

# **ENVIRONMENT AUDIT – 2021**

## **VIMALA COLLEGE (AUTONOMOUS). THRISSUR KERALA**

EXECUTED BY



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## BRIEF CONTENTS

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PREFACE .....	3
ACKNOWLEDGEMENTS.....	4
ENVIRONMENT AUDIT SUMMARY .....	5
GENERAL DETAILS.....	6
<b>ABOUT VIMALA COLLEGE .....</b>	<b>7</b>
ABOUT ENVIRONMENT AUDIT .....	9
WASTE MANAGEMENT .....	10
FACILITIES PROVIDED BY COLLEGE FOR WASTE MANAGEMENT COLLECTION.....	13

## LIST OF TABLES

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TABLE 1: BASIC DETAILS .....	6
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## LIST OF FIGURES

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FIGURE 1 FRONT VIEW OF COLLEGE .....	8
FIGURE 2 COLLEGE CAMPUS BUILDINGS.....	9
FIGURE 3 BIO GAS PLANT IN HOSTEL.....	11
FIGURE 4 VERMI COMPOST UNIT.....	11
FIGURE 5 OPEN COMPOST PIT BEHIND CANTEEN .....	12
FIGURE 6 INCINERATOR IN HOSTEL AND COLLEGE.....	12
FIGURE 7 PLASTIC COLLECTION .....	13





## PREFACE

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Every institution should be imparting knowledge about the campus environment and its surroundings through activities that follow the principles of sustainability and waste management. Hence an evaluation is needed to understand where it stands in the path to be an environment friendly, and talent nurturing educational institution.

This Environment Audit was done with the aim to assess mainly on waste management of the campus. The college vision is “*We envision the total transformation of young women for their enrichment and of the society at large and the nation as a whole*” and was observed by us from the students’ participation during the environmental audit.

This report is compiled by the ISO 14001 Environment Consultant along with the project engineers who are experienced in the field of energy, environment and management. The student volunteers made a mammoth contribution with data collection and in preparing an initial skeleton for the report.



## ACKNOWLEDGEMENTS

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We express our sincere gratitude to the management of Vimala College (Autonomous), Thrissur for giving us an opportunity to carry out the project of Environment Audit. We are extremely thankful to all the staff for their support to carry out the studies and for input data, and measurements related to the project of Green audit.

**Dr Sr Beena Jose Principal**

**Minimol K Jose**, IQAC Coordinator

**Mr Santhosh P Jose**, Coordinator Green Audit Committee

**Dr Manju Madhavan**, Jt. Coordinator Green Audit Committee

**Dr Mimi Mani Panakkal**, Member, Green Audit Committee

**Ms Jilu Jose**, Member, Member, Green Audit Committee

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

### ENVIRONMENT AUDIT TEAM

1. **K. Krishnakulmar** ISO 14001 Consultant

2. **Mr. Harikrishnan K**,

Project Engineer - ME, Energy Engineering.



Yours faithfully

Managing Director,  
Athul Energy Consultants Pvt Ltd

## ENVIRONMENT AUDIT SUMMARY

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- ❖ College segregated the waste from classrooms, laboratories, canteen, and hostels and treated it in a scientific manner.
- ❖ Separate storage provisions are done for metal, plastics, glass in college.
- ❖ Biodegradable wastes are treated in a biogas plant installed of capacity 10m<sup>3</sup>
- ❖ Non-biodegradable wastes are incinerated which is installed in college and hostel
- ❖ Vermi compost plant installed in the college for treating plant leaves and other biodegradable wastes which cannot be used in the biogas plant.

### **Suggestions for improvement**

- ❖ MOU to be signed with KSPB approved vendors for collecting and E-waste management
- ❖ Introduce the 'refuse plastic' concept in college inventories. This will increase the awareness among students and staff and will seep into their behaviour.
- ❖ Display the weight of segregated wastes that collected from the canteen, hostels and college in prominent locations which will be an eye-opener for all and it will help in reducing the waste generation.
- ❖ Monthly Records should be kept for segregated wastes which will give the administration to pinpoint the source and can take necessary steps to reduce it.
- ❖ Display Do and Don'ts in Laboratory



## GENERAL DETAILS

The general details of Vimala College are given below in table.

