

# ENERGY AUDIT



**MES KEVEEYAM COLLEGE**

**VALANCHERY**

*EXECUTED BY*

**JANUARY, 2023**

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## PREFACE

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Educational institutions should prioritize integrating sustainability into their activities to raise awareness about the campus environment and its surroundings. An assessment is necessary to gauge how well the institution is advancing toward becoming eco-friendly while fostering talent. This Energy Audit evaluates the campus's commitment to sustainability. The college aspires to be a hub of higher learning that excels in academics while instilling core human values, empowering students, and serving the larger community.

The report has been prepared by a certified energy auditor and experienced project engineers specializing in energy, environmental, and management practices.

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## AUDIT TEAM

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## OBSERVATIONS

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### **Good Observations**

1. Water usage of the whole institution done with the help of a single well. Which is enough to meet the water consumption of the entire building.
2. College maintained good greenery inside the campus.
3. Waste management is done by placing few waste bins in various places in the campus

### **Suggestions for improvement in the system**

1. Electrical Panels aren't properly labelled. Labelling is a useful thing to doing electrical work and in the case of emergency, it is helpful to isolate the area.
2. Since it is a flood prone area it is better to relocate the panel room from ground floor to First floor. That can reduce the risk of safety as well as annual maintenance cost of the Electrical systems.
3. Neutral to Earth Voltage in the main panel is found to be higher than the standard value of **6V**. The higher neutral to earth voltage shows poor earthing of electrical panel.
4. Water level-based operation of Water pumps in the college saves overflow water in the water pumping system.
5. More waste bins could be placed near the classrooms to improve waste management on campus.

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## ENERGY AUDIT

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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 Energy 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 Energy audit can be listed as follows:

- ◆ Including participants from every section of the institution in the auditing process.
- ◆ Identifying the activities in the premises and listing them.
- ◆ Calculating the resource consumption like the land and water.
- ◆ Assessing the waste management and disposal.
- ◆ Study the energy usage pattern.
- ◆ Identify the good practices.
- ◆ Suggest the viable solutions to improve the sustainable nature of the institution
- ◆ Compile the report with the above-mentioned details.
- ◆ Conduct a walkthrough audit to verify the suggestions implemented by the institution.

## BASIC DETAILS

This section gives the basic details regarding the M E S Keveeyam College Valanchery , its electricity details and building areas.

**TABLE 1: BASIC DETAILS**

<b>1</b>	<b>Name of the Consumer</b>	<b>MES KEVEEYAM COLLEGE, VALANCHERY</b>
<b>2</b>	Address for communication with Phone no, email id	MES KEVEEYAM COLLEGE,Valanchery. Malappuram dist. Kerala pin 678552 <a href="mailto:principal@meskvmcollege.org">principal@meskvmcollege.org</a> <a href="http://www.meskvmcollege.org">www.meskvmcollege.org</a>
<b>3</b>	Nature of activity/ Business (Industry/ commercial/Depot/warehouse/office etc.)	Educational Institution
<b>4</b>	Number of consumers	01
<b>5</b>	Contact person, Phone no.	Shajid P.P. 9846884800
<b>6</b>	Number of working persons	112
<b>7</b>	Number of Students	1936
<b>8</b>	Annual Working Days	196
<b>9</b>	<b>Consumer number</b>	<b>1165668004786</b>
<b>10</b>	Connected load (kW)	39 kW
<b>11</b>	Total Building area – (m <sup>2</sup> )	10105 m <sup>2</sup>
<b>12</b>	Date of energy audit conducted	02/09/2019

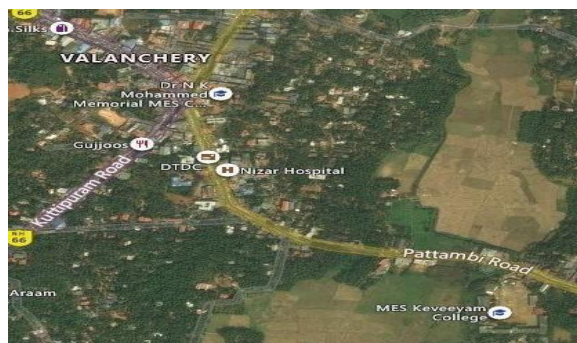
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## MES VEKEEYAM COLLEGE, VALANCHERY

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M E S Keveeyam College Valanchery has completed 33 years of dedicated service to the society in the realm of higher education. The College has endeavored to fulfil its institutional mission with great success benefitting students of socially and economically marginalized groups of Malappuram and nearby districts. The institution is sensitized to the need for improving the quality of higher education which, needless to say, is a long-term investment the society makes, expecting returns by way of human resource development. They have always strived to fulfil this expectation. The vision and mission of the college are Be a leading centre of higher learning nurturing all-round academic excellence along with core human values: a vibrant institution which enlightens the youth just as it enriches and empowers them and remains a resource centre for the larger community. The different departments are Language, Chemistry, Computer Application, Commerce, English, Physical Education, Physics, Zoology, Botany, Mathematics, Psychology, and School of distance education.

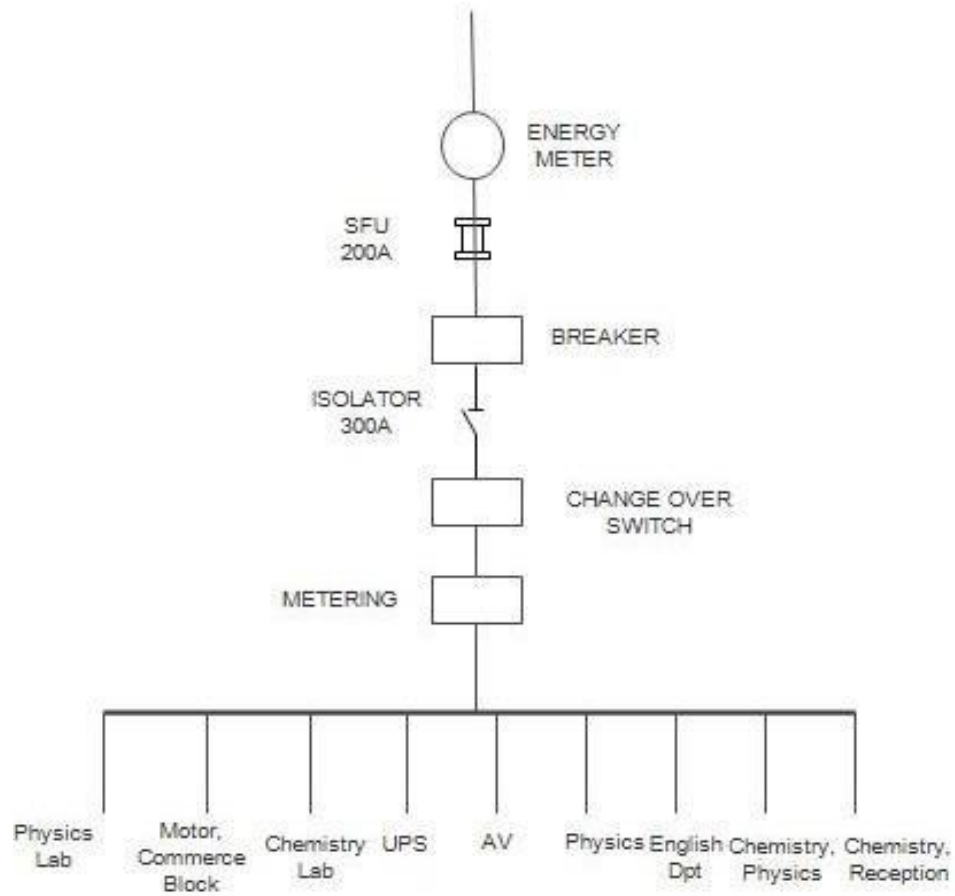


**COLLEGE CAMPUS – SATELLITE VIEW (GOOGLE)**

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## SINGLELINE DIAGRAM-ELECTRICAL

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**SINGLE LINE DIAGRAM**

## DESCRIPTION OF ELECTRICAL SYSTEM

This section gives the base line data on the electricity bills and connected loads in the MES KEVEEYAM College, Valanchery. The electricity is provided by KSEBL.

The tables below give the KSEBL bill details in the last 12 months (April 2022-March 2023).

Name of the Consumer – MES KEVEEYAM COLLEGE, VALANCHERY		
Tariff – LT 6A Non-Domestic		Consumer No:1165668004786
Connected Load –39 kW		
Month	Monthly consumption (kWh)	Total amount to be paid (Rs)
Apr-22	6403	60006
May-22	5096	42099
Jun-22	4971	76313
Jul-22	5725	43797
Aug-22	5504	52828
Sep-22	5224	41075
Oct-22	5318	57528
Nov-22	6500	50322
Dec-22	6670	67644
Jan-23	5816	45292
Feb-23	6371	64167
Mar-23	6437	53686

**TABLE 2:ELECTRICITY BILL DETAILS**



### LOAD ANALYSIS

The following table shows the Electrical measurement details of major loads that are analyzed during the period of study

Sl. No.	Particulars	V	I	kW	kVA	kVAr	PF	V A THD THD	
1	Incomer	397	37.1	25.1	25.5	2.62	0.98	2.3	10.5
2	Chemistry Department	234	1.13	0.083	0.26	-0.25	0.31	1.8	13.2
3	Chemistry Lab	234	5.74	0.536	1.34	-1.34	0.4	1.8	11.5
4	Commerce Block, Canteen	233	26.8	3.95	6.3	-4.86	0.63	1.9	3.5
5	Physics Department	235	4.85	1.13	1.14	0.014	0.99	1.8	9
6	Physics Lab	234	4.2	0.193	0.99	0.97	0.2	1.8	2.8

**TABLE 4: ELECTRIC LOAD ANALYSIS**

The table below gives the connected load details under this consumer number in each location.

#### A. LIGHT & FAN LOADS

SI No	LOCATION	LED	T8	CFL	Ceiling Fan	Exhaust	Exhaust 2
		14	36	18	60	40	60
1	Classrooms	6	93	4	94		
2	Auditorium/Av Hall	3	29	31	20		
3	Club/Conference Room		4	23	11		
4	Security Room/Floor/Ups		19	8	4		
5	Library/Store		62		24		
6	Departments		26	12	28		
7	Laboratory	32	106	26	64	9	3
8	Office		3	9	6		
9	Principal Room			9	3		
10	Reception		1	2	2		
11	IQAC	2		2	2		
12	Management Room	4	3		4		
13	Girl Centre		8		2		
	Total Nos	47	354	126	264	9	3
	Total Power (kW)	0.658	12.744	2.268	15.84	0.360	0.180

**TABLE 5: LIGHT & FAN LOADS**

#### B. COMPUTER & ACCESSORIES

Sl No	LOCATION	PC	Printer	Printer + Scanner	Purifier	TV	Refrigerator
		150	150	350	120	100	160
1	Departments	13	5	1			
2	Laboratory	18					5
3	IQAC	1	1				
4	Ict Lab	32					
5	Language Lab	17					
6	E Learning	12				1	
7	Principal Room	1	5			1	
8	Commerce Lab	10			1		
9	Reception	2		1		1	
10	Library	12	3	1	1	1	
11	Office	3	5	3			
12	Main Building				3		
	Total Nos	121	19	6	5	4	5
	Total Power (kW)	18.150	2.850	2.100	0.600	0.400	0.800

**TABLE 6: COMPUTER & ACCESSORIES**

### C. AIR CONDITIONERS

LOCATION	TYP E OF AC	Rated Power (Kw)	No	Capacity (TR)	Star Rating	EER
<b>E Learning</b>	Split	1.6	1	1.5	3 Star	3.1
<b>Research Room</b>	Split	1.6	1	1.5	3 Star	3.1
<b>IQAC</b>	Split	1.6	1	1.5	3 Star	3.1
<b>Principal Room</b>	Split	1.6	1	1.5	3 Star	3.1
<b>AV Hall</b>	Split	1.6	2	1.5	3 Star	3.1
<b>Conference Room</b>	Split	1.6	2	1.5	3 Star	3.1
<b>Language Lab</b>	Split	1.6	1	1.5	3 Star	3.1
<b>Management Room</b>	Split	1.6	1	1.5	3 Star	3.1
<b>Total Power (kW)</b>		16				

