



# MNAL

ANNUAL REPORT  
2024



MEENANGADI NET ZERO ACCELERATOR LAB



## Introduction

The Meenangadi Net Zero Accelerator Lab (MNAL) is a pioneering initiative dedicated to promoting carbon neutrality and sustainability. The lab serves as a resource center, featuring models and information on sustainable practices for individuals, communities, and regions. MNAL also acts as a museum, showcasing milestones in the Carbon Neutral Meenangadi project. Over the past year, MNAL has made significant strides in fostering eco-friendly practices through key initiatives like carbon-neutral projects, promoting renewable energy solutions and sustainable farming. By engaging local farmers, students, and community leaders, MNAL continues to empower individuals to adopt sustainable practices and create a greener, more resilient future. This report highlights the key milestones and achievements of the year 2024, celebrating the collective efforts toward environmental stewardship and carbon neutrality.



### Mission

Our mission is to empower individuals, communities, and institutions with the knowledge and tools necessary to mitigate greenhouse gas emissions and work towards achieving carbon neutrality. MNAL is committed to fostering a culture of sustainability through education, innovation, and collaborative action.

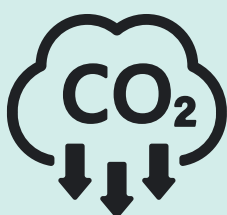


### Vision:

MNAL envisions a sustainable future where communities, institutions, and individuals actively work towards carbon neutrality. By fostering innovation, education, and collaboration, we aim to create a resilient ecosystem that mitigates climate change, enhances carbon sequestration, promotes renewable energy, and supports sustainable practices for a greener and healthier planet.

## Our Outreach

MNAL works on projects spanning six key areas, including emission reduction, Community upliftment, Awareness Building, Energy Efficiency, Innovation, and Carbon Sink Enhancement. Over the past year, the MNAL has strengthened its role in driving sustainable solutions, equipping communities, local governments, and institutions with the leadership skills and technical knowledge needed to combat climate challenges.



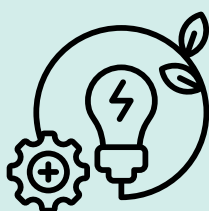
**Emission reduction**



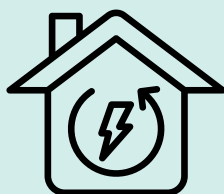
**Community Upliftment**



**Awareness Building**



**Energy Efficiency**



**Innovation**



**Carbon Sink**

## Our impact

In 2024-2025, MNAL strengthened its role as a model for climate resilience and environmental sustainability. Through collaboration with panchayats, educational institutions, farmers, media, international outreach and civil society organizations, MNAL successfully implemented key initiatives that enhanced carbon sequestration, promoted clean energy solutions, and fostered community-driven climate action.

# MNAL IMPACT'S 2024 -25

## Building Climate Resilience through local action



### Climate Action & Carbon Reduction

- **7.56 tonnes CO<sub>2</sub>** sequestered through afforestation such as tree planting during special events and implementation of kitchen gardens in Meenangadi Panchayat.
- **200 tonnes CO<sub>2</sub>** were offset through the distribution of 50 energy-efficient stoves
- A solar water pump reduced **1.2 tonnes of CO<sub>2</sub>-eq** and supported organic farming that earned ₹26,185, while a superpower tiller increased productivity and brought in ₹71,235, strengthening tribal farmers' livelihoods.



### Awareness & Capacity Building

- Reached out to **230** women from self-help groups through awareness sessions on carbon-neutral practices.
- **305** students received awareness through the POC campaign.
- Reached out to **15** climate volunteers and **13** green volunteers, engaging them in various activities like exhibitions and special day events to strengthen community-driven environmental action.
- Reached out to **335** students and raised awareness through sessions on carbon-neutral practices.



### Farmer Engagement & Agroecology

- MNAL engaged 26 groups with **395** farmers and trained 12 groups (**84** women farmers) on climate-resilient agroecology through farmer-to-farmer sessions and organic input making.
- MNAL reached out to **20** farmers to conduct biodiversity monitoring.
- MNAL tested **263** soil samples for carbon content and provided guidance based on the results.

