



REPORT ON INFORMATION, EDUCATION AND COMMUNICATION (IEC) PROGRAMMES FOR THE CONSERVATION OF FRESH WATER HABITAT & THREATENED SPECIES

Conducted as part of:

PROTECTION OF FRESH WATER ECOSYSTEMS FOR THE CONSERVATION OF
THREATENED SPECIES IN MUNNAR, WESTERN GHATS, INDIA.

Project Code: 2023A-41



Funded by:

**INTERNATIONAL UNION FOR CONSERVATION OF NATURE (IUCN)
FONDATION SEGRÉ CONSERVATION ACTION FUND**

Conducted by:

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REPORT ON INFORMATION, EDUCATION AND COMMUNICATION (IEC) PROGRAMMES FOR THE CONSERVATION OF FRESH WATER HABITAT & THREATENED SPECIES

Implemented as part of the project: Protection of Fresh water Ecosystems for the Conservation of Threatened Species in Munnar, Western Ghats, India.

Project Code: 2023A-41

Funded by : International Union for Conservation of Nature (IUCN)
Fondation segré conservation action fund

Implemented by : Tropical Institute of Ecological Sciences (TIES)

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All figures are correct as on 31st December 2024 unless otherwise stated.

Disclaimer: The findings and conclusions presented are generalized insights derived from the collective responses of the community members who participated in the survey. The information is used solely for the purpose of understanding and improving community conditions and should not be construed as reflecting the views or conditions of any specific individual or group.



Colour to Conserve Programme at Govt. UP School, Letchmi

1. INTRODUCTION

Information, education, and communication programs are integral to any community-linked project. The conservation of freshwater habitats and their threatened species is closely connected to community activities. The anthropogenic threats to freshwater habitats have already been documented through a baseline survey conducted among the community. To ensure the participation of all stakeholders and enhance the project's sustainability, various successful initiatives have been undertaken.

I. PUBLICATIONS:

1. BROCHURES

Brochures Published Under the TIES IUCN Freshwater Conservation Project in Munnar

As part of the TIES IUCN Project on conserving freshwater ecosystems and protecting threatened species in Munnar, two detailed brochures were published. These brochures were distributed among a wide range of communities, including local residents, tribal groups, plantation workers, students, tourists, teachers, government officials, and other relevant stakeholders. Together, they reached approximately 15,000 individuals through both formal and informal educational methods, ensuring broad awareness and engagement.

1. "Tourism in Munnar: Challenges and Solutions"

The "Tourism in Munnar" brochure was developed

based on insights gathered during a tourism seminar conducted on May 3, 2024. The seminar, held at the Community Hall of the Munnar Gramapanchayath facade, brought together diverse voices, including members of the public, tourism officials, NGO representatives, environmental activists, and Munnar government officials.

A detailed report documenting the comments and suggestions made during the seminar has also been prepared. Drawing on these valuable insights, the brochure was designed to address key issues affecting the tourism sector in Munnar. It highlights critical challenges and proposes remedial measures aimed at safeguarding and promoting sustainable tourism in the region.

This brochure focuses on the challenges posed by irresponsible tourism and unauthorized construction, which have significantly impacted the fragile environment of Munnar. It begins with a brief history of Munnar, offering readers insight into the region's cultural and ecological heritage.

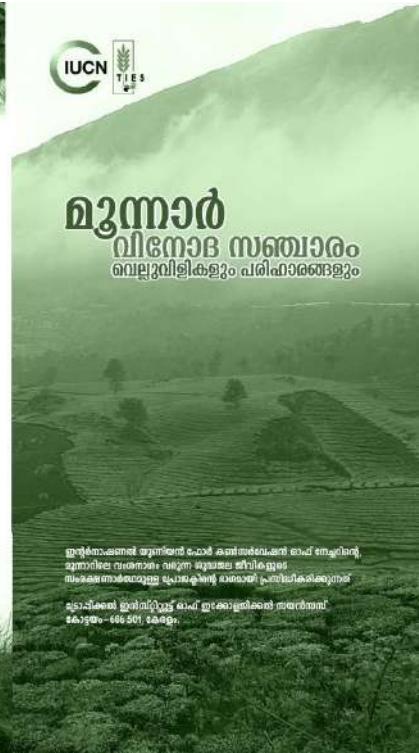
The history section describes how Arthur Wellesley first brought Munnar to the attention of European authorities and the subsequent planting of Cinchona species. It also highlights the role of John Daniel Munro, a British resident of Thiruvithankoor (Travancore), who transformed Munnar's landscape into the lush greenery it is known for today.

The brochure explores the different types of tourism prevalent in Munnar, how the region supports tour-

ism, and the associated challenges. Issues such as overcrowding, unauthorized constructions to accommodate rising tourist numbers, and environmental degradation are discussed in detail. The brochure also presents practical solutions for promoting sus-

tainable tourism in Munnar. A more comprehensive analysis of these challenges and solutions is included in the accompanying report.

“Freshwater Habitats of Munnar: Water Pollution and Drinking Water Issues”



ജൂൺ 2013
ടുറിസം വിഭാഗം

ବୁଝାଇଲା କୁଗିରୁମ୍ - କେବଳକୁଳ ହେତୁକାଳେ



promoting sustainable tourism in Munnar. A more comprehensive analysis of these challenges and solutions is included in the accompanying report.

The second brochure focuses on Munnar's freshwater ecosystems, highlighting the critical issues of water pollution and drinking water scarcity. It begins with an introduction to Munnar's unique landscape and then delves into its freshwater ecosystems, emphasizing their ecological importance.

The brochure outlines the factors contributing to the collapse of these ecosystems, including pollution, encroachments, climate change, and the discharge of sewage and septage into water bodies.

It also addresses the impacts of tourism on freshwater systems. The document elaborates on the repercussions of freshwater ecosystem degradation, particularly on public health and livelihoods.

Additionally, the brochure provides an overview of threatened species studied under the TIES IUCN Project, such as odonates and fish unique to Munnar. It emphasizes the urgent need for conservation efforts to protect these species and their habitats.

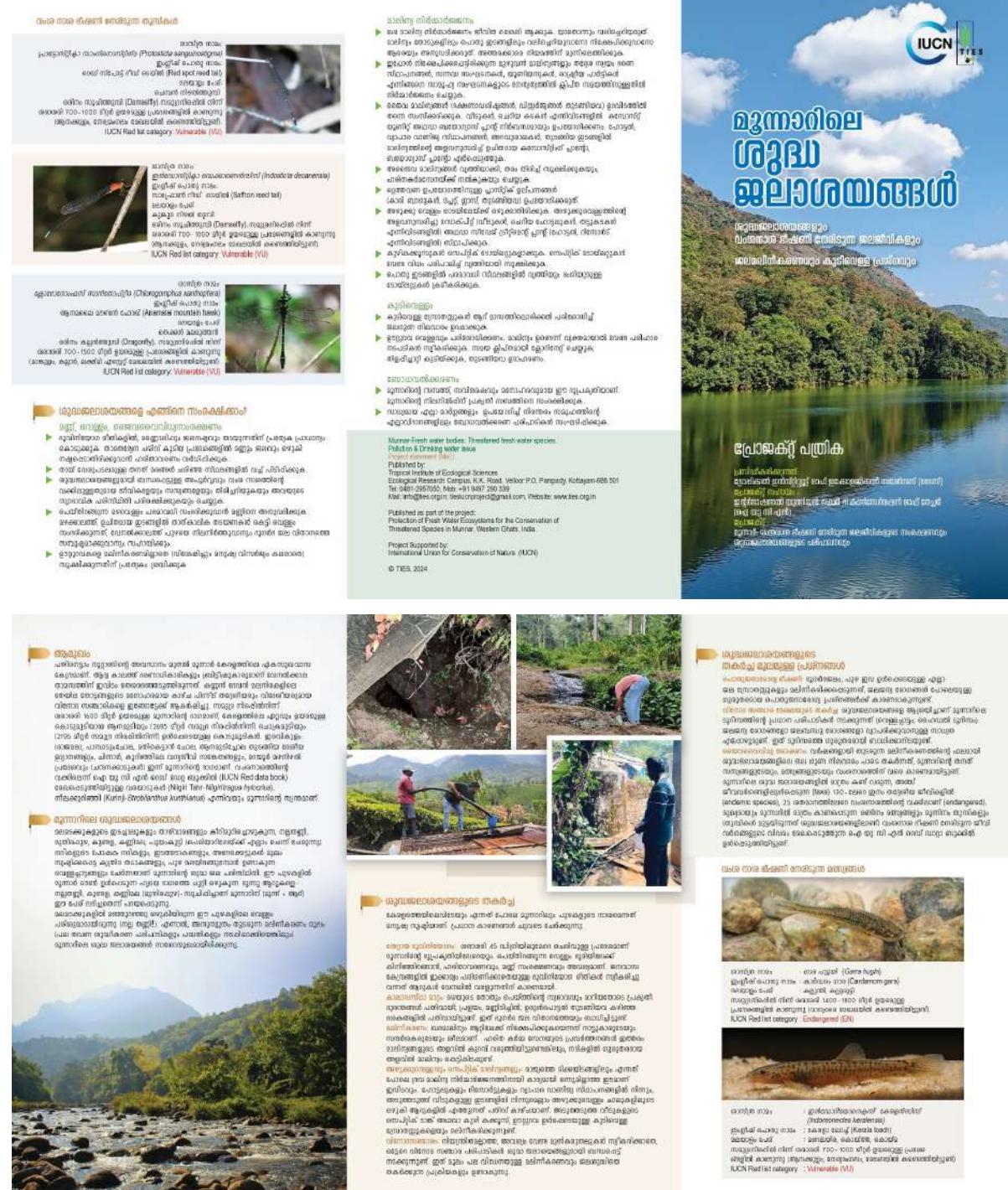


Figure 2. Brochure on Freshwater Habitats of Munnar: Water Pollution and Drinking Water Issues

Impact and Reach

Both brochures were meticulously designed to appeal to diverse audiences, from local and tribal communities to tourists and government officials. Through formal workshops, educational campaigns, and informal awareness sessions, they successfully

reached approximately 16,439 individuals. By presenting key information in an accessible and engaging manner, the brochures played a vital role in raising awareness about the challenges facing Munnar and fostering a deeper commitment to conservation.