Table 1: **BASIC DETAILS**

Sl. No:	Particulars	Details
1	Name of the College	Vimala College (Autonomous)
2	Address	Ramavarmapuram, Thrissur-60009
3	Contact Person	Dr. Minimol K
4	Contact Phone numbers & Fax	0487- 2332080 0487-23221759
5	E-mail ID	mail@vimalacollege.ed u.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	2841
10	No. of teaching staff	143
11	No. of non-teaching staff	34
12	Total campus area	26 Acre
13	Total Built Up area	522720Ft <sup>2</sup>
14	No. of PG courses	16
15	No. of UG courses	19
16	No. of hostel students	350
17	No. of plants in the college	600
18	No. of plant species in college	300
19	Grounds and stadium	International Aquatic Complex, 200 M. Track, Basketball court, Indoor stadium, Badminton Court, Kabbady Court, Table tennis board, Volley Ball court

## ABOUT VIMALA COLLEGE

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Sprawling over 26 acres of land and situated in the cultural capital of the state, lauded for its rich heritage, Vimala College, Thrissur was set up as a citadel of education, enlightenment and progress of young women in 1967. Undying enthusiasm, visionary diligence and a passion to bring out change, defined, moulded and transformed the dream of the CMC Management into what the College has become today. In the 54th year of inception, Vimala stands tall as one of the most prestigious and sought-after institutions in the state. The driving spirit of Vimala can be seen reflected in its mission statement:

***We dedicate ourselves to the mission of training women for academic excellence, development of skills and character formation based on the love of God and service to the society and country.***

Bifurcated from St. Mary's College and affiliated to the University of Calicut, Vimala offers 19 Undergraduate and 16 Post Graduate programmes along with other certificate and short term courses and is a Centre for Research in English, Physics, Commerce, Social work, Economics and Malayalam.

Managed by Nirmala Province, Thrissur of the Congregation of Mother of Carmel (CMC), the College is under the religious jurisdiction of the Catholic Archbishop of Thrissur. With an enrolment of 2841 students, faculty strength of 143 members and an administrative team of 34 staff, the College is engaged in bringing into fruition the dream that shaped the legacy bequeathed to her by the founders. All efforts are made to sustain and enhance quality through the synchronization of innovative measures and traditional values. With remarkable strides in curricular, co-curricular and extra-curricular spheres, the College has defined a concrete position for herself in the educational map of the state and envisions a journey of greater achievements in the future. The infrastructure and educational resources have been consistently expanded to meet the growing academic requirements. Technology enhanced teaching-learning experience and work culture have propelled the productivity forward and raised the merit of the institution. Accredited at the national level with a Five Star status in 2001 by the NAAC, the institution has undergone two subsequent cycles of re-accreditation in 2008 and 2014 and presently holds the



top grade A with a CGPA of 3.50 on a 4 point scale. The University Grants Commission (UGC) conferred autonomy to the College in 2015 and identified as a College with Potential for Excellence in 2016. The Ministry of Human Resource Development, Government of India awarded the College the 52nd and 77th positions in the National Institution Ranking Framework (NIRF) of the years 2017 and 2018 respectively. The college was in 100-150 band of NIRF Rankings 2019 and got 99th position in NIRF 2020 Rankings. Vimala College is a mentor college in NAAC Paramarsh Scheme from 2018.

Vimala College has a full-fledged DST -FIST funded laboratory and presently 6 science departments of college is supported under DBT-STAR College Scheme. The college is also supported under RUSA (RASHTRIYA UCHCHATAR SHIKSHA ABHIYAN) by the Ministry of Human Resource Development, Government of India.

In 2018 UGC approved two B.Voc programmes - Web Technology and Food processing, and community college offering three courses Diploma in Interior Architecture and Design (DIAD), Diploma in Digital Video Production and Diploma in Tourism Management and Hospitality.



**Figure 1 FRONT VIEW OF COLLEGE**



## ABOUT ENVIRONMENT AUDIT

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The ICC defines Environmental Auditing as: “A management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of safeguarding the environment and natural resources in its operations/projects.”

A clean and healthy environment aids an effective and conducive learning environment. Environmental awareness helps the institution to set environmental examples for the community and to educate young learners. Here we mainly report waste management initiatives and installations of systems such as biogas plant, vermin compost, incinerator and collection and segregation of waste in the campus etc.



