



THE COCHIN COLLEGE

Koovapadam, Kochi-2

Affiliated To Mahatma Gandhi University

Re-accredited by NAAC With B+ Grade



Fourth Cycle
NAAC Accreditation 2024

Criterion 7 Institutional Values and Best Practices

7.1 - Institutional Values and Social Responsibilities

Metric No. 7.1.3

Quality audits on environment and energy regularly undertaken by the Institution. The institutional environment and energy initiatives are confirmed through the following: *Green audit / Environment audit, Energy audit, Clean and green campus initiatives, Beyond the campus environmental promotion activities*

Environmental Promotional activities: 2023-2024

Submitted to



National Assessment and Accreditation Council



THE COCHIN COLLEGE

KOCHI - 682 002

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ENVIRONMENTAL PROMOTIONAL ACTIVITIES

2023-2024

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1 Planting of Saplings at Adopted School

Date: 8th June 2023

On 8 June 2023, The Cochin College NSS unit planted 20 fruit saplings at TD School, their adopted school in Matancherry, at 3:30 pm. The event was coordinated by NSS Program Officers Mr. Renjith S and Dr. Soney Bhageeradhan. They were joined by 10 volunteers from the NSS unit in this initiative.





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2 World Preservation/Ozone Day

Date: 15th September 2023

As part of the observation of World Preservation Day on 15 September 2023, the NSS volunteers of The Cochin College participated in a banner beautification event at Marine Drive, Kochi. Fifteen volunteers took part in this initiative, contributing their artistic skills to create and beautify banners aimed at raising awareness about environmental preservation and the importance of conserving natural resources. This event highlighted the commitment of the NSS unit to promoting environmental sustainability and community involvement.





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THE COCHIN COLLEGE
KOCHI-02
NSS UNIT -51

Observes

International Day For The Preservation Of Ozone Layer

IN ASSOCIATION WITH
Indian Swachhata League 2.0

Beach Clean-up Drive & Wall Beautification

FORTKOCHI
8:30AM
16/09/2023

THE COCHIN COLLEGE KOCHI
NSS UNIT-51

In association with
INDIAN SWACHHATA LEAGUE 2.0
AWARENESS RAISING CAMPAIGN

Nurturing the planet in Our Palms

@MARINEDRIVE
15.09.2023

3 Beach Cleaning and Wall Painting for Swachhata Mission

Date: 16th September 2023

On 16 September 2023, the NSS volunteers of The Cochin College participated in a beach cleaning session organized by the Indian Swachhata Mission on Saturday morning. In the afternoon, they continued their efforts by cleaning and painting figures, motifs, and messages of the Swachhata Mission on a stretch of wall assigned to them for this purpose. Despite the persistent drizzle, which added challenges to the process, the volunteers remained upbeat and dedicated to their task. Their hard work and enthusiasm resulted in a beautifully cleaned and painted wall, reflecting their pride and commitment to the Swachhata Mission. NSS Program Officers Mr. Renjith S and Dr. Soney Bhageeradhan supervised and participated in the activities, ensuring the successful completion of the tasks.





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4 Swachhata Hi Seva Campaign at Raksha Special School

Date: 4th October 2023

On 4th October 2023, as part of the Swachhata Hi Seva campaign, 54 NSS volunteers from The Cochin College participated in a vigorous cleaning campaign at Raksha Special School and its vicinity. The program aimed to make the school and its surroundings safe and clean, deterring objectionable social elements. The event was attended by a sub-inspector and the ward councillor, who addressed the gathering, emphasizing the importance of cleanliness and community service.





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The Cochin College, Kochi
NSS UNIT 51

स्वच्छता ही सेवा

🕒 10AM -12PM
📅 04-10-2023
📍 Reksha Special School, Kochi

The Cochin College, Kochi
NSS UNIT 51

SWACHHATA HI SEVA

Raksha Special School Kochi





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5 Beach Cleaning at Fort Kochi in Association with NETFED

Date: 13th October 2023

On 13th October 2023, 40 NSS first-year volunteers and the two Program Officers of The Cochin College participated in a beach cleaning drive at Fort Kochi organized by NETFED. The cleanup session was scheduled for the afternoon, and the first-year volunteers were excited about their first external outdoor program, made even more special by the caps and jerseys handed out to them. Before the drive began, personnel from the Coast Guard addressed the volunteers, emphasizing the importance of keeping beaches clean and the impact of plastic pollution. The volunteers enthusiastically filled their bags with plastic waste, gaining a full awareness of the enormity of the problem caused by irresponsible human behavior regarding garbage disposal. This hands-on experience underscored the significance of their efforts in environmental conservation.