**TABLE 7: AIR CONDITIONERS**

#### D. UPS

	QUAN TITY	POW ER RATI NG	SUPPLI ER	BATTE RY DETAI LS	OPER A TING HOUR S	NO of Batteries	Make
	(NOS)	(KVA)					
Main Block	1	5KVA	SUPRA	100AH	8	10	Hykon
Main Block	1	5KVA	SUPRA	120AH	8	8	Unix
Commerce Block	1	5KVA	SUPRA	100AH	5	8	Nova
ICT Lab	1	3KVA	SUCCESS	100AH	5	3	Hykon
ICT Lab	1	3KVA	SUCCESS	100AH	5	3	Hykon
ICT Lab	1	2KVA	DSP sinewave	80AH	5	2	Nova
Library	1	2KVA	UNIX	300AH	8	2	Unix
E Learning Block	1	5KAV	HYKON	100AH	5	10	Hykon
Physics Degree Lab	1	1KVA	APC	120AH	5	3	Triotic
Physics Pg Lab	1	1KVA	APC	120AH	5	3	Triotic
Total Power (Kw)		25.6					

### E. PUMP MOTOR

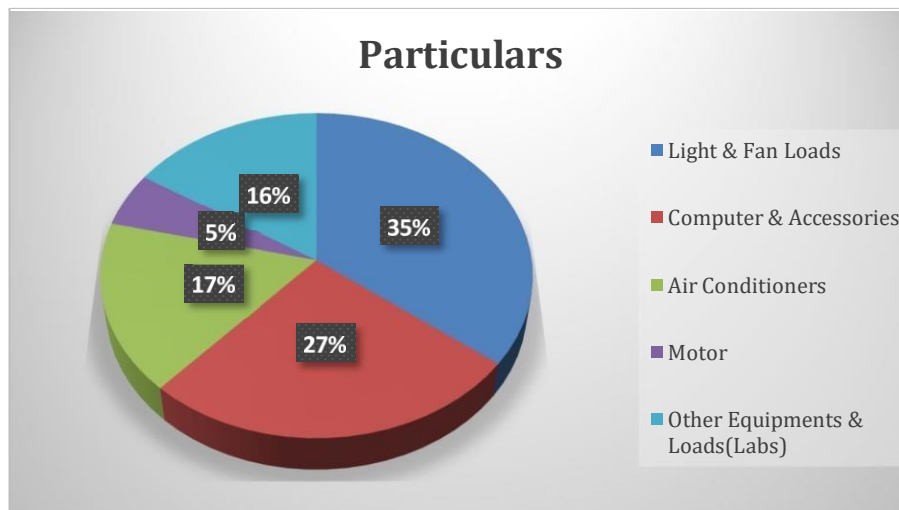
LOCATION	hp	Rpm	Watts
Mosque	1 hp	2800	746
Garden	1.5hp	2800	1440
Main Block	1.5hp	2800	1440
Commerce Block	1.5hp	2800	1440
<b>Total Power ( kW)</b>			<b>5.066</b>

**TABLE 9: PUMP MOTOR**

### SUMMARY OF LOAD DETAILS:

SI No	Particulars	Units	Values
1	Light & Fan Loads	kW	33
2	Computer & Accessories	kW	25
3	Air Conditioners	kW	16
4	Pump Motor	kW	5
5	Other Equipment & Loads (Labs)	kW	15
	<b>Total Power ( kW)</b>		<b>94</b>

**TABLE 10: SUMMARY OF LOAD DETAILS**



**FIGURE 4: SUMMARY OF LOADS**

## LUX MEASUREMENTS

According to National Lighting code-2010 BIS to determine the overall energy efficiency of lighting system using measurements and methods, which is applicable to all institutions. One of the methods is Illuminance method, which is the most practicable one. Details are given in this section. Lux levels of some areas are given in the Table 11. The overall Lux level in the institution shows a satisfactory graph but some places have very poor, they are mainly class rooms. Sufficient amount of light they maybe artificial or natural light, its amount is very less inside of the classrooms. The lux levels mentioned as satisfactory need to be improved. Two places showed very poor LUX level so needs to consider that two places urgently.

Sl No	Area	Measured Lux	Required Lux	Remarks
1	Chemistry UG Lab	216	150	Satisfactory
2	Chemistry PG Lab	144	150	Poor
3	Physics UG Lab	105	150	Poor
4	Language Lab	129	150	Satisfactory
5	ICT Lab	59	150	Very Poor
6	Physics PG Lab	169	150	Satisfactory
7	Botany Lab	306	150	Good
8	Zoology PG Lab	115	150	Poor
9	Zoology UG Lab	145	150	Poor
10	Research Lab	296	150	Satisfactory
11	E-Learning	245	150	Satisfactory
12	Chemistry	69	150	Very Poor
13	Zoology	188	150	Satisfactory
14	B.com	102	150	Poor

**TABLE 11: LUX MEASUREMENTS**

Note

- : Address the low illuminance levels in the ICT lab and chemistry area where we  
☐ marked as ver poor

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## STUDENTS ACTIVITIES ON ENERGY AND ENVIRONMENT

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Activities related to the energy and environment of the institution describes below:

On 14th December 2022, National energy conservation day, PG Department of Physics, in association with IQAC and Energy Conservation Forum, MES Keveeyam college, Valanchery conducted an energy conservation awareness survey in the households of the municipality of Valanchery. 39 students of the first-year BSc Physics and staff coordinator Dr. Navas MP visited 200 households in the municipality. The survey form consists of two sections to evaluate energy conservation awareness and energy consumption by members of various households. Based on the survey, the survey team recommended ways to reduce energy consumption in households. They also engaged in conversation with individuals to enlighten them on the need for energy awareness in the present situation. The public warmly responded to the survey and elucidated their queries related to energy. The survey team heartily welcomed the queries and constructively responded to them. The survey team believes that the survey will help in reducing energy consumption in the locality and that energy conservation awareness will spread in society.



The extension wing of department of chemistry organized a one day workshop on paper bag making on 22.10.2022 at division 2 Thaniyappankunnu of Valanchery Municipality. 40 women from Kudumbasree units participated in the workshop. Ward councilor Mr. Veerankutty P. inaugurated the programme. Dr. Soumini C. handled the training session.



Under the project of Swachh Sagar Surakshith Sagar Abhiyan, [17/09/2022] The NSS Unit [91&105] of MES KEVEEYAM College Valanchery undertook the mission of cleaning The Ponnani Harbor and surroundings. College Principal Prof. Shajid PP inaugurated the program. The NSS Program Officer Dr. Preetha SR, Proff. Nisab T, Nusrath P, Student Volunteers Ramsheeda and Binu Riyasi etc presided over the Program. Nearly 92 volunteers activity participated in the program.





As part of NSS Day Observation, Unit No 91 and 105 of MES Keveeyam college, Valanchery conducted a mega cleaning campaign. Volunteers from both the units cleaned Primary Health Centre, Kottaram and its premises. Mr. Asharaf Ambalathingal, Chairman, Valanchery Municipality inaugurated the programme. Mr. Marath Ibbrahim (Standing Committee Chairman- Health), MS. Noorjahan, Ward Councilor addressed the audience. Ninety volunteers actively participated in the programme.





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## ANNEXURE-1

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### ABBREVIATIONS

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AVG	:	Average
BEE	:	Bureau of energy efficiency
CO <sub>2</sub>	:	Carbon dioxide
KSE	:	Kerala State Electricity Board.
B DB	:	Distribution Board
EC	:	Energy Conservation
IEEE	:	The Institute of electrical and electronics engineers
IS	:	Indian Standard
kL	:	kilo Litre
KV	:	kilo Volt Ampere
A	:	kilo volt Ampere Hour
kVAh	:	kilo volt ampere
kVAr	:	kilo Watts
kW	:	kilo watt
kWh	:	hour Low
LT	:	tension
MAX	:	Maximum
NSS	:	National Service Scheme

#### REFERENCES:

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- Handbook on energy audit and environment management by TERI.
- Bureau of Energy Efficiency (BEE) books for certification of Energy Auditors & Managers.



# MES KEVEEYAM COLLEGE VALANCHERY

## KERALA

### Criteria 7: Institutional Values and Best Practices

**7.1.8** Average percentage expenditure on green initiatives and waste management excluding salary component during the last five years

## Green Audit Report





**REPORT OF THE  
ENVIRONMENTAL / GREEN AUDIT OF  
MES KEVEEYAM COLLEGE  
VALANCHERY**

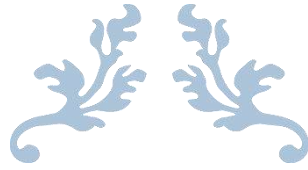


**July 2019**

**Prepared jointly by a Team From**

**MES Keveeyam College Valanchery  
&**

**Muscat Projects & Environmental Services Pvt.Ltd.  
Thiruvananthapuram**



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# **GREEN AUDIT REPORT**

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**MES KEVEEYAM COLLEGE, VALANCHERY  
MALAPPURAM**



**Prepared Jointly By**  
**A team from MES Keveeyam College, Valanchery**  
**&**  
**Muscat Projects & Environmental Services Pvt. Ltd.**  
**Thiruvananthapuram**

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## 1.0 INTRODUCTION

### 1.1 General

**MES Keveeyam College**, is a general degree college located in Valanchery, Malappuram district, Kerala. It was established in the year 1981. The college is affiliated with Calicut University. This college offers different courses in arts, commerce and science.

M E S Keveeyam College Valanchery has completed 33 years of dedicated service to the society in the realm of higher education. The College has endeavored to fulfil its institutional mission with great success benefitting students of socially and economically marginalized groups of Malappuram and nearby districts. The institution is sensitized to the need for improving the quality of higher education which, needless to say, is a long term investment the society makes, expecting returns by way of human resource development. We have always strived to fulfil this expectation.

Be a leading centre of higher learning nurturing all-round academic excellence along with core human values: a vibrant institution which enlightens the youth just as it enriches and empowers them and remains a resource centre for the larger community. Three faculties were awarded PhD, there are over 20 publications in International/National Peer reviewed journals by the faculties of the college and there are 10 presentations in International and National Conferences during the past 5years. Research articles based on the MSc project works of two of the students of the Departments of Chemistry have been accepted for presentation in International conferences, one in China and other in Bhubaneswar, India. There are three National Service Scheme units in the college. Through them students involve themselves in co-curricular activities, intellectual discussion, and community service. The college has a unit of Senior Division NCC Army wing. Enrolment is opened to boys and girls. Dr Abdul Hameed holds the position of NCC Officer. Practise sessions are being held by the officer to make the students fit for the role. The college has been ranked 51 by national institutional ranking framework (NIRF) of Ministry of Human Resource Development. Govt. of India. We are at 8<sup>th</sup> position in Kerala. The national ranking was announced by union Minister of Human Resource Development Mr Prakash Javdekar on 3<sup>rd</sup> April at New Delhi. The ranking was based on the performance of college in progression of students, employment, university examinations, research, consultancy, projects, extension activities etc.



Fig1: Front View of MES Keveeyam College, Valanchery

## 1.2 Milestones in the History of the College

- 1981 The College started functioning as a junior college under the management of the Muslim educational society
- 1981 Department of Commerce, Department of Physics, Department of Physical Education and English Department was introduced.
- 1981 Library Started.
- 1991 The college was upgraded as a degree college.
- 1991 The department of Zoology was started.
- 1993 B.com degree course was started
- 1995 The first BSc degree course in polymer chemistry was started
- 1998 M Sc. Polymer chemistry was started
- 1999 The B Sc. Physics main courses were started with Mathematics and Computer Applications as subsidiaries.

- 1999 The B Sc. zoology main courses were started with Mathematics and Computer Applications as subsidiaries.
- 2001 The degree course in Functional English was started.
- 2003 A state of the art language Lab was established.
- 2003 ED club of this college was started.
- 2004 POLYCHEM was started.
- 2005 Road Safety Club Was started.
- 2005 The library started getting UGC assistance
- 2006 Red Ribbon Club was started.
- 2011 Kanma Infotainment Club was started
- 2013 The first BCA and M.com was started.
- 2013 PG course in English was started.
- 2013 M A. in English Language and Literature was started
- 2013 Department of Chemistry has started an innovative programme, 'chembuds'.
- 2013 Yuvaraksha Samootha Suraksha ciub was started.
- 2014 Solid State and Nano Physics Society (SSNPS) was started.
- 2017 Birds Club Inauguration

### **1.3 INTERNAL QUALITY ASSURANCE CELL (IQAC)**

THE INTERNAL QUALITY ASSURANCE CELL (IQAC) IQAC was established in the college after the visit of the NAAC Peer Team in 2006-07. It is playing a vital role in decision making and implementation of all the activities regarding academic and infrastructure development.