Figure 2 COLLEGE CAMPUS BUILDINGS

## WASTE MANAGEMENT

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Waste is generally termed as a resource at the wrong place'. The college authorities are aware of the possible methods and have installed waste management measures. The waste clearance measures associated with different types of wastes are briefly given below. The College normally three types of wastes are generated and we can divide the same as,

1. Biodegradable
2. Non-bio degradable
3. E-waste

**BIODEGRADABLE WASTES** Biodegradable waste includes any organic waste which can be broken down into carbon dioxide, water, methane or simple organic molecules by micro-organisms and other living things by composting, aerobic digestion, anaerobic digestion etc. These materials released are non-toxic to the environment. Plants and animal waste are converted into simpler units, which further get into the soil and are used as manure, biogas, fertilizers, compost, etc.

### 1. BIO GAS PLANT

Biogas is the mixture of gases produced by the breakdown of organic matter in the absence of oxygen (anaerobically), primarily consisting of methane and carbon dioxide. Biogas is a renewable, as well as a clean, source of energy. Gas generated through bio digestion is non-polluting; it actually reduces greenhouse emissions. No combustion takes place in the process, meaning there is zero emission of greenhouse gasses to the atmosphere; therefore, using gas from waste as a form of energy is actually a great way to combat global warming. Another biogas advantage is that, unlike other types of renewable energies, the process is natural, not requiring energy for the generation process. In addition, the raw materials used in the production of biogas are renewable.

Biogas produces organic fertiliser. The by-product of the biogas generation process is enriched organic which is a perfect supplement to, or substitute for, chemical fertilizers. The fertilizer discharge from the digester can accelerate plant growth and resilience to diseases.

Here college is using a fixed dome permanent structure biogas plant of size 10 M3 for treating bio waste. The methane gas from the biogas plant is used in the canteen for cooking purposes and for heating drinking water hot water. Approximately 100 kg of LPG /month is saved by using the biogas plant. The slurry coming from the plant is collected in drums and reused after diluting with water for agriculture and for gardens.



Figure 3 BIO GAS PLANT IN HOSTEL

### I. VERMICOMPOST UNIT

Vermi compost unit aims at solving the problems of organic garbage collected from the college campus. Two tanks of 4x4 sq. ft size is setup in the college premises. Organic waste collected from the college campus is filled in tank 1 and adult earthworms are introduced into it. It is moistened and stirred at regular intervals. The processing takes almost 2-3 months. The processed organic compost is transferred to Tank 2 at appropriate intervals. This vermin compost is marketed under the title 'V-fert' to the organic farmers.



Figure 4 VERMI COMPOST UNIT



### III OPEN PIT COMPOST

The College maintains an open pit compost for converting the dried plant materials into organic manure.



Figure 5 OPEN COMPOST PIT BEHIND CANTEEN

#### 1. NON-BIODEGRADABLE WASTE

Materials such as metals, plastics, bottles, glass, poly bags, chemicals, battery, constitute a non-biodegradable waste. This solid waste is as toxic as it cannot be degraded and become hazardous to health and the environment if left untreated. The college takes various efforts for managing the use of non-biodegradable materials. The college imparts the knowledge of the three 'R' concepts to its stakeholders ie Reduce-Recycle –Reuse.

##### INCINERATOR

One type of non-biodegradable waste in the College is sanitary napkins. An incinerator is used to dispose of the menstrual waste. The ash generated is used along with cow dung for plants.

The ash generated from canteen where wood is used as a fuel is used as manure for plants. The college Campus promotes biodegradable packaging to reduce the consumption of plastic to a large extent



Figure 6 INCINERATOR IN HOSTEL AND COLLEGE

## **ELECTRONIC WASTE**

Electronic waste or e-waste describes discarded electrical or electronic devices. E-waste or electronic waste is created when an electronic product is discarded after the end of its useful life. E-waste is a concern to the College and the College has to sign an agreement for disposing of the electronic wastes with an approved agency of Kerala State Pollution board for the same. Reusable parts of the computer waste are reused in the College.