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6 Malinya Muktha Keralam Nava Keralam Training Program

18th November 2023 NSS volunteer secretaries Francis Savio and Afeefa K.N. attended the training program for Malinya Muktha Keralam Navakeralam at Ernakulam Town Hall organised by Kerala State Local Self Government Department,. This program aimed to equip participants with the knowledge and skills needed to contribute effectively to the Malinya Muktha Keralam Navakeralam initiative, focusing on creating a cleaner and greener environment in Kerala.





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7 Sneharaamam Project

Date: 8th January 2024

The NSS unit of The Cochin College initiated Stage 1 of the Sneharaamam project near Koovapaadam bus stand on 8th January 2024. Despite the first-year students having their exams, the second-year volunteers eagerly participated, exemplifying the NSS motto "Not me, but you." The volunteers diligently cleaned the area, removing plastics and other trash from the ground. This effort highlighted the importance of responsible waste disposal and the impact of mindless littering. The commitment and enthusiasm of the volunteers were commendable, earning them well-deserved NSS long claps.



8 Pacha Thuruthu (Green Initiative) Project in Collaboration with Cochin Corporation

15th January 2024

On 15th January 2024, the NSS unit of The Cochin College, in collaboration with the Cochin Corporation, undertook





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the Pachathuruthu project in Wards 8 and 9. This initiative focused on planting trees in areas prone to irresponsible garbage disposal, with the aim of creating natural deterrents against waste accumulation.



Activities

Tree Planting: The volunteers planted 5 Ashoka trees, 5 Ilanji trees, and 10 Arya Vepu trees in Wards 8 and 9.

Greening Effort: The project aimed to transform neglected spots into green spaces, promoting environmental sustainability and cleanliness. The Pachathuruthu project not only enhanced the aesthetic appeal of these wards but also served as a strong deterrent against the piling up of garbage, reinforcing the importance of responsible waste disposal and environmental conservation.

9 Beach Cleaning Drive at kandakadavu Beach

As part of the NSS seven-day camp, a Beach Cleaning Drive was organized on at Kandakadavu Beach, on December 29th 2024 located near the Chellanam region. The primary objective of the drive was to promote environmental cleanliness and foster a sense of responsibility among the volunteers towards maintaining clean public spaces. The drive began early in the morning, with volunteers divided into small groups, each assigned a specific area of the beach to clean. Equipped with gloves, biodegradable bags, and other necessary cleaning tools, the volunteers diligently collected plastic waste, broken glass, discarded fishing nets, and other non-biodegradable materials littered across the beach.





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The drive successfully cleared a significant amount of waste, leaving the beach visibly cleaner. The activity not only enhanced the aesthetic appeal of Kandakkadavu Beach but also served as an awareness campaign for the local community. The volunteers also learned about the harmful effects of pollution on marine life and the ecosystem, reinforcing their commitment to environmental conservation.

10 Waste Management Awareness Rally

The Waste Management Awareness Rally was conducted on December 29th, covering Wards 17, 18, and 19 of the Chellanam Panchayat. The rally aimed to educate the local community about effective waste management practices, focusing on waste segregation, recycling, and the dangers of improper waste disposal. The rally commenced from St. Xavier's Public School and moved through the main streets of Wards 17, 18, and 19. Volunteers carried placards and banners with messages encouraging proper waste disposal, reduction of single-use plastics, and the benefits of composting organic waste. Along the route, pamphlets detailing simple and practical waste management techniques were distributed to households and businesses. NSS volunteers also engaged in dialogues with local residents, explaining the environmental and health hazards associated with improper waste disposal and encouraging them to adopt sustainable practices in their daily lives.





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11 Organic Vegetable Cultivation

NSS Volunteers were engaged in Organic Vegetable Cultivation at St Xavier's School, Kandakkadavu on 26 December 2023. This activity was designed to promote sustainable agriculture practices among volunteers and encourage the cultivation of organic produce using environmentally friendly methods. The participants were introduced to the concept of organic farming through a series of workshops and practical sessions. They were provided with organic grow bags, seeds, and organic fertilizers. Under the guidance of experts, the volunteers prepared the soil, planted seeds, and regularly tended to the growing vegetables. The cultivation process included watering, weeding, and monitoring the growth of plants, all while adhering to organic farming principles. Emphasis was placed on avoiding chemical pesticides and fertilizers, instead opting for natural alternatives to maintain plant health.





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12 SHARP Project:

Students of the Department of Zoology, The Cochin College volunteered in a Resource Recovery and Recycling Drive organised by Plan@earth in association with KMRL (Kochi Metro Rail Limited) from 5th June 2023, to 9th June 2023. This initiative aimed to promote environmental sustainability through effective waste management practices. The Zoology students played a crucial role in the collection, sorting, and categorising of recyclable materials, as well as educating the community on the importance of recycling and proper waste disposal at Aluva, Kalamassery, JLN Stadium, MG Road and Vytilla Metro Stations.





