varieties , gardens (Botanical, Medecenal, Star garden), etc are present in the camous

❖ Staff and student's collaboration of Bhoomithra sena club and NSS is held responsible for maintenance of greenery inculcating a sustainable culture among the student's community. ❖ Creation of Living Boundary wall near to raod side will reduce the dust and noice from the outside and develop green coverage to the college.

❖ College well-constructed and maintained a greenhouse which contains varities of fren, orchids, and special species.

❖Well placed rainwater harvesting systems in different areas for raising up the ground water table and also rain water collection tank constructed and used well.

❖ Students in the college conducted various programs, such as camps, seminars, workshops, rallys etc are conducted as inside the campus and outside also as social responsibility or outreach programmers

Suggestions for improvement

❖ Display boards are to be placed in the, Medicinal, botanical garden areas with name of trees in that areas.

❖ Water meter to be installed for measuring water consumption per day.

❖ Practice Institutional Ecology- Set an example of environmental responsibility by establishing institutional ecology policies and practices of resource conservation. ❖ Develop and maintain Vegetable garden , Open natural garden library in front of present library, Open or fitness garden , and develop an aquatic garden in the college

❖ Extension and thickness of living boundary wall to be extended around the college and thickness

or width of the boundary wall to be increased.

ABOUT PSMO C O L L E G E

Sprawling over 20, 92 acres of land and situated at a distance of 13Km from Calicut University Campus, 8Km from Parapangadi railway ststion 13Km from Calicut. Pocker Sahib Memorial Orphanage College, Tirurangadi is a leading institute affiliated to Calcut University .The college is accredited NAAC A grade in its second cycle The college established in 1968 in this socially and educationally back ward region by a noble mission of imparting higheir education to all irrespective anything but with special emphasis on the education of Muslim and other minority communities. The PSMO college alumni proven that this noble mission made successful evidenced by of its alumni placed I various capacities across the world.

The founder and former General Secretory of Tirurangadi Muslim Orphanage Committee (PSMO) MK. Haji Sahib, as to be remembered for his humanitarian concerns of under preivileged section of society across Malabar area. PSMO is foremost orphanage in the Kerala started in 1943 and PSMO is one of the feeder institutions under this Tirurangadi Muslims Orphanage Committee.The college is estsblished on 1968 as aided Junior college and it is upgraded to first grade college from 1972 and PG College in 1980 .At present college have 10UG programmes, 8 PG programmes and 5 reasearch programmes are offered. The institution has afully computerized libraray with morthan 50,000 books and 90 periodicals. Libraray having well equipped digital resource centre with lot of e- books, animations, videos, lectures etc in its collection. College is one of ASAP centre since 2013. Various clubs such as energy and environment conservation club, Bhumithra sena, Nature club etc functioning well in the college which improves the interactive and social skills among the students.

Vision

To achieve national and international recogonition as a premier academic institution

through an extraordinary student centred, value based, teaching learning practices and quality research output

Mission

Align the academic endeavors of te college with the best nationally anfd globally

To collaborate with institutions of eminence leading to elevated student experiences

To establish student centered instructional ecosystem with active leaning practices

To provide top class exposure to research in terms of thought and material support

FIGURE 1 FRONT VIEW OF COLLEGE

GREEN AUDIT

The whole world is on the road to a sustainable development, and the environment conservation is the top priority among the list as every human activity has its effect on their surroundings, which is the environment. Hence be it a house, a commercial building, an industrial building, or any other construction will disturb the balance of the environment. It is very important to do a detailed study about the effects on the environment. This is conducted under the name of *Green Audit*, which can be defined as *the official examination of the effects a company or other organization has on the environment, especially the damage that it causes*. The objectives of the greenaudit can be listed as follows:

- Including participants from every section of the organization in the auditing process.
- Understanding the environment by drawing a simple sketch of the total area.
- Identifying the activities in the premises and listing them.
- Calculating the resource consumption like the land and water.
- Assessing the waste management and disposal.
- Identify the good practices.
- Suggest the viable solutions to improve the sustainable nature of the organization.
- Compile the report with the above-mentioned details.
- Conduct a walkthrough audit to check the suggestions implemented by the institution and suggest for further improvements
- Verify all the points with actual measurements is it is meeting the performance and gave suggestions for improvement

CAMPUS ENVIRONMENT

The environment in and around the college campus plays an important part in

maintaining a healthy atmosphere in nurturing talents. Trees are the major source of the oxygen we breathe, and receiver of the carbon dioxide we exhale. The sustainability of an ecosystem depends on the number of plants and trees in and around the surroundings. The open space in the college is used for gardening and maintain a botanical garden, herbal garden, Leisure space and open Gym, large open garden, peace garden etc.Ultimately the campus is maintaining natural equilibrium with trees, birds and water bodies along with human interactions.