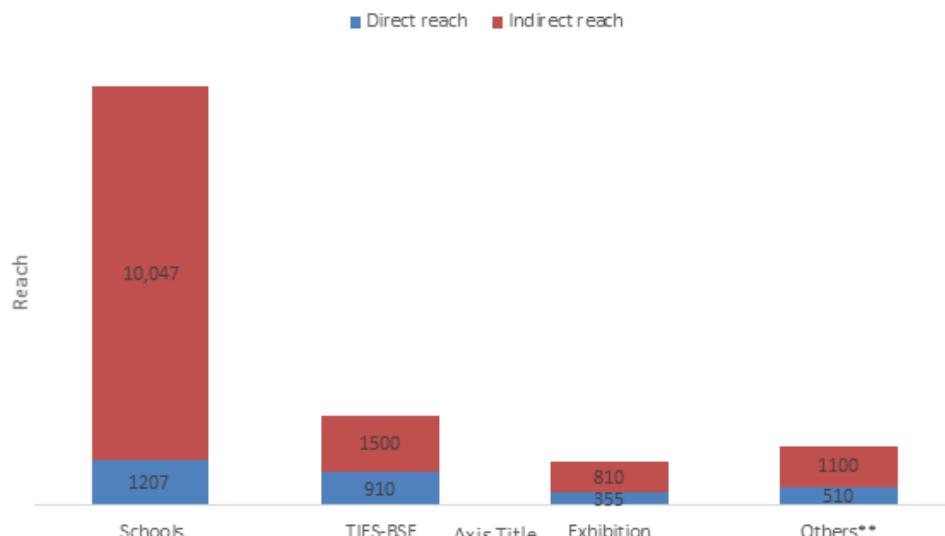
EVENT WISE

Sl no.	EVENT	Direct reach	Indirect reach
1.	Schools	1207	10,047
2.	TIES-BSF	910	1500
3.	Exhibition	355	810
4.	Others**	510	1100
	Total benefitted	2,982	13,457
	Grand total		16,439

Table 1. Table showing the reach of various programmes

** formal and informal meeting with govt officials, plantation workers, tourist sectors etc.

Direct and Indirect reach by event type



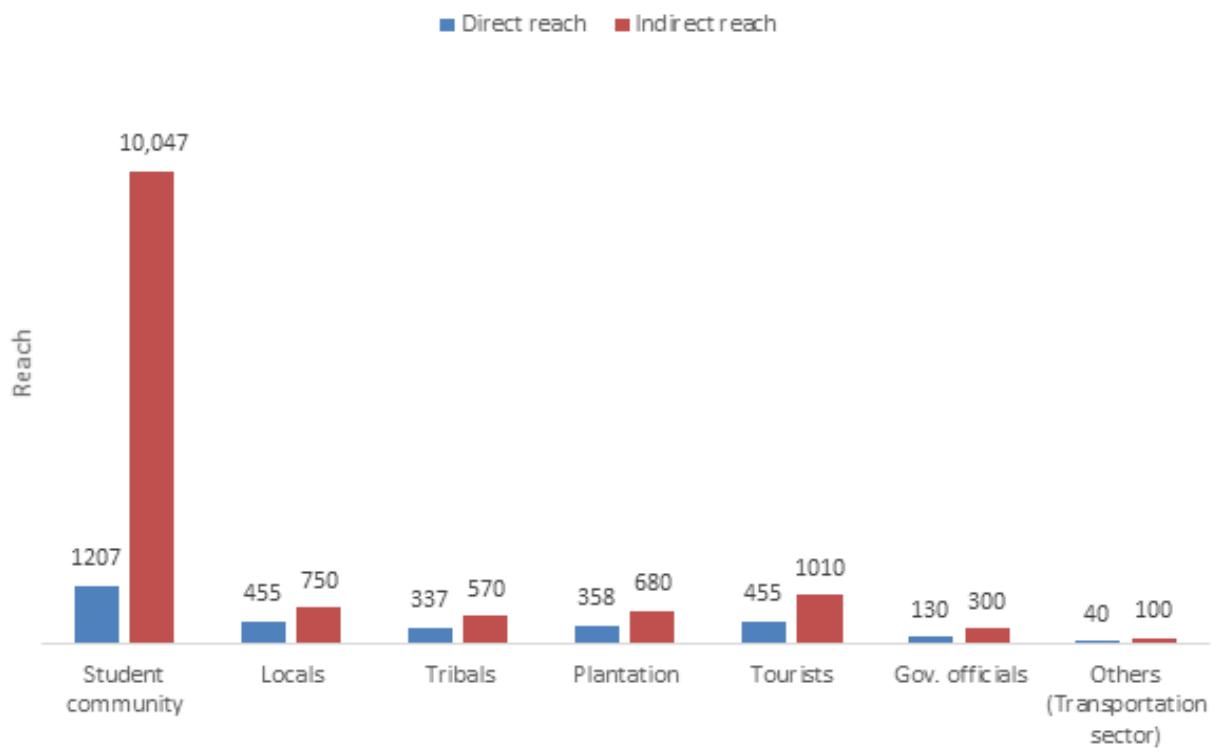
Graph 1. Graph showing direct and Indirect reach by event type

COMMUNITY WISE

Sl no.	Community	Direct reach	Indirect reach
1.	Student community	1207	10,047
2.	Locals	455	750
3.	Tribals	337	570
4.	Plantation	358	680
5.	Tourists	455	1010
6.	Gov.officials	130	300
7.	Others (Transportation sector)	40	100
	Total benefitted	2,982	13,457
	Grand total		16,439

Table 2. Table showing community wise reach

Direct and Indirect reach by Community



Graph 2. Graph showing direct and Indirect reach by Community

II. EXHIBITION

"From Pollution to Protection: Poster Exhibition on Freshwater Conservation in Munnar by TIES IUCN"

To combat the increasing plastic pollution caused primarily by tourism in Munnar, the TIES IUCN Project organized a poster exhibition to raise public awareness about conserving freshwater resources.

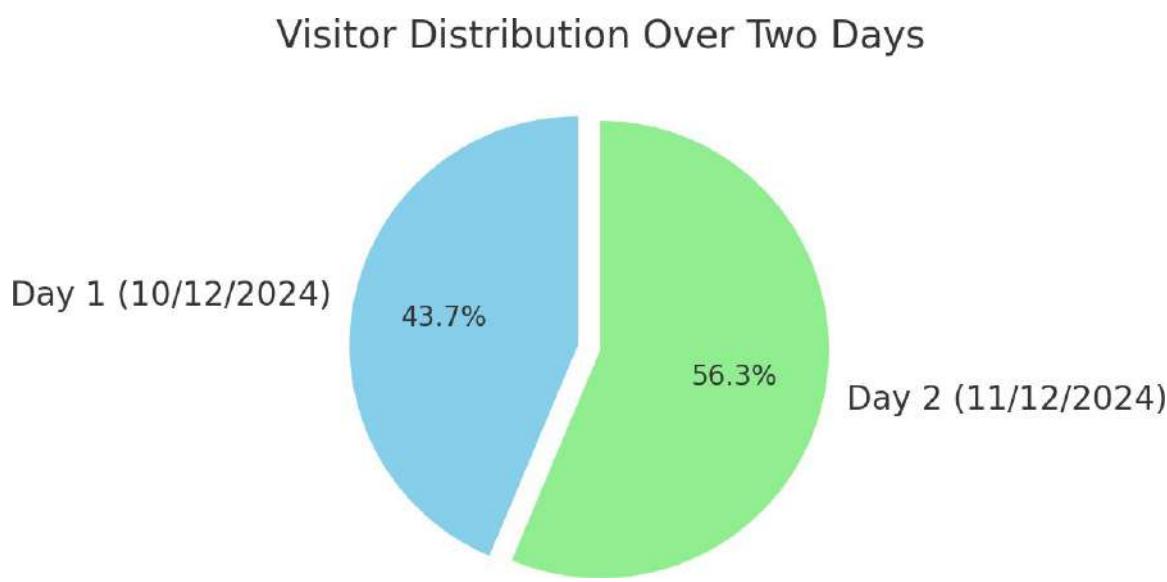
Held at the Government Botanical Garden, Munnar, on December 10 and 11 from 3 PM to 7 PM, the timing was strategically chosen to coincide with peak tourist flow at the garden, ensuring maximum engagement. Over the two days, the exhibition attracted an estimated 355 visitors, including 155 on the first day and 200 on the second day. The attendees comprised both domestic and international tourists, as well as Indian administrative officials.

SL.NO	EVENT (10/12/2024 – 11/12/2024)	NUMBER OF VISITORS
1.	DAY1 (10/12/2024)	155
2.	DAY2 (11/12/2024)	200
TOTAL VISITORS		355

Table 3. Table showing visitors details



Graph 3. Graph showing the number of visitors over two days



Graph 4. Graph showing visitor distribution over two days

The exhibition showcased various aspects of Munnar's freshwater ecosystems, biodiversity, and protected areas. Informative displays addressed pressing issues such as pollution, habitat degradation, waste management, overexploitation, human-wildlife conflicts, and climate change. A photo gallery highlighted odonates and fish species documented during a year-long study, with special emphasis on threatened species unique to the region, such as *Garra hughii*, *Indoreonectes kerelensis*, *Protosticta*

sanguinostigma, *Indosticta deccanensis*, and *Chlorogomphus xanthoptera*. These exhibits underscored the ecological richness and vulnerability of Munnar's environment.

The event was expertly organized by Mr. Nihal Hussain T.P., Mr. Praful V. Panicker, and Mr. Bechu Punnen Abraham, representing the TIES IUCN Project. They actively guided visitors through the displays, explaining key challenges affecting the region's biodiversity and

fostering a deeper understanding of the urgent need for conservation.

The District Collector of Idukki, Smt. V. Vigneshwari IAS, visited the exhibition with her team and commended the initiative. She praised the organizers' efforts and encouraged them to collaborate with the district administration to support the goal of transforming Munnar into a clean city. Mr. Biju, the caretaker of the Government Botanical Garden, also attended and offered his full support for the event.

The posters for the exhibition were installed on strong boards to withstand the elements, but on the second day, heavy rain and strong winds caused damage to some boards, forcing the exhibition to be temporarily halted. Despite the

challenges posed by these natural calamities, the organizers quickly resolved the issue and resumed the program, ensuring visitors could continue to benefit from the displays.

The exhibition received widespread appreciation from visitors, who admired its engaging and informative content. Many remarked on the valuable insights they gained about Munnar's unique biodiversity and ecological challenges. The event's success in raising awareness and promoting conservation efforts was evident from the positive feedback and the high turnout, further emphasizing the need for continued public engagement in protecting Munnar's natural heritage.



Figure 3. Poster exhibition visit by District Collector of Idukki, Smt. V. Vigneshwari IAS



Figure 4. Mr. Nihal Hussain T P, Project Officer explaining to visitors



Figure 5. Mr. Bechu Punnen, Project Assistant explaining to foreign visitors

III. WORKSHOP

3.1 Tourism in Munnar: challenges and solutions

A seminar and discussion on the theme "Munnar Tourism - Challenges and Solutions" was convened at the Munnar Grama Panchayat Community Hall on May 3, 3 pm onwards. This event was organized as part of a project aimed at conserving freshwater

bodies and endangered species in Munnar, under the auspices of the Tropical Institute of Ecological Sciences (TIES) supported by International Union for Conservation of Nature. The inauguration was graced by Shri. Jayakrishnan IAS, the Devikulam Sub-Collector cum Sub-Divisional Magistrate. He emphasized the significance of ideas supported by scientific backing, as well as inputs from the local community, which enhance the validity and practicality of solutions, ensuring long- term func-



Figure 6. Seminar on Touism in Munnar: Challenges & Solutions held at Munnar Grama Panchayat Community Hall

tionality.

The function was presided over by Shri. Balachandran, Vice-President of Munnar Grama Panchayat, while Dr. Punnan Kurian V, Secretary of TIES, led the discussion. In his introduction, Dr. Kurian discussed the IUCN project focused on conserving the freshwater ecosystem and its endemic species. He emphasized the seminar's aim to find practical solutions rather than merely highlighting tourism problems in Munnar, inviting active participation from all seminar attendees in the ensuing discussion.

Project Officers of IUCN Project Munnar, Mr. Nihal Hussain TP extended a warm welcome to initiate the discussion and Praful V Panicker expressed gratitude to conclude it. Media coverage of the event was coordinated by Mr. Jijo, with support from Abhirami of the Media Team at TIES. Registration duties were efficiently managed by Mr. Bechu Punnan Abraham and Neethu, both serving as Project Assistants for the IUCN Project.

The active involvement of various stakeholders from tourism sectors, government institutions, NGOs in Munnar, and the public significantly enhanced the discourse. The attendees were also provided with brochures of the tourism seminar and a brochure on the freshwater resources of Munnar.

Key Issues Identified:

Munnar faces numerous challenges related to water supply, infrastructure, and environmental sustainability amid its growing tourism sector. Despite substantial revenue from water supplied to resorts, areas like MG Colony suffer from irregular and insufficient drinking water, highlighting the need for equitable distribution. The shortage of responsible guides for adventure tourism and inadequate parking and toilet facilities hampers the tourist experience and local economic growth. Effective monitoring of tourist activities and strategic long-term planning are essential to ensure sustainable development and conservation.

Environmental concerns are paramount, with issues such as improper liquid waste disposal, inadequate roadside vendor regulation, and insufficient infrastructure for waste management teams. There is a critical need for innovative solutions and increased

investment to manage waste effectively and foster a culture of waste segregation. The rejection of a sewage treatment plan and improper septage disposal further threaten Munnar's environmental health and water quality.

