



# THE COCHIN COLLEGE

Koovapadam, Kochi-2

Affiliated To Mahatma Gandhi University

Re-accredited by NAAC With B+ Grade



Fourth Cycle  
NAAC Accreditation 2024

## Criterion 1 Curricular Aspects

### 1.3 - Curriculum Enrichment

Metric No. 1.3.1

Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability in transacting the Curriculum.

### Initiatives Promoting Environment and Sustainability

Submitted to



National Assessment and Accreditation Council



# THE COCHIN COLLEGE

KOCHI - 682 002

(Affiliated to Mahatma Gandhi University and Accredited by NAAC)

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## Initiatives promoting environmental and sustainability

This document provides a comprehensive overview of the green initiatives and sustainability practices undertaken by **The Cochin College** from 2019 to 2024. These efforts are a testament to the college's commitment to promoting environmental responsibility and fostering a culture of sustainability among its students, faculty, and the broader community.

Over the years, The Cochin College has implemented a variety of programs focused on organic farming, waste management, reforestation, and sustainable campus practices. These initiatives not only enhance the ecological footprint of the institution but also serve as valuable educational experiences, equipping students with the knowledge and skills necessary to contribute to a sustainable future.

The activities documented in this report include notable efforts such as the *Institutional Organic Farming* project, the *Thanal- Planting Fruit Saplings* initiative, and the *Pacha Thuruthu Project* in collaboration with the Cochin Corporation. Each of these programs has been carefully designed to address specific environmental challenges, from promoting sustainable agriculture to reducing waste and encouraging the use of eco-friendly materials.

Through collaborations with external agencies and active participation from the college community, these initiatives have yielded significant outcomes. The NSS unit's involvement in various green projects, the training sessions on organic farming and bio-waste management, and the active engagement in national environmental campaigns like the *SHARP Project* are just a few examples of how the college has integrated sustainability into its core activities.

This document not only highlights the success of these initiatives but also underscores the importance of ongoing efforts in environmental stewardship. The Cochin College's dedication to green practices aligns with global sustainability goals and sets a powerful example for other institutions to follow. By continuing to prioritize sustainability, The Cochin College is making a meaningful contribution to the preservation of our environment and the promotion of a sustainable future for all.





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## 1 Academic Year:2023-2024

### 1.1 Release of Biodiversity Register

The biodiversity register serves as a comprehensive tool designed to analyze the current biodiversity status of the college campus and, subsequently, to formulate plans aimed at enhancing the existing biodiversity. The process involves a biodiversity audit, which entails a thorough assessment of both flora and fauna through spot surveys. This approach not only contributes valuable data but also offers students a unique opportunity for hands-on learning experiences beyond the confines of a traditional classroom setting. Engaging in observational and identification exercises during the audit helps students refine their skills in recognizing and categorizing various plant and animal species. The biodiversity audit employed a systematic approach, including random transect and quadrant observation walks. These activities allowed the student community to actively participate in classifying the rich biodiversity within the campus. This immersive learning experience creates an environment that is conducive to improving observational skills and deepening understanding. It also provides students with a tangible connection to the natural world, fostering a sense of appreciation and responsibility for the environment. The results of the biodiversity audit indicate that there is room for improvement in both faunal and floral diversity on the campus. In response to these findings, a planned greening program is proposed. This program aims to enrich the campus environment by introducing more native organisms, thereby enhancing the overall biodiversity. Through these initiatives, the college not only contributes to the preservation of local ecosystems but also offers students a holistic educational experience that extends beyond textbooks, promoting a sense of ecological stewardship and sustainability.

For accessing the biodiversity register: [click](#)





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**THE COCHIN COLLEGE**  
**CAMPUS BIODIVERSITY REGISTER**

Under the aegis of Department of Zoology and Department of Botany, The Cochin College  
Funded by DBT Star College Scheme and Bhoomithra Sena Club The Cochin College.

**TROPICAL INSTITUTE OF ECOLOGICAL SCIENCES**  
TIES - ties Mind & Nature  
[www.ties.org.in](http://www.ties.org.in)

**COCHIN COLLEGE**  
**CAMPUS BIODIVERSITY REGISTER**

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Approved Research Centre, Mahatma Gandhi University, Kottayam.



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**Principal-in-Charge**  
**The Cochin College**



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## 1.2 Herbal Garden Renovation

Having a herbal garden in colleges is crucial as it provides a living laboratory for hands-on learning and interdisciplinary education, enhancing students' understanding of botany, ecology, and health sciences. It promotes natural remedies and mental well-being, offering therapeutic benefits and healthier dietary options. Environmentally, it supports biodiversity, sustainability, and campus beautification, improving air quality and creating green spaces. Socially, it fosters community engagement, cultural preservation, and volunteerism, strengthening ties between students, faculty, and the local community. Economically, it reduces costs for medicinal herbs and spices and can generate additional income. Overall, a herbal garden enriches the educational experience, promotes health and sustainability, and strengthens community bonds. Hence the herbal garden in our college was renovated. As a part of renovation saplings of Medicinal plants were purchased and planted in the Herbal garden in pots. Bhoomitra Sena Club members actively participated in planting plants





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## 1.3 Wetland Day Celebrations 2024

The wetland day highlights the need for conservation and sustainable management of wetlands. It encourages governments, organisations, and communities to take action to protect and restore these ecosystems. World Wetlands Day serves as an opportunity to educate the public, policymakers, and stakeholders about the value of wetlands. Events, activities, and campaigns organized on this day engage people in conservation efforts and promote sustainable practices. The day also draws attention to the various threats facing wetlands, such as pollution, climate change, land degradation, and unsustainable development. It emphasizes the urgent need to address these challenges to ensure the health and resilience of wetland ecosystems.