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13 DROP (Drive to Recover Ocean Plastics) :

On 31st January 2024, students from the Department of Zoology along with the Bhoomitrasena Club of The Cochin College performed an impactful street play at Munambam Harbour, Kochi, to raise awareness about Plan@earth's 'DROP: Drive to Recover Ocean Plastics' project. Through their compelling performance, they highlighted the critical issue of ocean plastic pollution and the urgent need for collective action to address it. Additionally, they created stunning wall art to further educate the public about the detrimental effects of plastic on marine environments and to inspire community involvement in saving our oceans from plastic pollution. Their efforts were met with great appreciation from the local community, underscoring the importance of environmental conservation.



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



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14 Citizen Science Program (REVIVAL)

In a bid to promote citizen science initiatives, the Central Marine Fisheries Research Institute (CMFRI) launched the REVIVAL project (Rehabilitation of Vibrio Infested Waters of Vembanad Lake - Pollution and Solution). This multi-institutional research project invited college students and the public to participate in optical mapping of the Vembanad Lake. The project's objectives include understanding the extent of pathogenic Vibrio pollution, identifying their reservoirs in the ecosystem, mapping the distribution of Vibrio carriers using remote-sensing techniques, and developing forecast models to anticipate microbial infection hotspots. Data collection was facilitated using a Secchi disc, a simple hand-held device to measure water turbidity, and a mobile app named TurbAqua was developed for uploading the data. On 8th November 2023, 32 first-year UG students from the Department of Zoology, The Cochin College attended an orientation session for the Citizen Science Program organised by Ms. Ancy C Stoy, a Research Scholar at CMFRI, where Secchi



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Principal-in-Charge
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disks were distributed. The students also underwent a comprehensive training session at CMFRI on 24th January 2024, equipping them with the skills necessary to contribute effectively to this important environmental initiative.



14.1 Training on Organic Farming and Bio-Waste Management

On July 22, 2023, The Cochin College organized a training session on organic farming and bio-waste management as part of its green initiatives. The session was led by Ms. Manju V Subramanian from the Department of Zoology and was specifically aimed at students from Ernakulam Law College. The training provided in-depth knowledge on sustainable agricultural practices and efficient bio-waste management techniques. Participants learned about the importance of organic farming in promoting soil health and reducing chemical usage, as well as the benefits of proper bio-waste management in minimizing environmental pollution. This initiative underscored the college's commitment to fostering environmental awareness and sustainable practices among the broader student community.





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NSS UNIT 22 AND IQAC
GOVERNMENT LAW COLLEGE
ERNAKULAM PRESENT

**TRAINING ON
ORGANIC FARMING AND BIO-WASTE
MANAGEMENT**
(A Skill Development programme)

RESOURCE PERSON

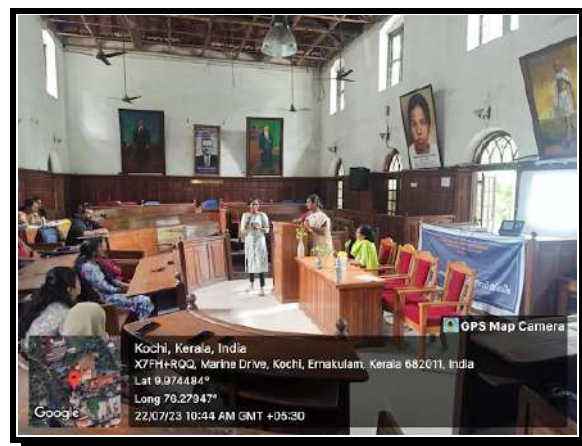


DR MANJU V SUBRAMANIAN
ASST PROFESSOR, DEPT OF ZOOLOGY
THE COCHIN COLLEGE

22.07.2023 09.30 AM
CENTRAL ASSEMBLY HALL

DR. BINDU M. NAMBIAR
PRINCIPAL
DR. LINA ACCA MATHEW
NSS PO

DR. BINDUMOL VC
IQAC
COORDINATOR DR. LEKSHMI GR
NATURE CLUB
COORDINATOR NEENAKUMARY KP
GREEN PROTOCOL
COORDINATOR



15 "Clean My Village" project at Kodakara

The Department of Zoology, in collaboration with plan@earth and supported by Apollo Tyres, actively participated in the "Clean My Village" project at Kodakara. As part of this initiative, Dr. Manju V Subramanian served as the resource person for an awareness session on waste management. Her session focused on promoting safer menstrual