#### **1.3.1. Functions of IQAC**

The following are the main functions of IQAC operating in the College.

- a) Development and application of quality benchmarks/parameters for the various academic and administrative activities of the institution.
- b) Dissemination of information on the various quality parameters of higher education.
- c) Organization of workshops, seminars on quality related themes and promotion of quality circles
- d) Documentation of the various programmes/activities leading to quality development.
- e) Acting as a nodal agency of the institution for quality related activities.
- f) Preparation of the Annual Quality Assurance Report (AQAR) to be submitted to NAAC based on the quality parameters.

#### **1.3.2 Objectives**

- a) To develop a system of conscious, consistent and catalytic action to improve the academic and administrative performance of the institution.
- b) To assure all the stake holders connected with higher education about the quality of education provided by the institutions.

#### **1.3.3 Benefits**

IQAC will facilitate or contribute

- a) To a heightened level of clarity and focus in institutional functioning towards quality enhancement and facilitate internalization of the quality culture.
- b) To enhance and integrate various activities of the institution and institutionalize many good practices.
- c) To provide a sound basis for decision making to improve institutional functioning.
- d) To act as a change agent in the institution.

## 2.0 ACADEMIC ACTIVITIES

### 2.1. Teaching, Learning and Evaluation

MES Keveeyam College a pioneer educational institution functioning in the rural setting has different courses to suit the requirement of the students. This College is affiliated Calicut University. The admissions to the various courses were processed centrally through online Admission Portal maintained by the Calicut University. This ensures transparency in the admission process. Being an Aided Government college, the reservation policy of the Government is strictly adhered to. The institution also caters to the needs of different sections of society. The college also has separate plans for advanced learners and slow learners in the form of WWS and SSP.

The library motivate the reading habits of students. Teaching methods are adopted according to the type of curriculum and needs of students. Training programmes are arranged for teachers within and outside the campus to improve the quality of teaching-learning process. Special attention is given to the differently abled. A well-structured system for evaluation of teachers by students and Teachers' work dairy are methods for appraisal and improvement of teacher's performance.

The FLAIR team with their international and national training background introduced newer methods of teaching. MES Local Management, IQAC and College Council work as a team for the enrichment of teaching learning and evaluation process.



Fig2: Pathway into the Campus.



## **2.2. Research, Consultancy and Extension**

The college promotes research activities among the faculty members and students. The research activities are monitored and coordinated by the Research Promotion Council. A good number of teaching faculties possess guide ship; many are carrying out research projects and generating publications in journals of National and International repute. Faculties make presentations of research papers in international and national seminars. Research is composed of two syllables, a prefix re and a verb search. Re means again, a new or over again. Search means to examine closely and carefully to test and try and probe. The two words form a noun to describe a careful and systematic study in some field of knowledge, undertaken to establish facts or principles (Grinnell, 1997). Research promotion council is to promote research attitude among the faculty. Research will help the faculty, students and the general public to have latest information in various fields. Research will help to have latest technologies and techniques, which can be used for the betterment of human life. To throw light on the field of measurement highlighting the need for and direction in different disciplines. Research council instigates teachers to take up studies in various fields. The methodology for studies has been clearly informed to the teachers. Properly formulated, specific objectives will facilitate the development of the research methodology and will help to orient the collection, analysis, interpretation and utilization of data.

The NSS, NCC, Road Safety Club, Women Empowerment Club, Tourism Club, Red Ribbon Club, Anti narcotic club, Health club and sanitation, Human right forum, International Bird club, Green Campus Initiatives, and nature club are actively engaged in social activities including environmental issues. There are three National Service Scheme units in the college. Through them students involve themselves in co-curricular activities, intellectual discussion, community service. The college has a unit of Senior Division NCC Army wing. Enrolment is opened to boys and girls. Dr. Abdul Hameed holds the position of NCC Officer. Practice sessions are being held by the officer to make the students fit for the role.

## **2.3. UG and PG Programme Offered in the College**

Various under graduate programme are conducting in MES Keveeyam Valanchery. The College is having 10 Under Graduate Courses and 5 PG Courses. Details of under graduate and PG courses conducted in the College is given in the following tables.

**Table 1: Under Graduate Courses.**

<b>Programme</b>	<b>Sl No:</b>	<b>Name of the programme</b>	<b>Entry qualification</b>	<b>Medium of instruction</b>	<b>Sanctioned strength</b>	<b>Number of students admitted</b>
<b>Undergraduate</b>	<b>1</b>	Bsc Polymer Chemistry	Higher Secondary	English	33	33
	<b>2.</b>	BA English	Higher Secondary	English	46	46
	<b>3.</b>	Bcom Finance	Higher Secondary	English	107	60
	<b>4.</b>	Bcom Computer Application	Higher Secondary	English	60	60
	<b>5.</b>	Bsc Zoology	Higher Secondary	English	32	32
	<b>6.</b>	Bsc Physics	Higher Secondary	English	39	39
	<b>7.</b>	Bsc Psychology	Higher Secondary	English	31	31
	<b>8.</b>	Bvoc Optometry & Ophthalmological Techniques	Higher Secondary	English	50	29
	<b>9.</b>	Bvoc Retail Management	Higher Secondary	English	50	24
	<b>10.</b>	BCA	Higher Secondary	English	23	23



Fig 3: Front entry into the Campus

**Table 2. PG Programmes Available in the College**

<b>Programme</b>	<b>Sl No:</b>	<b>Name of the programme</b>	<b>Entry qualification</b>	<b>Medium of instruction</b>	<b>Sanctioned strength</b>	<b>Number of students admitted</b>
<b>Postgraduate</b>	<b>1.</b>	M Com	Degree	English	21	21
	<b>2</b>	M Sc Polymer Chemistry	Degree	English	12	12
	<b>3.</b>	M Sc Physics	Degree	English	12	12
	<b>4.</b>	M Sc Zoology	Degree	English	12	13
	<b>5.</b>	MA English	Degree	English	13	13

Details of Teaching and Non- teaching Staff available in the college is given in the following table.

**Table 3: Number of Teaching and Non- Teaching positions in the Institution**

Positions	Teaching faculty				Non-teaching staff			
	M	F	Sanctioned	Filled	M	F	Sanctioned	Filled
Professor								
Asso.Professor	1	3			<b>10</b>	<b>11</b>		
Asst.Professor	7	16						
Guest lecturers	14	24						



Fig 4: View of inside campus

Nearly 1300 students are admitted every year to various Under Graduate and Post Graduate Courses in the College. Details of students is given in the following table.

**Table 4. Number of the students admitted to the college during the last four academic years. (UG)**

Categories	2014-15		2015-16		2016-17		2017-18	
	Male	Female	Male	Female	Male	Female	Male	Female
SC	25	98	29	102	33	108	31	111
ST	0	0	0	0	0	0	0	0
OBC	136	331	172	412	243	516	280	606

GEN	18	40	28	48	9	23	18	32
Others (Sports)	0	0	0	0	0	0	0	0
Total	<b>179</b>	<b>469</b>	<b>229</b>	<b>562</b>	<b>285</b>	<b>647</b>	<b>329</b>	<b>749</b>

**Table 5. Number of the students admitted to the college during the last four academic years. (PG)**

Categories	2014-15		2015-16		2016-17		2017-18	
	Male	Female	Male	Female	Male	Female	Male	Female
SC	4	9	2	11	1	13	1	12
ST	0	0	0	0	0	0	0	0
OBC	10	54	11	86	12	107	10	91
GEN	01	20	1	20	0	18	2	20
Others (Sports)	0	0	0	0	0	0	0	0
Total	<b>15</b>	<b>83</b>	<b>14</b>	<b>117</b>	<b>13</b>	<b>138</b>	<b>13</b>	<b>123</b>

#### **2.4. Other Courses and Facilities**

The College offers ten UG Programmes in job oriented subjects such B.sc ( polymer chemistry, Zoology , Physics, Psychology) , BA English , B.com finance ,B.com Computer Application , Bvoc Optometry & Ophthalmological Techniques ,Bvoc Retail Management and BCA and 5 PG Programmes such as M Com , MSc Polymer Chemistry , MSc Physics ,MSc Zoology and MA English.

An off campus study centre of University of Calicut under the School of Distance Education is functioning in the college. There are over 1000 students attending degree courses at the centre. Most of them are working class people used to undergo their graduation through this study centre. The classes for them are arranged only on Saturdays and Sundays. The classes begin at 10 AM and ends at 4.30 PM. For a degree student, he/she should attend 4 sessions per paper. Each sessions has a duration of 2 ½ hours. All the students who undergo graduation through this study centre are treated exactly that of a regular student admitted in a college except in the duration of the classes.

## 2.5 Library

The primary mission of our Library is to collect, organize, and disseminate information to serve students, faculty and other staff on roll of the college to meet their educational, professional and recreational needs. Being the central hub of the teaching learning process of the College, the library caters to the educational needs of the academic community.

Library started functioning in the year 1981 with modest facility. It began with a few books & periodicals for the pre- degree students and staff. With the introduction of various UG and PG courses, the library has also grown in tandem over all expansion .The library started getting UGC assistance only in 2005. The library shifted to a spacious new building in 2007. The new building is functional and modular in construction. It has an area of 1059.69 sqm. In two floors – Ground floor and upper ground floor. It has a collection of about fifteen thousand books and subscribes to 59 periodicals and 13 newspapers. The Library follows the “Anglo American Cataloguing Rule” for cataloguing and “Dewey Decimal Scheme of Classification” for the classification of books. The central library is fully automated.

The ground floor houses Newspaper reading section, Circulation section, reprographic (Photocopying section), Technical section, General reading Area, Periodical section, catalogue section, Stack area ,book bank section, new arrival displaying section, Librarians cabin, property counter ,and toilet etc. E-library, Internet browsing centre, Reference section, Audio visual Theatre, Career guidance corner, and Bound periodicals section. The Library offers online public access catalogue-(OPAC) a computerized catalogue service. Most of the books in the library are bar coded. This helps the circulation counter in issue and return of books quickly. Members are given bar - coded ID cards and books are issued on producing the I D cards. Book magic is the software used in the library for its automated activities. Loan period of Books can be renewed by sending a request to the Librarian, specifying the membership number and accession numbers of the documents to be renewed. Book lending service is provided to all the members of the library.

A degree student is entitled to get three books and PG student six at a time. Teaching staff are entitled to get ten books and non-teaching staff five books. A book is issued for a period of fourteen days and it can be renewed for further two terms.



Figure 5: Front view of Library Building.

## 2.6. Internet Facility

Apart from departments, internet facility is provided in library, language lab, computer lab, office, and IQAC room.

## 2.7 Sports

The college provide facilities to students to play various games in the evening. Every effort is made to develop the talent of the students. The students are always helped by the members of the staff of the Physical Education. The offered games are the following.

- Cricket
- Badminton
- Football
- Hammer Throw
- Volleyball
- Weight Lifting
- Basket Ball
- Athletics
- Taekwondo

The welfare schemes which are made available to students by the institution are the following.



- Girl friendly toilets for students.
- Assistance from PTA to needy students.
- Drinking water facility.
- Supply of food in subsidized price in the canteen.
- Financial assistance from the Staff club to cultural programs organized by students union.



### **3. GREEN AUDITING**

#### **3.1 Background and Need Assessment**

The process of Green Auditing aims at accessing the present environmental settings and to inculcate the habit of environment friendly living among the students. With the above objective the MES Keveeyam College Valanchery decided to conduct GREEN AUDITING in the College. It has also been decided to engage a professional organization for conducting the auditing work. Also decided to involve students in the process in order to give them a sense of ecofriendly living.

The term “Green” means eco-friendly or not damaging the environment. This is called as “Global Readiness in Ensuring Ecological Neutrality” (GREEN). “Green Accounting” can be defined as “systematic identification, quantification, recording, reporting & analysis of components of ecological diversity & expressing the same in financial or social terms. “Green Auditing”, an umbrella term, is known by another name “Environmental Auditing”. In auditing literature both the terms are being used interchangeably. To implement the green audit other important aspects such as objective of green audit. Drivers of green audit, future scope, benefits, and advantages are necessary to understand. The green audit practically involves energy conservation, use of renewable sources, rain water harvesting, and efforts of carbon neutrality, plantation, hazardous waste management and E-waste management. Finally, Green audit is a requirement of NAAC Committee evaluation to the junior college. The concept of Green Audit, industries are using it as a management tool to evaluate the environmental standards; industries can perform better and better for the sustainable development of the organization. The experiments on the nature by avoiding natural rules, this can be a one major reason behind that is Green Audit

The intention of organizing Green Audit is to upgrade the environment condition in and around the institutes, colleges, companies and other organizations. It carried out with the aid of performing tasks like waste management, energy saving and others to turn into a better environmental friendly institute.