Bhoomithrasena Club in association with the department of zoology organised a poster exhibition to spread awareness about the importance of Wetlands on 2nd February 2024 celebrate wetlands day. Posters were prepared by Bhoomithrasena Club members of the department of Zoology. By celebrating World Wetlands Day, the significance of wetlands were realized and encouraged actions that contribute to their conservation and sustainable use, ultimately benefiting both nature and human societies.







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## 1.4 Water Quality Analysis of Ponds, Wells and Tap in and around the Cochin College

Most of the surface water in India faces vast quantity and quality threat. Many water bodies have been degraded or lost, mainly due to anthropogenic activities such as changes in agricultural activities, expansion of urban areas and pollution. Any water sources must be thoroughly analysed and studied before being used for domestic purposes. As per World Health Organisation standards, drinking water should not contain any microorganisms known to be pathogenic or any bacteria indicative of faecal pollution. Because of the importance of good drinking water and an attempt was made to study the physicochemical and microbiological quality of well water.

To analyse the physico chemical parameters like pH, free CO<sub>2</sub>, calcium, magnesium, chloride, hardness, salinity and total alkalinity of 3 samples of pond water (collected from the Fort Kochi area, viz., Dutch palace pond, Pond near Chembitta Mosque and Pond located as Kelothum Bava Road), 3 well water samples collected from division 5 of Matancherry and 3 tap water samples collected from Fort Kochi region. The analysis results are given below.

For accessing the detailed report: [click](#)

The results of water analysis are tabulated below

Physicochemical parameters of three pond water samples

Parameter	Pond water Sample1	Pond water Sample	Pond water Sample3	Well water Sample1	Well water Sample2	Well water Sample3	Tap Water Sample1	Tap Water Sample2	Tap Water Sample3
pH	7.7	7.5	7.3	6.3	6.3	6.4	6.4	6.2	6.5
Chloride[mg/l]	61.06	68.16	71	151.94	96.56	53.96	34.08	39.76	49.7
Alkalinity[mg/l]	135	120	500	470	410	120	55	40	80
Salinity[mg/l]	111.74	124.73	129.93	278	176.7	98.74	62.36	72.7	90.9
Hardness[mg/l]	NIL	NIL	NIL	56	30	18	NIL	NIL	NIL
Free CO <sub>2</sub>	NIL	NIL	NIL	NIL	NIL	NIL	7.04	15.84	10.56
Calcium[mg/l]	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL
Magnesium[mg/l]	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

MPN Presumptive test

Samples	3 of 10 ml each	3 of 1 ml each	3 of 0.1 ml each	MPN index per 100 ml
Pond water 1	3	3	3	2400
Pond water 2	3	2	2	210
Pond water 3	3	3	3	2400
Well water 1	3	2	2	210
Well water 2	3	3	1	240
Well water 3	3	1	0	43
Tap water 1	0	0	0	0
Tap water 2	3	3	3	2400
Tap water 3	3	0	0	23

Microbiological Parameter	Guide Value	Mandatory value
Total coliform/100mL	500	10,000
<i>E. coli</i> /100mL	100	2000

Water quality requirements for bathing waters of the European Economic Community suggested by WHO (1996 & 1998).