Climate change, drying water sources, and the risk of extinction for endemic flora and fauna highlight the urgent need for sustainable land and water management practices. Human-wildlife conflict, unscientific construction, and solid waste management issues exacerbate environmental degradation. Pollution of drinking water sources and a lack of planned tourism development jeopardize both resident and visitor well-being, emphasizing the necessity for stringent pollution control measures and sustainable urban planning.

The fragmented leadership and a lack of proper governance impede coordinated action, underscoring the importance of collaboration among stakeholders. Efforts by organizations like TIES are crucial in addressing these challenges and transforming Munnar into a sustainable tourist destination. [Click here](#) for detailed version of key issues identified.

Remedial Measures Proposed:

Munnar faces challenges such as water scarcity, inadequate infrastructure, and environmental degradation exacerbated by tourism. To address these, comprehensive measures are proposed, including detailed water usage assessments to ensure equitable distribution, integrating local guides to enhance tourism and boost community benefits, and developing tailored itineraries with mandatory environmental education to promote responsible tourism. Additionally, streamlining bureaucratic processes, establishing a long-term vision for 2035, and implementing effective liquid waste disposal systems are crucial. Enhancing solid waste management, fostering a culture of waste segregation, and enforcing regulations against septage disposal are essential steps. Promoting public transport, improving waste management infrastructure, and adhering to sustainable construction practices will help mitigate environmental impact. Establishing a Nature Tourism Authority, supporting nature-based tourism, and conserving freshwater ecosystems are vital for sustainability. Addressing human-wildlife conflicts with innovative solutions,

continuously raising awareness through education, and encouraging stakeholder collaboration will strengthen efforts to preserve Munnar's biodiversity. These collective actions aim to transform Munnar into a sustainable destination, akin to Ooty and Kodaikanal, ensuring its natural beauty and resources are protected for future generations. Click here for detailed version [remedial measures suggested \(attached\)](#)

Conclusion:

The seminar provided a platform for stakeholders to engage in constructive dialogue and propose actionable solutions to the challenges facing Munnar's tourism industry. By addressing issues such as climate change, habitat destruction, and unsustainable development, stakeholders can work together

to ensure the long-term viability of tourism in Munnar while preserving its natural beauty and ecological integrity.

Acknowledgments:

The organizers express their heartfelt gratitude to Mr. Jayakrishnan IAS, the Sub Collector and Sub Divisional Magistrate of Devikulam, as well as to the President, Vice President, and other representatives of the Munnar Gram Panchayat, along with all participants, speakers, and contributors whose efforts greatly contributed to the success of the seminar. This report encapsulates the discussions, insights, and recommendations presented during the seminar, serving as a roadmap for addressing the challenges and fostering sustainable tourism development in Munnar.



Figure 7. Jayakrishnan IAS, the Devikulam Sub-Collector cum Sub-Divisional Magistrate speaking during the seminar



3.2 WORKSHOP- Water filter usage training and awareness on fresh water conservation

Figure 8. Public interaction during the event

Through our water sampling conducted across 33 transects, it was observed that every sample collected was infected with E. coli bacteria. This is an alarming issue that highlights the pressing need for improved water quality and sanitation practices. A detailed report of the water sampling results is available for reference.

To address this issue, we initiated mitigation measures by installing 100 water filters across different locations within the Munnar division. These filters aim to promote the use of clean water and encourage better sanitation practices among the local communities. This initiative has been part of our year-long efforts, which have positively impacted the lives of thousands of inhabitants in the region.

In addition to the installation of water filters, our team conducted decentralized awareness sessions at each installation site. These sessions were designed to educate the community about the importance of conserving freshwater habitats, reducing pollution, and minimizing sewage, septic, and greywater waste discharge. We also emphasized the critical need to eliminate open defecation near water bodies to prevent contamination.

The awareness sessions directly reached G10 individuals, including 406 adults and 504 children. Indirectly, it is estimated that an additional 1,500 individuals benefitted from this decentralized training, bringing the total number of beneficiaries to approximately 2,410.

This comprehensive approach has not only improved access to clean water but also fostered a deeper understanding among the community about the importance of sustainable water management and sanitation practices. Our efforts are a step toward ensuring a healthier and more sustainable environment for current and future generations.

Key Outcomes of the Decentralized Training

- 1. Effective Individual In-Person Training**
 - Successfully conducted in-person training sessions at various locations, ensuring personalized engagement with participants and

addressing their unique concerns and queries.

- 2. Assessment of Current Knowledge Levels**
 - Gained valuable insights into the existing knowledge levels of biodiversity and sanitation practices among the local residents, allowing us to tailor future interventions to better address gaps.
- 3. Inspiring Conservation Action**
 - Encouraged a sense of environmental stewardship among both adults and children, sowing the seeds of conservation practices in the community. Participants began to take ownership of their role in protecting local biodiversity and water resources.
- 4. Introduction to IUCN Project Details**
 - Introduced the local community to the TIES-IUCN project, increasing awareness of international conservation efforts and linking these initiatives to local contexts.
- 5. Water Quality Awareness**
 - Provided a detailed explanation of water quality analysis, helping participants understand the significance of monitoring freshwater habitats and the risks posed by contaminants like E. coli bacteria.
- 6. Promotion of Clean Water and Sanitation Practices**
 - Educated participants on practical measures to reduce water pollution, minimize sewage and greywater discharge, and prevent open defecation near water bodies, directly addressing behaviors that harm water quality.
- 7. Capacity Building for Sustainable Practices**
 - Empowered community members with actionable knowledge and skills to implement sustainable practices in their daily lives, contributing to long-term conservation goals.
- 8. Strengthened Community Engagement**
 - Fostered stronger ties between the community and conservation organizations, encouraging a collaborative approach to safeguarding freshwater habitats and biodiversity.

Impact on Future Generations

- By directly engaging children in the training sessions, we have laid the foundation for a generation that values and prioritizes environmental conservation.

- 10. Increased Awareness of Ecosystem Services**
 - Highlighted the importance of freshwater eco-

systems in providing essential services such as drinking water, agriculture, and supporting local biodiversity, promoting a holistic understanding of ecosystem health.

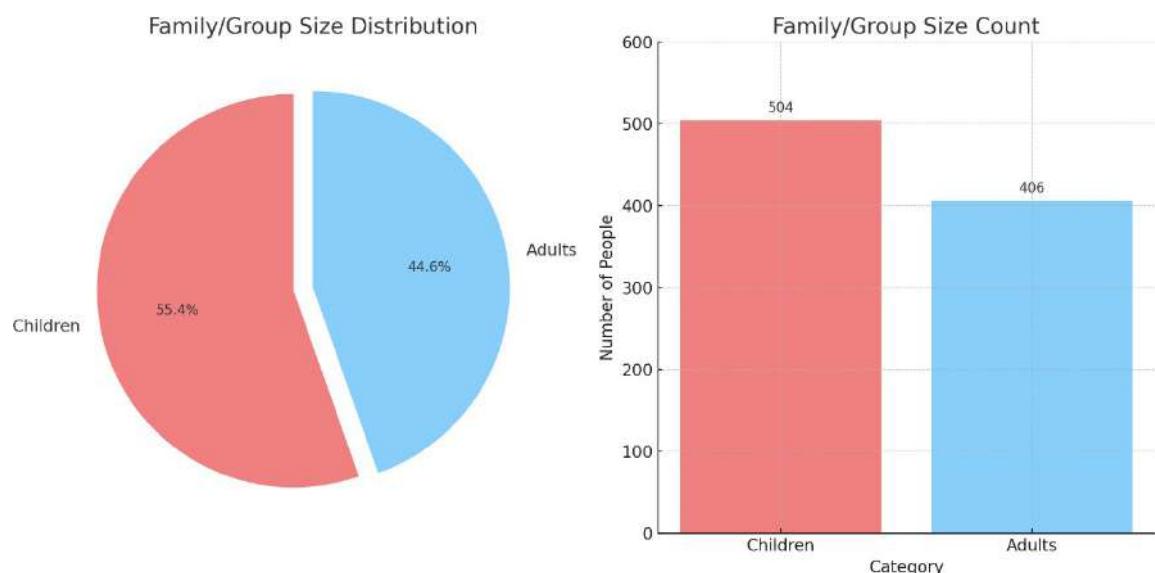
- Created an open platform for feedback from participants, allowing continuous improvement of training modules and interventions to better serve the needs of the community.

11. Feedback Loop Established

F. NO	NAME OF BENEFICIARY	PLACE	FAMILY / GROUP SIZE.	
			ADULT	CHILDREN
1	BINDHU	KOMALIKUDI ANGANWADI	2	15
2	GANESHAN	KOMALIKUDI TEMPLE	20	10
3	PONNUSWAMI	KOMALIKUDI TEMPLE	15	5
4	JIJI KUMARI	MUTTUKAD ANGANWADI	2	8
5	JOMET GEORGE	SOCIETYMEDU CITY	15	0
6	JAYASHREE	SOCIETYMEDU ANGANWADI	2	12
7	AJIMOL	CHANGANASSERI KADA ANGANWADI	2	10
8	AKHIL	MUTTUKAD	6	2
9	AJITHA RAJAN	MUTTUKAD	4	1
10	THANKACHAN	MUTTUKAD	3	0
11	MOHANANTK	MUTTUKAD	4	0
12	RENJITH OICKAL	MUTTUKAD	3	1
13	GANESH M / PALANISWAMI	THALAYAR TEA OFFICE	6	0
14	S.SUDHA	THALAYAR DISPENSARY	15	10
15	S.MOHANA KRISHNAN	THALAYAR FACTORY	30	0
16	MANOJ M	GLPS THALAYAR	5	47
17	MAHALAKSHMI	KADUKUMUDI ANGANWADI	2	5
18	LAKSHMI C	THALAYAR ANGANWADI	2	13
19	SELVIN RAJ	GHSS VAGUVURRAI	19	200
20	ARUNA	GHSS VAGUVURRAI		
21	JESSY	CHATTAMUNNAR TOP DIVISION DISPENSARY	5	3
22	INDHIRA SAJAN	CHATTAMUNNAR LOWER DIVISION DISPENSARY	7	3
23	GAYATHRI P	PAMAPANMALLEY DISPENSARY	5	3
24	BALAKRISHNAN	PAMPANMALLEY	2	0
25	REENA CHARLES	ANTHONYAR COLONY	6	1
26	JAQUALIN MARY	ANTHONYAR COLONY	5	1
27	JOSEPHINE	ANTHONYAR COLONY	3	2
28	CHINNAPPA RAJAN	ANTHONYAR COLONY	4	0
29	S. GEORGE	ANTHONYAR COLONY	4	0
30	JOSEPH RAJ	ANTHONYAR COLONY	3	2