Fig 6: Herbal Garden inside the Campus

Green Audit is the most efficient and ecological way to solve an environmental problem. The experiments on the nature without avoiding natural rules, can be a one major reason behind Green audit process. 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. It is necessary to conduct a green audit in college campus because student should aware of the green audit process, its advantages to save the planet and they become good citizen of our country. Thus Green Audit become necessary at the college level.

People are not properly caring of nature and they are directly or indirectly damaging the environment and it causes problems like; global warming, difficulties in maintaining ozone layers, air pollution, water pollution etc. Green Audit is the most efficient and ecological way to solve such an environmental problem. For protecting the nature as a human being we have to show our sense of humour towards the mother earth. In corporate sector, the practice of saving environment through the various programmes like CSR (Corporate Social Responsibility), GO Green, Save Water, Save Trees, Plantation of trees are to be taken. It will definitely work for the future. This activities are aiming for interest among the people on environmental protection.

That is the only way out to safeguard the planet. It is necessary to conduct a green audit in college campus because student aware of the green audit, its advantages to save the planet and they become good citizen of our country. Green audit and sustainable

development process help to reduce the wastage and associated cost as well as increases the product quality. Obviously, there is relationship between Green Audit and Sustainable Development of the any business organization. The primarily needs for achieving the sustainable development of the business are to determine the Green Audit policy, Green Audit Framework, Accurate implementation, and Result analysis of it. Strong Green Audit process can help to achieve the sustainability. Green Audit framework helps to achieve the goal set by an organization. Green Audit is linked to Sustainable development process. Green audit and sustainable development process help to reduce the wastage and associated cost as well as increases the product quality.

### **3.2 Audit Team**

The MES Keveeyam College Valanchery has decided to conduct the Environmental Audit in association with a competent agency with active involvement of student and teachers in the College. With this aim it was decided to conduct the Environmental Auditing / green Auditing of the College jointly with a team from the College in association with an external competent Organization Viz; Muscat Projects & Environmental Services Pvt. Ltd, Thiruvananthapuram, Kerala.

#### **3.2.1 Internal Audit Team**

A team of faculty and students of MES Keveeyam College involved in collection of baseline data for the Audit by involving Nature Club and NSS Club functioning the College. Details of team members is given in the following table.

**Table 6. Details of Internal Auditing Team Members**

<b>Sl. No</b>	<b>Name of Members</b>	<b>Department</b>
<b>Faculty Members</b>		
1.	Smt P.A. RAZIYABI	Chemistry
2.	Smt Rukkiya	Chemistry
3.	Smt Nagiya K.V	Computer Application
4.	Sri.M.O Sahil	Computer Application

5.	Sri.C.K. Hasan	Commerce
6.	Sri.K.H.Abdhul Rajjak	Commerce
7.	Smt P.M.Khairunnisa	Zoology
8.	Dr.M. Zeenath	Zoology
9.	Sri. Alshaf. K. G	I. M.Com
10.	Smt. Abhirami. P.M.	I. M.Com

### 3.2.2 External Audit Team

The External Team is headed by the CEO of the Organization (Muscat Projects & Environmental Services Pvt. Ltd.) Er. M. Dileep Kumar, Former Senior Environmental Engineer of Kerala State Pollution Control Board and former Director of Suchitwa Mission, Local Self Government Department, Govt. of Kerala, who has about 34 years of service in the area of implementation of environmental legislations, preparation of project reports for solid waste management, Septage management, slaughter houses etc. Er. M. Dileep Kumar has also been involved in providing technical support for establishing Sewage Treatment Plant and standalone Septage Treatment Plant at Brahmapuram through the KSUDP, viz Kerala Sustainable Urban Development Project. He also had experience in preparing and evaluating various projects for solid and liquid waste management as part of official engagement in Kerala State Pollution Control Board, KLGSDP, State Planning Board and various local bodies.

The Study Team is having other Team Members comprising of Sri. Renjith R.S. Project Engineer who is Graduate in Chemical Engineering, Sri. Anoop G.R. Project Associate, a Graduate in Civil Engineering, Sri. Arun Sagar.P Project Engineer who is Graduate in Civil Engineering and Sri. Jinin D.C Project Associate, a Graduate in Civil Engineering and they are the staff members of Muscat Projects & Environmental Services Pvt Ltd. The above mentioned team had associated with the task of conducting of Environmental Auditing.

The team had also having experience in preparing similar Environmental Audit Report for Government Sanskrit College, Thiruvananthapuram and MES College, Marampally, Ernakulam.

### **3.3 Objective of Auditing**

The process of Green Auditing/ Environmental Auditing has begun initially in United States of America (n USA). Green Auditing were not started in USA by local authorities, but were the commercial establishment to show their response to national requirements. Auditing were the result of legislation which made the companies responsible for environmental damage they were causing. In 1970's the U.S Government adopted the "Polluter Pays" principle and in order to avoid liability, the Company is resorted to broad performance reviews and compliance audits. This helped the companies to evaluate how they were performing with regards to control of pollution. Gradually the concept of Environmental Auditing has been extended so that the governmental and local institution in its purview.

A typical Environmental Audit involves the analysis of inputs and outputs and looks into the environmental impact of raw materials used and the product that are produced . The Environmental auditing should be open, objective and honest and freely available to the community and environmental group so as to raise environmental issues in the community.

### **3.4. Objectives of the Green Auditing**

This Green Audit is conducted in an educational institution therefore the main aim of this auditing is to evaluate the system and facilities available in the college for creating a community with sense of environmental protection for sustainable living and to equip them to hand over the environment in better manner to the next generation.

Therefore the main objective of the Green Auditing are;

- To evaluate preliminary status of water, air and natural environment protection activities within the campus.
- To assess level of energy conservation activities in the Campus.
- To assess the status of solid and liquid waste management activities in the campus.

- To assess the social activities undertaken by the students related to environmental protection.
- To identify the gaps in the above mentioned areas for initiating actions from the College level and for rectifying it.
- To make College Campus a more environmentally sustainable and eco-friendly institution in future.
- To create a sense of eco-friendly living among the students in order to guide them to live in an eco-friendly manner

## **4.0. ECO FRIENDLY ACTIVITIES UNDERTAKEN IN THE CAMPUS**

### **4.1. Rain Water Harvesting Activities**

The College campus is situated in a land of low altitude terrain thereby availability of water especially during summer season is a real challenge if there is no proper ground water recharging. There is real challenge to meet the water requirements of day scholars and hostlers. The College has adopted multiple approach for harvesting the rain water and to recharge the ground water to meet the water demand of the College. As part this activities the college has initiated an approach for converting the available land in different levels for facilitating harvesting rain water and storage of local ground water.

The approach adopted in the campus for rain water harvesting activities are the site specific multi prong type suitable for the whole area, including the surroundings. The activity undertaken within the Campus is the natural way of rain water harvesting activities undertaken by forming a series Terrance Bunds. Under this activity, the whole land has been divided into different rain water harvesting zones by making terrace bunds. Due to terrace bund, flow of rain water over the land can be retarded and allowing the rain water to penetrate in to sub surface part of the soil for recharging the ground water. During heavy rain a part of over flow water from the land is being diverted to the nearby storm water drain for conveying it the nearby low lying area / old paddy fields. Due to this activities the College has succeeded in keeping the ground water table at higher levels during summer season. Thereby there is no need of bringing drinking water from outside sources using tanker Lorries



Fig 7: Well inside the Campus



Another effort taken by the College Management is the establishment of Water KIOSK at different places in the campus for meeting drinking water needs of the students. The College has established 3 Water KIOSK at different places within the Campus for making drinking water available to the students and staff.

In addition to the above the College had also initiated action for providing extended service to the society through its Nature Club and NSS Units in Rain Water Harvesting activities in the surrounding areas. As part of this activity, they have involved in providing support for their Rain Water Harvesting activities in nearby Schools situated around the College. The aim of this activity is to create the culture of social service among students and to create awareness for natural way of rain water protection activities



Fig 8: View of Water KIOSK established in the Campus



## 4.2 Solid Waste Management Activities in the Campus

There are two student's hostel and a canteen functioning in the Campus. The college management has given importance for proper management of Solid and liquid waste generated in the campus. In the case of solid waste, especially easily biodegradable waste (Food Waste), there is a system of storage of waste at the source of generation. Waste from different places are being collected and utilizing the Biogas Plant established in the campus for treatment and disposal of easily degradable waste. Remaining part of not easily Biodegradable type of solid waste is also being collected from different part of the College Campus and Buildings and transported in to a Compost Pit made in the Campus for imparting natural way of composting. Compost made from this activity is utilizing for vegetable cultivation/ gardening in the Campus. The College is also promoting zero use of fertilizer and pesticide and trying to create awareness among students for using bio fertilizers instead of chemical fertilizers and pesticides.

Plastics and other non-biodegradable waste are also collected from the entire campus area and stored in plastic bags for handing over the same to recyclers. Now the Campus is declared as a Plastic Free Campus by banning use of plastic carry bag within the Campus. Source level segregation and storage facility is made available in the Campus .A photo of the same is given below.



Fig 9: View of Segregated Storage of Solid Waste within the Campus

A survey on Solid Waste generation from various sources in the Campus has been done. Quantification of daily generation of Biodegradable and Non-degradable waste is given in the following table. As per the Survey 250.9 kg of biodegradable waste and 30.759 kg of non-biodegradable waste is generated in the campus.

**Table7: Quantity of Solid Waste in the campus**

SLI NO	DAYS	TYPES OF WASTE (kg/Day)				
		Food waste	Food waste in canteen	Plastic waste	Paper waste	Leaf waste
1	Day 1	0.355	2.18	1.43	3.875	1.9
2	Day 2	1.685	1.8	1.2	1.51	1.605
3	Day 3	0.72	4.86	0.55	5.65	8.9
4	Day 4	0.66	3.785	1.925	11.53	17.495
5	Day 5	0.66	3.65	0.79	6.08	3.255
6	Day 6	1.36	3.4	1.385	3.39	21.975
7	Day 7	0.31	2.79	0.545	2.625	10.76
8	Day 8	1.015	2.15	1.04	1.395	5.325
9	Day 9	2.435	1.065	0.425	6.36	7.87
10	Day 10	1.795	2.73	1.03	3.325	15.91
11	Day 11	2.415	2.375	0.36	3.38	4.315
12	Day 12	1.845	1.575	0.795	1.91	18.31
13	Day 13	2.25	2.355	1.97	2.445	6.08
14	Day 14	1.509	1.59	0.998	4.35	10.62
15	Day 15	1.285	1.925	0.83	4.105	9.6
16	Day 16	3.37	2.15	1.04	7.75	10.275
17	Day 17	1.475	2.215	0.38	3.32	1.56
18	Day 18	1.68	1.96	0.316	2.535	3.38
19	Day 19	2.175	1.36	1	3.46	8.88
20	Day 20	1.215	3.45	1.19	6.255	3.5
21	Day 21	1.41	1.815	0.665	4.77	7.93
22	Day 22	1.955	2.04	0.83	5.64	2.88
23	Day 23	4.055	2.645	1.73	5.83	8.305
24	Day 24	2.145	1.815	0.395	4.035	5.48
25	Day 25	2.595	3.235	1.02	3.125	6.265
26	Day 26	0.94	2.475	1.465	2.5	7.84
27	Day 27	2.38	1.53	2.255	7.675	3.875
28	Day 28	1.14	1.615	1.515	1.21	2.745
29	Day 29	1.535	1.835	1.43	3.875	8.44

30	Day 30	1.415	2.385	1.2	1.51	4.64
<b>Total</b>		49.784	70.755	30.759	123.06	229.915
<b>Average</b>		1.59	2.47	1.08	4.52	7.36

There is one canteen functioning within the campus and Solid Waste from that canteen is disposed of utilizing a Floating Dome type Biogas Plant installed in the back side of the Canteen Building. They are utilizing the Biogas generated from the plant in the Kitchen for cooking/ Hot water generation. Remaining waste is being composted in the Traditional Compost Pit made in the Campus. Photo of Biogas plant is given below.