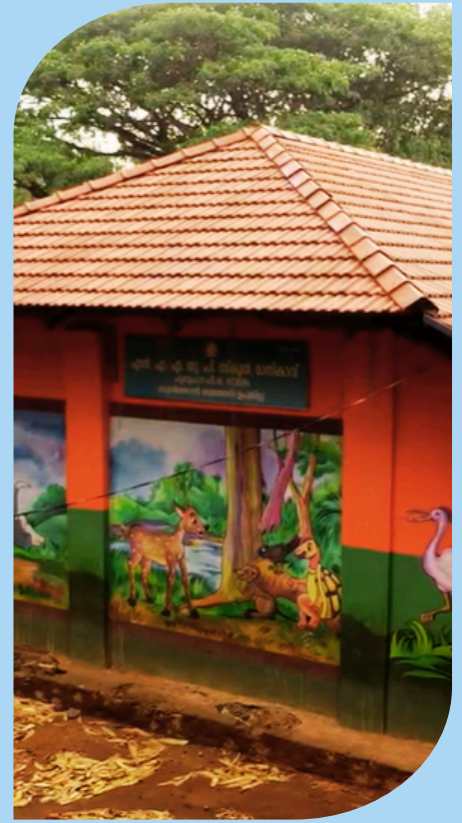


### Events & Outreach

- MNAL conducted **5** events that benefited 635 students and **366** individuals through exhibitions, knowledge exchange, and global recognition.

### Impact Summary

- **Total carbon reduction: 208.76 tonnes of CO<sub>2</sub>eq**
- **Students Reached: 668**
- **Women Trained: 314**
- **Soil Tests Done: 263**
- **Events & Outreach: 366**



## **NAAUPS Manikav has set a model for how to become carbon neutral**

As part of the 2025 Net Zero Carbon Kerala campaign, NAAUPS Manikav has achieved Meenangadi's first carbon-neutral school status. This achievement was made possible through the dedicated efforts of teachers and students. It was recognised at the Haritha Kerala Mission's environmental summit in Thiruvananthapuram on March 24, 2025.

Manikavu School, established in 1957, began building a biodiversity park with the support of Meenangadi Panchayat in 2008. The park hosts 40 bamboo species, including Elephant Bamboo, Assam Bamboo, and Golden Bamboo, thereby enhancing environmental awareness while benefiting both students and the local community. With bamboo's high carbon sequestration capacity, it sequesters carbon, and at the same time, mature bamboo plants support local livelihoods while attracting visitors.

The school also promotes sustainability through effective waste management practices including, using colour-coded bins for waste segregation, effective involvement of Haritha Karma Sena, paper reuse initiatives and creating awareness among students about waste management. With support from Thanal and MNAL, students and teachers collaboratively established an organic nutrition garden to enhance the mid-day meal program, ensuring access to chemical-free food. Additionally, the school actively engages in climate awareness initiatives, educating students on sustainability, renewable energy, eco-friendly practices, and green livelihoods, thereby fostering a generation committed to environmental responsibility.



## **NAAUPS Manikav organic nutrition garden: Cultivating Sustainability & Nutrition**

In celebration of International Children's Day, NAAUPS Manikav, in collaboration with MNAL, launched a nutrition garden on November 20, 2024, transforming 10 cents of land into a thriving space for sustainable agriculture. 15 students and teachers planted 610 vegetable saplings of 13 varieties, fostering hands-on learning in organic farming.

Beyond farming, the initiative aimed to strengthen food literacy. MNAL conducted interactive sessions educating 15 students on the concept of the Healthy Meal Plate. Students were divided into four groups, each exploring topics like healthy meal components, chemical pesticides, organic alternatives, and plant growth stages. They created posters and presented their insights, showcasing creativity and teamwork. The engaging activity enhanced their understanding of nutrition, sustainable farming, and health, fostering awareness about healthier food choices and environmental responsibility.



MNAL played a crucial role in guiding the initiative by providing technical support, facilitating training sessions, and ensuring the long-term sustainability of the project. Students actively participated in training on pesticide risks, organic farming, and sustainable agriculture. Through practical lessons on planting, soil preparation, and water management, they gained essential farming skills. Thanal supported the initiative by providing saplings and necessary inputs, ensuring a diverse and nutritious yield.

A major milestone was achieved on January 27, 2025, with the first harvest, participated by the AID team, MNAL, Thanal representatives, teachers, and students. This initiative not only provided fresh organic produce for the school's midday meal program but also instilled sustainable farming values in students, empowering them to make healthy food choices and contribute to a greener future.