Summary and Conclusion





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- The pH of pond water samples was alkaline, ranged between 7.3 to 7.7, the pH of well water samples was acidic, ranged between 6.3 to 6.4 and the pH of tap water samples were acidic, ranged between 6.2 to 6.5.
- Chloride content of pond water samples was in a range between 61.06 to 71 mg/l, well water samples had chloride content ranged between 53.96 to 151.94 mg/l, while in tap water samples, chloride was present in a range between 34.08 to 49.70 mg/l.
- Alkalinity of the pond water samples was in between 120 to 500 mg/l. The value of alkalinity of pond water sample 3 was 500 mg/l, which is well above the permissible limit of WHO. Alkalinity of the well water samples was in between 120 to 470 mg/l and alkalinity of the tap water samples was in between 40 to 80 mg/l.
- The pond water samples showed salinity ranged between 111.74 and 129.93 mg/l, the well water samples showed salinity ranged between 98.74 and 278 mg/l, while the tap water samples showed salinity ranged between 62.36 and 90.9 mg/l.
- Free CO<sub>2</sub> was nil in all pond water and well water samples. But free CO<sub>2</sub> present was between 7.04 to 15.84 mg/l in tap water samples.
- Hardness was nil in pond water and tap water samples, but it was detected in well water samples and it ranged between 18 to 56 mg/l.
- Calcium and Magnesium was absent in the pond water, well water and tap water samples.
- MPN of pond water samples was ranged between 210 to 2400. MPN of Well water samples was ranged between 43 to 240. Tap water<sub>1</sub> was potable since no coliforms were detected in it. Tap water 2 and 3 MPN were 2400 and 23 respectively, so not found to be potable.
- All the water samples except sample 1 of tap water was found to be non-potable.
- Since the guide value of pond water sample 2 is below 210, it is fit for washing and bathing purposes. Pond water sample 1 and 3 are not suitable for any purpose. Since the guide value of all the well water samples were below 500, they are fit for washing and bathing purposes. Tap water sample 3 is fit for bathing purposes since it is within the limit of guide value. Tap water sample 2 is not suitable for drinking and bathing purpose as it exceeds the mandatory value by WHO.
- Presence of Escherichia coli in pond water samples 1, 2 and 3, well water samples 1 and 2 and tap water samples 2 and 3 was confirmed on Eosin Methylene Blue agar (EMB agar) medium by the formation of green metallic sheen.





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- Lactose fermenting coliforms like Klebsiella pneumoniae, Enterobacter etc. were also present as some colonies appeared dark purple.
- The non-lactose fermenting, gram negative bacteria appeared pink, which showed the presence of Salmonella, Pseudomonas aeruginosa, Shigella etc. in the sample.





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## 1.5 ECOWASH: A Comprehensive Study on Developing Bio Enzyme Detergent, Its Performance Testing, and Social Influence

### 1.5.1 Project Overview

Title: ECOWASH - A Comprehensive Study on Developing Bio Enzyme Detergent, Its Performance Testing, and Social Influence

Institution: The Cochin College, Cochin

Event: ECHO 2023

Project Aim: The ECOWASH project aims to introduce and promote the use of eco-friendly bio enzyme cleaners to address the problem of grey water pollution in urban areas, particularly in West Kochi.

### 1.5.2 Project Background

The Cochin College is located in an area with a population density of 10,470 people per square kilometer, significantly higher than the state average of 859 people per square kilometer. The lack of open spaces for sewage disposal has led to grey water, containing detergents and cleaners, being discharged into drainage canals, which then flow into the Arabian Sea. These canals, once used for transportation and fishing, are now heavily polluted and support invasive species like water hyacinth.

### 1.5.3 Project Objectives

1. Assess the impact of chemical detergents on the environment and dermatological health.
2. Compare the effects of commercial detergents and bio enzymes on fish.
3. Encourage a behavioral shift towards the use of bio enzyme cleaners in the community.

### 1.5.4 Methodology

### 1.5.5 Strategies and Implementation

Capacity Building

Community Engagement

Preparation of Bio Enzymes

Experimental Testing

Community Trials





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## 1.5.6 Results

## 1.5.7 Survey Findings

- 71% of the 137 surveyed families use detergents/cleaning agents more than five times a day.
- 100% of households discard grey water into common sewage.
- 55% of individuals experience skin problems such as dryness, redness, and burning sensation due to detergent use.
- 92% of the surveyed families agreed to test the bio enzyme detergent.

## 1.5.8 Experimental Results

- Bio Enzyme Tank: Fishes exhibited normal behavior similar to those in the control tank and survived throughout the experiment.
- Lysol Tank: Fishes showed significant distress within 3 minutes of Lysol addition, with half dying at around 10 minutes and all dead by 20 minutes.

## 1.5.9 Community Trials

- Satisfaction: 95% of the families were satisfied with the bio enzyme cleaner.
- Issues: Some users noted the short shelf life and mild fragrance as areas for improvement.

## 1.5.10 Impact

- Environmental Impact: Reduced chemical discharge into sewage systems, leading to a healthier urban water ecosystem.
- Health Impact: Decrease in skin-related issues caused by conventional detergents
- Social Impact: Increased community engagement and movement towards sustainable living practices.

## 1.5.11 Conclusion

The ECOWASH project successfully demonstrated the environmental, health, and social benefits of using bio enzyme cleaners as an alternative to chemical-based detergents. By fostering community engagement and promoting sustainable practices, the project has laid the foundation for a healthier and more sustainable urban environment.





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## 1.5.12 Vision

The project aims to significantly reduce the ecological footprint of households and improve community health by promoting the widespread adoption of bio enzyme cleaners.

## 1.5.13 Value Proposition

By leveraging community involvement and student participation, the project educates and empowers individuals to adopt more sustainable practices, positioning the community as a leader in environmental stewardship and health conscious.