31	SELVAM	ANTHONIYAR COLONY	4	0
32	G MOHAN KUMAR	FAMILY CARE HOMESTAY MUNNAR	3	2
33	MANOJ JOSEPH	MUNIPARA	3	2
34	RAJENDRAN DR	MUNIPARA	3	3
35	TAHA MON	MUNIPARA	3	1
36	ROY CHACKO	MUNIPARA	5	0
37	JINTO DEVASYA	MUNIPARA	2	3
38	GIREESH V	MUNIPARA	2	3
39	PRAMOD	MANKULAM	3	2
40	RAGHAVAN PILLAI	MANKULAM	2	0
41	SHAJAN JOSEPH	MANKULAM, THALUMKANDAM	4	0
42	SUNNY NJ	MANKULAM, THALUMKANDAM	5	0
43	PK MANI	KAMBILINE	3	0
44	KUNJAPPAN	KAMBILINE	4	1
45	SCARIA KURIAKOSE	KAMBILINE	3	2
46	PUSPA GOPI	KAMBILINE	3	1
47	DOLLY PARAKKETHHOTTIL	KAMBILINE	3	1
48	SHAJI PANAMBIL	KAMBILINE	4	2
49	PRASANNAKUMAR	KAMBILINE	2	2
50	SIJO GEORGE	THALUMKANDAM	3	2
51	POTTY	PADIKAPPU	2	3
52	SUMESH	PADIKAPPU	4	2
53	VASU	PADIKAPPU	3	3
54	KUTTY	PADIKAPPU	3	2
55	MUTHAIAN	PADIKAPPU	3	4
56	CHINNADI	PADIKAPPU	5	0
57	RATHEESH	PADIKAPPU	5	3
58	ELSON	PADIKAPPU	3	0
59	THANKAPPAN	PADIKAPPU	2	0
60	SAJEEV	PADIKAPPU	3	0
61	SHIVAN	PADIKAPPU	7	1
62	JOJO AUGUSTINE	VELIYAMPARA	2	3
63	SAVITHRI	VELIYAMPARA	3	2
64	JOMON	VELIYAMPARA	5	2
65	THANKACHAN KM	VELIYAMPARA	4	2
66	SHAJI AUGUSTINE	VELIYAMPARA	4	2
67	JOSHYTHOMAS	VELIYAMPARA	2	3
68	JOMON CHERIYAN	VELIYAMPARA	2	2
69	JINESH	VELIYAMPARA	3	1
70	SHIBU	VELIYAMPARA	2	2
71	BIJU GEORGE	VELIYAMPARA	4	2
72	AJIMON OLICKAL	VELIYAMPARA	2	0
73	GEORGE JOSEPH	VELIYAMPARA	2	2

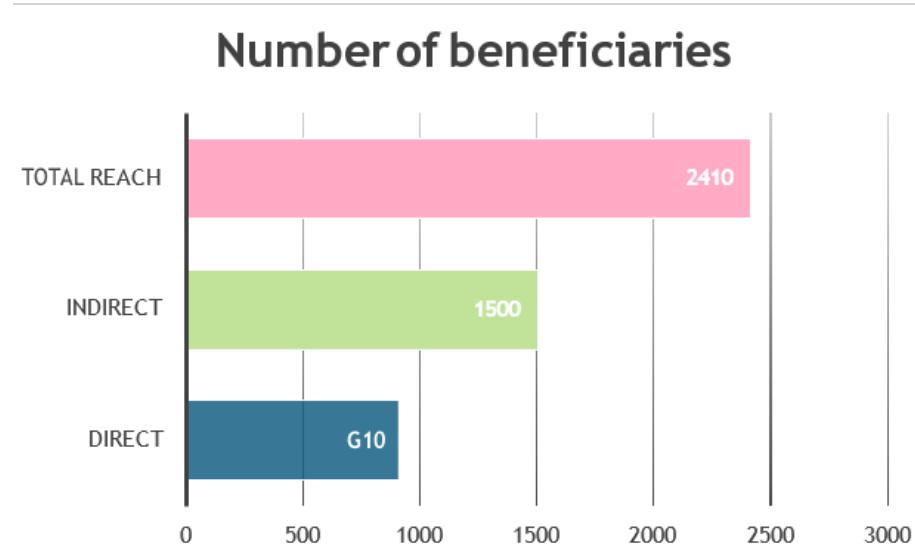
74	ANCY VARKEY	VELIYAMPARA	1	2
75	RAJU AGUSTIN	VELIYAMPARA	2	3
76	GEORGE MJ	THALUMKANDAM	3	0
77	KAVITHA N THOMAS	AMBAZHACHAL ANGANWADI	2	6
78	JOSE UTHUP	AMBAZHACHAL	5	2
79	SOLLY PHILIP	THOKKUPARA ANGANWADI	2	6
80	MINI CV	PAINADHAN KUNNU ANGANWADI	2	2
81	RAJI UG	SENGULAM ANGANWADI	2	3
82	ANNIS MM	ANVIRATTY ANGANWADI	2	8
83	LAILY MD	KOOMPANPARA ANGANWADI	2	7
84	SHEeba KK	ODAKKACITY ANGANWADI	2	16
85	SALMA VM	KOOMPANPARA ANGANWADI	2	5
86	LAILA MM	NAIKUNNU ANGANWADI	2	7
87	KUNJUMON PK	ODAKKACITY	4	0
88	SOMY BABU	VELLATHOOVAL	2	0
89	SHIBU	VELLATHOOVAL	2	0
90	ARUNRAJ	VELLATHOOVAL	4	2
91	SEENA	VELLATHOOVAL	2	0
92	SHAINY	VELLATHOOVAL	3	2
93	RAHUL	VELLATHOOVAL	3	0
94	LEKSHMI	VELLATHOOVAL	1	0
95	SINDHU KANNAN	KUNCHITHANNY	2	1
96	SREEJA	KUNCHITHANNY	2	2
97	JAYAN	KUNCHITHANNY	2	2
98	AUGUSTINE JOSEPH	VELIYAMPARA	2	2
99	RAJU JOSEPH	MANKULAM,MUNIPARA	2	3
100	DEVASSYA MICHEAL	VELIYAMPARA	6	1
			TOTAL	406
			GRAND TOTAL	910



Graph 5. Graph showing family size

Sl.no	Form of reach	Number of beneficiaries
1.	Direct	910
2.	Indirect	1500
3.	Total reach	2410

Table 4. Graph showing beneficiary details



Graph 6. Graph showing number of beneficiaries



Explaining water filter usage to beneficiaries



3.3 School level seminars/ workshops/ competitions

As part of the IEC programs under the project, impactful educational events were conducted across 14 schools from June to November 2024. These events, which included seminars, workshops, and environmental awareness programs, aimed to enhance students' knowledge on the protection of freshwater habitats and related threatened species, while also promoting eco-sensitivity. A total of 1,126 students benefitted from these activities, representing a cross-section of schools with a combined total student strength of 9,795. Additionally, 81 staff members were directly impacted and 252 staff members were indirectly impacted from diverse areas of Munnar, bringing the total number of individuals benefitted to 10,047.

The majority of the events were seminars, with 10 seminars held across various schools such as GHS Kallar Vattiyar, St. Mary's HSS, and Government Model Residential School. These seminars focused on freshwater habitat conservation and the protection of related threatened species, including odonates and fish, engaging a wide range of students from different regions. In addition to seminars, there were workshops designed to promote environmental

conservation and eco-sensitization, such as the 'Eco Sensitisation: One Day Workshop' at Highrange School and 'One Day Workshops' at GHSS Vaguvurai and GHSS Vattavada. These workshops provided students with practical insights into environmental issues and solutions, featuring brainstorming activities, informative sessions, and field visits.

A distinct initiative, the Color to Conserve event, aimed to raise awareness about fresh water ecosystem conservation, was also conducted in multiple schools, including GLPS Munnar and GUPS Thokkupara. This initiative was designed to engage students in creative activities while highlighting the importance of conserving natural resources.

The participating schools varied in size, with some having smaller student populations, like MGLC Kurathikudi (30 students), and others with larger enrollments, such as Carmelagiri CMI Public School (2,000 students). Despite the differences in school sizes, the events successfully reached a broad student audience, engaging them in both educational and environmental discussions. The program successfully covered tribal, plantation, and local areas of Munnar as well.

The programs have had a positive impact on 1,126 students, helping them gain valuable knowledge through a range of educational and environmen-

tal initiatives. The events contributed to raising awareness among students about key issues related to freshwater habitats and threatened species, while also promoting active participation in preserving the environment. With a total student strength of 9,795, the initiative has reached a significant proportion of the student community across the schools involved.

1. SEMINARS:

Here, outlines the details of impactful educational events conducted across seven schools between June and October 2024 as part of the IEC (Information, Education, and Communication) programs. These events, primarily consisting of seminars, were designed to enhance students' knowledge on environmental conservation and raise awareness about critical ecological issues. A total of 661 students participated in these events, which collectively reached schools with a combined student strength of 8,050.

The events were held in schools located in diverse regions, including GHS Kallar Vattiyar, St. Mary's HSS, and Carmelagiri CMI Public School, among others. The seminars focused on important topics such as freshwater habitat conservation and the protection

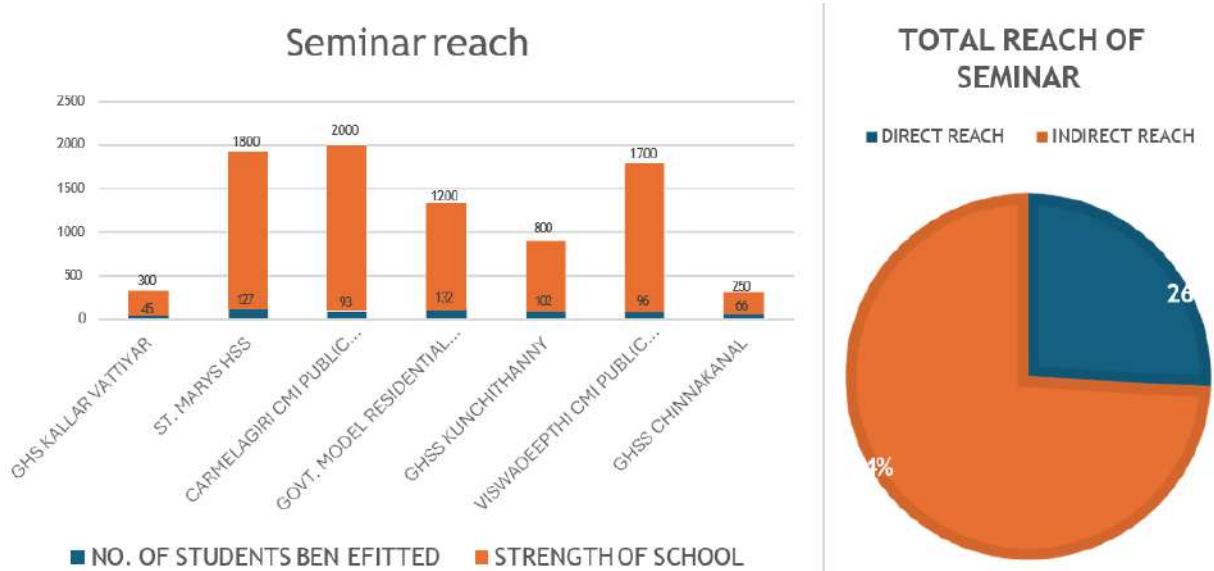
of threatened species, aiming to instill eco-sensitivity among students. Notably, the highest participation was recorded at St. Mary's HSS in Mankulam, with 127 students attending, while GHS Kallar Vattiyar had 45 participants. The range of schools varied in size, with enrollments spanning from smaller schools like GHSS Chinnakanal (250 students) to larger institutions such as Carmelagiri CMI Public School (2,000 students).

These events played a significant role in not only imparting valuable environmental knowledge but also fostering a sense of responsibility among students to actively participate in preserving natural habitats. Despite the variation in school sizes, the events reached a broad cross-section of the student population, making a positive impact on their awareness of ecological and environmental issues.

The IEC programs successfully engaged 661 students, representing a substantial proportion of the combined student population across the participating schools. This initiative has significantly contributed to environmental education, helping to raise awareness about the importance of conservation and encouraging eco-consciousness among young minds. The detailed report of each seminar is accessible by clicking on the name of the school.

	DATE	NAME OF SCHOOL	PLACE	EVENT	NO. OF STUDENTS BENEFITTED	STRENGTH OF SCHOOL
1	24-06-2024	GHS KALLAR VATTIYAR	KALLAR VATTIYAR	SEMINAR	45	300
2	06-07-2024	ST. MARYS HSS	MANKULAM	SEMINAR	127	1800
3	10-07-2024	CARMELAGIRI CMI PUBLIC SCHOOL	KORANDAKKAD	SEMINAR	93	2000
4	12-07-2024	GOVT. MODEL RESIDENTIAL SCHOOL	MUNNAR	SEMINAR	132	1200
5	07-08-2024	GHSS KUNCHITHANNY	KUNCHITHANNY	SEMINAR	102	800
6	29-08-2024	VISWADEEPHI CMI PUBLIC SCHOOL	ADIMALY	SEMINAR	96	1700
7	18-10-2024	GHSS CHINNAKANAL	CHINNAKANAL	SEMINAR	66	250
TOTAL					661	8050

Table 5. Tables showing the school details (Report attached as Annexure I)



7. Graph showing the total reach of the seminars

2. COLOUR TO CONSERVE

This report highlights the implementation of the Color to Conserve initiative, part of the broader IEC (Information, Education, and Communication) programs, aimed at raising awareness about freshwater habitat conservation. The initiative engaged students in creative activities, specifically coloring and painting competitions, to foster understanding and dialogue about the importance of protecting natural habitats. The events were held across four schools in October 2024, combining artistic expression with educational components, including an informational session and discussion.