## **LABORATORY WASTES**

Science laboratories contribute to this waste. Here the used chemicals, bottles, glassware, plastic mercury etc form the waste materials. In Vimala College there is sufficient ventilation is in all laboratories. The natural illumination is good. Care is taken by the College authorities that used chemicals are not allowed to mix with the groundwater.

### **Suggestions for waste management**

- ❖ Provide waste flow chart in the laboratory
- ❖ Do's and Don'ts in the laboratory while conducting experiments
- ❖ Standard disposal procedure in the laboratory for all chemicals used in the lab
- ❖ Separate bins and containers for control wastes and special control wastes, reusable items etc. in the laboratory

## **FACILITIES PROVIDED BY COLLEGE FOR WASTE MANAGEMENT COLLECTION**

- Toilets on every floor of all buildings separately for girls, and staff.
- There is a separate toilet facility for teaching and non-teaching staff
- Certain toilets are disabled friendly with suitable handrails and support mechanisms.
- Bins are provided in various areas of Campus for segregated collection of biodegradable (food,) and non-biodegradable wastes (Plastic).
- Everyday cleaning and sanitization is done
- A team of daily staff is maintained by the college for maintaining the clean campus, collection of wastes from bins, segregation of waste etc.



**Figure 7 PLASTIC COLLECTION**



## STUDENT ACTIVITIES FOR ENVIRONMENTAL CONSERVATION

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Students of Vimala College actively involves in the extension activities related to environment management. Here are some glimpses of such activities.



NSS volunteers attended the cleaning program at the Ortho section of Govt. Medical College Mulamkunnathukavu.



In Association with Swatch Bharath Mission NCC cadets of Vimala College organized Anti plastic drive at the District Hospital, Thrissur. As part of it Cadets visited the hospital and distributed paper bags to reduce the increasing use of plastic. Cadets pledged to avoid the use of plastic for the welfare of the people and the country.



Swacha Bharath Pakhawada Programme-Cleaning at 5th Ward of Thrissur Corporation on 11-08-2016



Cleaning Activities at Public Library, Cheroor on 3 March 2017



Energy Conservation Awareness Campaign



Workshop on Paper Bag Making on 29/07/2017



SwachBharath Pakhwada-Cleaning Programme at Campus and Nearby Places on 02/08/2017



Marathon at Swaraj Round, Thrissur on the Theme 'Sustainable Development' on 05/08/2017



Training programmes on Preparation of Cleaning Agents for Kudumbasree members and at 7th Division Anganavadi, kuttipuram on 2017



Street Play on Waste Management on 13/12/2017



Awareness Class on Solid Waste Management at NSUP School, Cheroor, Govt. U.P. School Ramavarmapuram, Govt. U.P. School Parlikad,



Celebrated “Green day” on 14/02/2019, an exhibition of bio-decomposing models was arranged in the leisure tower in association with socio economic unit Thrissur.



The cadets cleaning the premises of an old age home Pakalveedu at Viyur on 05/06/2018 as part of “Cleanliness is happiness” program



Water Literacy Programme-Water Quality Assessment of Temple Ponds in Thrissur District during Monsoon  
2018 July-August, 2018



Cleaning Activities in the Flood Affected Region of Thenkulangara Residential Area, Thrissur on 02/10/2018





Swachhata Hi Sewa Campaign'-Plastic Free Village Vimala College (Autonomous), under Unnat Bharat Abhiyan (UBA) has participated in "plastic-free-village" Campaign in their adopted villages. The college facilitated distribution of **Cloth Bags** with each household and collect back all **Plastic Bags (12.10.2019)** that are being used by them in connection with the 'Swachhata Hi Sewa Campaign' in adopted villages as initiated by our Prime Minister. We have made the Campaign effective in UBA villages, so that at national level UBA can be recognized as effective program in the country.