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1.5.14 The report is submitted to ECHO 2023, WWF India

## List of Students

Sl No	Name of Student	Program
1	DEVIKA SANTHOSH	B.Sc. Zoology Model I
2	KRISHNA DILEEP	B.Sc. Zoology Model I
3	RESMI RAVEENDRAN	B.Sc. Zoology Model I
4	VRINDA	B.Sc. Zoology Model I
5	ANJALI SANTHOSH	B.Sc. Zoology Model I
6	C J ANJANA	B.Sc. Zoology Model I
7	GRACE A.R	B.Sc. Zoology Model I
8	KRISHNENDU RAMESH	B.Sc. Zoology Model I
9	THANSIYA SHAMEER	B.Sc. Zoology Model I
10	UMADEVI J.S	B.Sc. Zoology Model I
11	VIVEK P V	B.Sc. Zoology Model I
12	MANU MOHAN	B.Sc. Zoology Model I
13	ANAGHA P K	B.Sc. Zoology Model I
14	SREE LAKSHMY T L	B.Sc. Zoology Model I
15	AISWARYA T B	B.Sc. Zoology Model I
16	ALIYA RAFAEK	B.Sc. Zoology Model I
17	AMRUTHA PRASAD	B.Sc. Zoology Model I
18	ANUSH KRISHNA V A	B.Sc. Zoology Model I
19	ASHLEY STEPHEN	B.Sc. Zoology Model I
20	AYANA M S	B.Sc. Zoology Model I
21	CINDERILLA ROSE A J	B.Sc. Zoology Model I
22	JUFANA FIRDOUS	B.Sc. Zoology Model I
23	MARY ANGEL A J	B.Sc. Zoology Model I
24	V A HAFIZ MOHAMMED	B.Sc. Zoology Model I
25	SANDRA SAJEEV	B.Sc. Zoology Model I
26	LEO C B	B.Sc. Zoology Model I
27	NIDHUNA RAJESH	B.Sc. Zoology Model I
28	SALWA HAREES	B.Sc. Zoology Model I
29	FATHIMA BEEVI	B.Sc. Zoology Model I
30	REEMA MARAKKAR	B.Sc. Zoology Model I
31	SAHIYATHUL NIZA . E . S	B.Sc. Zoology Model I
32	ANANDHA KRISHNAN M P	B.Sc. Zoology Model I
33	YEDUKRISHNAN K R	B.Sc. Zoology Model I
34	JOMON DUROM	B.Sc. Zoology Model I





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## 1.6 Effect of Water Hyacinth infestation on the Physicochemical parameters of canal water in karumalloor, Aluva, Kerala, india

Water hyacinth infested canal in karumalloor, Aluva was the sampling location. Sampling was done before and after the removal of water hyacinth during January and February 2024. Samples were collected 1-2 week after the removal of water hyacinth, this was done to determine the difference in physico-chemical and microbial parameters of the water sample due to water hyacinth infestation. Sampling was done at 3 points (close to canal wall, 100 meters away from the wall and from the center of the canal) in selected location. All the parameters, except microbial, were analyzed for water samples from the 3 points and the mean/average of the three points were used to compare the effect of water hyacinth removal.

### Results

	Parameters**	Before Water Hyacinth Removal	After Water Hyacinth Removal
1	pH	6.7	7.4
2	Total Alkalinity	14 ppm in terms of calcium carbonate	16.6 ppm in terms of calcium carbonate
3	Transparent	Murky and opaque - hence transparency is zero	Transparent till the bottom
4	Phosphate	Absent	Absent
5	Chloride	Absent	43.3 mg/l
6	Fluoride	Absent	1mg/l
7	Residual chlorine	Absent	Absent
8	Iron	0	4.3 mg/l
9	Calcium hardness	20 ppm in terms of calcium carbonate	12 ppm in terms of calcium carbonate
10	Sulphate	4 ppm	2 ppm

\*\* all these parameters were analyzed using standard Nice Water Testing Kits

Parameters	Before Water Hyacinth Removal	After Water Hyacinth Removal
Dissolved Oxygen (DO)	Not detected**	10.5mg/L
Dissolved Carbon dioxide	5.5mg/L	1mg/L
Net Primary productivity	Not detected**	3.6 mg.C/l/24hrs
Gross Primary productivity	Not detected**	4.4 mg.C/l/24hrs

### TPC results

	Before Water Hyacinth Removal	After Water Hyacinth Removal
TPC	$5.5 \times 10^5$ CFU/ml	$4.9 \times 10^5$ CFU/ml