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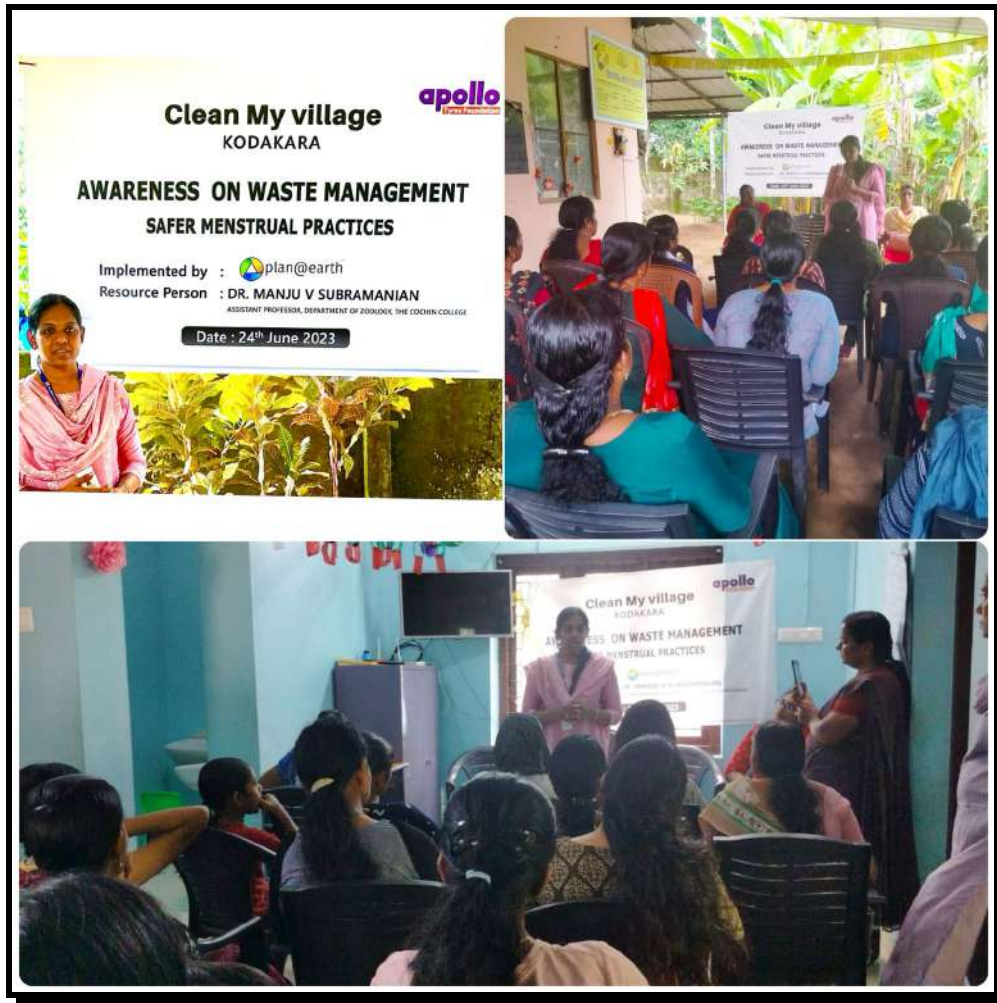
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practices, including the use of menstrual cups, to encourage sustainable and hygienic alternatives. This initiative not only contributed to the cleanliness of the village but also aimed to educate the community on important health and environmental practices.



16 Nature Education Camp: Silent Valley National Park

First-year B.Sc Zoology students, in association with the Nature Club, participated in a three-day nature camp from 16th to 18th November 2023, at Silent Valley National Park, Mannarkkad, and Attappadi. Funded by the Kerala Forests and Wildlife Department and co-funded by the DBT Star College Scheme, the camp included bird-watching walks, where notable sightings such as the Malabar Trogon, Nilgiri Wood Pigeon, and the Great Indian Hornbill were observed. A session by forest officials emphasized the "Leave No Trace" policy, and a visit to the Attappadi landscape showcased the barren lands resulting from deforestation and improper land use. This highlighted the importance of sustainable practices