The Color to Conserve program successfully reached 187 students from GLPS Munnar, GUPS Thokkupara, MGLC Kurathikudi, and GUPS Letchmi. The smallest school, MGLC Kurathikudi, with 30 students enrolled, had 26 participants in the event, while GLPS Munnar, with a larger student population of 220, engaged 65 students. GUPS Thokkupara and GUPS Letchmi had 75 and 21 participants, respectively, from a combined total school strength of 285 students.

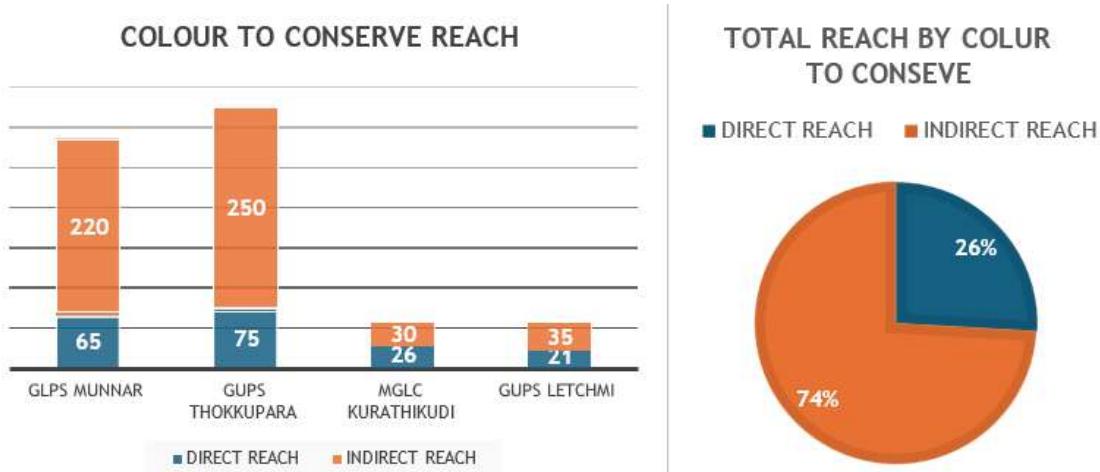
The primary aim of the Color to Conserve initiative was to promote freshwater habitat awareness by engaging students in creative coloring and painting competitions. This was followed by an informative session and a discussion to deepen their understanding of environmental issues, particularly the protection of freshwater ecosystems and species.

The program successfully combined creativity with education, allowing students to express their knowledge artistically while learning about the critical need for conservation.

The Color to Conserve initiative reached 187 students across the four schools, contributing to environmental education and encouraging active participation in preserving freshwater habitats. By blending creativity with information, the program provided students with valuable insights into conservation while fostering eco-consciousness through artistic engagement.

	DATE	NAME OF SCHOOL	PLACE	EVENT	NO. OF STUDENTS BENEFITTED	STRENGTH OF SCHOOL
1	03-10-2024	GLPS MUNNAR	MUNNAR	COLOUR TO CONSERVE	65	220
2	24-10-2024	GUPSTHOKKUPARA	THOKKUPARA	COLOUR TO CONSERVE	75	250
3	28-10-2024	MGLC KURATHIKUDI	KURATHIKUDI	COLOUR TO CONSERVE	26	30
4	29-10-2024	GUPS LETCHMI	LETCHMI	COLOUR TO CONSERVE	21	35
				TOTAL	187	535

Table 6. Details of the schools that has participated (Report attached as Annexure I)



Graph 8. Colour to Conserve programme reach

3. ONE DAY ECO-SENSITISATION WORKSHOPS

The successful execution of one-day workshops under the IEC (Information, Education, and Communication) programs, aimed at fostering environmental awareness and eco-sensitization among students. These workshops were held across three schools between August and November 2024, focusing on the conservation of freshwater ecosystems and environmental issues.

The workshops benefitted a total of 356 students from GHSS Vaguvurai, Highrange School, and GHSS Vattavada. At GHSS Vaguvurai in Vaguvurai, 31

students participated from a total school strength of 130. Highrange School in Mattupetty saw the-highest participation, with 247 students benefiting from the event, out of 950 students. GHSS Vattavada in Vattavada had 78 students participating from a school strength of 130.

These workshops were designed to provide students with both knowledge and practical insights into ecological issues, particularly focusing on freshwater ecosystem conservation and environmental degradation. The sessions were dynamic and interactive, including information sessions, ice-breaking activities, and brainstorming exercises related to environmental conservation. Students also participated in

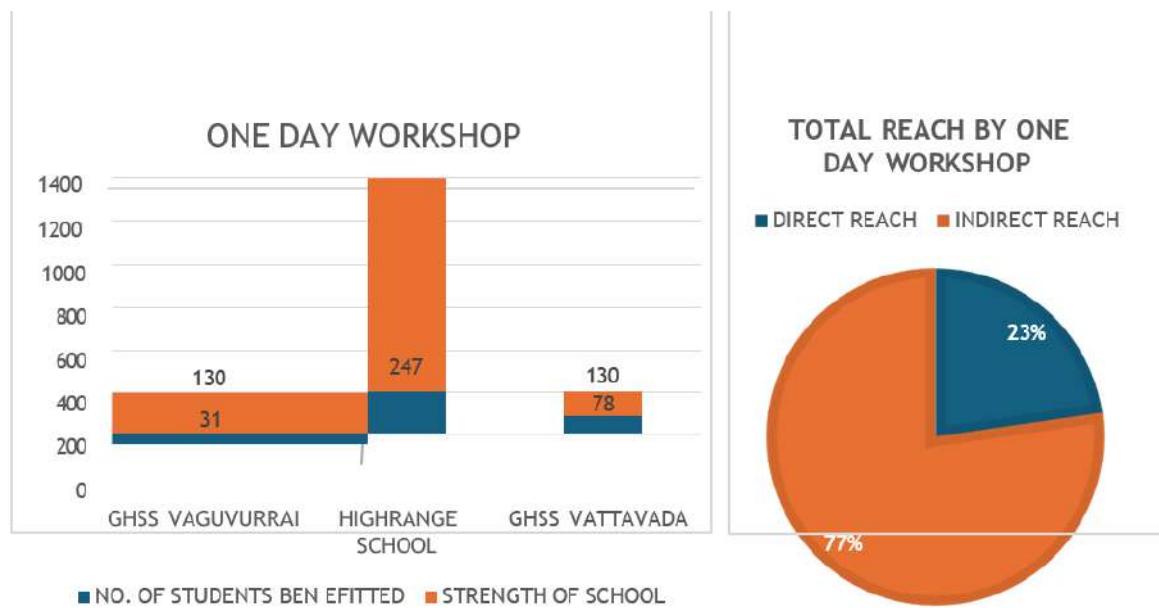
group discussions and presentations on pressing environmental issues such as pollution, habitat destruction, and climate change. Additionally, the workshops included a field visit, which allowed students to gain first-hand experience in observing key environmental concerns such as odonate species, pollution, and the importance of nature conservation during an eco-trip.

the one-day workshops reached 356 students across the three schools, significantly contributing to their

environmental education. By integrating information sessions, group discussions, interactive activities, and field visits, the workshops not only raised awareness about environmental challenges but also empowered students to actively participate in the conservation of natural ecosystems. These engaging and informative sessions have equipped students with the knowledge and skills necessary to make a positive impact on their communities and the environment.

	DATE	NAME OF SCHOOL	PLACE	EVENT	NO. OF STUDENTS BENEFITTED	STRENGTH OF SCHOOL
1	24-08-2024	GHSS VAGUVURRAI	VAGUVURRAI	ONE DAY WORKSHOP	31	130
2	21-10-2024	HIGHRANGE SCHOOL	MATTUPPETTY	ECO SENSITISATION : ONE DAY WORKSHOP	247	950
3	13-11-2024	GHSS VATTAVADA	VATTAVADA	ONE DAY WORKSHOP	78	130
			TOTAL		356	1210

Table 7. Details of schools participated in One Day Eco-Sensitization Workshops (Report attached as Annexure I)



Graph 9. Graph showing the reach of One Day Eco-Sensitization Workshops

SUMMARY

The IEC programs under this project have significantly impacted environmental education across 14 schools, benefiting 1,126 students directly and 9,795 students indirectly, as well as 81 staff members directly and 252 staff members indirectly from diverse areas of Munnar, covering a total of 10,047 individuals. Through a series of seminars, workshops, and creative initiatives like the Color to Conserve event, the program enhanced students' understanding of freshwater habitat conservation and the protection of threatened species. Interactive sessions, field visits, and eco-sensitization

workshops provided practical insights into pressing environmental issues.

The events engaged students from a variety of school sizes and backgrounds, ranging from small rural institutions to larger urban schools. These activities reached students in tribal, plantation, and local areas, ensuring broad participation. By combining educational sessions with hands-on experiences, the program fostered deeper environmental awareness and encouraged students to take active roles in conservation efforts. The initiative successfully contributed to cultivating a more environmentally aware and responsible student community.



Figure 10. Colour to Conserve at GUPS, Thokkupara



Figure 11. Colour to Conserve at GUPS, Letchmi



Figure 12. Colour to Conserve at MGLC, Kurathikudi



Figure 13. Colour to Conserve at GLPS, Munnar



Figure 14. Green Guardian Programme at High Range Public School, Mattupetty



Figure 15. Seminar at GHSS Kunjithannay

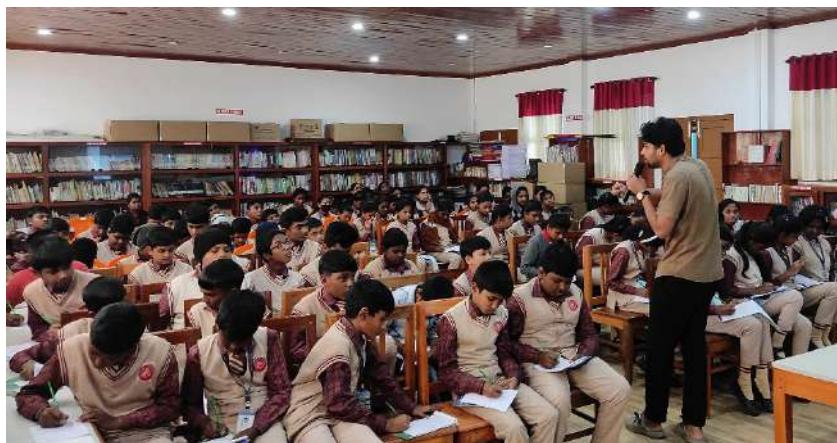


Figure 16. Seminar at Carmelgiri Public School, Mattupetty



Figure 17. Seminar at GHSS, Chinnakanal



Figure 18. Seminar at GHSS Kallar Vattiyar



Figure 19. Seminar at Govt, Model Residential School, Munnar



Figure 20. Seminar at St. Mary's HSS, Mankulam



Figure 21. Seminar at Viswadeepthi CMI Public School, Adimaly



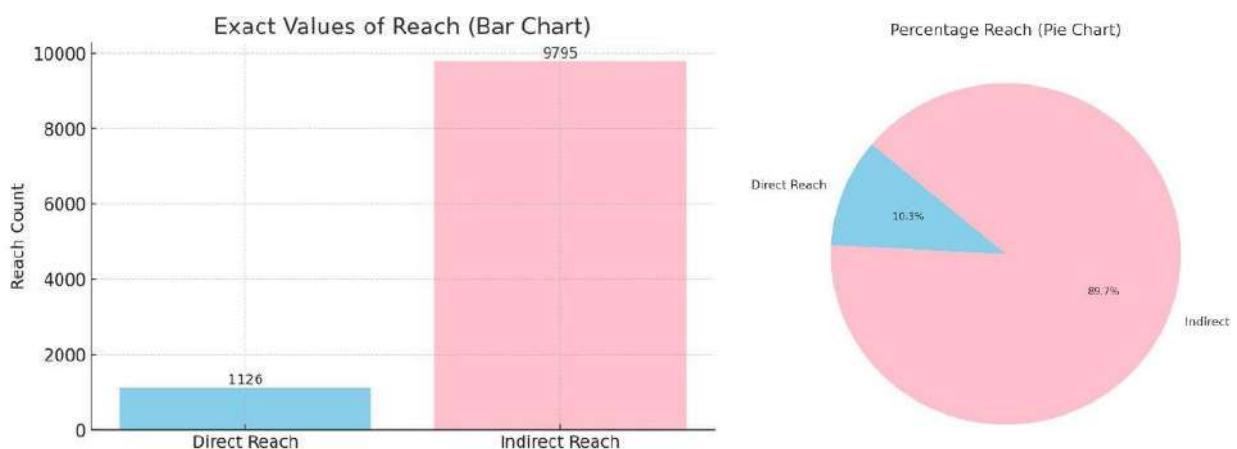
Figure 22. One-day workshop at GHSS, Vaguvvarai