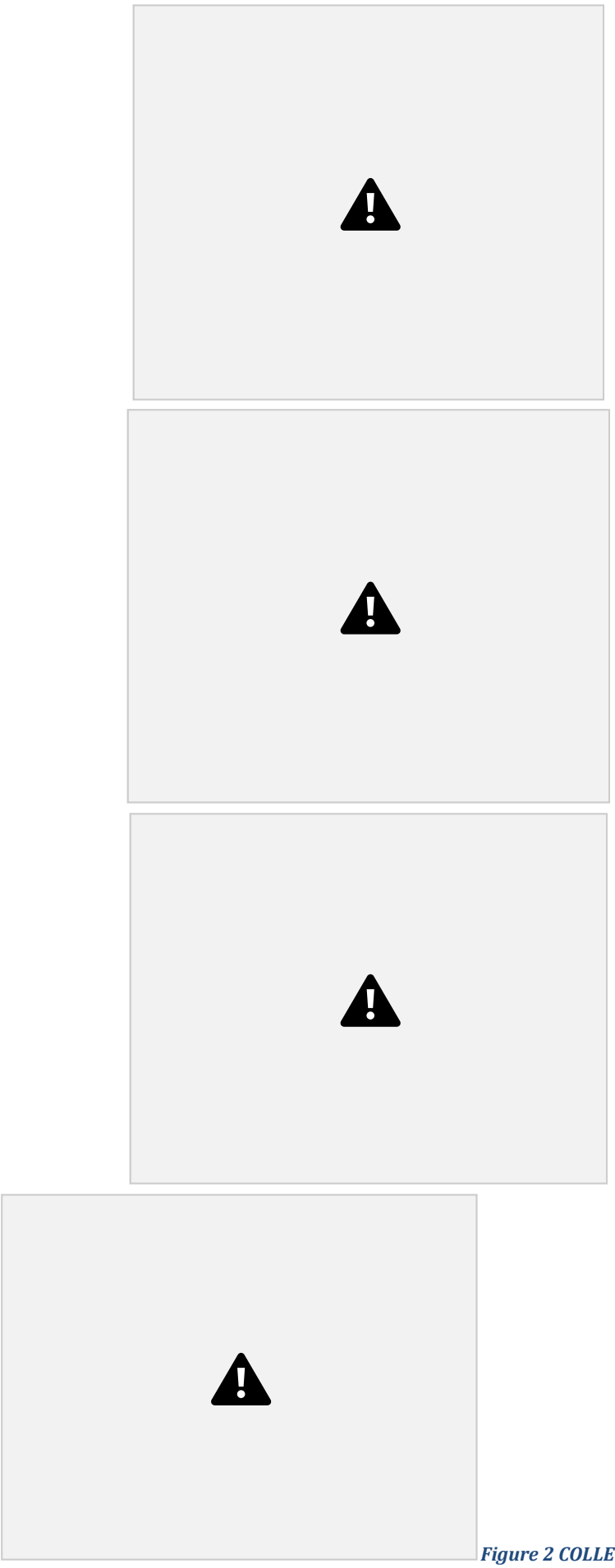


Figure 2 COLLEGE BUILDINGS

Scientific studies are proved that the nature can able to cure any diseases and this will reduce the stress among students during theirs studies and also increase the compassion among them and to nature. Ultimately the campus is maintaining natural equilibrium trees, birds and water bodies with human beings. Gardens and landscape are an aesthetic delight and it promotes Attentiveness of students. Persons exposed to plants have higher level of positive feelings (pleasant, calm) as opposed to negative feelings (anger, fear).

SUSTAINABLE CONSTRUCTION OF BUILDINGS

Energy consuming devices installed to achieve the comfort levels for the occupants of the building gives rise to heat generation which adversely affects the environment within the building and in the surrounding. Buildings are thus the major pollutants that affect the urban air quality and contribute to climate change. Buildings are the major consumers of energy during their construction, operation and maintenance.

PSMO College has developed an ecological design in their buildings and adopted minimumnegative impact on ecosystem. Their approach to the constructional activities consciously is to conserve energy and ecology and avoid the adverse effects of ecological damage.

PSMO College management constructed the building to optimum utilization of land and classrooms and with abundant light and natural ventilation. Maximum day light ingression and natural ventilation increases the indoor air quality and avoid the sick building syndrome. The whole facility and buildings are designed to maximum and optimum utilization of land without affecting thenature area design and thus avoiding the landslides.

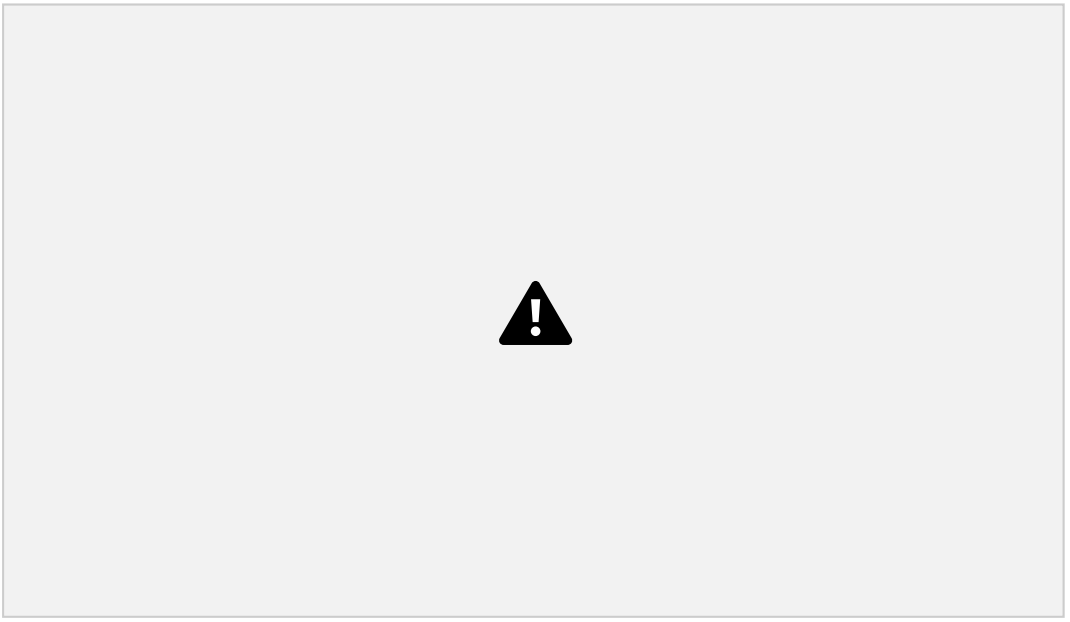


Figure 3 COLLEGE FRONT VIEW

BUILT UP AREA

Table 2: ***BUILDING DETAILS***

Sl.No: Floor	Total Built Up Area	
		M^2
1	Main Block	**3920**
2	Auditorium	**696**
3	Women's hostel	**1098**
4	IGNOU Block	**625**
5	Library Building	1170
6	UGC Block	1006
7	Chemistry Block	1440
8	Commerce Block	877
9	Other Facilities	846
Total		**11678**