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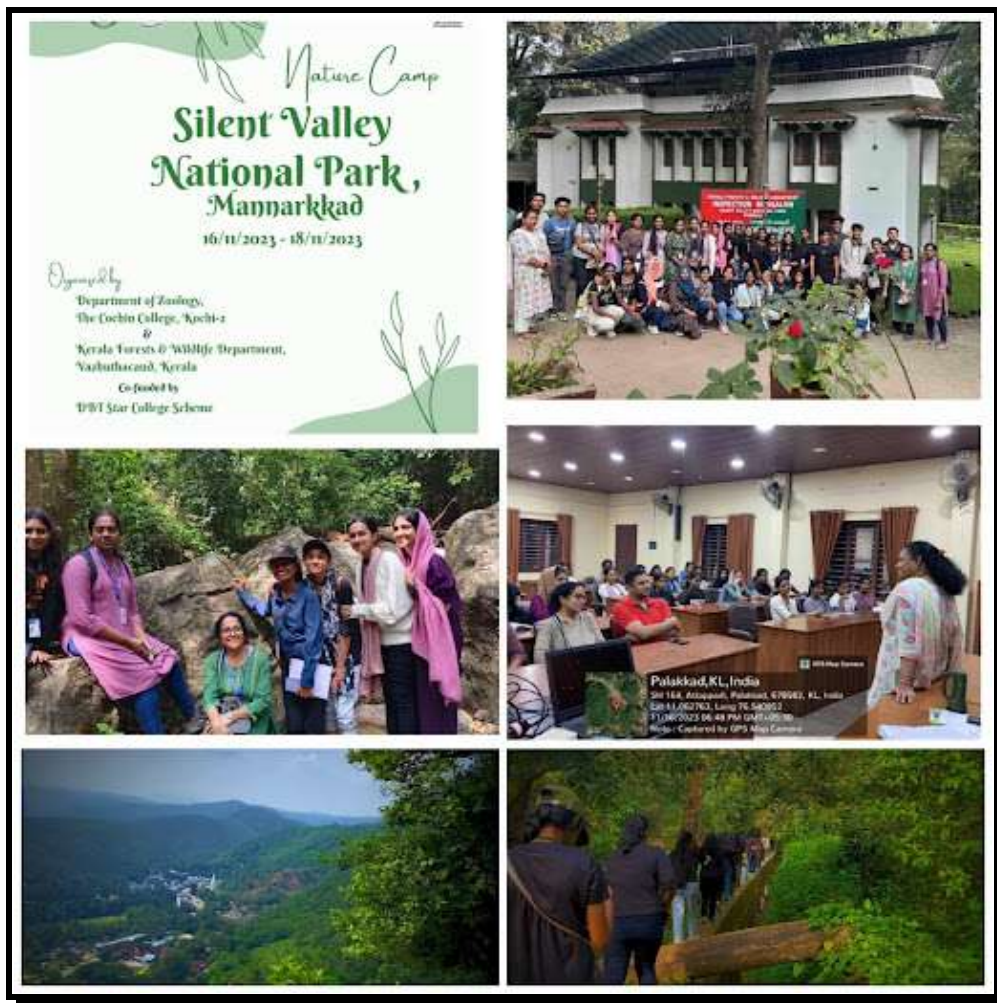
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to prevent ecological disasters. During the interactions with the Silent Valley tribal community, the tribes shared their deep connection with the forest and their traditional knowledge of the ecosystem which has been passed down through generations. It underscored the significance of preserving both the natural environment and the cultural heritage of the region.



17 Institute Visit to CMFRI

On 2nd February 2024, the final year B.Sc students from the Department of Zoology, The Cochin College visited the Central Marine Fisheries Research Institute (CMFRI) on the occasion of its 77th Foundation Day. This visit provided the students with a valuable opportunity to explore the advanced research labs and the museum at CMFRI. The experience offered the students firsthand insight into the various research activities and technological advancements in marine fisheries. It was an enriching educational experience that allowed them to understand the practical applications of their





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studies and gain deeper knowledge about marine biodiversity and fisheries science.



18 Student's Exhibition cum Sale of Vermicompost at Udyami Bazar

The final year students of the Department of Zoology were given training in vermicomposting on 13th December 2023. Following this training, the students prepared high-quality vermicompost, which was showcased and sold at the Entrepreneurs Market (Udyami Bazar) during the IIC regional meet held at CUSAT, Kalamassery, on 16th January 2024. This initiative not only provided the students with practical experience in sustainable agricultural practices but also offered them a platform to demonstrate and market their products, fostering entrepreneurial skills and environmental awareness.





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Department of Commerce

19 Swachh Bharat

As part of its extension activities, the Department of Commerce at The Cochin College conducted a cleanup campaign on 5th October 2023 in alignment with the Swachh Bharat Abhiyan. The campaign focused on cleaning beaches and parks in and around Fort Kochi. This initiative aimed to promote environmental sustainability and cleanliness in public spaces, enhancing the beauty and hygiene of these areas. The active participation of students and faculty in this campaign not only contributed to a cleaner environment but also fostered a sense of community responsibility and awareness about the importance of maintaining public spaces.





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20 Nature Education Camp at Idukki Wildlife Sanctuary

Dates: 25-27 October 2023





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The NSS unit of The Cochin College organized a three-day residential nature education camp at the Idukki Wildlife Sanctuary from 25th to 27th October 2023. The group comprised 37 students (26 girls and 11 boys) and two Program Officers.