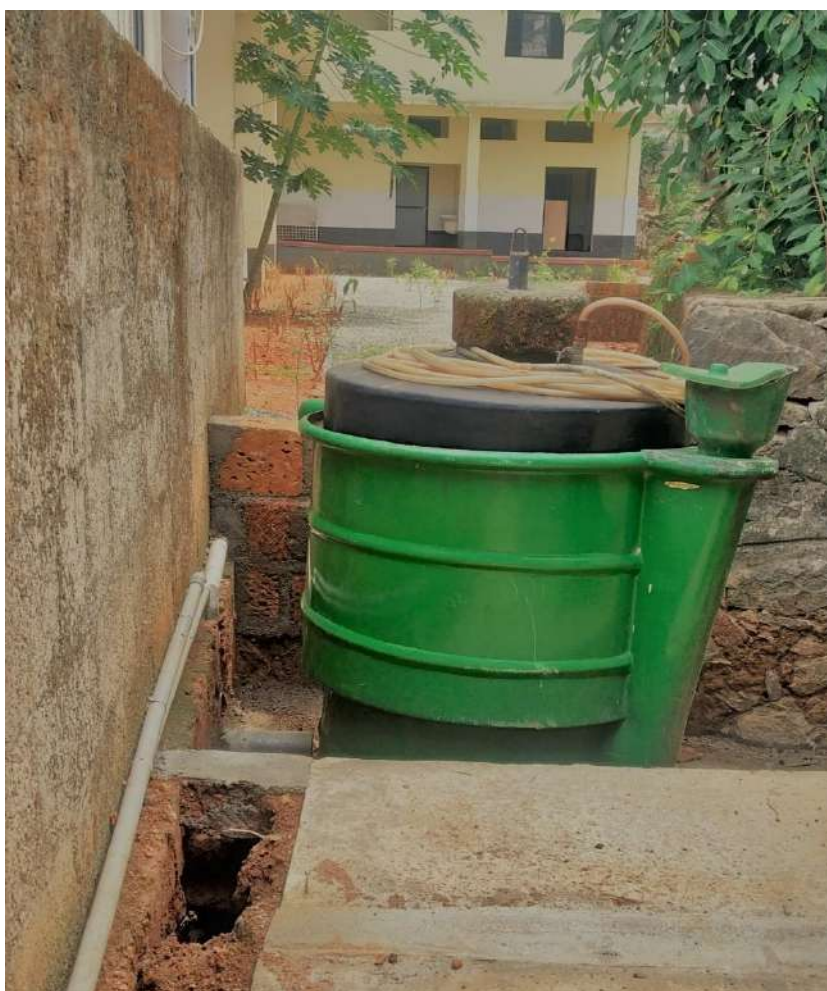


Fig 10: Biogas Plant in Campus.

There is separate hostel facilities in the Campus for Boys and Girls and situated at the both ends of the boundary. In Girls Hostel for treatment and disposal of food waste, there is a fixed dome type Biogas Plant operating in the compound of the Hostel. Biogas generated

from that Biogas plant is utilizing in the Hostel for cooking / hot water making in the Kitchen. The Hostel is also having girl friendly toilets with Napkin Destroyer. Sanitary pads from the Girls Hostel is treated and disposed through the Napkin Destroyer. The Chimney of the Napkin Destroyer is having sufficient height therefore there is no chance of creating Air Pollution problems inside the Hostel building/ campus.

#### 4.3 Liquid Waste Management Activities in the Campus

Liquid waste are mainly generated from Toilets and bathrooms in the Hostels, College Buildings and canteen. There is a proper system for segregated collection of Black Water from Toilets of Hostels and College Buildings and Grey water generated from Bath Rooms and Kitchens of Hostels and canteen. Black water from toilets of Boys Hostel and Girls Hostel is being collected, treated and disposed of utilizing proper Septic Tank and Soak Pit system constructed in the Campus. Black water from toilets of all College Buildings are also collected, treated and disposed of utilizing onsite Septic Tank and Soak Pit system constructed in the Campus. There are 2 major Septic Tanks and Soak Pits units are functioning in the Compound for this purpose. As per the Indian Standards (BIS code IS 2470 Of 1981), septic tank and Soak Pit system is permissible for Hostels and institutions having a unit size less than 300 students. Here there are 10 Septic tank Soak pit Systems are provided in the Campus for treatment and disposal of Black water in a de-centralized manner. Hence the facilities provided in the Campus for treatment and disposal of black water is sufficient and statutorily admissible method of disposal.

**Table 8: Quantity of Water Supplied in the campus.**

S L N O	DAYS	Water usage -Boys centre	Water usage -Girls centre	Water usage- Bathroo m girls	Water usage - GYM	Water usage- open auditoriu m	Water usage- Commerce block	Water usage- main block	Water usage- canteen
		(KLD)	(KLD)	(KLD)	(KLD)	(KLD)	(KLD)	(KLD)	(KLD)
1	Day 1	0.792	19.578	5.275	16.896	10.037	24.12	34.68	16.23
2	Day 2	0.461	20.963	5.634	17.332	10.466	25.06	44.68	17.667
3	Day 3	1.263	23.328	6.164	17.766	11.336	26.01	60.7	17.925
4	Day 4	0.376	24.808	7.538	19.756	13.19	28.06	92.85	18.959
5	Day 5	0.59	29.321	8.115	21.035	14.935	30.56	110.61	19.904

6	Day 6	0.74	31.066	9.035	22.565	16.035	33.13	122.23	20.922
7	Day 7	0.065	34.576	9.935	23.036	18.185	35.26	135.48	21.563
8	Day 8	0.505	35.65	10.058	23.708	18.935	35.98	139.56	21.653
9	Day 9	0.107	36.75	10.878	24.838	20.016	38.16	159.54	23.09
10	Day 10	0.598	36.144	10.988	25.106	21.316	40.38	167.9	24.221
11	Day 11	0.2	38.55	11.538	26.045	22.415	42.15	175.18	24.873
12	Day 12	0.175	39.445	12.215	26.998	23.516	44.45	186.31	25.19
13	Day 13	0.335	40.988	13.121	27.345	25.316	46.18	198.42	26.013
14	Day 14	0.34	42.514	13.958	28.186	26.158	48.58	215.36	26.965
15	Day 15	0.141	43.045	14.318	28.835	27.518	49.98	227.57	28.128
16	Day 16	0.305	43.985	15.315	29.918	29.338	51.18	235.51	28.705
17	Day 17	0.52	44.615	16.519	31.117	31.116	52.13	249.78	28.916
18	Day 18	0.299	44.815	17.155	33.216	33.215	54.36	258.12	29.313
19	Day 19	1.013	45.25	18.346	34.416	35.515	56.41	261.13	30.083
20	Day 20	0.82	46.315	19.185	35.336	36.618	57.98	272.19	32.403
21	Day 21	0.75	47.919	19.936	37.218	38.215	59.18	292.48	33.933
22	Day 22	1.077	49.318	21.355	39.515	39.629	60.82	301.58	36.277
23	Day 23	0.323	51.339	22.135	40.516	41.136	61.75	312.25	38.383
24	Day 24	1.177	52.515	23.625	41.319	43.516	63.36	327.89	43.013
25	Day 25	2.221	55.138	23.915	42.316	45.819	65.45	336.18	44.691
26	Day 26	1.6	58.638	24.516	44.516	48.133	68.56	348.25	48.639
27	Day 27	1.579	63.718	25.318	46.315	52.34	72.48	356.12	51.853
28	Day 28	1.121	66.816	26.128	49.415	55.416	75.56	371.36	56.034
29	Day 29	0.478	69.717	27.516	52.618	58.186	24.12	34.68	59.772
30	Day 30	2.202	73.128	29.316	54.415	60.255	25.06	44.68	63.574



<b>Total</b>	22.173	363.39	479.05	961.61	809.38	1347.28	5993.91	390.924
<b>Average</b>	0.7372	41.682	15.96833	29.820	30.92737	50.307	225.908	14.915



Fig11: Photo of Strom Water Percolation Drain

In the case of Grey water there is separate Soak pits near to all sources of generation of Grey water for treatment and disposal in a natural way. The above mentioned activities are aiming for conserving natural resources and for recovering resource from waste. The ultimate aim this activities are aiming for giving a message to the students on the necessity of conserving the natural resources and to utilize the waste materials for recycle, reuse to the

maximum extent and eco-friendly living culture. The activity is benefiting the campus to keep the Campus clean and tidy and to keep it in a hygienic manner

#### **4.4 Energy Management**

Electricity to campus is supplied by the Kerala State Electricity Board Limited. (KSEBL) .The College is encouraging students to minimize the use of electricity and encouraging for use of natural light and ventilation to the extent possible in the Class Rooms. The College management has also initiated action for utilizing Renewable Energy for minimizing use of electricity supplied by KSEBL. As part of this initiative, action has been taken for tapping of Solar Energy a form of renewable energy from the available open space/ roof tops. The College has imitated action for establishing a Solar Power Generation Unit within the Campus. They are in the process of preparing proposals for that for submission to the appropriate authorities for getting subsidies / funds including the College Management/ corporate office. They are planning to operate the Library fully with Solar Power.

#### **4.5 Landscape/ Environmental Beautification**



Fig 12: Bamboo Cultivation with in the Campus

The College Campus is made student friendly by making Benches/ sitting places within the Campus. Action has been taken by the college authorities to provide seating facility under the trees for encouraging students to spend time near to the trees during their



leisure hours. The existing trees and plants are maintained neatly. The Campus is maintained with trees plants and grass. There is a good number Trees of traditional type as well as garden plants within the campus. Local trees like Coconut, Jackfruit and Mango trees are planted within the campus for giving shade and greenery environment in the Campus.



Fig 13: Plantain Cultivation with in the Campus

The College in association with Kerala Biodiversity Board has developed a Bamboo Corner by planting Bamboo trees in the bank of the paddy filed. This area is having well grown up Bamboo trees for providing a resting place for the students. There is an herbal garden within the campus.

#### **4.6 Transportation**

Majority of students and staff are utilizing College buses and public transport system for minimizing the usage of own four wheeler and two wheelers for their travel. There is one College buses, operating in an efficient manner for covering almost all areas around the College for collecting students. Remaining are utilizing public transport system for their

travel needs. This indicates that they are achieving the target of using lesser carbon footprint of student in the transportation sector.

#### 4.7 Open space in the Campus

The College Campus is having **13 Acres (52546 sqm)** of land situated in a Rural setting at Marampally near to Aluva in Ernakulam District, Kerala. The College Buildings are well designed so that all building spaces are getting sufficient air and natural light. The main block of college Building is a well-designed building and its Architectural beauty is notable and it is maintained neatly. The College Buildings are having a total built up area is **48,600 sq. ft** .It is about **10.81 %** of total land area. This indicates that minimum built up area and thereby succeeded in maintaining maximum open area within the Campus. Details of Built up area available in the Campus is given in Table 9.



Fig 14: Built up Seat below trees in the Campus

**Table 9: Details of built up area in the College Campus**

<b>Building /Functional Use</b>	<b>Numbers</b>	<b>Area (sqft)</b>	<b>Total Area (sqft)</b>
Class rooms(UG)	27	600	16200
Class room (PG)	10	400	4000
Computer room	2	1400	1400
Smart Class rooms	10	400	4000
General Library	1	7000	7000
Dept. Libraries	3	200	600
Reading Room	3	200	600
Edusat studio	0	0	0
Language laboratory	1	900	900
Research room	2	800	1600
IQAC	1	200	200
Staff rooms	6	400	2400
HOD rooms	2	200	400
Examination hall	0	0	0
Assembly Hall	0	0	0
NSS room	1	200	200
Students union room	0	0	0
Cooperative store	1	300	300
Continuing education centre	1	200	200
Staff club	0	0	0
Seminar hall	1	800	800
Fitness centre	1	1000	1000
Principals room	1	600	600
Office	1	800	800
Ladies waiting room	1	1200	1200
E toilet	0	0	0
Synthetic loan tennis court	0	0	0
Cricket pitch	0	0	0
Volley ball court	0	0	0
Badminton court	0	0	0
Yoga room	0	0	0

Canteen	1	3000	3000
Girls rest room	0	0	0
Parking area	1	1200	1200
<b>TOTAL AREA</b>			<b>48,600 sq. ft</b>

#### 4.8 Carbon Neutrality

The college is having a message of minimum use of carbon and maintaining carbon neutrality through its different activities. The following are the some of the activities under taken in the Campus.

- Water conservational activities.
- Recycle reuse and recovery of resource from waste.
- The campus is kept green by preserving trees, plants and grasslands.
- Trees and plants have been planted in the campus.
- Paper usage is kept minimal at office, library and student management are automated.
- Use of College bus and public transport system for minimizing use of scooter and cars.
- Good climate all over the year helps the college to minimize the use of fans and air conditioners.