BUILDING USAGE

MAIN BLOCK

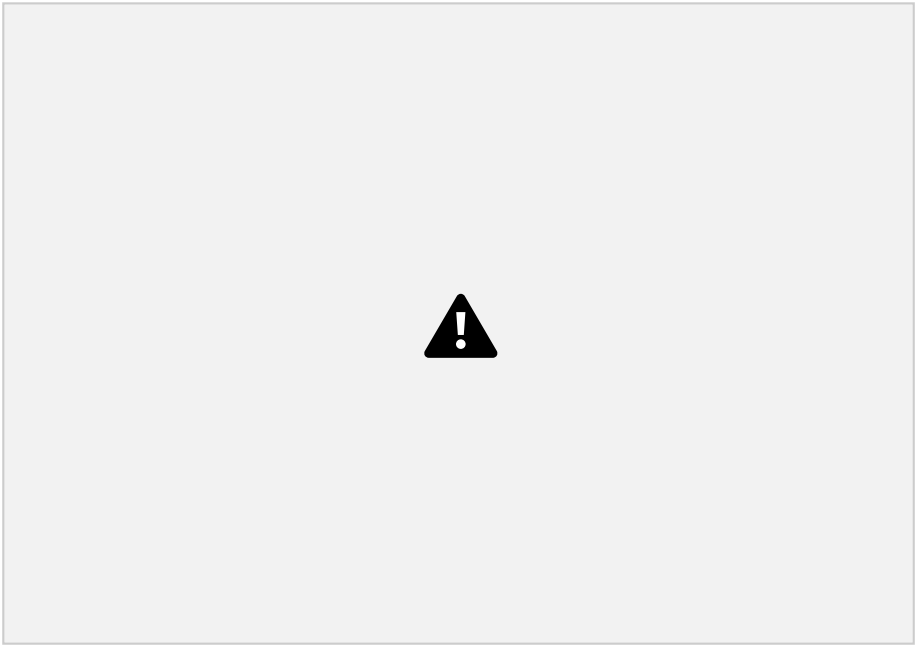


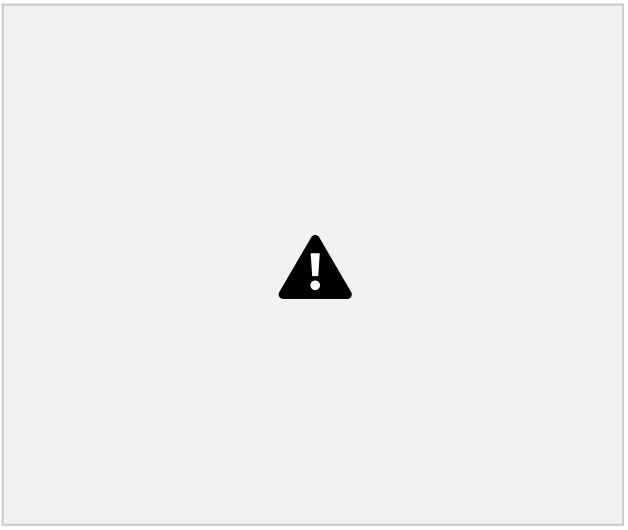
Figure 4 MAIN BLOCK

Main block Consists office, class rooms, laboratories and conference hall. This block is constructed as square C type with projected center which will be gave maximum ventilation and natural lights into the building class rooms. This aesthetic and sustainable design and the white color of the college gave an extraordinary and peaceful look for the college.

ICT Enabled class rooms, seminar Hall, ***Laboratories of*** Chemistry UG and PG Lab, Chemistry Instrumentation lab, Physics UG and PG lab DST FIST Lab, history museum, Botany Lab, Tissue Culture Lab, Zoology ***Computing equipment's and academic facilities*** Library, Media Room ***Others are*** Principal'sOffice, Administrative office, IQAC, Visitors Room, Departments of Chemistry, English, Physics, Hindi, Political science and Psychology, Botany, Zoology, etc.

OTHER FACILITIES

Auditorium, women's hostel. Gym, canteen, amenities center , comfort stations for male and female, mosque, staff club room, prayer rooms etc



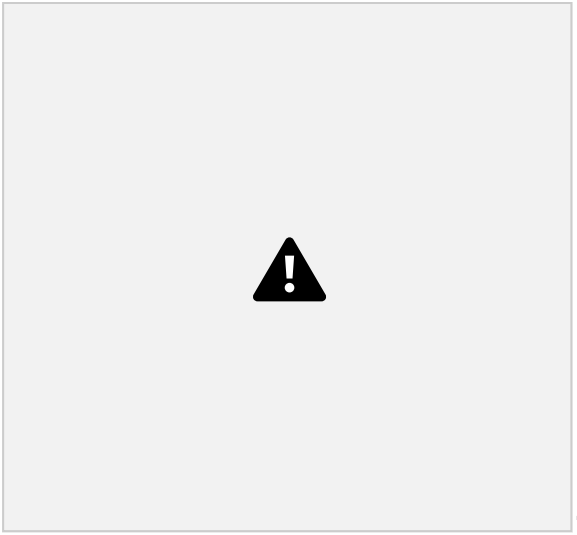


Table 10 AUDITORIUM AND WOMENS HOSTEL

1. CARBON DIOXIDE LEVELS

Air quality is a major area of concern inside a building. The percentage share of oxygen and carbon dioxide should be such that the occupants are able to perform their tasks without any discomfort. This is generally done through a provision of fresh air duct for the air conditioning systems or by providing windows. Numerous factors need to be considered for the design and fabrication of the fresh air supply system like the number of occupants, weather pattern and air quality of the location, and so on. For the human comfort, production of carbon-dioxide (CO2) within a building space is the prime area of consideration. This is associated with respiration which produces CO2. As a result, the carbon-dioxide levels will increase if ventilations are not provided.

As per various standards (like the ASHRAE Standard 62.1-2016), indoor CO2 concentrations up to 1200 ppm is considered acceptable. For a typical outdoor condition, this value may change from 300 to 500 ppm.

The measurements were recorded along different locations inside the campus and the peak values are given in the following sections. The key concentration was on the study of carbon dioxide levels.

*Table 3: **CO2 LEVELS***

Sl. No.	AREA	Measured CO2	Standard CO2level (Range)	Remarks
Main Block				
1	History Class room	600	300-500	Good
2	Corridor	425	300-500	Good
3	History Museum		300-500	Good
4	Physics Laboratory	600	300-500	Good

5	History Lecturers Room	650	300-500	Good
6	PG Class room	340	300-500	Good
7	Chemistry class room	560	300-500	Good
8	B com Class room	450	300-500	Good
9	Chemistry Laboratory	550	300-500	Good
10	Advanced Chemistry lab	550	300-500	Good
11	Advanced Physics lab	360	300-500	Good
12	Canteen	550	300-500	Good
13	Auditorium	450	300-500	Good
14	Staff amenites rooms	400	300-500	Good
15	Zoology Class room	450	300-500	Good
16	Bottany Class room	450	300-500	Good
17	Zoology Lab	550	300-500	Good
18	Principal Office	500	300-500	Good
19	Administration office	650	300-500	Good
20	IGNOU Room	400	300-500	Good
21	Comfort station ladies	400	300-500	Good

2. OPEN GROUNDS

Education is incomplete without sports and games. Sports and games **are beneficial in teaching us punctuality, responsibility, patience, discipline, and dedication towards our goal.** The importance of games and sports in student's life is immense. It has proved to be very therapeutic in nature. Sports help improve social skills, such as dispute management and sport-based interaction. **Sports inculcate the feeling of fairness in a child and encourage them to be committed, taking defeat in a positive manner.** It teaches us to be joyful, united, and appreciative in life. Students are the youth of our nation, and they need to be energetic, physically active, and mentally fit. By understanding the responsibility to make its students healthy PSMO College has built and maintained Football ground, cricket ground and volley and badminton courts in green surroundings.