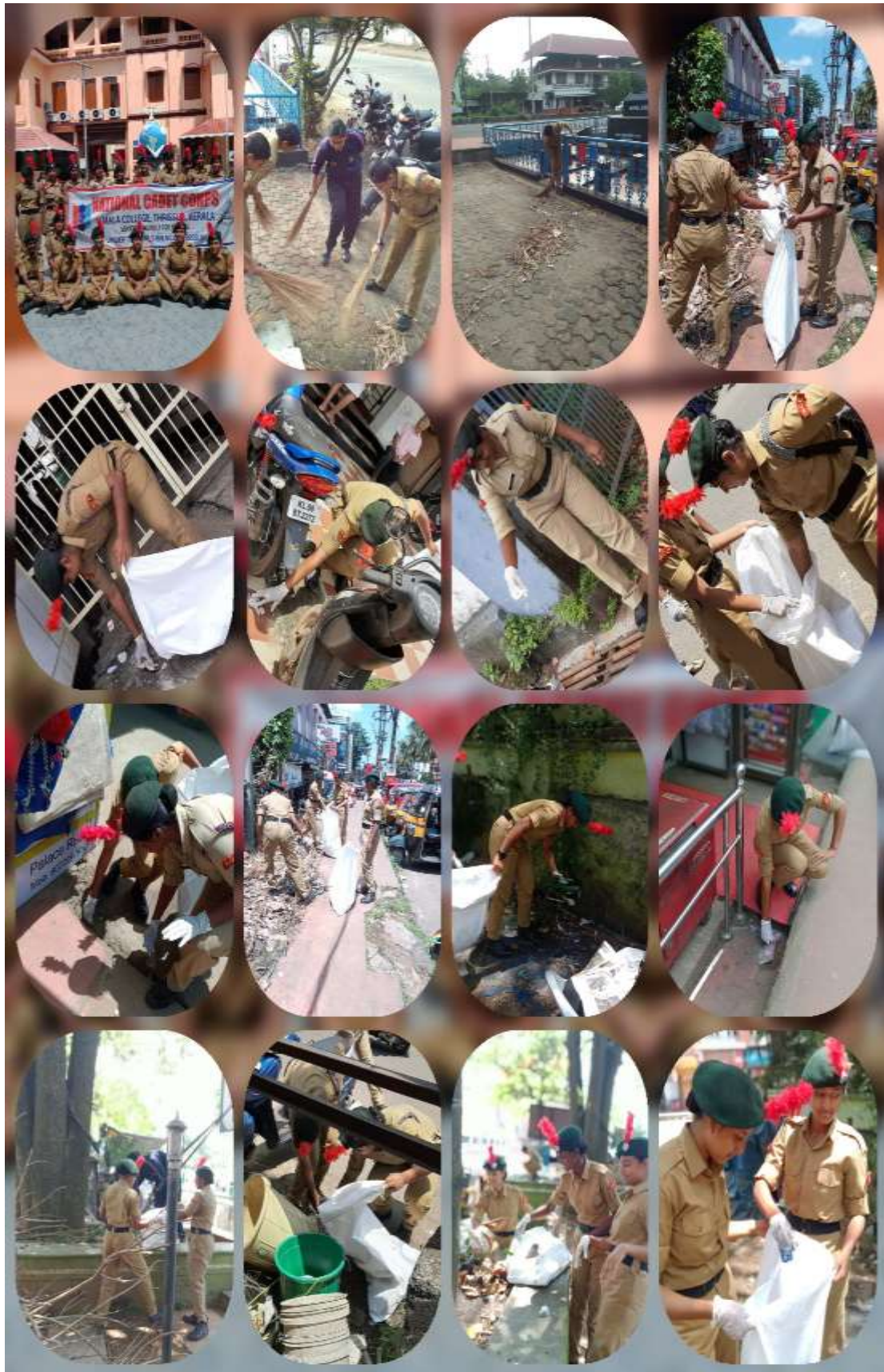
“Greening the Blue”-Tree Plantation Drive to Beat Air Pollution at UBA villages on 26/06/2019