Figure 23. One-day workshop at GHSS, Vattavada

	DATE	NAME OF SCHOOL	PLACE	EVENT	NO. OF STUDENTS BENEFITTED	STRENGTH OF SCHOOL	NO. OF STAFFS BENEFITTED	TOTAL STRENGTH OF STAFFS
1	24-06-2024	<u>GHS KALLAR VATTIYAR</u>	KALLAR VATTIYAR	SEMINAR	45	300	4	10
2	06-07-2024	<u>ST. MARYS HSS</u>	MANKULAM	SEMINAR	127	1800	5	24
3	10-07-2024	<u>CARMELAGIRI CMI PUBLIC SCHOOL</u>	KORANDAK-KAD	SEMINAR	93	2000	5	25
4	12-07-2024	<u>GOVT. MODEL RESIDENTIAL SCHOOL</u>	MUNNAR	SEMINAR	132	1200	7	38
5	07-08-2024	<u>GHSS KUNCHITH-ANNY</u>	KUNCHITH-ANNY	SEMINAR	102	800	3	18
6	24-08-2024	<u>GHSS VAGUVURRAI</u>	VAGUVURRAI	ONE DAY WORKSHOP	31	130	4	8
7	29-08-2024	<u>VISWADEEPTHI CMI PUBLIC SCHOOL</u>	ADIMALY	SEMINAR	96	1700	4	32
8	03-10-2024	<u>GLPS MUNNAR</u>	MUNNAR	COLOUR TO CONSERVE	65	220	6	11
9	18-10-2024	<u>GHSS CHINNA-KANAL</u>	CHINNA-KANAL	SEMINAR	66	250	4	16
10	21-10-2024	<u>HIGHRANGE SCHOOL</u>	MATTUP-PETTY	ECO SENSITISATION : ONE DAY WORKSHOP	247	950	15	36
11	24-10-2024	<u>GUPS THOKKUPARA</u>	THOKKUPA-RA	COLOUR TO CONSERVE	75	250	5	15
12	28-10-2024	<u>MGLC KURATHIKUDI</u>	KURATHI-KUDI	COLOUR TO CONSERVE	26	30	2	3
13	29-10-2024	<u>GUPS LETCHMI</u>	LETCHMI	COLOUR TO CONSERVE	21	35	5	5
14	13-11-2024	<u>GHSS VATTAVADA</u>	VATTAVADA	ONE DAY WORKSHOP	78	130	6	11
TOTAL STRENGTH					1126	9795	81	252
GRAND TOTAL STRENGTH					10,047			

Table 8. Summary of the IEC programmes conducted at schools (Report attached as Annexure I)



Graph 10. Summary of IEC programmes reach (School level)



Students with their crafts as part of Green Guardian Programme at High Range Public School, Mattupetty



Master Gowtham K, first prize Colour to Conserve at GUPS, Thokkupara



Colour to Conserve at GLPS, Munnar



Workshop at GHSS, Vaguvurra



Figure 24. Information board placed at Vaguvvarai

3.4 Information and Education Boards

In a pivotal move to protect Munnar's freshwater habitats and its vulnerable species, a series of 24 informative boards (double side: impacting 48 boards) have been installed across key locations in the region. This initiative highlights the importance of environmental conservation and the urgent need to safeguard the area's diverse biodiversity. Positioned in strategic locations, these boards aim to raise awareness among locals and visitors about the threats faced by the region's endangered species and the pressing need for responsible environmental practices.

The boards feature compelling images of threatened fauna, such as the odonates *Indosticta deccanensis*, *Protosticta sanguinostigma*, and *Chlorogomphus xanthoptera*, as well as endangered fish species like *Garra hughii* and *Indoreonectes keralensis*. They also emphasize the detrimental effects of littering and wastewater dumping, which pose significant risks to the region's delicate ecosystem. The boards are prominently displayed along

key routes, including the Neriyamangalam-Adimaly route, Munnar-Poopara route, Kallar-Mankulam route, Munnar-Marayoor route, Munnar-Madupetty route, and various other notable locations, including Aanakkulam, Valara, Cheeyappara Waterfalls, and the Botanical Garden.

It is estimated that these boards will be seen daily by approximately:

- Neriyamangalam-Adimaly route: 3000-4,100 people
- Munnar-Poopara route: 3,500- 4,000 people
- Kallar-Mankulam route: 1,000-1,500 people
- Munnar-Marayoor route: 1,500-2,000 people
- Munnar-Madupetty route: 2,500 – 3,000 people
- Munnar Town: 4,100-5,500 people
- Munnar bypass: 2,500 – 3,000 people

This makes the boards an essential tool in promoting environmental stewardship, with an estimated total of 4,100–5,500 daily visitors likely encountering them.

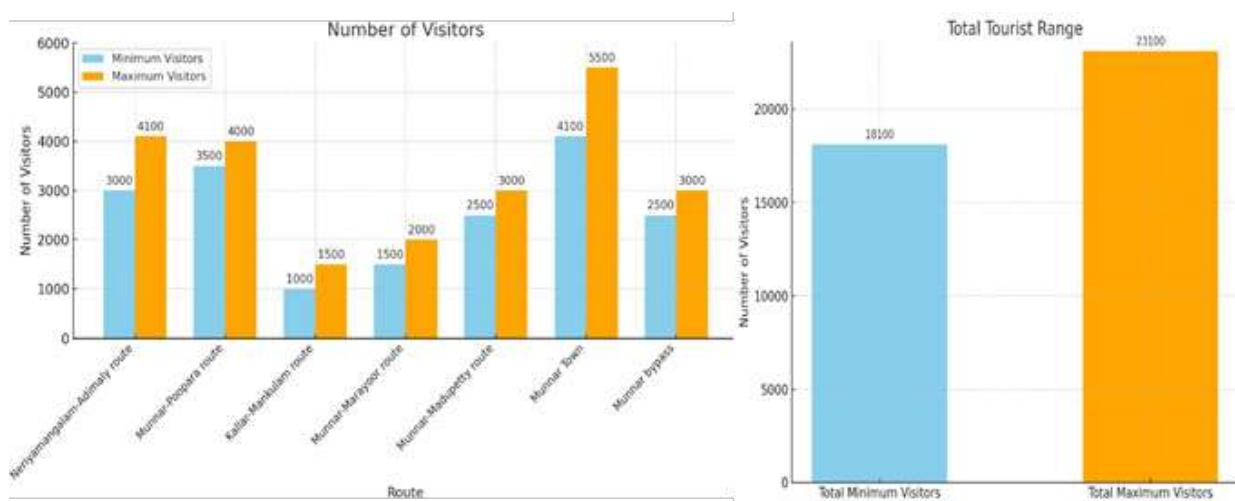
These educational boards are not just a source of

information but a call to action. They serve to engage the public in the protection of Munnar's flora and fauna, highlighting how human activities, such as pollution and habitat destruction, threaten the region's biodiversity. Through clear and accessible messaging, the boards encourage people to adopt environmentally responsible behaviors and become active participants in conservation efforts.

These informative boards play a crucial role in bridging the gap between conservation efforts and public engagement. They not only highlight the threats faced by endangered species but also advocate for a broader understanding of environmental responsibility. Through this initiative, Munnar's rich ecological heritage is better protected, ensuring that future generations can continue to enjoy its

natural beauty and biodiversity.

Sl.No.	Route	Min. visitors	Max. visitors
1	Neriyamangalam-Adimaly	3000	4100
2	Munnar-Poopara	3500	4000
3	Kallar-Mankulam	1000	1500
4	Munnar-Marayoor	1500	2000
5	Munnar-Madupetty	2500	3000
6	Munnar Town	4100	5500
7	Munnar bypass	2500	3000
Total		18100	23100



Graph 11. Visitors details of various routes

Table 9. Visitors details of various routes

1. Neriamangalam-Adimaly route

A total of six boards were installed along the Neriamangalam-Adimaly route, including five under NH 85 and one under PWD.

This route is significant as it serves as the gateway to Munnar for tourists traveling from Aluva. It is a key connection for both international and national tourists, as the nearest airport to Munnar is Cochin International Airport. Most tourists opt for the Neriamangalam-Adimaly route because it is the most efficient pathway to this beautiful landscape.

The area surrounding the route is forested and home to diverse wildlife as well as tribal communities. Notably, this region is also a habitat for the vulnerable Odonata species *Indosticta deccanensis*, which is part of the TIES-IUCN project study. Awareness boards have also been installed at the locations where this species has been found, highlighting the importance of conserving its habitat.

However, the area faces severe pollution caused by

commuters and tourists. Many tourists stop along the route to eat, leaving behind single-use plastic containers, beer and alcohol bottles, and food waste. This pollution adversely impacts the local wildlife, including species like *Indosticta deccanensis*, as well as the tribal populations, threatening the ecological balance of the region.

The enormous number of visitors traveling to Munnar through this area and the accumulation of waste along the road banks highlight the urgent need for environmental education. Recognizing this, the TIES-IUCN team carefully selected specific locations for the installation of awareness boards. These sites were chosen based on their popularity as rest stops for commuters, their high levels of pollution, and their visibility to travelers.

This thoughtful and impactful approach aims to sow the seeds of commitment to environmental protection and responsibility among tourists and commuters. By encouraging behavior change, these boards promote sustainable practices and help safeguard this ecologically sensitive area for future generations.

Board No.	Location Name	GPS	Cat.
01	Neriamangalam	10°03'55.2"N 76°46'19.1"E	NH 85
02	Neriamangalam	10°03'59.1"N 76°46'34.6"E	NH 85
03	Cheeyappara	10°03'13.4"N 76°49'46.2"E	NH 85
04	Valara Waterfalls	10°02'47.9"N 76°50'26.1"E	NH 85
05	Kuthuparathodu, neriamangalam	10.041364,76787139	PWD

Table 10. Location details of the boards placed at Neriamangalam-Adimaly route



Figure 25. Board placed at Neriamangalam



Figure 26. Board placed at Cheeyappa



Figure 27. Board placed at Kuthuparathodu



Figure 28 Board placed at Valara



Figure 29 Board placed at Neriyamanagalam



Figure 30 Board placed at Neriyamanagalam

2. Munnar-Poopara route

The Munnar-Poopara route, a part of NH 85, is renowned for its beautiful roadways, scenic landscapes featuring tea plantations, and breathtaking views of the Anayirangal Dam. This route is a frequent tourist destination, with attractions such as Signal Point, Anayirangal Dam, Periyakanal Waterfalls and the sprawling tea and cardamom plantations. Adding to its appeal, wild elephants can often be spotted along the way, making it even more significant for travelers.