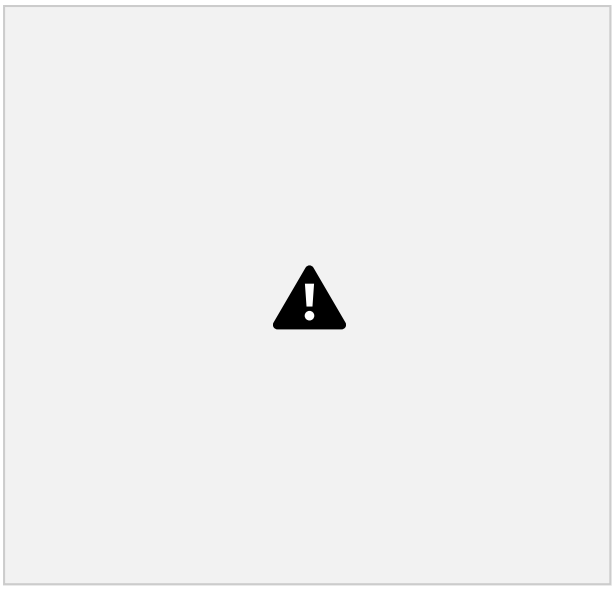
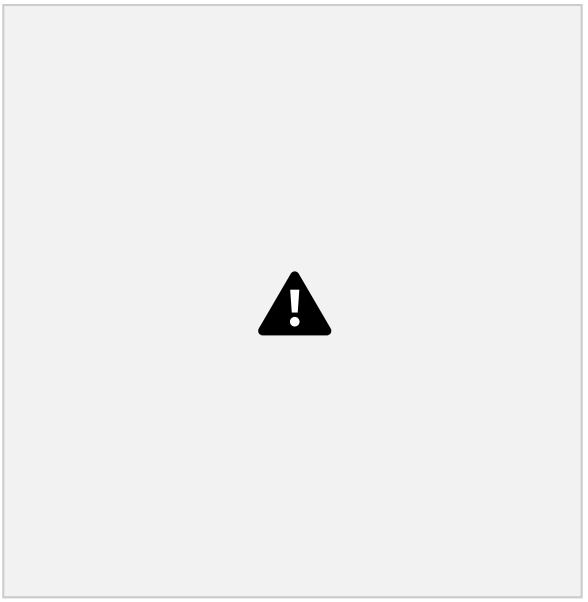
	

Table 18 OPEN GROUNDS

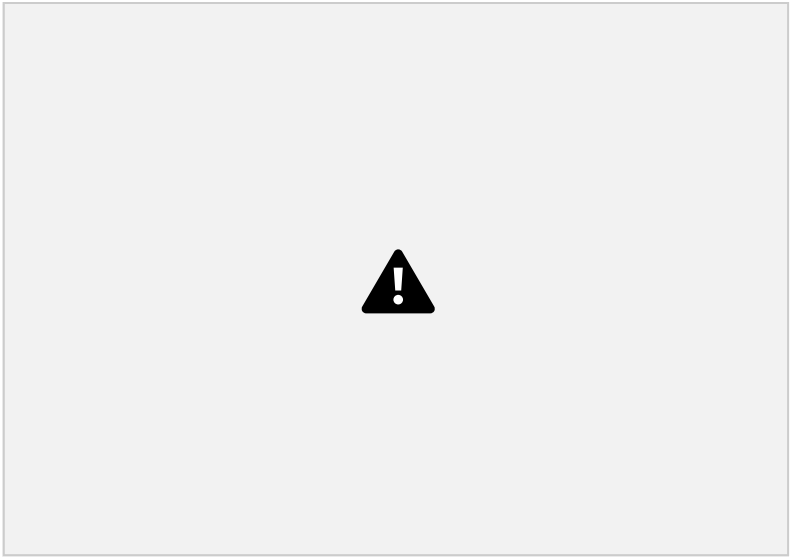
3. BOTANICAL GARDEN

Department of Botany maintains a botanical garden in various places of college. Our botanical garden maintain documented collections of living plants for the purposes of scientific research, conservation, and various practical works. The garden comprises of different varieties of medicinal plants, ferns, ornamental plants, vegetable plants, , green house, star garden, rare and endangered species area pteridophytes conservation zone in different parts of college.

MEDICINAL PLANTS

The literal meaning of Ayurveda is “science of life,” because ancient Indian system of health care focused on views of man and his illness. It has been pointed out that the positive health means metabolically well-balanced human beings. Ayurveda is also called the “science of longevity” because it offers a complete system to live a long healthy life. It is an interactive system that is user-friendly and educational. It teaches the patient to become responsible and self-empowered. It is a system for empowerment, a system of freedom, and long life. A significant part of knowledge and tradition is currently being eroded due to modernization, acculturation and availability of alternatives. Therefore, it is urgent to inculcate young minds to realize the fascinating knowledge and tradition associated with these resources, and help them understand the immense potentials the Kerala medicinal plants possess for the future.

Plants are important sources of medicine and play a key role in world health. Medicinal plants have been known to be an integral potential source of therapeutics or curative aids. These plants have a high demand in the market, since they are the rich source of antioxidants, antibacterial properties and they boost immunity and metabolism. We can see a lot of medicinal plants grown in this botanical garden. List of major medicinal plants are given below.



LIST OF MEDICINAL PLANTS

SL.NO:	NAME OF THE PLANT	FAMILY
1	*Annona muricata*	*Annonaceae*
2	*Cyclea peltata*	*Menispermaceae*
3	*Evolvulus alsinoides*	*Menispermaceae*
4	*Tinospora cordifolia*	*Menispermaceae*
5	*Nymphaea Pubescence*	*Nymphaeceae*
6	*Hibiscus rosa-sinensis*	*Malvaceae*
7	*Sida acuta*	*Malvaceae*
8	*Sida cordifolia*	*Malvaceae*
9	*Biophytum sensitivum*	*oxalidaceae*
10	*Oxalis corniculata*	*Oxalidaceae*
11	*Glycosmis pentaphylla*	*Rutaceae*
12	*Murraya koengii*	*Rutaceae*
13	*Azadirachta indica*	*Meliaceae*
14	*Cardiospermum helicacabum*	*Sapindaceae*
15	*Anacardium occidentale*	*Anacardiaceae*
16	*Mangifera indica*	*Anacardiaceae*

17	*Butea frondosa*	*Papilionaceae*
18	*Clitoria ternatea*	*Papilionaceae*
19	*Pongamia pinnata*	*Papilionaceae*

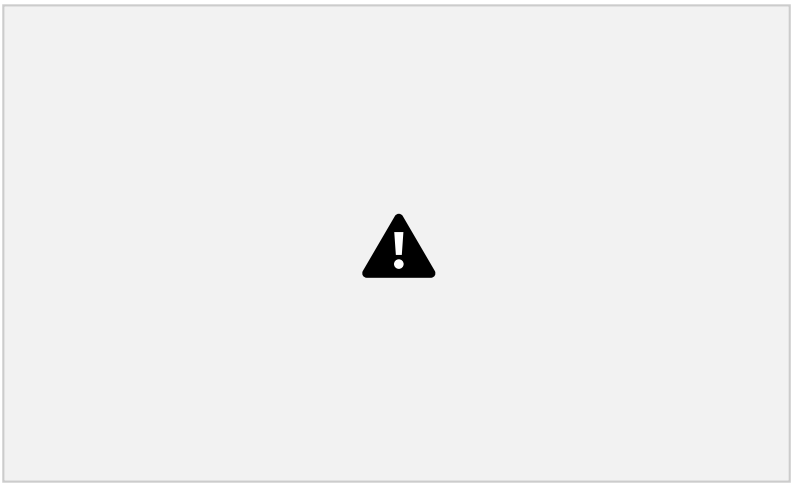
20	*Viscid pseudarthria*	*Papilionaceae*
21	*Cassia fistula*	*Caesalpiniaceae*
22	*Tamarindus indica*	*Caesalpinicaeae*
23	*Psidium guajava*	*Myrtaceae*
24	*Carica papaya*	*Caricaceae*
25	*Mukia scabrella*	*Cucurbitaceae*
26	*Centella asiatica*	*Apiaceae*
27	*Chassalia curviflora*	*Rubiaceae*
28	*Ixora coccinea*	*Rubiaceae*
29	*Eclipta alba*	*Asteraceae*
30	*Vernonia cinerea*	*Asteraceae*
31	*Alstonia scholaris*	*Apocynaceae*
32	*Rauvolfia serpentina*	*Apocynaceae*
33	*Tabernaemontana coronaria*	*Apocynaceae*
34	*Vinca rosea*	*Apocynaceae*
35	*Datura stramonium*	*Solanaceae*
36	*Physalis minima*	*Solanaceae*
37	*Adhatoda vasica*	*Acanthaceae*
38	*Clerodendrum serratum*	*Verbanaceae*
39	*Leucas aspera*	*Lamiaceae*
40	*Ocimum sanctum*	*Lamiaceae*
41	*Boerhavia diffusa*	*Nyctaginaceae*
42.	*Achyranthes aspera*	*Amaranthaceae*