Camp Activities

Evening Sessions

In the evenings, talks were organized by the forest department aimed at presenting facts and sensitizing students about the need to conserve forests and wildlife. These sessions provided valuable insights into the importance of environmental preservation.

Forenoon Sessions

The forenoon sessions were devoted to forest treks. Forest department officers guided the students, instructing them about the unique flora and fauna of the Idukki Wildlife Sanctuary. These treks offered hands-on learning experiences and deepened the students' understanding of the natural ecosystem. The volunteers returned with a renewed sense of responsibility towards the environment and a deeper appreciation for the natural world around them.



21 Survey on Water Quality

Students of the first and second year B.Sc Chemistry at The Cochin College conducted a comprehensive water quality analysis in approximately 50 houses of the adopted Ward 7 on 25th March 2024. This initiative aimed to assess the





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quality of water being used by the residents and to identify any potential contaminants that might pose health risks. The students meticulously collected water samples and performed various tests to evaluate parameters such as pH, turbidity, and the presence of harmful substances.



GPS Map Camera

Google

Kochi, Kerala, India
 8/2210, Kappalandimukku, Mattancherry, Kochi, Kerala 682005, India
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 Long 76.255649°
 25/03/24 11:56 AM GMT +05:30





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Nature Club

22 Nature Camp and Field Study to Silent Valley National Park

First-year B.Sc Zoology students, in association with the Nature Club, participated in a three-day nature camp from 16th to 18th November 2023, at Silent Valley National Park, Mannarkkad, and Attappadi. Funded by the Kerala Forests and Wildlife Department and co-funded by the DBT Star College Scheme, the camp included bird-watching walks, where notable sightings such as the Malabar Trogon, Nilgiri Wood Pigeon, and the Great Indian Hornbill were observed. A session by forest officials emphasized the "Leave No Trace" policy, and a visit to the Attappadi landscape showcased the barren lands resulting from deforestation and improper land use. This highlighted the importance of sustainable practices to prevent ecological disasters. During the interactions with the Silent Valley tribal community, the tribes shared their deep connection with the forest and their traditional knowledge of the ecosystem which has been passed down through generations. It underscored the significance of preserving both the natural environment and the cultural heritage of the region.





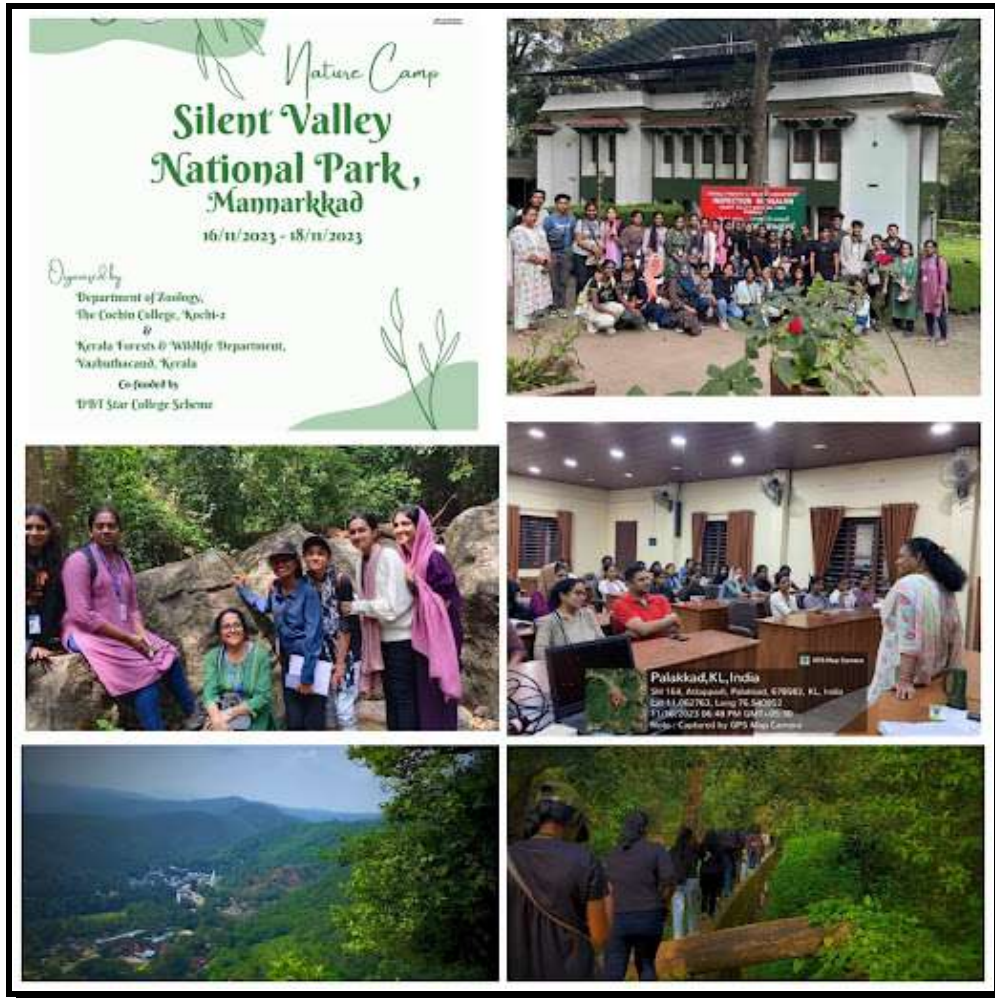
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Bhoomitrasena Club