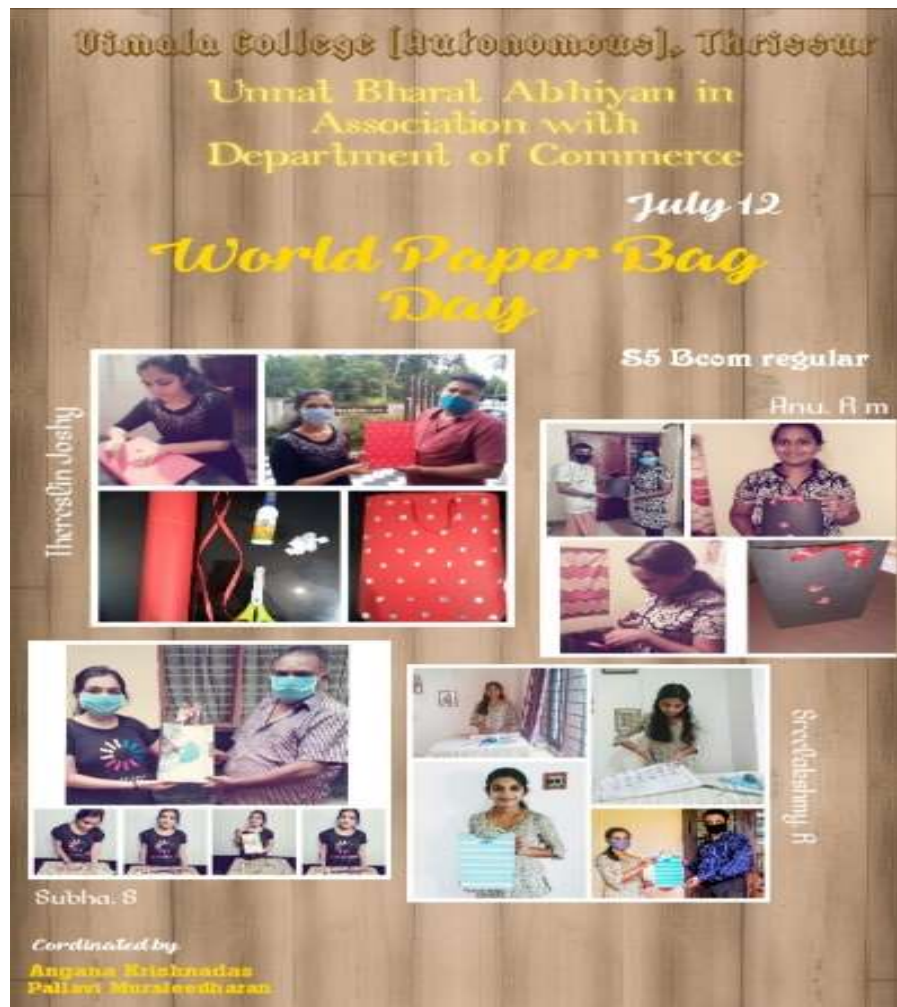
Beach Cleaning Drive at Chavakkad Coastal Area 27-09-2019



'My Garbage My Responsibility'-Awareness Rally on No Plastic and Garbage on Road November 2019



'My Clean Thrissur'-Swatch Bharat Pakwada Cleaning Drive n02/10/2019



Plastic Free Awareness Programme-Making and Distribution of Paper Bags in Neighbourhood  
12-06-2020



Clean Laloor Programme and Street Play03/10/2019



## CONCLUSION

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Environment audit is the best way to analyse and solving the critical issues of waste management. Environment audit can add value to management approach being taken by college for identifying, collecting, segregating and processing of waste generated in the college campus. By analysing the waste generation in each segment such as biodegradable, non-degradable, R waste etc. gave an indication of waste generation and thus put control for the same to reduce the environmental impacts in due course.

The findings in the report shows that college perform fairly well in waste management issues and is taking considerable efforts in a responsible manner. During audit and the conversations with the college team, we observed that Vimala College done various approaches in the past few years to performing well to sustainable environment. Even though there is space for further improvement, as mentioned in the executive summary, the college is a good example for the minimization of environment issues in the existing conditions.



Certified Professional

<div><div>Certificate of Attendance</div><div></div><div></div></div>	
<div><div><b>G KRISHNAKUMAR</b></div><div>has attended the following live virtual classroom course:</div><div><div><b>Transition training for Environment Management System as per ISO 14001:2015</b></div><div>Course is designed to explain:<ul style="list-style-type: none"><li>• Requirements of ISO 14001:2015 in context of audit.</li><li>• Key changes from ISO 14001: 2004 to 14001:2015</li></ul></div><div>Session Duration: 16 Hours</div></div></div>	<div><div>CERTIFICATE NUMBER 2020260507</div><div>TRAINING DATE: 25th &amp; 26th May, 2020</div><div> Authorising Signature:</div></div>
<div><div></div><div>Intertek India Private Limited</div></div>	