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## 1.6.1 Conclusions

- The removal of water hyacinth had significant impacts on pH, turbidity, DO, Productivity, Dissolved CO<sub>2</sub>.
- The presence of water hyacinth had an impact on the pH of water in the canal, a low pH of 6.7 was observed before removal. After water hyacinth removal the pH of the water was found to be in the normal pH range of open waters.
- Another significant difference was observed in dissolved oxygen, dissolved oxygen could not be detected in infested waters which could be due to the dense growth of water hyacinth which consumes more oxygen through processes such as decomposition of organic matter within the mats. This consumption can deplete oxygen levels in the water column, especially in areas where water flow is restricted by the dense mats. DO might be undetected also due to the sensitivity of the method (Winkler's method), Winkler method have limitations in detecting very low levels of dissolved oxygen, especially in environments with high levels of oxygen consumption.
- The detection of DO and primary productivity in the samples after removal is clear sign of the impact of the infestation in water quality.
- The same changes in pH and DO was reported by Uka et al (2007) in their studies of water hyacinth infestation of AWBA Reservoir, Ibadan, South-West, Nigeria.
- Significant difference was also observed in the dissolved carbon dioxide level, a decrease in its level was found after removal. This is due to the inverse relationship between DO and dissolved carbon dioxide. This means that when the concentration of dissolved oxygen decreases, the concentration of carbon dioxide increases. This also have an effect on the pH of the water, as more carbon dioxide dissolves in water, the concentration of carbonic acid increases, leading to a decrease in pH.
- Chloride, fluoride and iron was absent in the infested water samples but was observed in water samples after removal, this might be due to the absorption of these by water hyacinth.
- These was no significant change in the total alkalinity, calcium hardness and sulphate levels.
- Total plate count (TPC) did not show any significant difference before and after removal of water hyacinth.
- As this was a preliminary/pilot study of the effect of removal of water hyacinth on the physicochemical and microbial parameters of the canal water at karumalloor, Aluva. Further studies are required to confirm the above results.





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The report was submitted to

Plan@Earth, NGO Aluva

as a part of the collaborative project on Water Hyacinth removal and restoration of water bodies





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The list of students participated in the project is attached.

## List of Students

Sl No	Name of Student	Program
1	CHRAITHIRA RAVI	B.Sc. Zoology Model 1
2	DEVIKA LEVIN A	B.Sc. Zoology Model 1
3	HEBINANDA SASU	B.Sc. Zoology Model 1
4	SHYKAMI D	B.Sc. Zoology Model 1
5	ADHIL SALIM	B.Sc. Zoology Model 1
6	ALANTEENA A G	B.Sc. Zoology Model 1
7	ALIBETTA T J	B.Sc. Zoology Model 1
8	ANAGHA MOHAN K	B.Sc. Zoology Model 1
9	ANANDREKA SUNIL	B.Sc. Zoology Model 1
10	FARHANA D A	B.Sc. Zoology Model 1
11	IBNA ROY	B.Sc. Zoology Model 1
12	NEHALA P A	B.Sc. Zoology Model 1
13	SHYALIDRA NE B	B.Sc. Zoology Model 1
14	SHREYA SURESH	B.Sc. Zoology Model 1
15	ATHIRA C A	B.Sc. Zoology Model 1
16	ANANYA C RAJESH	B.Sc. Zoology Model 1
17	AVILESH PHILLIP CELIN	B.Sc. Zoology Model 1
18	SAID AZIF V S	B.Sc. Zoology Model 1
19	SHERIN BEVILZ	B.Sc. Zoology Model 1
20	SWETHA LAKSHMI K S	B.Sc. Zoology Model 1
21	YADU KRISHNAN C	B.Sc. Zoology Model 1
22	ANJANA PRAMOD R	B.Sc. Zoology Model 1
23	MUHAMMED SAHIL P N	B.Sc. Zoology Model 1
24	MALAVIKA M A	B.Sc. Zoology Model 1
25	SANDHYA SHYAM	B.Sc. Zoology Model 1
26	ABDULALI V	B.Sc. Zoology Model 1
27	Anshu A A	B.Sc. Zoology Model 1
28	Gayathri N V	B.Sc. Zoology Model 1
29	Mamukali V S	B.Sc. Zoology Model 1
30	Mishra A	B.Sc. Zoology Model 1
31	Shruthi Shri	B.Sc. Zoology Model 1
32	Ayanna Sakina P P	B.Sc. Zoology Model 1
33	Chitra Noma Rajesh	B.Sc. Zoology Model 1
34	Mishra Farukh A N	B.Sc. Zoology Model 1
35	Krishnamoorti A K	B.Sc. Zoology Model 1
36	Preetha A D	B.Sc. Zoology Model 1

Dr. VINETH KUMAR EV  
Assistant Professor &  
Co-ordinator OBT (for College Scheme)  
Department of Zoology  
The Cochin College, Kochi-682002





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## 2 Academic Year : 2022-2023

### 2.1 Field Visit to Brahmapuram Waste Treatment Plant and Eloor Industrial Belt

A field trip was conducted by Bhumithrasena club members to Brahmapuram and Eloor. Cochin Corporation waste treatment plant is located at Brahmapuram. Recently a catastrophic fire outbreak occurred there. In this scenario BMS Club members visited the site. Members suggested it is high time to adopt a well-defined waste treatment policy. Eloor is another example in which untreated wastewater from factories is released directly into the river Periyar. BMS Club members expressed their concern in the delay for taking appropriate action against the companies which lack the wastewater treatment facilities. Total 18 students visited the site.



Industrial Belt, Eloor  
Programme: Field Visit to Brahmapuram Waste Treatment Plant and Eloor Industrial Belt



In front of Brahmapuram waste treatment plant  
Programme: Field Visit to Brahmapuram Waste Treatment Plant and Eloor Industrial Belt





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## 2.2 Drinking water for everyone

World Water Day is celebrated on March 22nd each year. This day is dedicated to highlighting the importance of fresh-water and advocating for the sustainable management of freshwater resources. It was established by the United Nations in 1993 and aims to raise awareness about water-related issues and inspire action to address global water challenges.