## Key Achievements at a Glance

- 610 vegetable seedlings planted, enhancing carbon sequestration by 7.32 tonnes of CO<sub>2</sub>eq.
- 133 students (52 boys and 81 girls) and 10 teachers benefitted and gained valuable insights from the program.
- Students learned about the importance of a healthy meal plate and balanced nutrition.
- A total of 95 kg of vegetables from six varieties were harvested and incorporated into the school's midday meal program, ensuring fresh, organic, and chemical-free food for the students.





## **Regenerative Agriculture: Transforming Lives & Land in Manivayal**

Regenerative agriculture is emerging as a transformative approach for enhancing soil quality, boosting biodiversity, and strengthening farmer livelihoods. In February 2024, a pilot project was launched in the 19th ward of Manivayal, bringing together 16 farmers on 8 acres of land to establish a sustainable farming model. Despite challenges, including water scarcity, the project saw significant progress, demonstrating the potential of eco-friendly agriculture.

The Manivayal regenerative agriculture project transformed barren land into productive farms by addressing water scarcity through a solar water pump. Supported by Thanal in collaboration with Meenangadi Panchayat, the project also contributes to an annual emission reduction of 1.2 tonnes of CO<sub>2</sub>-equivalent. MNAL training empowered farmers with organic techniques, leading to chemical-free cultivation, ₹26,185 in earnings, and financial growth through reinvested profits.

Building on the success of the solar water pump and regenerative agriculture initiatives, a superpower tiller was provided to enhance agricultural productivity and support the economic empowerment of tribal farmers, as part of the UST Tribal Empowerment Program. The tiller, which began operations on July 13, 2024, worked for 78 hours across 24 fields, fostering a self-sustaining economic model as farmers leased it out for additional income. To ensure its efficient use, a skilled operator and helper were appointed, earning Rs 200 per hour and Rs 50 per hour, respectively. Each farmer paid Rs 700 per hour for tiller services, generating a total income of Rs 71,235. This initiative not only improved farm productivity but also strengthened the economic stability of the tribal community, reinforcing the role of sustainable agriculture in livelihood development and community empowerment. Farmers resumed cultivation in January 2025, initially focusing on small-scale farming. In the first phase, seeds and saplings were sourced from Krishi Bhavan, but some crops were lost due to unforeseen challenges.

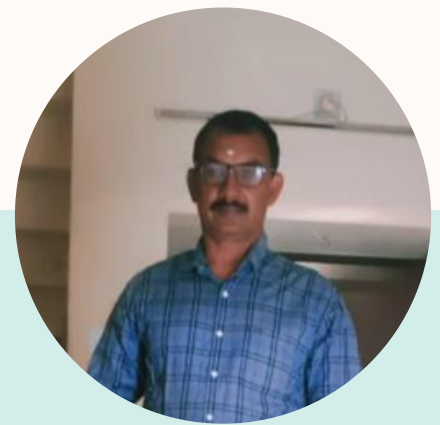
## Scaling Up in 2025

A meeting under Thanal's leadership led to the regrouping of 10 farmers, who restarted cultivation on 1 acre, growing 10 different vegetable varieties, including cowpea, beans, ladies' finger, chili, cabbage, cauliflower, marigold, corn, spinach, and cucumber. Beyond the main group, 8 additional farmers adopted solar pump irrigation for independent farming.

Currently, solar-powered irrigation supports the cultivation of 13 acres of farmland in Manivayal, benefiting 18 farmers, 8 individuals and 10 members of the Manivayal Nanma Farmers group (5 women and 5 men). Farmers are gradually expanding operations, ensuring financial stability and long-term agricultural sustainability.

### Impact of Solar Water Pump on Rice Cultivation

- In 2024, the first crop which is rice cultivation was carried out on 13 acres using solar-powered irrigation with the participation of 18 members.
- Last year, farmers cultivated vegetables organically on 8 acres of land. As a result, this year's harvest improved significantly.
- After the rice harvest, farmers have now shifted to vegetable cultivation.
- Additionally, solar water is also being used for maintaining the Pachathuruth (green island).