43	*Aerva lanata*	*Amaranthaceae*
44	*Piper nigrum*	*piperaceae*
45	*Cinnamomum camphora*	*Lauraceae*
46	*Santalum album*	*santalaceae*
47	*Acalypha indica*	*Euphorbiaceae*

48	*Emblica officinalis*	*Euphorbiaceae*
49	*Euphorbia hirta*	*Euphorbiaceae*
50	*Phyllanthus amarus*	*Euphorbiaceae*
51	*Tragia hispida*	*Euphorbiaceae*
52	*Curcuma longa*	*Zingiberaceae*
53	*Musa sapientum*	*Musaceae*
54	*Gloriosa superba*	*Liliaceae*
55	*Cynodon dactylon*	*Poaceae*

4. GREENHOUSE

A large number of ferns are grown in the GREEN house of the garden which plays a vital role in filtering toxins, such as heavy metals from the environment and thus provides a bio indicator for the health of an ecosystem. Ferns symbolize eternal youth and have ceremonial and spiritual use. It includes bryophytes like Riccia, pteridophytes like Selaginella and Equisetum.



5. VEGETABLE GARDEN

Itisagardenthatexiststogrowvegetablesandotherplantsusefulforhumanconsumption. Gardening can provide students with hands-on learning opportunities while increasing environmentalawareness and vital experience in problem-solving. The school gardens are changing the eating habits of the students

Gardens are a wonderful way to use the college campus as a classroom, reconnect students with the natural world and the true source of their food, and teach them valuable gardening and agriculture concepts and skills that integrate with several subjects, such as math, science, art, health and physical education, and social studies, as well as several educational goals, including personal and social responsibility. They gain self-confidence and a sense of "capableness" along with new skills and knowledge in food growing — soon-to-be-vital for the 21st century students become more fit and healthyas theyspendmoretimeactiveintheoutdoors andstart choosinghealthyfoodsover junk food.

6. NAKSHTRAVANAM

In Vedic astrology, the zodiac is divided into 27 nakshatras or stars. An individual is born under a particular star, known as his or her birth star. From ancient times, particular trees have been associated with birth stars. The concept of aNakshatra Vanam involves the planting of these trees in a grove and nurturing them, to help develop a place of sanctity. Gardening can provide students with hands-on learning opportunities while increasing environmental awareness and vital experience in problem-solving. PSMO College developed planted a stern trees. The details are given below.

Every student and staff has a birth star which is related to a tree, animal and bird in Nature. Gardens are a wonderful way to use the college campus as a classroom, reconnect students with the natural world and the true source of their food, and teach them valuable gardening and agricultural concepts and skills that integrate with several subjects, such as math, science, art, health and physical education, and social studies, as well as several educational goals, including personal and social responsibility. They gain self-confidence and a sense of "capableness" along with new skills and knowledge in food growing — soon-to-be-vital for the 21st century students become more fit and healthy as they spend more time active in the outdoors and start choosing healthy foods over junk food

Sl No:	Star Name	Tree name	Botanical Name
1	**Aswathy**	Kanjiram	*Strychnos nux-vomica*)
2	**Bharani**	Nelli	*Emblica officinalis*)
3	**Karthika**	Aathi	Ficus racemosa
4	**Rohini**	Njaval	*Syzygium cumini*)
5	**Makayiram**	Karngali	*Acacia catechu*)
6	**Thiruvathira**	Karimaram	*Diospyros ebenum*)
7	**Punartham**	Mula	*Bambusa bambos*)

8	**Pooyam**	Arayal	*Ficus religiosa*)
9	**Ayilyam**	Nangu	*Mesua ferrea*)
10	**Makam**	Plassu	*Butea monosperma*)
11	**Uthram**	Ithi	*Ficus tinctoria*)
12	**Atham**	Ambazham	Spondias pinnata
13	**Chithira**	Koovalam	Aegle marmelos
14	**Chothi**	Nerr maruthu	Terminalia arjuna
15	**Visakham**	Vayam Kaitha	Flacourtia jangomas
16	**Anizham**	Elanji	*Mimusops elengi*)

17	**Triketta**	Vetti	Aporusa lindleyana
18	**Moolam**	Vella Pine	Vateria indica
19	**Pooradam**	Vanchi	Salix tetrasperma
20	**Uthradam**	Plavu	Artocarpus heterophyllus
21	**Thiruvonam**	Erukku	Calotropis gigantea
22	**Avittam**	Vanni	Prosopis juliflora
23	**Chathayam**	Kadambu	Anthocephalus cadamba
24	**Pooruttathy**	Mavu	Mangifera indica
25	**Uthrattathy**	Karimbana	Borassus flabellifer
26	**Revathi**	Elippa	Madhuca longifolia

LIST OF TREES IN THE CAMPUS

Trees release oxygen when they use energy from sunlight to make glucose from carbon dioxide and water. Like all plants, trees also use oxygen when they split glucose back down to release energy to power their metabolisms. Averaged over a 24-hour period,they producemore oxygen than they use up; otherwise there would be no net gain in growth.