## 5. BIODIVERSITY IN THE CAMPUS

The following results showed the data collected as a part of biodiversity analysis at MES Keveeyam College Valanchery during February 2019 to March 2019. The data is given below.

### 5.1 Checklist study of Invertebrate Fauna observed

Checklist for the Biodiversity Study conducted in the campus is given in the following Table.

**Table 10: Checklist for Biodiversity Study conducted**

Phylum : Arthropoda; Class : Insecta		
SI NO	COMMON NAME	SCIENTIFIC NAME
Order : Lepidoptera (Butterflies)		
1	Common Tiger	Danaus Chrysippus
2	Common Rose	Pachliopta Aristolochiae
3	Common crow	Euploea core
4	Blue Mormone	Papilio polytes
5	Common Jezibel	Delias eucharis
6	Common bush brown	Mycalesis perseus
7	Common mime	Papilio clytia
8	Common Indian Crow	Danmini tribe
9	Crimson jose	Pachliopta hector
10	Common Hedge Blue	Acytolepis puspa
11	Blue tiger	Tirumala limniace
12	Common Three Ring	Ypthima asterope
Order : Odonata (dragonflies and damselflies)		
SINO	COMMON NAME	SCIENTIFIC NAME
1	Green marsh hawk	Orthetrum sabina
2	Wandering glider	Pantala flavescens
3	Crimson marsh glider	Trithemis auroa
4	Ground skimmer	Diplacodes trivialis
5	Granite ghost	Bradinopyga geminata
6	Coromandel marsh dart	Ceriagrion coromandelianum

7	Pigmy darlet	Agriocnemis pygmaea
8	Yellow bush dart	Copera marginipes
9	Common picture wing	Rhyothemis variegata
10	Pied paddy skimmer	Neurothemis tullia
Order : Hemiptera (Bugs)		
1	Mealy bug	Planococcus citri
2	Giant water bug	Belostoma
3	Leaf footed bug	Acanthocephala terminalis
4	Southern green sting bug	Nezara viridula
5	Brown marmonata bug	Halyomorpha halys
Order : Orthoptera (Hoppers and crickets)		
1	Common grass hopper	Omocestus viridulus
2	Leaf hopper	Cicadela viridis
3	Cockroach	Periplanata americana
4	Tawny mole cricket	Scaptiscus vicinus
Order : Phasmatoidea		
SINO	COMMON NAME	SCIENTIFIC NAME
1	Leaf insect	Phyllium bioculata
Order : Hymenoptera (Bees, wasp and ants)		
SINO	COMMON NAME	SCIENTIFIC NAME
1	Honey bee	Apis mellifera
2	Carpenter bee	Xylocopa violacea
3	Oriental hornet	Vespa orientalis
4	Paper wasp	Polistes stigma
5	Weaver ant	Oecophylla smaragdina
6	Miniscule house ant	Tetramorium smith
7	Giant Honey ant	Camponotus irritans
8	Oder ant	Tapinoma melanocephala
Order : Diptera (Flies)		
SINO	COMMON NAME	SCIENTIFIC NAME
1	House fly	Musca domestica
2	House mosquito	Culex pipiens
3	Hover fly	Eupedes spp.
4	Yellow fever mosquito	Aedes aegypti

5	Fruit fly	Drosophila melanogaster
Order : Coleoptera (Beetles)		
SINO	COMMON NAME	SCIENTIFIC NAME

1	House fly	Musca domestica
2	House mosquito	Culex pipiens
3	Hover fly	Eupedes spp.
4	Yellow fever mosquito	Aedes aegypti
5	Fruit fly	Drosophila melanogaster
Order : Coleoptera (Beetles)		
SINO	COMMON NAME	SCIENTIFIC NAME
1	Scarlet lily beetle	Lilioceris lili
2	Lady beetle	Coccinella magnifica
3	Ground beetle	Scarites subterraneus
4	Tiger beetle	Cicindela depressula
5	Tortoise beetle	Aspidomorpha furcata
6	Black weevil	Otiorhynchus sulcatus
7	Bostrichid beetle	Xylopsocus capucinus
8	Dung beetle	Scarabaeus viettei
9	Rhinoceros beetle	Oryctes rhinoceros

Phylum Arthropoda; Class: Arachnida		
Phylum : Arthropoda		
SINO	COMMON NAME	SCIENTIFIC NAME
1	Red headed centipede	Scolopendra morsitans
2	Yellow spotted millipede	Harpaphe haydeniana
3	Oral web browser spider	Archanura angura
4	Ground runner spider	Oedignatha carli
5	Scattered line weaver	Pholeus phelangoides
Phylum : Annelida; Class : Oligochetae		
1	Common earth worm	Megascolex mauritii
Phylum : Mollusca; Class : Gastropoda		
1	Garden snail	Cornu aspersum
2	Fresh water snail	Pila globosa



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2	Lady beetle	Coccinella magnifica
3	Ground beetle	Scarites subterraneus
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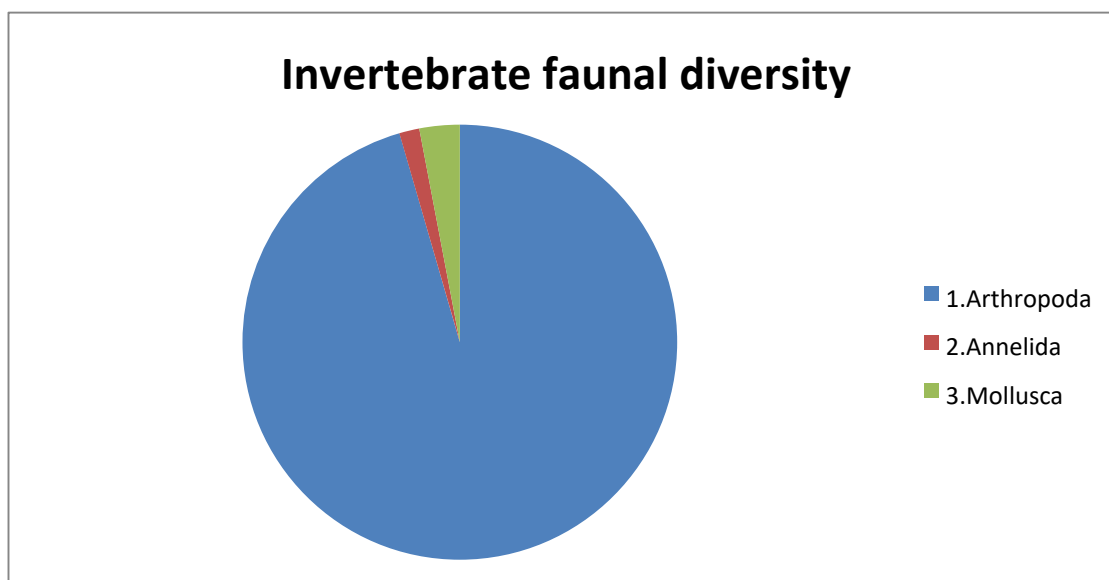


Figure 15: Invertebrate faunal diversity

**Table 11: Checklist study of Vertebrates fauna Observed**

Checklist study of vertebrates observed		
Class :Amphibia (Frog and toads)		
SINO	COMMON NAME	SCIENTIFIC NAME
1	Common frog	Rana temporaria
2	Common toad	Bufo bufo
Class: Re ptilia		
1	Garden Lizard	Calotes versicolor
2	Common forest lizard	Calotes calotes
3	House Lizard	Hemidactylus frenatus
4	Bronze grass stank	Eutropis macularia
5	Rat snake	Ptyas ptyas
Class :Av es (Birds)		
SINO	COMMON NAME	SCIENTIFIC NAME
1	House crow	Corvus splendens
2	Common myna	Acridotheres tristis
3	Asian Koel	Eudynamys scolopacea
4	Pigeon	Columba livia
5	House sparrow	Passer domesticus
6	Black kite	Milvus migrans

7	Parrot	<i>Psittacula eupatria</i>
8	Indian owl	<i>Bubo bengalensis</i>
9	Common kingfisher	<i>Alcedo atthis</i>
10	Great egret	<i>Ardea alba modesta</i>
11	Indian pond heron	<i>Ardeola grayii</i>
12	Common eagle	<i>Aquila Accipitridae</i>
13	Indian cuckoo	<i>Cuculus micropterus</i>
14	Crow pheasant	<i>Centropus sinensis</i>
Class :Mammalia		
SINO	COMMON NAME	SCIENTIFIC NAME
1	Five striped palm squirrel	<i>Funambulus pennantii</i>
2	Free –ranging cat	<i>Felis domesticus</i>
4	Grey mongoose	<i>Herpestes edwardsii</i>
5	House mouse	<i>Mus musculus</i>
6	Free-ranging dog	<i>Canis familiaris</i>

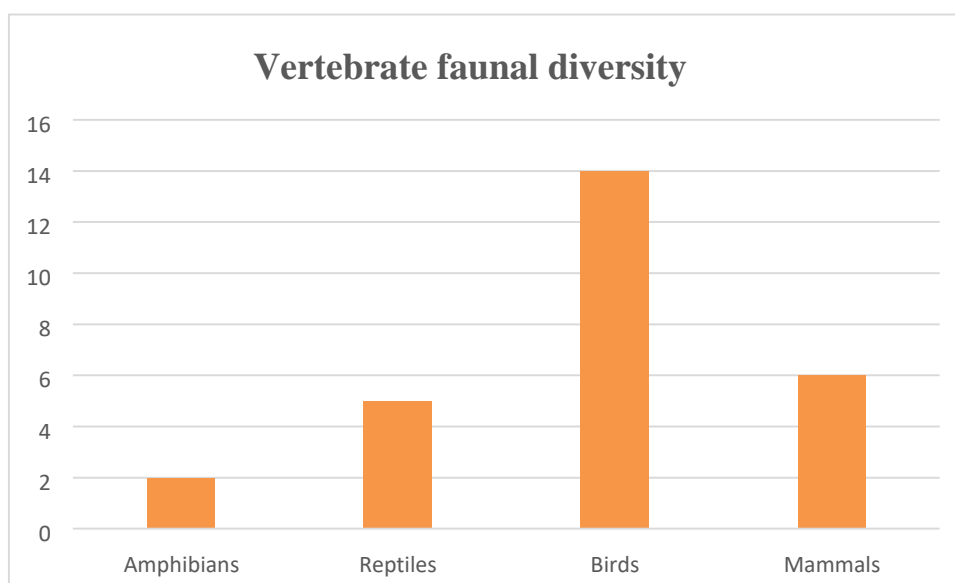


Fig 16: Vertebrate faunal diversity

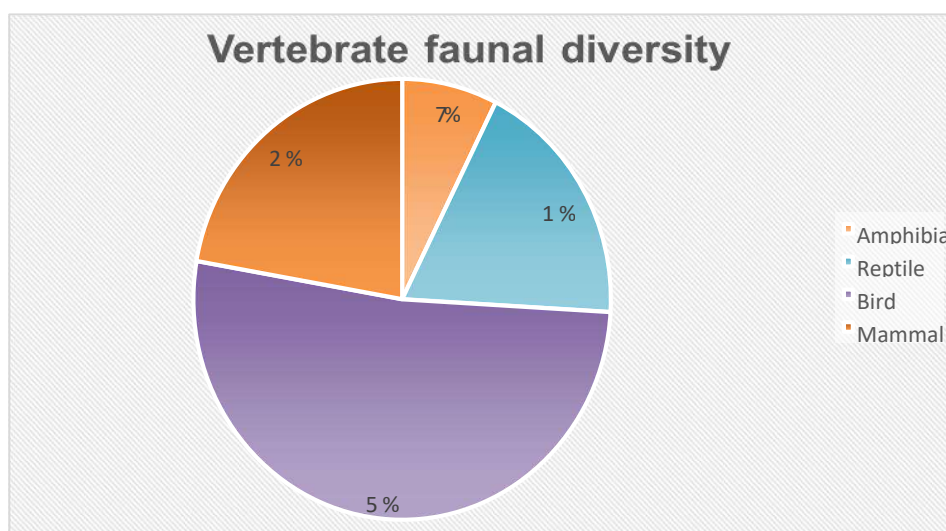


Fig17: Distribution of vertebrate faunal diversity at the college campus

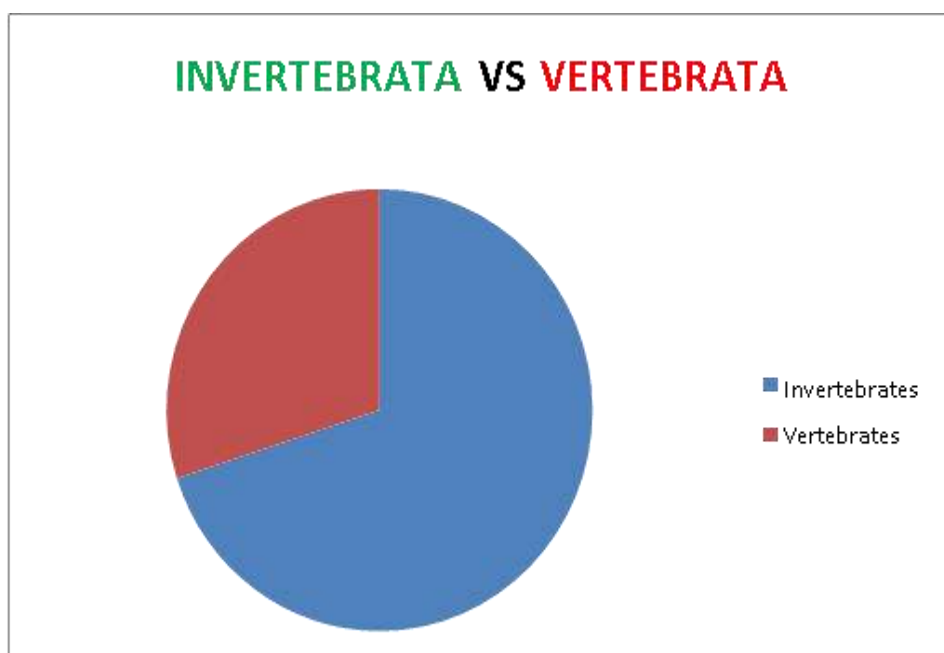


Fig18: Comparative analysis of vertebrates and Invertebrates

Summary of the work done:

We have conducted this survey for a period of one month during February 2019 to March 2019. Here a total of 90 different species of organisms

## 5.2 Study Findings

The study reveals Flora and Fauna Biodiversity in the Campus categorized under invertebrates and vertebrates were observed and recorded. Invertebrates as usual were the most dominant ones representing 63 species compared to the rest of 27sp in vertebrates. We have used different collection procedures like sweeping net, pitfall method and simple hand picking methods for carrying out this survey. We have taken photographs for most of the species for easy taxonomic identification and cross checking analysis. Insect fauna and avian fauna deserves much attention to the survey as they are the most dominant ones.

Invertebrate fauna were represented by the following insect orders Lepidoptera, Odonata, Orthoptera, Hemiptera, Phasmatoidea, Diptera, Coleoptera, Hymenoptera and phylum Annelida, Phylum Mollusca and Phylum Arthropoda while Vertebrates by Amphibia, Reptilia, Aves and Mammals. The survey reports shows that this campus is seems to be best homage for a wide variety of species and hence long term sustainability is very much needed. The field study gives the opportunity to observe and understand the behavior of every organisms in relation with their natural habitat. The morphology, anatomy, behavior, habitat preference, food preference etc. could easily helped us to understand their ecological importance for executing their life sustainability. As biodiversity analysis is that much important for conserving species which is prone to be the verge of extinction, these kinds of survey analysis are obviously needed. When we are exposed to the nature's bosom during field work and interact with various existing biotic and abiotic factors in diverse habitats, we gather the maximum knowledge in a pleasurable situation.

## **6. ENVIRONMENTAL AWARENESS AND OTHER ACTIVITIES IN THE CAMPUS**

### **6.1 Plantation Awareness Program**

The College had organized various Tree Plantation program at College Campus and surrounding villages through NSS unit of the College. The plantation program includes plantation of various types of ornamental and medicinal plants species in large numbers in each surrounding areas. This program helped in maintaining an eco-friendly environment as well as provides pure oxygen within the Campus.

### **6.2 Environment Awareness Program**

The College had organized various awareness programmes through the club activities in the following are the board areas of activities.

- a. Air Pollution its causes, effects & installation of various devices that reduces the air pollution.
- b. Water Pollution its causes, effects & various methods to prevent that it.
- c. Study of Air Quality in the College Campus
- d. Sound Pollution its causes, effects & installed equipment that reduces it.
- e. Rain Water Harvesting activities.

### **6.3 Awareness on Reduction of Carbon Footprint**

The College had organized various awareness programmes in the following board areas. This includes various extended activities initiated by Nature Club, Green Campus Committee and Energy & Environmental Conservation Club (EECC). The following are the main activities in this sector.

- a Students and the Staff members are made totally aware of pollution that are caused from different sources and ways for controlling that.
- b The college students uses minimum number of private vehicle. They are relaying on college bus and public transport system.
- c The carbon consumption awareness programmer improves to help in carbon emission at individual as well as social level.

- d Awareness programmes on Air and Water pollution in the campus as well as the outside the Campus.

#### **6.4 Club Activities**

Other Co-curricular activities Student Support Programmes in the college run by the followings.

1. ASAP - Additional Skill Acquisition Programme
2. WWS - Walk with Scholar

##### **6.4.1. ASAP- Additional Skill Acquisition Programme**

Additional Skill Acquisition Programme (ASAP), an initiative by Higher Education and General Education Departments, Govt. of Kerala, aims to bring the students in line with the current labour market, by equipping students with adequate skill sets along with their regular academic courses. ASAP provides short term training programmes like 'Summer Skill Training', 'Summer Skill School', etc. to train the students with industry relevant skills.

##### **6.4.2. WWS- Walk with Scholar**

WWS is a programme for the students who have excellent skills sponsored by the Government of Kerala. Through external and internal mentoring students under this programme get valuable directions to achieve their goals. So many expert faculties in different areas are invited here and classes were taken for the students under this programme.

The college also provide facilities to students to organis Clubs, Cells and Other Committees.

The College is having various clubs and Association and details of those including Staff Members in charge of Clubs are given in the following tables.

**Table 12: List of Clubs in College**

<b>Sl No:</b>	<b>Name of club</b>
<b>1.</b>	<b>NCC</b>
<b>2.</b>	<b>Road Safety Club</b>
<b>3.</b>	<b>Citizen Science Club</b>
<b>4.</b>	<b>Poly Chem</b>



<b>5.</b>	<b>Women Empowerment Club</b>
<b>6.</b>	<b>Oriole BhoomitraSena Club</b>
<b>7.</b>	<b>Tourism Club</b>
<b>8.</b>	<b>Vagartha</b>
<b>9.</b>	<b>KanmaInfotainment Club</b>
<b>10.</b>	<b>ED Club</b>
<b>11.</b>	<b>Red Ribbon Club</b>
<b>12.</b>	<b>NSS</b>
<b>13.</b>	<b>HACT(Highly Advanced Computer Team)</b>
<b>14.</b>	<b>ZOEAC</b>
<b>15.</b>	<b>Anti narcotic club</b>
<b>16.</b>	<b>Health club and sanitation</b>
<b>17.</b>	<b>Human right forum</b>
<b>18.</b>	<b>Debate forum</b>
<b>19.</b>	<b>Music and drama club</b>
<b>20.</b>	<b>International Bird club</b>

**Table 13: Other Clubs/ Associations**

<b>Sl No:</b>	<b>List of Initiatives</b>
<b>1.</b>	<b>Anti-sexual harassment cell</b>
<b>2.</b>	<b>Consultancy division</b>
<b>3.</b>	<b>Solace to destitute</b>
<b>4.</b>	<b>Green Campus Initiatives</b>
<b>5.</b>	<b>Anti-Ragging And Grievance Redressal Cell</b>

**Table 14: Staff Members In Charge of Various Clubs.**

<b>SI No:</b>	<b>Name of Club</b>	<b>STAFF MEMBERS ARE IN CHARGE</b>
<b>1.</b>	NCC	Najiya.K.V
<b>2.</b>	Road Safety Club	Prof. Mohammed Riyas
<b>3.</b>	Citizen Science Club	Prof. K.S Krishnaprabha
<b>4.</b>	Poly Chem	Dr.saifunnisa T.K
<b>5.</b>	Women Empowerment Club	Prof.Preethy Alex
<b>6.</b>	BhoomitraSena Club	Prof. K.S Krishnaprabha
<b>7.</b>	Tourism Club	Prof.A.M.PHamza
<b>8.</b>	Vagartha	Prof.Athiraradhakrisnan
<b>9.</b>	KanmaInfotainment Club	SivyaVasudevan KK
<b>10.</b>	Music And Drama Club	Prof. A M P Hamsa
<b>11.</b>	ED Club	Prf.T. Nisab
<b>12.</b>	Red Ribbon Club	Prf.SivyaVasudevan
<b>13.</b>	NSS	Prof.MohammedRiyas, Prof.Minshiya P
<b>14.</b>	HACT (Highly Advanced Computer Team)	Mr.Muhamin
<b>15.</b>	ZOEAC	Prof.Shameeyath
<b>16.</b>	Anti-narcotic club	Prof.PMinshiya ,
<b>17.</b>	Health club and sanitation	Prof.Dinil S
<b>18.</b>	Anti-Sexual Harassment cell	Prof.Preetha

<b>19.</b>	<b>Student insurance scheme</b>	Prof.Najiya KV
<b>20.</b>	<b>Consultancy division</b>	Dr.C. Rajesh
<b>21.</b>	<b>Solace to destitute</b>	Prof.Minshiya P
<b>22.</b>	<b>Human right forum</b>	Santhoshbabu P C
<b>23.</b>	<b>Debate forum</b>	Prof.Najila T Y
<b>24.</b>	<b>Arts and Cultural Organisation committee</b>	ShajithPP,Dr. Shilaja U
<b>25.</b>	<b>International Bird club</b>	Prof.Krishnaprabah KS
<b>26.</b>	<b>Equal opportunity centre</b>	Dr.Santhoshbabu PC
<b>27.</b>	<b>Green Campus Initiatives</b>	Prof.Krishnaprabah KS
<b>28.</b>	<b>Anti-Ragging And Grievance Redressal Cell</b>	Prof.Dinil S
<b>29.</b>	<b>Students in Palliative Care</b>	Misshiya P.,Jamshad K
<b>30.</b>	<b>Career Information and placement cell</b>	Prof. Nisab

#### **6.4.3 National Service Scheme (NSS)**

There are three National Service Scheme units in the college. Through them students involve themselves in co-curricular activities, intellectual discussion, and community service. Participation in the NSS is voluntary. An NSS volunteer will be eligible to receive a certificate for the participation in NSS provided if he/she completes 240 hrs of regular NSS work and attends a special camp with minimum of 7 days duration.

The NSS unit of the college regularly conducts a number of activities such as cleaning drives, AIDS awareness programmes, blood donation, creation of community assets, relief work, environmental protection, literacy programme, health education campaign etc.

#### **6.4.4 Women Empowerment Cell**

The women cell has been pressed into service for the empowerment of girl students. Women empowerment cell aims at all-round development of women and try to give them a

firm foundation for a successful career. Various classes organized sensitize the girls on gender justice and social equality. It also aims at empowering poor and unemployed women of neighboring area and focuses on development of leadership qualities, development of various skills, development of self confidence among women. This service unit takes care of creating social awareness, justice and infuses courage and fortitude amongst the girls by undertaking certain socially useful projects for women empowerment, Women and justice, Female Health hazards etc. The Cell endeavours to alleviate the negative forces that confront women, both on the campus and in the city. The Women Cell handles issues related to women's welfare.

The competitions conducted by the Cell are designed to showcase students' talents, boost their confidence and identify their strength areas. Various seminars are organized by the Cell on relevant topics every year. The members served the local society during their visits to a school for the differently abled, to orphanages and homes for destitute women. Every year Women's Day is celebrated with an important issue or theme in mind, to be highlighted during the programmes.

#### **6.4.5 Computer Literacy Forum**

Computer Literacy means the knowledge and ability to utilize computers and related technologies efficiently, covering different skills ranging from the elementary use of computers to programming and advanced problem solving. It is also the comfort level someone has with using computer programs and other applications that are associated with computers.

Being an imperative requirement of students and teachers of any academic stream, MES College Marampally has formed a "Computer Literacy Forum" intended to expose the students and teachers to the world of computers.

- Learning how to use computer as a research tool.
- Knowing basic hardware terminology.
- Help them to perform simple network diagnosis.
- Know how to trigger a manual virus/malware scan.
- To know the browser basics.
- Awareness of new technologies.
- Word Processing and Spread Sheets.