23 Awareness Campaign

On 31st January 2024, students from the Department of Zoology, along with the Bhoomitrasena Club of The Cochin College, performed an impactful street play at Munambam Harbour, Kochi, to raise awareness about Plan@earth's 'DROP: Drive to Recover Ocean Plastics' project aimed at combating plastic pollution. Their compelling performance emphasized the critical issue of ocean plastic pollution and the urgent need for collective action to address it. Additionally, they created stunning wall art to further educate the public about the detrimental effects of plastic on marine environments and to inspire community involvement in saving our oceans from plastic pollution.





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24 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





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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.





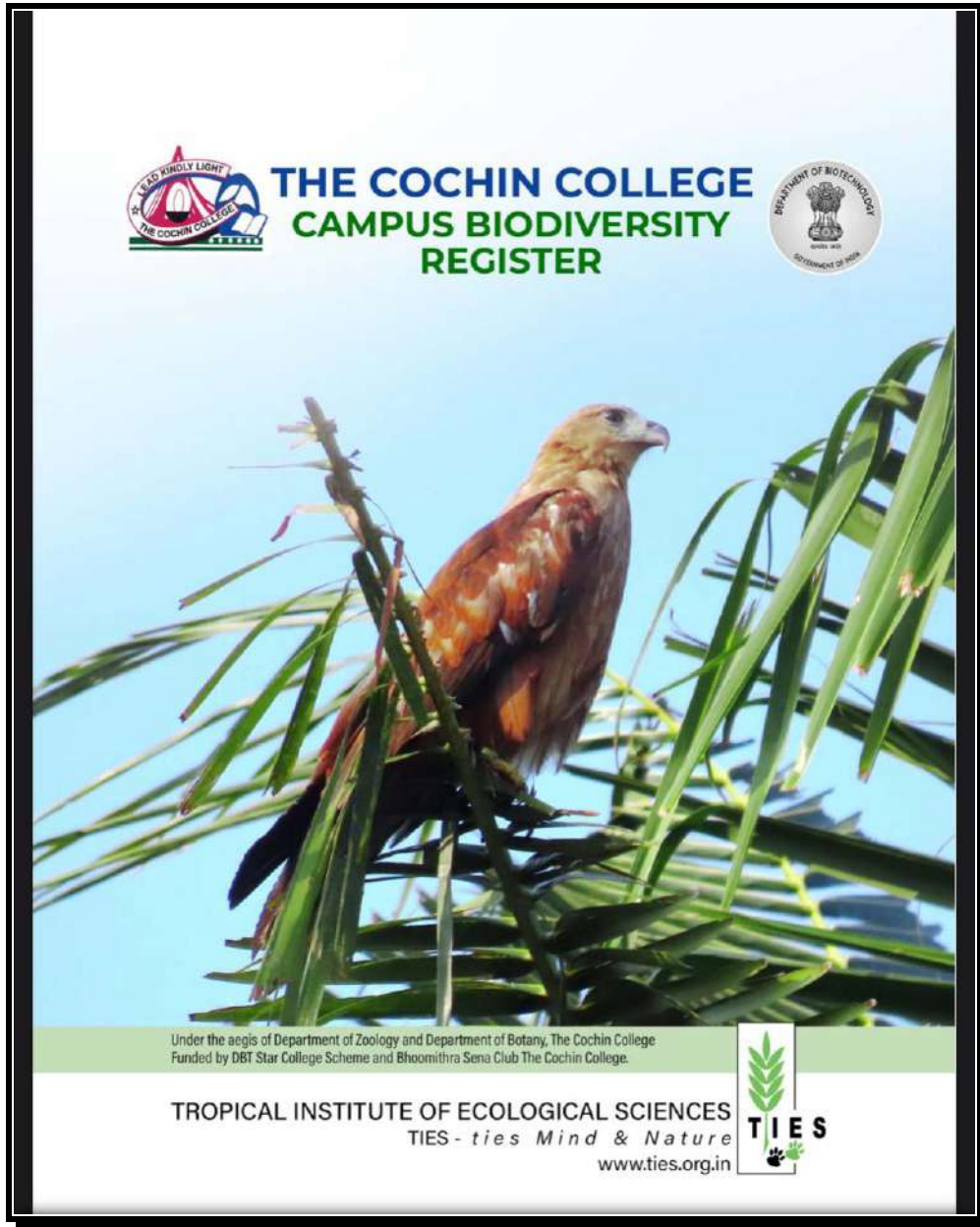
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25 Water Quality Analysis of Ponds, Wells and Tap in and around the Cochin College