1. **Maintain the equilibrium of air and food:** Humans and animals need food and oxygen and excrete carbon dioxide and water. The plants, algae, etc, in the graden use carbon dioxide and water and release or produce oxygen and food.
2. **Filter and store water, and drastically reduce storm-water runoff:** Forests filter and regulate the flow of water. The litter over the forest floor acts as a sponge which filters, stores and gradually releases the water to natural channels and ground water.
3. **Conserve valuable topsoil and reduce soil erosion:** A forest is like a protective green cloth over Mother Earth's fragile body.
4. **Conserve biodiversity and balance ecology:** In a natural environment, the populations of species are balanced to an optimum minimum level
5. **Reduce pollution:** Plants can remove and/or Phyto remediate pollutants and contaminants from soil and water.
6. **Arrest or reverse global warming:** Global warming can cause extinction of species, tropical cyclones, extreme weather, tsunamis, abrupt climatic change, sea level rise, increased human stress resulting in violence, etc. These are just a few of its catastrophic effects. Plants can lock CO2 in their bodies to save our planet and the life on it

The college campus is divided into various locations for listing out the trees. The college campus contains

234 Plants in 55 various species.

SL.NO:	NAME OF THE PLANT	COMMON NAME	FAMILY	Number
1	*Michelia champaca*	ചെമ്പകം	*Magnoliaceae*	2

2	*Annona squamosa*	സീതപ്പഴം	*Annonaceae*	3
3	*Annona muricata*	മുള്ളൻക്ക	*Annonaceae*	1
4	*Polyalthia longifolia*	അരണമരം	*Annonaceae*	14
6	*Averrhoa bilimbi*	ബിലുമ്പി പുളി	*Oxalidaceae*	1
7	*Simarouba glauca*	ലക്ഷ്മിതരു	*Simaroubaceae*	16
8	*Azadirachta indica*	ആര്യവേപ്പ്	*Meliaceae*	8
9	*Swietenia macrophylla*	മഹാഗണി	*Meliaceae*	12
10	*Nephelium lappaceum*	റമ്പുട്ടാൻ / **Hairy Lychee**	*Sapindaceae*	1
11	*Anacardium occidentale*	കാശുമോ്	*Anacardiaceae*	2
12	*Mangifera indica*	മോു	*Anacardiaceae*	12
13	*Moringa oleifera*	മുരിങ്ങ	*Moringacaeae*	1
14	*Zizypus mauriciana*	**Indian jujube**	*Ramnaceae*	1
15	*Pongamia pinnata*	ഉങ്ങ്	*Papilionaceae*	17
16	*Pterocarpus marsupium*	വേങ്ങ/ **Indian kino tree**	*Papilionaceae*	2
17	*Bauhinia tomentosa*	മഞ്ഞമന്ദാരം	*Caesalpiniaceae*	1
18	*Cassia fistula*	കണിചക്കാന്ന	*Caesalpiniaceae*	2
19	*Cassia spectabilis*	രാക്ഷസക്കാ ന്ന	*Caesalpiniaceae*	3
20	*Peltophorum inerme*	ചരക്കാന്ന	*Caesalpiniaceae*	5
21	*Tamarindus indica*	പുളിമരം	*Caesalpiniaceae*	2
22	*Acacia auriculiformis*	അക്കകെഷ്യ മരം	*Mimosaceae*	1
23	*Strychnos nux-vomica*	കാഞ്ഞിരം	*Logaliaceae*	3
24	*Adenanthera pavonina*	മഞ്ചാടി	*Mimosaceae*	1
25	*Samanea saman*	മഴമരം/ ചീനി	*Mimosaceae*	6
26	*Terminalia arjuna*	കടുക	*Combretaceae*	5
27	*Psidium guajava*	ക്കപെര/ Guava	*Myrtaceae*	6

28.	*Carica papaya*	പപ്പായ	*Caricaceae*	19
29	*Achras sapota*	സക്കപൊട്ട/ **Chiku**	*Sapotaceae*	3
30	*Alstonia scholaris*	ഏഴിലം പാല	*Apocynaceae*	5

31	*Tectona grandis*	ക്കേക്	*Verbanaceae*	13
32	*Cinnamomum camphora*	കർപ്പൂരം/ camphor Tree	*Lauraceae*	2
33	*Santalum album*	ചന്ദനം/ East Indian sandalwood	*Santalaceae*	3
33	*Bridelia retusa*	കായാനി	*Euphorbiaceae*	1
34	*Emblica officinalis*	നനല്ലി/ **Indian gooseberry**)	*Euphorbiaceae*	2
35	*Macaranga indica*	ന ാടുണ്ണി /േട്ട	*Euphorbiaceae*	21
36	*Trema orientalis*	അമരാത്തി	*Cannabaceae*	2
37	*Artocarpus heterophyllus*	പ്ലാ/ **Jackfruit**	*Moraceae*	5
38.	*Casuarina equisetifolia*	കാറ്റാടി/ whistling tree	*Casuarinaceae*	5
40.	*Caryota urens*	യക്ഷിപ്പന	*Arecaceae*	4
41.	*Cocos nucifera*	ക്ങ്ങ്	*Arecaceae*	7
42	*Phyllathus acidus*	അരിക്കുല്ലിക	*Phyllanthaceae*	1
43	*Aegle marmelos*	ൂവളം	*Rutaceae*	1
44	*Roystonea regia*	**Royal Palm**	*Arecaceae*	9
45	*Dalbergia latifolia*	വീട്ടി	*Papilionaceae*	1
45	*Bambusa bambos*	മുള	*Poaceaea*	1
46	*Sterculia guttata*	പീനാറി	*sterculiaceae*	1
47	*Cycas circinalis*	ഈന്ത്	*Cycadaceae*	1

RET GARDEN

Department of Botany maintains an Endangered Plant Garden in the college. The garden comprises endangered medicinal plants through living collections they benefit pollinators like butterflies, honeybees, bats, and birds, which play an important role in the production of our crops and maintaining the health of other plant life. Green plants help in filtering pollutants in the air. Plants

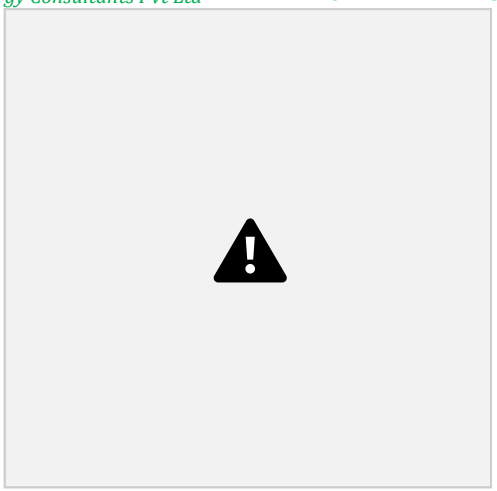
are the essential resource for human existence and we should be aware that plants across the world are endangered with many facing extinction. Their conservation should be a key component of efforts for biodiversity conservation. Healthy ecosystem depends on plants as their foundations; therefore this garden serves as a conservation strategy for threatened plants. When species becomes

endangered, it is a sign that the ecosystem is slowly falling apart. Each species that is lost triggers the loss of other species within its ecosystem. If we allow our environment to become contaminated we risk our own health, therefore it is our responsibility to conserve these endangered species for future generations. Their conservation plays a vital role in stability of ecosystem and balance of nature. This garden also provides an opportunity for people to view the list endangered medicinal plants.