However, some of the major viewpoints along the route are plagued by unauthorized vendors and shopkeepers who leave behind waste, contributing to pollution along this otherwise picturesque route.

To address this issue, the team strategically selected important locations with high tourist activity for the installation of awareness boards.

Unfortunately, this area is also disaster-prone, with frequent natural calamities such as landslides, heavy winds, and rains. Additionally, the presence of nearby forests makes the route susceptible to falling tree branches, which often obstruct roads. These hazards have already impacted one of the installed boards at Devikulam, and similar risks may arise in the future despite the boards being firmly fixed.

By raising awareness and promoting responsible behavior among visitors, this initiative aims to preserve the natural beauty of the Munnar-Poopara route while addressing the challenges posed by pollution and natural disasters.

Board-No.	Location Name	GPS	Cat.
06	Botanicalgarden	10°04'57.7"N 77°04'24.4"E	NH 85
07	Signal Point, Gap Road	10°04'57.5"N 77°04'24.7"E	NH 85
08	Devikulam	10°04'04.5"N 77°05'54.1"E	NH 85
09	Toll Booth, Devikulam	10°03'22.5"N 77°06'23.5"E	NH 85
10	Periyakanal Waterfalls	10°02'11.0"N 77°09'22.0"E	NH 85

Table 11. Location details of the boards placed at Munnar-Poopara route



Figure 31 Board Placed at Botanical Garden



Figure 32 Board Placed at Toll booth, Devikulam



Figure 33 Board placed at signal point gap road



Figure 34. Board placed at Devikulam



Figure 35 Board placed at Periyakanal waterfalls

3. Kallar-Mankulam route

The Kallar-Mankulam route is a popular destination for adventure seekers, offering activities such as trekking, off-road jeep travel, and exploration of forest trails. The area is enriched with numerous waterfalls and rivers, further enhancing its scenic beauty. Parts of the Letchmi tea plantation and cardamom plantations also lie along this route, making it a unique blend of wildlife tourism and plantation tourism.

Additionally, the area is home to various tribal settlements, including the Muthuvan and Mannan tribes, which add to its cultural significance. One of the major attractions on this route is Aanakkulam, a renowned spot where visitors can observe wild elephant behavior from a safe and close distance. This highlights the importance of fostering a harmoni-

ous man-animal relationship in the region.

Furthermore, the vulnerable Odonata species *Protosticta deccanensis* was found at key locations along this route, specifically Viripara and Perumpan-kuth, emphasizing the ecological value of the area.

Specific spots for awareness board installations were carefully selected based on tourist activities and interactions with the local community. Unfortunately, areas like Aanakkulam have been heavily polluted with plastic waste left behind by tourists. Additionally, some of the rivers and waterfalls along this route are at risk of oil spills caused by the jeeps, which are a primary mode of transport for visitors.

One of the awareness boards installed at Aanakkulam was slightly damaged by a jeep carrying tourists to the site. This incident underscores the challenges of maintaining the boards in such high-traffic areas, but it also reaffirms the impor-

tance of raising awareness about environmental protection in these sensitive locations.

Board No.	Location Name	GPS	Cat.
11	Tiger Cave	10°05'21.2"N 76°56'54.6"E	PWD
12	Kuwait City, Mankulam	10°08'28.3"N 76°55'23.5"E	PWD
13	Anakulam	10°09'40.0"N 76°54'45.8"E	PWD

Table 12. Location details of the boards placed at Kallar-Mankulam route



Figure 36 Board placed at Aanakulam



Figure 37 Board Placed at Tiger cave



Figure 38 Board Placed at Kuwait city, Mankulam

4. Munnar-Marayoor route

The Munnar-Marayoor route is a popular pathway bustling with tourists throughout the year. This scenic route connects key tourist destinations and is known for its remarkable natural beauty. Notable locations along this route include the Eravikulam National Park, which is home to the endangered Nilgiri Tahr, and the Lakkam Mini Falls, a picturesque spot that attracts large crowds of visitors.

However, the influx of tourists has also brought significant challenges to the region. Many areas along this route are filled with unauthorized vendors and shopkeepers who contribute to pollution, especially in sensitive freshwater ecosystems. Plastic waste, food scraps, and other litter are often left behind by tourists and vendors, leading to the degradation of the pristine environment. This pollution poses a serious threat to the flora and fauna of the region.

Adding to the ecological importance of the Munnar-Marayoor route, the TIES-IUCN project study identified the endangered freshwater fish species Garra rufa at Vaguvurai, a location along this route. The presence of this endangered species highlights the need for conservation efforts and makes this site a critical area for environmental protection.

The team selected specific locations along the Munnar-Marayoor route for the installation of awareness boards. These sites were chosen based on the high volume of tourist activity and the presence of sensitive ecosystems requiring protection. By raising awareness about the impact of pollution and the importance of preserving habitats, this initiative aims to encourage responsible tourism practices and foster a deeper commitment to environmental stewardship.

BoardNo.	Location Name	GPS	Cat.
14	periyavurrai	Nill	SH 17
15	Talayar Estate	Nill	SH 17
16	Vaguvurrai	Nill	SH 17
17	Lakkom (Lakkom Mini Falls)	Nill	SH 17

Table 13. Location details of the boards placed at Munnar-Marayoor route



Figure 39 Board Placed at Lakkam



Figure 40 Board placed at Periyavurrai



Figure 41 Board placed at Thalayar



Figure 42 Board placed at Vaguvvarai

5. Munnar-Mattupetty

Munnar-Mattupetty route is one of the most popular pathways in the region, attracting thousands of tourists every year. This route is renowned for its scenic beauty and is dotted with significant tourist attractions. One of the most notable stops along the way is the Mattupetty Photopoint, a favorite spot for visitors to capture the breathtaking views of tea plantations and rolling hills. Another key attraction is the Mattupetty Tea Factory area, where tourists often stop to experience the charm of the tea industry and learn about its processing methods.

This route also serves as a gateway to Vattavada, a picturesque destination known for its agricultural produce and serene landscapes. Tourists traveling to Vattavada predominantly pass through the Munnar-Mattupetty route, making it a hub of activity

with a constant flow of visitors. The high volume of tourist traffic, combined with numerous sightseeing spots and the popularity of activities along this stretch, makes it an ideal location for installing awareness boards.

The awareness boards aim to address the pressing issues caused by increased tourism, such as littering and the disturbance to local ecosystems. By strategically positioning the boards at points with maximum visibility and tourist interaction, such as the Mattupetty Photopoint and the tea factory area, this initiative seeks to promote sustainable tourism practices and encourage visitors to take responsibility for protecting the environment.

Through this thoughtful approach, the project not only enhances environmental awareness but also preserves the natural beauty of the Munnar-Mattupetty route for future generations to enjoy.

Board No.	Location Name	GPS	Cat.
18	Mattupetty photopoint	TBD	SH 18
19	Tea factory mattupetty	TBD	SH 18

Table 14. Location details of the boards placed at Munnar-Madupetty route

6. Munnar Town

Munnar Town, a popular tourist destination in the Western Ghats, is a bustling area filled with tourists throughout the year. The town is home to a wide range of accommodations, including hotels, restaurants, and homestays, which cater to the large number of visitors. While tourism contributes significantly to the local economy, it also poses several environmental challenges. One of the most pressing issues is the improper disposal of sewage and greywater, which is often directed into nearby water bodies, contaminating the water and harming local ecosystems.

In addition to waste management concerns, Munnar faces problems with unauthorized street vendors and encroached buildings, which further exacerbate the town's environmental burden. The combination of high tourist activity and limited infrastructure makes it difficult to manage the growing number of visitors without compromising the town's environmental integrity. This highlights the urgent need for environmental protection initiatives that focus on waste reduction, responsible tourism practices, and sustainable urban development.

Given the dense development of buildings and roads in Munnar, it was challenging to identify specific spots for the installation of awareness boards. However, the team carefully selected high-traffic areas with maximum tourist engagement to ensure visibility and impact. One of the boards was installed near the Hydel Park, a popular spot where tourists frequently gather. This location was chosen due to its central role in Munnar's tourism activity. Another board was placed near the Upcycle Garden, a key junction that connects visitors to different destinations, including Vattavada, Poopara, and Marayoor. The Upcycle Garden serves as a significant meeting point for tourists, making it an ideal location to capture attention and promote environmental awareness.

By strategically placing these boards in areas with high tourist activity, the project aims to foster greater environmental consciousness and encourage responsible behaviors among visitors. These actions are essential to preserving the natural beauty and sustainability of Munnar for future generations while mitigating the environmental impacts of the growing tourism sector.

Board No.	Location Name	GPS	Cat.
20	Hydel park, munnar	10.069396,77.066198	NH 85
21	Upcycle garden, munnar	10.081387,77.062016	NH 85

Table 15. Location details of the boards placed at Munnar Town route



Figure 43 Board placed at Hydel park, Munnar



Figure 44 Board placed at Upcycle Garden, Munnar

7. Munnar Bypass

The Munnar Bypass sees high tourist activity due to its peaceful environment, offering a quieter alternative to the crowded Munnar town, while being just a few kilometers away. The route is surrounded by scenic plantations, enhancing its appeal to visitors. However, the area is also filled with shops and businesses, leading to pollution and waste

management concerns.

Given the popularity of this route, the team installed awareness boards at key spots to raise environmental consciousness. These boards are strategically placed to ensure visibility, aiming to encourage responsible tourism and promote sustainable practices, helping preserve the region's natural beauty for future generations.

Board No.	Location Name	GPS	Cat.
22	Anachal	10°01'13.3"N 77°02'04.3"E	MUNNAR BYPASS
23	Sengulam Dam	10°00'37.3"N 77°01'57.3"E	PWD
24	Chithirapuram View Point	10°01'50.6"N 77°02'42.4"E	MUNNAR BYPASS

Table 16. Location details of the boards placed at Munnar Bypass route



Figure 45 Board placed at Sengulam dam



Figure 46 Board placed at aanachal



Figure 47 Board placed at Chithirapuram View point

Executive Summary:

A total of 24 informative boards (double side: impacting 48 boards) have been installed across key locations in Munnar to raise awareness about the region's fragile freshwater habitats and endangered species. These boards aim to educate both locals and tourists on the ecological threats facing Munnar's biodiversity and the importance of responsible environmental practices.

The boards feature images and information about threatened species, such as Odonata species *Indosticta deccanensis*, *Protosticta sanguinostigma*, and endangered fish like *Garra hughii*. They also highlight the harmful effects of pollution and wastewater dumping. These boards are strategically

placed along prominent routes and tourist destinations including the Neriyamangalam-Adimaly, Munnar-Poopara, Kallar- Mankulam, Munnar-Marayoor, Munnar-Madupetty, and Munnar Bypass routes, with an estimated daily reach of 18100-23100 people.

The initiative targets areas with high tourist traffic, where pollution and environmental degradation are major concerns. By highlighting the importance of protecting Munnar's natural resources, the project encourages sustainable tourism practices and fosters a greater sense of environmental responsibility among visitors. The boards serve as both an educational tool and a call to action for conservation, ensuring the preservation of Munnar's rich biodiversity for future generations.