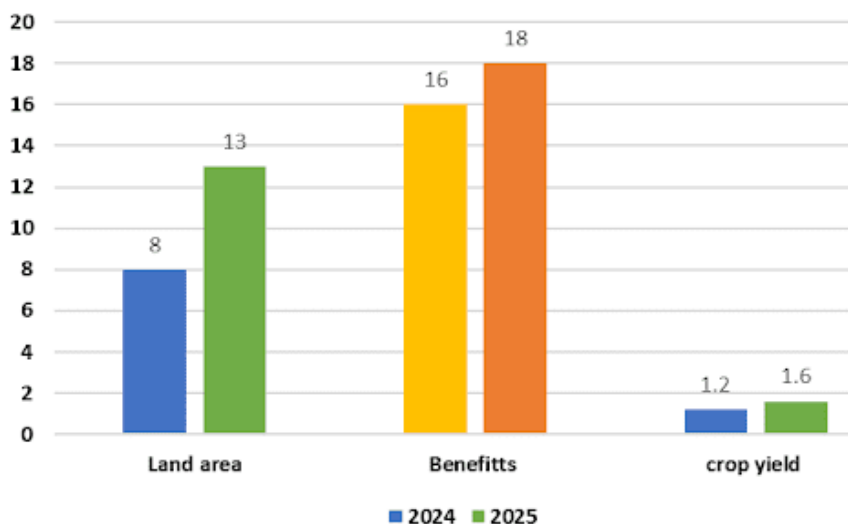


**M K Shivaraman**

Farmer, Nanma  
Karshakakoottayma



**with the help of solar water pump irrigation and regenerative agricultural practices, the rice yield increased from 1.2 tonnes in 2023 to 1.6 tonnes, marking an increase in production.**



Graph1: Growth Trends in Manivayal through Regenerative Agriculture

## Energy efficient stove initiatives



As part of the carbon neutral meenangadi project MNAL, in collaboration with Thanal and Meenangadi Panchayat, launched an energy-efficient stove project, benefiting 50 families in its first phase. In 2016, a survey in Meenangadi revealed that firewood use for cooking contributed 3% of GHG emissions and posed health risks, especially to women. By providing 50 families, each stove offsets 4 tonnes of CO<sub>2</sub> annually, resulting in a total reduction of 200 tonnes of CO<sub>2</sub> eq per year. The project enhances health, lowers firewood use, and supports Meenangadi's carbon neutrality goal.

Initially, the Panchayat set the price of each stove at Rs. 3000, offering a subsidy of Rs. 2400 per unit, thereby reducing the cost for beneficiaries to Rs. 600. To promote wider adoption, the subsidy structure was revised and financial support increased, reducing the stove's price to just Rs. 1000.

### Key achievements and Impact

- Introduced energy-efficient stoves to reduce firewood consumption and emissions.
- Offset 200 tonnes of CO<sub>2</sub>eq annually by distributing 50 stoves in Phase 1.
- Improved indoor air quality, reducing health risks for women and children.
- Raised awareness through Kudumbashree sessions & exhibitions, driving community adoption.
- Aligned with Meenangadi's carbon neutrality goal, promoting sustainable household energy solutions.

## Creating a Carbon Neutral Future: Expanding Awareness & Participation



Over the past year, the MNAL team has taken significant strides in promoting environmental sustainability through community awareness, education, and climate action. By engaging diverse groups, from schools to various communities and climate volunteers, MNAL has successfully spread the message of carbon neutrality and sustainable living.

A total of 215 individuals, including 203 kudumbasree members across 9 wards and 12 organic farmers (10 women & 2 men), participated in Carbon Neutral Meenangadi (CNM) awareness sessions and received training on carbon neutrality and sustainable practices.

Six schools in Meenangadi Panchayat, such as Manikavu, Chennai, Mylampady, Kolagapara, CC, and Appad hosted CNM sessions, educating 202 students and teachers on climate change and sustainable practices.





## Building Climate Leaders for a Greener Tomorrow

15 climate volunteers, a group of dedicated individuals committed to promoting environmental sustainability, received training in carbon neutrality, climate resilience, and zero-waste management. They participated in practical sustainability demonstrations and, in collaboration with NSS students, planted native flowering plants at Manivayal Pacha Thuruthu (Green Island) to enhance biodiversity.

Additionally, four climate volunteers actively contributed to developing three different models showcasing the Carbon Neutral Project: Carbon Neutral House, Manivayal Solar Project, and Carbon Neutral Meenangadi. These models serve as educational tools to demonstrate sustainable living, renewable energy solutions, and community-driven climate action.