Collection of this endangered medicinal plants *Cycas revolute,* Ensete ventricosum, Callistemon lancelatus, Zamia furfaracea, cycas circynalis. This garden is a small step of conservation put forward by the Department of Botany to preserve few among endless list of endangered plants

Cycas revolute Ensete ventricosum

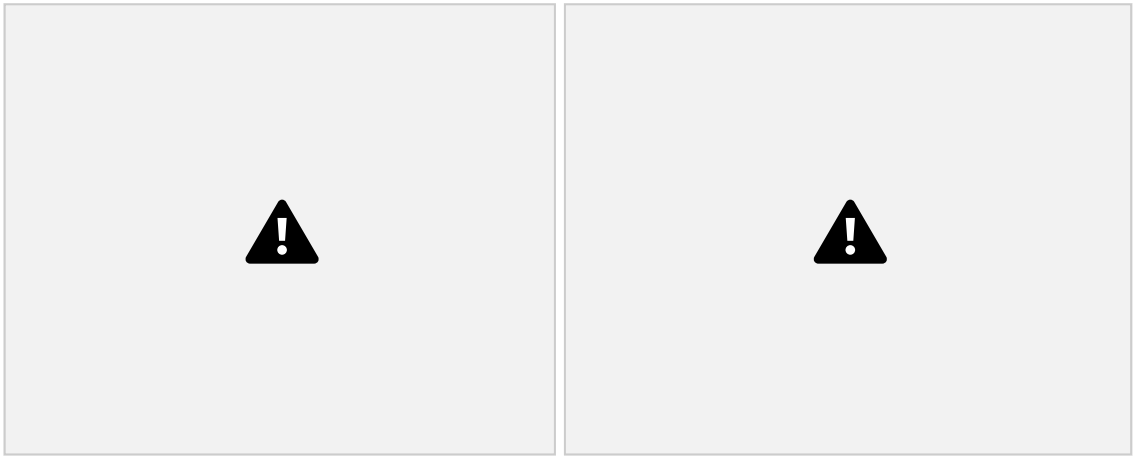
Callistemon lanceolatus Zamia furfuracea



Cycas circinalis

PTERIDOPHYTES CONSERVATION ZONE

We have both in-situ and ex-situ conservation strategies to conserve pteridophytes. We have *Marsilea quadrifolia*, *Adiantum*, *Equisetum*, *Azolla, Drynaria quercifolia*, *Nephrolepis*, *Lygodium*, *Pteris vittata*, *Selaginella kraussiana* etc. in the campus



Pteridophyte zone *Equisetum arvens*

SPECIAL INITIATIVES OF COLLEGE

I. PARKING BAY FOR VEHICLES"

To avoid the air pollution the vehicles are not allowed in the campus, but they are parked in the parking area, reasonably away from college buildings.

II. ESTABLASHMENT OF OXYGEN PARK

Care taken by the college to have Plantation of oxygen rich plants in such as Neem Treesand Tulsi. The greenery has remained useful in developing Oxygen Park in our college.

III. CONSTRUCTION OF LIVING BOUNDARY WALL:

The college is maintained a separate microclimatic zone by maintaining a thin and in certain areas thick boundary layer of trees in the college. Due to this boundary layer protest the college from dust and noise pollution tto large extent. In this microclimate zone the temperature and humidity, particulate matter, oxygen concentration, carbon dioxide levels are different from the city and thus maintaining a comfort atmosphere to students.

Recommendations

Aquatic plants: Maintain a a beautiful pond which enables the growth of certain aquatic plants in the campus. These plants help in keeping the sediments on the bottom of the pond and increase the water clarity.

Ornamental plants: Ornamental plants provide us with visual delight and beauty is their main trait along with decorative purposes and create a pleasant atmosphere throughout the garden.

Vertical garden: They reduce carbon footprints of a building by filtering pollutants and carbon dioxide out of the air and thus purify the air, which also benefits those living nearby. Provide visual treaty to minds in limited space.

Open natural gym or fitness garden: College can develop a fitness garden in the college premises to reduce the academic stress among students

Garden Library: Libraries have a responsibility to not contribute to destruction of environment, to educate the people regarding our current situation and empower them to make a difference. PSMO can create a garden library outside of main library with bamboo benches.

Vegetable garden: It is a garden that exists to grow vegetables and other plants useful for human consumption and this will change the eating habits of students.

Extension of living boundary wall around the college.

WATER RESOURCES AND CONSERVATION

The requirement of water for the college, hostels and gardening etc are met by supply from bigwell in the college boundary. And another one in near to staff amenities club. The water is collected in one main tanks and it is located in main block. The water thus collected is supplied through gravity to other tanks of located in main building, hostels, canteen, etc.

The water from different wells are checked in an accredited laboratory in time to time to ensure its portability.

1. WATER RESOURCES

There are three wells in the college, one well is located near the chapel which is not use at present. Well located outside of campus is the main source of water for college and hostel Water from the main well which is located just outside of boundary wall is pumped to main tank located of capacity 50kL. By pump.