Board No.	Location Name	GPS	Cat.
01	Neriamangalam	10°03'55.2"N 76°46'19.1"E	NH 85
02	Neriamangalam	10°03'59.1"N 76°46'34.6"E	NH 85
03	Neriamangalam	nill	NH 85
04	Cheeyappara	10°03'13.4"N 76°49'46.2"E	NH 85
05	Valara Waterfalls	10°02'47.9"N 76°50'26.1"E	NH 85
06	Tiger Cave	10°05'21.2"N 76°56'54.6"E	PWD
07	Kuwait City, Mankulam	10°08'28.3"N 76°55'23.5"E	PWD
08	Anakulam	10°09'40.0"N 76°54'45.8"E (nill)	PWD
09	Anachal	10°01'13.3"N 77°02'04.3"E	PWD
10	Sengulam Dam	10°00'37.3"N 77°01'57.3"E	PWD
11	Chithirapuram View Point	10°01'50.6"N 77°02'42.4"E	MUNNAR BYPASS
12	Botanical garden	10°04'57.7"N 77°04'24.4"E	NH 85
13	Signal Point, Gap Road	10°04'57.5"N 77°04'24.7"E	NH 85
14	Devikulam	10°04'04.5"N 77°05'54.1"E	NH 85
15	Toll Booth, Munnar	10°03'22.5"N 77°06'23.5"E (nill)	NH 85
16	Periyakanal Waterfalls	10°02'11.0"N 77°09'22.0"E	NH 85
17	periyavurrai	10°06'30.3"N 77°03'28.4"E	SH 17
18	Talayar Estate	10°08'39.0"N 77°06'33.2"E	SH 17
19	Vaguvurrai	10°10'50.7"N 77°06'26.4"E	SH 17
20	Lakkom (Lakkom Mini Falls)	10°11'13.2"N 77°06'47.4"E	SH 17

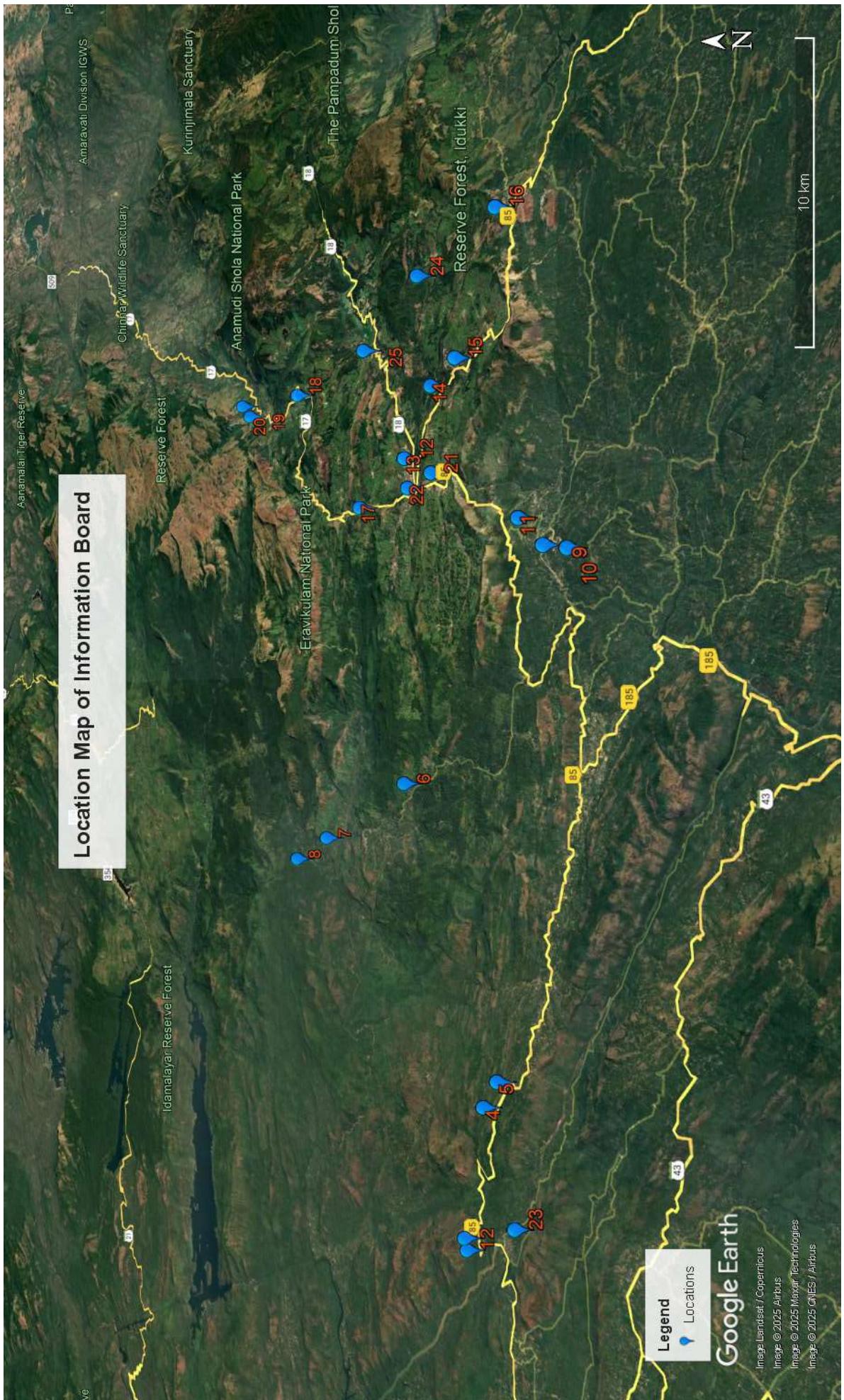
21	Hydal park munnar	10°04'09.8"N 77°03'58.3"E	NH 85
22	Upcycle garden munnar	10°04'53.0"N 77°03'43.3"E	NH 85
23	Kuthuparathodu, neriyamangalam	10°02'28.9"N 76°47'13.7"E	PWD
24	Mattupetty photopoint	TBD	SH 18
25	Tea factory mattupetty	TBD	SH 18

Table 17. Summary of the information boards placed



Figure 48. Boards in three languages were placed; English, Malayalam and Tamil





Location map of information boards



CONCLUSION

The TIES IUCN Freshwater Conservation Project in Munnar has had a significant impact on environmental education, conservation efforts, and sustainable tourism in the region. The project's key initiatives include publications, exhibitions, seminars, decentralized training, school events, and the installation of information boards, all aimed at raising awareness about the region's freshwater ecosystems, biodiversity, and conservation challenges.

Publications: Two brochures were developed to address critical environmental issues in Munnar. The first, titled "Tourism in Munnar: Challenges and Solutions," raised awareness about the impact of irresponsible tourism on the fragile ecosystem, offering solutions for sustainable tourism. The second brochure, "Freshwater Habitats of Munnar: Water Pollution and Drinking Water Issues," focused on threats to the region's freshwater ecosystems, such as pollution and encroachments. These brochures reached over 16,400 individuals, including residents, tourists, students, and government officials, through workshops and educational campaigns.

Exhibition: The project organized a poster exhibition, "From Pollution to Protection: Freshwater Conservation in Munnar," on December 10-11,

2024, at the Government Botanical Garden in Munnar. The exhibition attracted 355 visitors, including tourists, government officials, and local community members. It showcased Munnar's biodiversity, freshwater ecosystems, and the environmental challenges facing the region, particularly plastic pollution caused by tourism. A photo gallery featured unique and threatened species, emphasizing Munnar's ecological richness and vulnerabilities. The exhibition successfully raised awareness about freshwater conservation and the importance of public participation in preserving natural resources.

Tourism Seminar: On May 3, 2024, the project hosted a seminar on "Munnar Tourism - Challenges and Solutions" at the Munnar Grama Panchayat Community Hall. Inaugurated by Shri. Jayakrishnan IAS, the seminar addressed key issues such as water scarcity, improper waste management, unscientific construction, and pollution. Proposed solutions included improving waste disposal systems, promoting responsible tourism, and enhancing public transport. The seminar highlighted the need for collaborative efforts among stakeholders to ensure sustainable tourism development in Munnar.

Decentralized Training: A water filter training workshop was held in Munnar to address severe water contamination, with 100 water filters installed across the region. The workshop reached 910

individuals directly and an additional 1,500 indirectly, emphasizing water conservation, pollution reduction, and sanitation practices. This initiative helped strengthen community engagement and fostered environmental stewardship, with participants gaining valuable insights into water quality analysis and sustainable sanitation.

School Events: The IEC programs have made a significant impact by directly benefiting 1,126 students and indirectly benefiting 9,795 students across 14 schools in Munnar. Additionally, 81 staff members were directly impacted and 252 staff members were indirectly impacted from diverse areas of Munnar, bringing the total number of individuals benefited to 10,047. Through seminars, workshops, and creative initiatives like the Color to Conserve event, students gained practical insights into freshwater habitat conservation and the protection of threatened species. The program reached a diverse range of students, from rural institutions to larger urban schools, fostering deeper environmental awareness and encouraging active participation in conservation efforts.

Information Boards: To further raise awareness, 24 informative boards (double side: impacting 48 boards) were installed in key locations throughout Munnar, reaching an estimated 18,100 to 23,100 people daily.

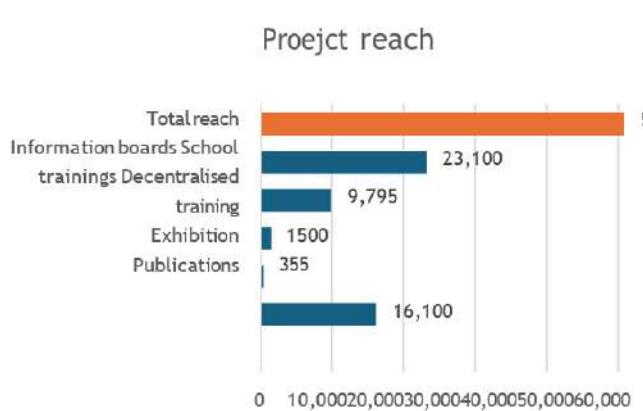
The boards highlighted threatened species, the harmful effects of pollution, and the importance of protecting Munnar's biodiversity. Strategically placed along tourist routes, they aim to educate both locals and tourists, encouraging responsible environmental practices and fostering a sense of environmental responsibility.

The TIES IUCN project has made substantial contributions to promoting sustainable tourism and environmental conservation in Munnar. Through a combination of educational initiatives, community engagement, and hands-on conservation efforts, the project has successfully raised awareness and encouraged actions to protect the region's freshwater ecosystems and biodiversity.

Total Reach: The project has reached an estimated total of 51,441 individuals directly and indirectly across various activities and initiatives. This includes over 16,439 individuals through brochures, 355 visitors to the exhibition, 910 individuals directly and 1,500 indirectly through decentralized training, 1,126 students directly and 9,795 students, as well as 81 staff members directly and 252 staff members indirectly from diverse areas of Munnar, covering a total of 10,047 individuals, and an estimated 18,100 to 23,100 people daily through the informative boards.

Sl.no	Event	Project reach
1	Publications	16,439
2	Exhibition	355
3	Decentralised training	1500
4	School trainings	10,047
5	Information boards	23,100
TOTAL REACH		51,441

Table 18. Total reach of IEC programmes



Graph 12. Graph showing total reach of IEC Programmes

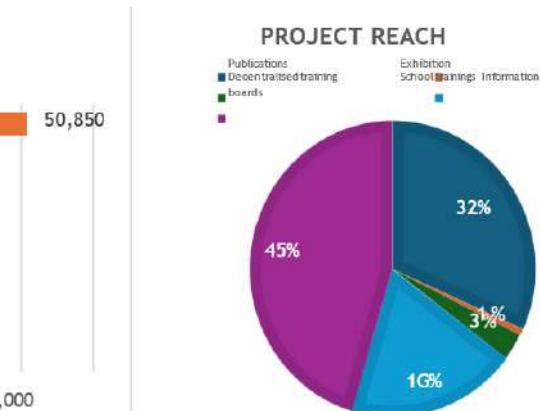




Figure 50. Board placed at Signal point



Field trip to Eco Point, Madupetty as part of Green Guardians Programme

Report on information, education and communication (IEC)
programmes for the conservation of fresh water habitat &
threatened species

Conducted as part of
protection of fresh water ecosystems for the conservation of threatened species in munnar, western ghats, india.

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