Bhumithrasena Club members celebrated the world water day by keeping water in Earthen bowls for birds and animals. The theme for the programme was "Drinking water for everyone". More than 10 BMC members kept the water in Earthen bowls



Water kept in Earthen pots by BMC members for birds and animals

Programme: World Water Day





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## 2.3 World Environment day Celebration

As part of the 'World Environment Day' celebration, BMS Club introduced organic farming in the campus. Initially the saplings of chilly, brinjal and ladies finger were grown in grow bags. The programme was inaugurated by ward member Mr.Sanal Mon.J,Councilor of Panayappilly. Principal Dr. Geetha M and Vice Principal Dr. Sindhu K. were given felicitation. More than 50 volunteers were actively participated in the programme





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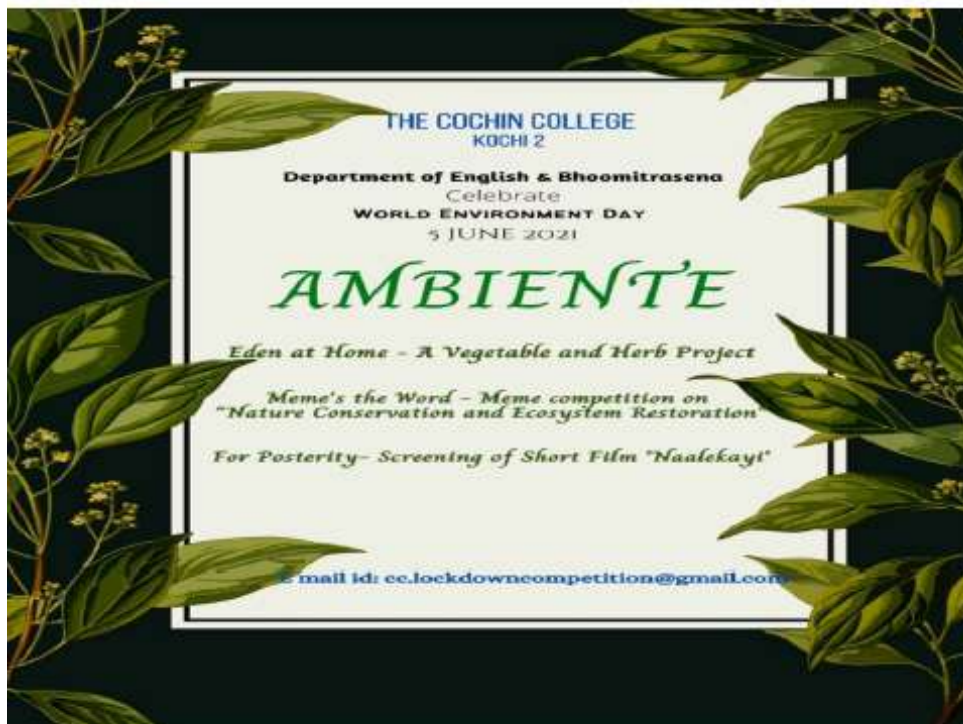
email: [email@thecochincollege.edu.in](mailto:email@thecochincollege.edu.in)

## 3 Academic Year : 2021-2022

### 3.1 World Environment day Celebration

World Environment Day, celebrated on June 5th each year, is of paramount importance as it serves as a global platform for raising awareness and taking action on pressing environmental issues. Established by the United Nations in 1974, this day engages governments, businesses, and citizens in addressing challenges such as pollution, climate change, biodiversity loss, and sustainable living. It aims to foster environmental stewardship, encouraging individuals and communities to adopt greener practices and policies. By spotlighting a specific theme each year, World Environment Day catalyzes international cooperation, drives environmental initiatives, and inspires a collective commitment to protect and restore our planet for future generations.

Bhoomithrasena Club celebrated World Environment day on June 5th by organising an activity for students named 'Eden at Home' in which students are motivated to cultivate vegetables and herbals in their gardens. A Meme competition was organised on the theme 'Nature conservation and Ecosystem Restoration'. A short film entitled 'Naalekayi' was also shown to students in Youtube to inculcate a feeling about the conservation of the ecosystem. The programme was named as 'Ambiente'.