#### **6.4.6 NCC**

The college has a unit of Senior Division NCC Army wing. Enrolment is opened to boys and girls. Dr. Abdul Hameed holds the position of NCC Officer. Practise sessions are being held by the officer to make the students fit for the role.

Year wise activities undertaken by the College Team outside the campus for the last two years by year wise is given in the succeeding paragraphs.

### **6.5 Environmental Awareness Initiatives 2017-18**

#### **6.5.1 World Environmental Day - 5/6/17**

Activities of department for the academic year 2017-18 started with the observation of World Environmental Day on 5/6/2017. Dr. M Zeenath, renowned environmentalist and former HOD of the department of Zoology was the guest of honor and talked on the relevance of the Protection of environment. A nature film “Oru mazhu dooram” was also shown. HOD, Krishna Prabha KS welcomed the function and Assistant Professor Shamiyath expressed vote of thanks. Fruit tree saplings were planted in different parts of the campus.



Fig 19:Environmental day celebration

#### **6.5.2 Green Initiatives meeting - 6/7/18**

As part of the green initiatives Krishna Prabha K S attended a meeting for the nodal officers at Yuvaksethra College, Mundur, Palakkad. It was followed by a meeting of faculty members in the college to chalk out the plans for its implementation in the campus in association with NSS and Bhoomithra nature club.



Fig 20: Tree Plantation within the campus

### 6.5.3 Wild Life Week Celebration from 4<sup>th</sup> to 10<sup>th</sup> October 2017

wild life quiz- 4/10/2017

wild life quiz competition was conducted for the students of the college



Fig 21: Wild Life Week Celebration conducting in class

### 6.5.4 Wild life exhibition- 6/10/2017



Fig22: An exhibition of photographs of forest, nature and wild life

#### **6.5.5 Documentary making competition – 9/10/17**

A documentary making competition was conducted based on the theme “Nature- your perception of colours”

#### **6.5.6 Environmental conservation initiatives**

##### **Organic farming**

Organic farming inside the campus has been commenced under the initiative of the department



Fig23: Organic farming

Harvesting of the vegetables were done. The vegetables were sold inside the campus

#### **6.5.7 Rubella vaccination awareness day - 25/11/17**

In the light of the failure of the implementation of the MR Vaccination programme, the college decided to conduct a mass awareness programme by observing the MR vaccine awareness day inside the campus. Oath was taken by the students and staff to work for the success of the programme.



Fig 24: Invited talks in connection with environmental protection

#### **6.5.8 Birds Club Inauguration – 21/7/ 2017**

A new endeavour by the department in the current academic year was the formation of Birds club, under the direction of the Birds Club International. The inauguration was done by Sri. Sathyan Meappayur, well known Ornithologist. He also made a talk on “Common birds of Kerala”. The function was presided by our Principal Capt. (Dr.) Abdul Hameed C. Felicitations were made by Dr. Rajesh, IQAC Coordinator, Prof. Dinil S, Staff Secretary, Prof. AMP Hamza, HOD, Physics. HOD, Krishna Prabha KS welcomed the function and Assistant Professor Shamiyath expressed vote of thanks. Sreehari, II B Sc Zoology student who got remarkable achievement in flute competition both state and national level was felicitated by Dr M. Zeenath (Former HOD, Dep. Of Zoo

#### **6.5.9 Chalk making workshop by chemistry dept.**

Department of Chemistry conducted a chalk making workshop for the Kudumbasree workers of the village

#### **6.5.10 Energy conservation day observation, physics dept.**

Department of Physics conducted an inter Department quiz competition in association with national energy conservation day on 15/12/2017 at room no 203. 11 teams from the different departments participated in the competition actively.

#### **•Distribution of cloth bags by NSS**

The participation of students in the palliative care activities in the village has made positive changes in the mindset of them. The villagers were encouraged to carry the cloth bags while they are going to grocery or vegetable shops thus reducing the use of plastic carry bags.

#### **•Clean Kerala mission- well renovation by NSS**

NSS units of the College organized a cleaning campaign in the 16<sup>th</sup>, 17<sup>th</sup>& 18<sup>th</sup> wards of Valanchery Municipality.

As part of Swach Bharath program, cadets cleaned the campus frequently without spending their parade time. Teachers and students get motivated and they came forward to keep the campus green and plastic free.



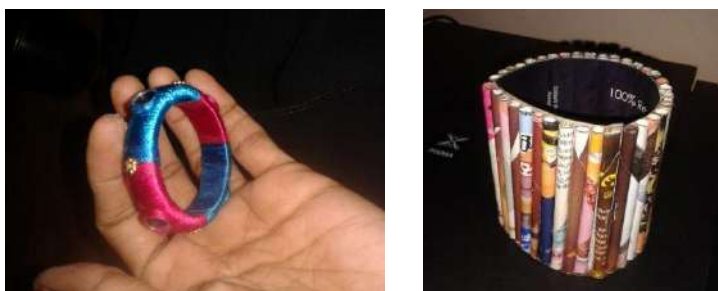


Fig 25: Value added product creation by NSS

NSS units conducted a training programme on making paper pen, paper pen-stand and thread bangles.

## 6.6 Environmental awareness initiatives –2018-19

**6.6.1 Ozone Day** was celebrated on **19<sup>th</sup> September 2018** by conducting a slogan writing and painting competition based on the theme “keep cool and carry on”. Students from various departments participated in the slogan writing competition. Sreehari.K of III<sup>rd</sup> B.Sc. Zoology got the first prize in slogan writing competition. Prinsha Prasad. K. P and Bushra.K of II<sup>nd</sup> B.Sc. Zoology bagged the second and third prizes respectively. They were awarded with mementos.



Fig 26: Ozone Day awareness programme conducting in class

### 6.6.2 Slogan Writing Competition

The department of Zoology is always keen in inculcating appreciation towards nature among the students. As part of it a field trip was conducted to KODIKUTHIMALA, which is considered to be the Ooty of Malappuram, the highest geographic peak in Amminikkadan Hills, on **21/09/18**. First year UG and PG students accompanied by the faculties of Dep. Of Zoology participated in the trip. Trekking to the top of Kodikuthimala was an exciting task. Students as well as teachers could enjoy the nature and spread awareness regarding conservation of the earth.

Wild life week was observed on first week of October by conducting a nature photograph exhibition by Mr. Vijesh Kadalundy. A caption making competition was also held along with photo exhibition. All the UG class rooms were allotted for exhibition. The exhibits included the photographs of birds, amphibians, reptiles and mammals of Southern India including migratory birds. Students and staff from all other departments enjoyed the scenic beauty of the living world depicted in the photographs. Mr.Vijesh gave a detailed description of each photograph and students interacted very effectively by asking questions. Prijila (III B.Com Self) bagged the first prize in caption making competition.



Fig 27: Caption writing competition

A lecture on “**Flood on Kerala – causes & impact**” by Mr. V.M Manoj, Health Inspector Thirunnavaya Community Health Centre was conducted on 6/10/2018 in connection with Wild Life Week Celebration. He rendered valuable information on flood by comparing the flood which occurred at three different states like Bihar, Utharakand and Kerala. Detailed discussions were done on what, how and why flood occurred and also explained on the precautions to be taken to prevent or to reduce the impact in future.

### **6.6.3 World Wet Land Day observation**

world wet land day (2/2/19) was observed by conducting a bird watching camp in the wet lands of Kadalundi. Prof. Jishnu accompanied the students. Sri. Vijesh Kadalundi, Ornithologist guided the students.

### **6.7 Environmental conservation initiatives**

#### **Report of The Survey on The Flood Impact on The Biodiversity of Irbiliyam Panchayath**

The Kerala State Biodiversity Board was conducting a “Rapid assessment of Biodiversity of Flood affected Areas of Kerala” as per the instruction of the Kerala

Government in association with KILA. As part of it the department of Zoology was entrusted an assessment survey on the Impact of Biodiversity on Irimbiliyam Panchayath one of the worst affected Panchayath in the Malappuram district. Two faculties Krishna Prabha.K S and Thushara U attended a 2 day state level training workshop at Karmasadan, Alappuzha. The participants were trained to use the ODK software that is used in the survey.



Fig 28: Flood awareness programme

Along with BMC member planning of District level implementation  
Irimbiliyam Panchayat

Following the state level workshop, a district level workshop was conducted on 15<sup>th</sup> October along with the members of the Local Self Governing Body and BMC of the Panchayath at Malappuram. In the planning meeting it was decided to conduct **Focus Group Discussion** at the Panchayath on 17/10/2018. The ward members of the affected regions, Agriculture Officer, Veterinary doctor, ASHA workers of affected wards, BMC members, 5 student volunteers will be invited to the FGD.

5 student volunteers were selected from the department who will lead the field survey in the Panchayath.

- |                   |                       |
|-------------------|-----------------------|
| 1. Suchitha       | - 5 <sup>th</sup> sem |
| 2. Thoufeeque mon | - 5 <sup>th</sup> sem |
| 3. Unnimaya       | - 5 <sup>th</sup> sem |
| 4. Ahalya H Nair  | - 1 <sup>st</sup> sem |
| 5. Midhilaj       | - 1 <sup>st</sup> sem |

On 17<sup>th</sup> October 2018, a **Focus Group Discussion** was conducted at the Irimbiliyam panchayath office. Ward members of the affected regions, Agriculture Officer, Veterinary doctor, ASHA workers of affected wards, BMC members and 5 student volunteers participated. In the first session the need, process and methodology of the survey was explained to the audience. In the second session the FGD was conducted and the details

collected were uploaded in the KSBB link using ODK software. From the work shop conducted and the Focus Group Discussion following, it was found that out of the total 17 wards, 15 wards were affected by the flood. But 2 wards were very meagerly affected. So the field survey was decided to be conducted on 13 wards and the schedule was prepared from 18<sup>th</sup> to 27<sup>th</sup> October.



Fig 29: Panchayath level training workshop



Fig 30: Focus Group Discussion

Field survey was conducted by our students in the 13 affected wards under the leadership of the 2 faculties and 5 trained volunteers. 1<sup>st</sup> semester UG and PG students participated in the survey. Daily reports (ward wise) were given to Mr. Vinesh, Project fellow KSBB and also mailed to the district co-coordinator Mr. Hydrose kutty sir. After completing the survey, a consolidated survey report was submitted to the board.

## 7.0 CONCLUSIONS/ RECOMMENDATIONS

MES Keveeyam College is an aided education institution having the credit of sustaining lot of traditional values, at the same time there are lot of shortcomings and inadequacies. The College has succeeded a lot in achieving certain results/targets in the area of giving environmental awareness among the students and to equip them for practicing eco-friendly living.

The following are the main achievements / activities undertaken in this context.

- Rain water harvesting activities such as terrace bunds and storm water drains with open jointed stone pitching for enhancing percolation of Rain water to the local ground water.
- Support for Local Ground Water recharge and environmental Protection activities in the nearby areas as part of awareness programmes.
- Establishment of Solid Waste Treatment Facilities like Biogas plants, Compost pits and establishment of Napkin Destroyers in hostel.
- Providing drinking water KIOSK at different places within the Campus.
- Development of Bamboo Park within the Campus.
- Beatification/ greening activities in the Campus

At the same time, lot to be done for improving it further. The following are the major identified shortcomings in the area of eco-friendly activities in the Campus.

- Lack of proper Solid Waste Treatment Facility for not- easily Biodegradable Waste like tree leaves, plantain leaf, banana stem etc.
- Lack of involvement for regular cleaning of surrounding areas of Herbal garden/ side of storm water drain.

The following are few suggested future activities for further betterment/ improvement.

- Conducting of Environmental Auditing in the College Campus in every two years.

- Provide Rain Water collection facilities from roof top of buildings directing to the open wells.
- Establishment and operation of a scientific source level treatment of not-easily Biodegradable Waste like Banana leaves, leaves of trees and plants etc. for composting and utilization of the same for gardening/ vegetable cultivation in the Campus with involvement of students. Aerobic Ferro- Cement Tank Composting Unit shall be established at two places near to the boundary at the side of Herbal Park.
- All lighting needs including public lighting facilities should be converted in to LED lamps connected with solar electricity generation units.
- Making garden in the front of all building for making the campus beautiful and eco-friendly.
- Adoption of Green Building concept for all future new building construction within the campus. More focus should be given for reducing energy usage for lighting and air and for increasing aesthetic appeal of buildings and class rooms in order to reduce the Carbon foot print.
- Installation Fire safety instruments in all buildings.
- Annual cleaning of campus for clearing waste / bush, in order to avoid pollution problems.