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





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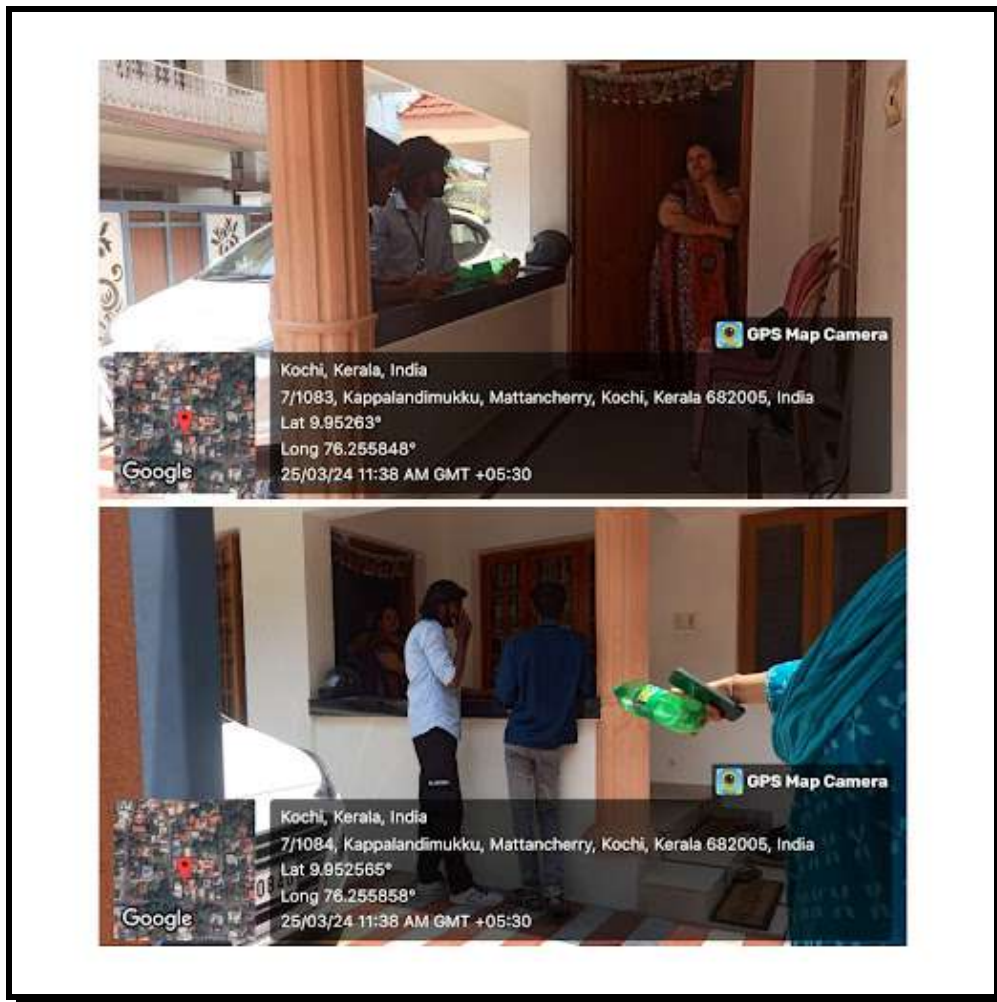
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Health Organisation standards, drinking water should not contain any microorganisms known to be pathogenic or any bacteria indicative of faecal pollution. Because of the importance of good drinking water and an attempt was made to study the physicochemical and microbiological quality of well water.

To analyse the physico chemical parameters like pH, free CO₂, calcium, magnesium, chloride, hardness, salinity and total alkalinity of 3 samples of pond water (collected from the FortKochi 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 Mattancherry and 3 tap water samples collected from Fort Kochi region. The analysis results are given below.





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26 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.



Conclusions

- The removal of water hyacinth had significant impacts on pH, turbidity, DO, Productivity, Dissolved CO₂.

• 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





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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.

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