*Table 4: **WATER SOURCES***

College boundary Well

Amenitoes Block Well
KWA connection Water authority connection

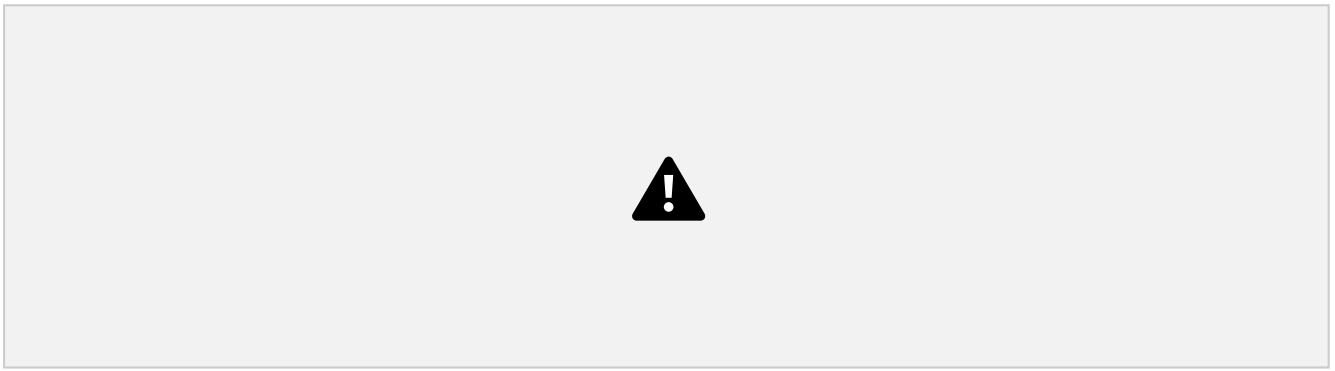


Figure 5 AWATER DISTRIBUTION FOR COMMON PURPOSE

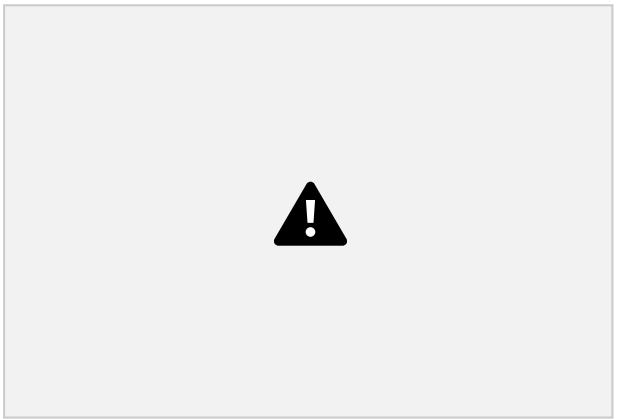


Figure 6 DRINKING WATER DIAGRAM

2. RAIN WATER HARVESTIN

The average rain fall in Malapuram for the last few years is 3000mm means 3lacs of liters of water from 1000Ft2 area of roof or as 1.2 Lacs liters of water from 1 cent land .The PSMO College campus itself is 21 acres of land availing the average rain fall of 2520Lacs of water . This is more than sufficient for meeting the water requirements. PSMO College taken initiatives for collecting the rain water and use of them and also recharging of ground water.

Rainwater harvesting (RWH) is a technique of collection and storage of rainwater into natural reservoirs or tanks, or the infiltration of surface water into subsurface aquifers (before it is lost as surface runoff). One method of rainwater harvesting is rooftop harvesting. With rooftop harvesting, most any surface — tiles, metal sheets, plastics, but not grass or palm leaf can be used to intercept the flow of rainwater and provide a household with high-quality drinking water and year-round storage. Other uses include water for gardens, livestock, and irrigation, etc.

Rainwater harvesting for ground water recharge.

Aim and Objectives:

Conservation of rainwater for future use

To use rainwater for gardening Activity: Conservation of rainwater in soil or in a container is known as rainwater harvesting.

The rainwater from entire college campus and roof top of building is collected through PVC pipe s and feed into ground at four locations in the campus These three natural sites are selected for rainwater harvesting, ground water recharge.

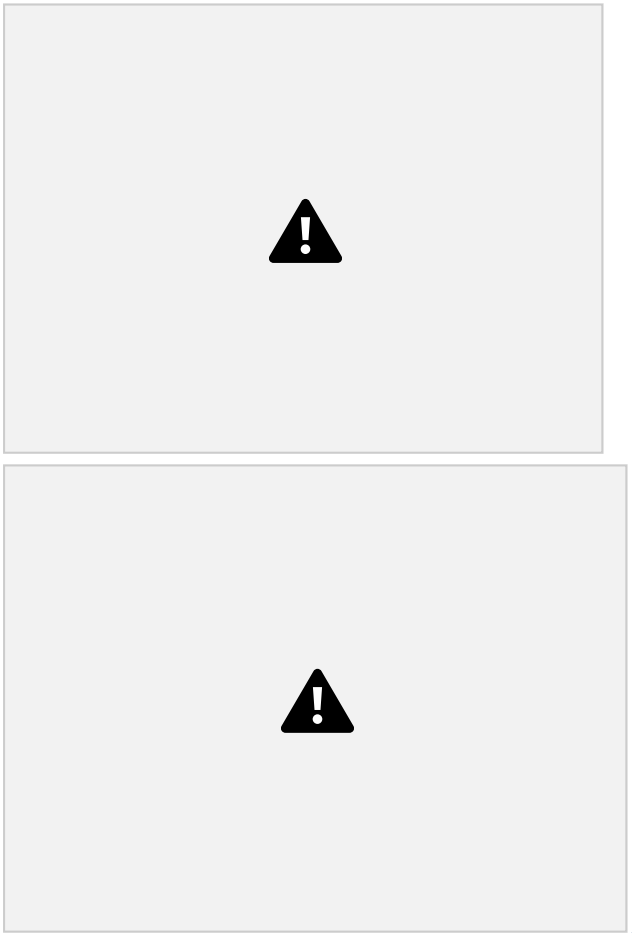
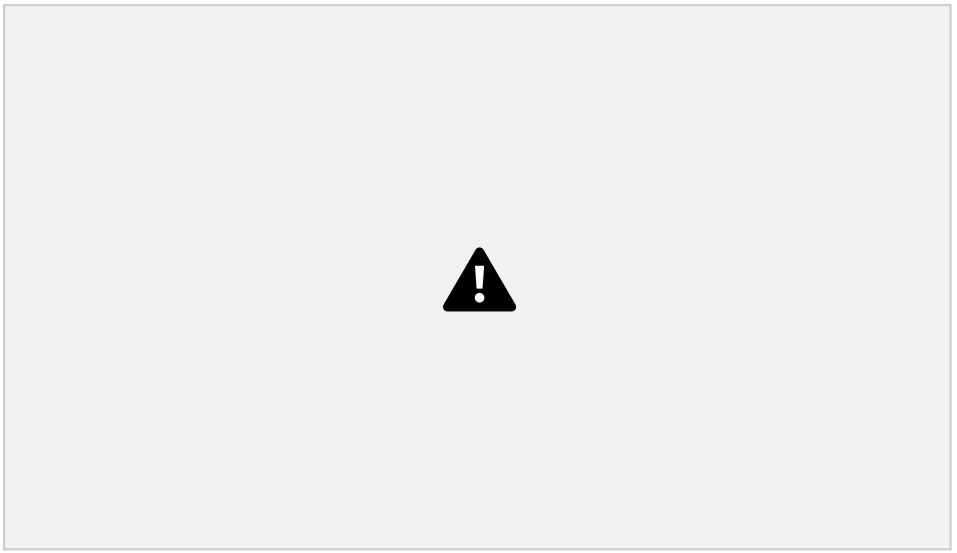


Figure 7: ***GROUND WATER TANK AND RECHARGING POINTS***



In the above rain water harvesting unit is used as multiple purpose. Th rain water after sand filtration collected in the tank which is pumped to above and this water is used for toilet, wash room requirements. The excess rain water is used for ground water recharging

AWARDS AND CERTIFICATES

PSMO College initiated and supported with the help of students and staff in the college to make the green campus in join with hands of Kerala forest department.

Due to Kovid lock down off line and field activities are not done in the college. But lot of online activates such as seminars, workshops and classes are conducted in the college. Students are keep the thread of green activities in the home and their surroundings.

CONCLUSION:

Green Audit is the most efficient & ecological way to solve such an environmental problem. Green Audit is one kind of professional care which is the responsibility of each individual who are the part of economic, financial, social, environmental factor. Green audits can

"add value" to the management approaches being taken by the college and is a way of identifying, evaluating and managing environmental risks (known and unknown). The green audit reports assist in the process of attaining an eco-friendly approach to the development of the college.

The auditors observed during the campus visit and after the conversation with the staff and students of M/s PSMO College that they have taken continuous and considerable effort in several years for nurturing and maintaining the green coverage over the campus which is being well appreciated by us. There is still opportunity to attain the perfection some of the identified suggestions are listed in the executive summary.