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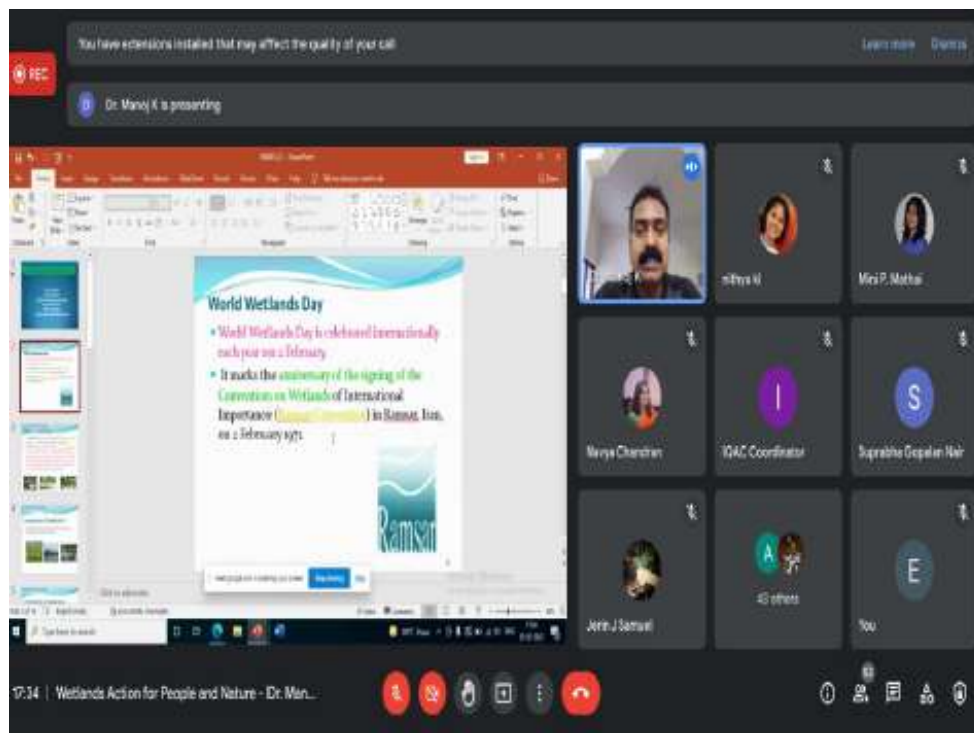
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## 3.2 World Wetland Day Celebration 2022

World Wetlands Day is celebrated on February 2nd each year to raise global awareness about the vital role of wetlands for people and the planet. World Wetlands Day marks the date of the adoption of the Convention on Wetlands, also known as the Ramsar Convention, on February 2, 1971, in the Iranian city of Ramsar. This international treaty aims to conserve and sustainably use wetlands. Wetlands are crucial ecosystems that provide numerous ecological, economic, and social benefits. Celebrating this day helps raise awareness about their importance and the need to protect them. Wetlands are vital for biodiversity, water purification, flood control, climate change mitigation, and supporting livelihoods.

World wetland day was celebrated by Bhoomithrasena Club in association with the Department of Botany on 2nd February 2022 by organising a talk on the topic 'Wetland action for people and Nature'. Dr. Manoj K, Assistant Professor, Department of Environmental Studies, Kannur University delivered a detailed lecture on the importance of the conservation of wetlands. About 85 participants attended the talk.





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*Mendula Menon*  
Mrudula Menon V.  
Principal-in-Charge  
The Cochin College



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## 3.3 Beach cleaning

On February 25th, Bhoomithrasena Club in association with Nature Club and National Service Scheme of the Cochin College organised a beach cleaning activity. Bhoomithrasena Club members cleaned the FortKochi beach. After that students planted saplings of guava and jackfruit along the sides of the beach. About 78 students actively participated in the programme.





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## 4 Academic Year : 2020-2021

### 4.1 BIOMAG - Community Based Solid Waste Management through Re-Cycling and Up-Cycling In an Adopted Ward Of Corporation of Kochi, Kerala, India.

The BIOMAG project was aimed at creating awareness among the public particularly the residents of ward VII of Kochi Corporation about the need to manage plastic waste properly. A consumer state like Kerala has a high per capita generation of plastic waste. This is particularly true in a city like Kochi. The project was perceived as relevant by the Department of Zoology of The Cochin College because of the coastal proximity of Kochi Corporation. Domestic plastic waste that is not managed properly will invariably find its way to the ocean through the storm-water drains and other public dumps especially during the rainy season. Thus it will become a threat to various species of marine life. On land also the dumps and litter lying around results in other threats to animal life through ingestion by birds, cows and other animals. Leaching from dumpsites like Brahmapuram leads to the contamination of ground water by additives and synthetic dyes used as colouring agents.

The Department of Zoology of The Cochin College took up this project as an Outreach project that can be steered by the students of the department under the guidance of the teachers. The main tasks of awareness creation and sensitization about the need to dispose plastic waste properly was undertaken by the students and teachers through door to door visits to the households of the ward and one on one explanation to the residents. Public activities like street plays and skits were also planned to spread awareness. Workshops were conducted on other methods to manage plastic waste such as reduce, reuse and refuse. Do It Yourself (DIY) workshops were also conducted for the public on how to make their own shopping bags from used clothing. Workshops were also conducted on how to do home composting of kitchen waste. The Project was not only aimed at giving awareness and sensitizing the target group about reduce, reuse and refuse strategies but went one step further in offering recycling solutions as well. It was fully understood that despite reduce, reuse and refuse strategies there is inevitably generation of plastic waste in every household particularly due to the fact that every item of food and grocery, from food grains to soap, comes in plastic packaging. Hence it was imperative that for the project to have an impact, recycling options too have to be provided to the public. For this purpose, the Department of Zoology engaged a reliable agency that has considerable experience in the field of door to door collection of plastic waste, followed by grading and finally dispatch for recycling. The agency selected for this was PlanatEarth a non-profit agency based in Aluva.

The recycling solution that was offered to the target community proved to be the main aspect of the project for the public was offered both strategies to reduce the per household generation of waste as well as a way to ensure that whatever plastic waste that is still generated gets collected and recycled. Total 5547 kg of plastic waste has been removed.





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Some non –recyclables have to be despatched to cement manufacturers for use for use as RDF. This process incurs charges.

The project got widely accepted and was published in American Journal of Multidisciplinary Research Development (AJMRD).

For accessing the article:[click](#)

*American Journal of Multidisciplinary Research & Development (AJMRD)*  
 Volume 2, Issue 12 (December- 2020), PP 01-08  
 ISSN: 2360-821X  
[www.ajmr.com](http://www.ajmr.com)

Research Paper

Open Access

## “BIOMAG - Community Based Solid Waste Management through Re-Cycling and Up-Cycling In an Adopted Ward Of Corporation of Kochi, Kerala, India.”

Manju V Subramanian\*<sup>1</sup>, Smitha N R<sup>1</sup>, Vineeth Kumar T V<sup>1</sup>,  
 Sooraj Abraham<sup>2</sup>, Mujeeb Muhammed<sup>2</sup>, Rasheed Ashraf<sup>2</sup>

<sup>1</sup>Department of Zoology, The Cochin College, Kochi-682002, Kerala;  
 Affiliated to Mahatma Gandhi University, Kerala.

<sup>2</sup>Planatearth, NGO-Aluva, Register No. ER-313/2009, Kerala, India.

\*Corresponding author: Manju V Subramanian



Figure 4: Awareness and training classes for residents of Ward 7, Kochi Cooperation.





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## 5 Academic Year : 2019-2020

### 5.1 Their Survival in our Hands - Global Tiger Day

Celebrating International Tiger Day, observed on July 29th, is crucial for raising awareness about the plight of tigers and the urgent need for their conservation. With wild tiger populations drastically declining due to habitat loss, poaching, and human-wildlife conflict, this day brings global attention to their endangered status. It serves as a reminder of the vital role tigers play in maintaining the ecological balance of their habitats. By celebrating Tiger Day, we foster a deeper understanding of the importance of preserving biodiversity and encourage collaborative efforts among governments, conservation organizations, and local communities. This day also highlights the successes in tiger conservation, inspiring continued support and action to protect these majestic creatures and ensure their survival for future generations.



International Tiger Day was observed by the Department of Zoology in association with Nature Club on 29th July 2018. An Invited Lecture on 'Tiger Conservation' by our alumni Mrs. Farzana P B (2013-16 batch) and a documentary show on 'Importance of Tigers' was organised as a part of the program.





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## 5.2 Sustainable Living - The need of the Hour

Dr. Manju V Subramanian was the Resource person in the one day Workshop and seminar entitled “Sustainable Living - The need of the Hour” on 16th January 2020 at Museum of Kerala History, Pathadipaam, Edapally. Organized by APOLLO Tyres Foundation and plan @earth, NGO, Aluva.



The resource person Dr. Manju V Subramanian, emphasized that sustainable living had been the need of the hour as our planet faced unprecedented environmental challenges due to over consumption, pollution, and climate change. She explained that by adopting sustainable practices, we could have reduced our ecological footprint and ensured that natural resources would have been available for future generations. This involved making conscious choices in our daily lives, such as minimizing waste, conserving energy and water, opting for renewable energy sources, and supporting eco-friendly products and services. Dr. Manju Subramanian highlighted that sustainable living not only helped protect the environment but also promoted healthier lifestyles and resilient communities. She stressed that it had been imperative for individuals and societies to embrace sustainability to preserve the Earth’s ecosystems, enhance biodiversity, and mitigate the impacts of climate change, thereby securing a viable future for all.





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## 5.3 “Environment and Sustainable Development through Healthy practices” (Environment Management Training EMT 2020)

As part of Environment Management Training, the Department of Zoology, The Cochin College, with the support of Kerala State Council for Science, Technology and Environment (KSCSTE), organized a three-day workshop on the title “Environment and Sustainable Development through Healthy Practices” on January 7th, 9th and 10th, 2020. About 175 participants attended the program, which included students, staff, and Kudumbasree unit members. Formal inauguration of the celebrations was made by “Lighting the Lamp” by Dr. Ravishankar, Director, Central Institute of Fisheries Technology, CIFT-ICAR, Kochi. He delivered an influential speech by citing many examples from daily life. Inauguration was followed by technical sessions and workshop







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## {Best out of Waste

The Women's Guidance Cell of The Cochin College organised a workshop on "Best out of Waste" for UG students on 5th March, 2020. Ms. Priya Jegan, Fevicryl Expert Teacher demonstrated to make Key holders, Pen stands, African dolls and other useful products from Newspaper waste. Nearly 30 students participated in the workshop. Fevicryl Painting kits were provided to all the students.