Climate volunteers play a crucial role in raising environmental awareness, advocating for sustainable practices, and driving community-based climate action. Through hands-on initiatives, training programs, and knowledge-sharing, they help implement carbon-neutral strategies, promote renewable energy adoption, and engage local communities in climate resilience efforts. Their contributions inspire long-term behavioral changes, fostering a greener and more sustainable future.



**Nikhil Das**

"When I first heard about Thanal, I only had a basic understanding. But after joining, I learned so much about Thanal itself, the Carbon Neutral Meenangadi project, and sustainability. As a climate volunteer, I contributed to building and presenting three CNM models and actively participated in documentation of programs. This journey has been an incredible learning experience



**Abhiram KV**

"I first joined Thanal through the Carbon Neutral programs. Over time, I actively participated in various activities and understood the importance of the carbon neutral project. I brought together interested students from my college to create a Carbon Neutral Meenangadi model, helping others grasp the concept. I also had the chance to attend events like Thanal's first anniversary, 'Thulitham' fest, and the 'Jathire' seed festival. I'm grateful to Thanal and Meenangadi Panchayat for this wonderful opportunity."





## Programs conducted on special days

**Green volunteers' clean-up drive at Manivayal conducted on earth day:** MNAL organized an Earth Day celebration at Manivayal Pachathuruth, bringing together 16 participants, including 13 Green Volunteers and 3 community members, for an eco-awareness session. Green Volunteers are individuals dedicated to promoting environmental conservation and sustainability through active participation in eco-friendly initiatives.

A key highlight of the event was the Protect Our Children (POC) campaign, which educated youth on organic farming and the dangers of chemical-based agriculture. To foster environmental awareness, students created five posters on conservation themes and participated in a plastic waste cleanup drive, ensuring proper disposal at the Municipal Collection Facility (MCF). A quiz competition was also conducted to enhance environmental knowledge. The event took place at Manivayal Pachathuruth (Green Island) a biodiversity-rich area, containing 21 varieties of bamboo saplings along with other native plant species, playing a vital role in afforestation, carbon sequestration, and ecological restoration.

### Community-Led Tree Planting for a Greener Future:

MNAL led the World Environment Day celebration in Meenangadi, engaging 611 participants, including 570 students and 41 community members, across three schools: GUPS Kolagapara, GHSS Meenangadi, and Manikavu, as well as local community events. A key focus was tree planting, with 20 fruit and native saplings planted in schools and public spaces, contributing to an estimated 0.24 tonnes of CO<sub>2</sub>eq sequestration annually.

An essay competition was also organized for interested students, fostering critical thinking on environmental issues. The winners will receive their prizes at the Thulitham event, acknowledging their efforts in promoting sustainability awareness.



## Celebrating women's day by releasing 'Agronari'



MNAL celebrated International Women's Day at Manivayal, bringing together 40 attendees, including members of the Nanma Farmers Group, MNREGA workers, and government officials. MNAL, in collaboration with PANAP and Thanal, celebrated International Women's Day by honoring the leadership of women farmers in agroecology. The event featured the launch of Thanal publication Agronari highlighting the inspiring stories of 27 women farmers committed to sustainable agriculture, biodiversity conservation, and traditional knowledge preservation. Meanwhile, in Thiruvananthapuram, Thanal CEO Smt. Manju M. Nair launched Agronari by presenting it to the inspiring women farmers featured in the book.



## Agronari: Celebrating Women's Leadership in Agroecology



Agronari, a publication by Thanal, celebrates the resilience and leadership of 27 women farmers, including 16 from Wayanad, who have adopted agroecology to preserve traditional farming practices and promote ecological sustainability. These women have played a crucial role in safeguarding indigenous agricultural knowledge, shifting away from chemical-dependent farming to ensure food security, biodiversity conservation, and soil restoration.

The book highlights diverse women-led agricultural initiatives, including the Souparnika Oushada Sasya Unit, where women cultivate and preserve traditional medicinal plants. It also features young entrepreneurs like Shalini, Praveena, Bindu, and Vani, who use social media to expand nurseries such as Tharappel Nursery, Vasu Jaivanganam, and Bhoomi Orchards, as well as farmer-driven markets like Thanal Organic Bazaar. Through agroecology, these women have transformed personal and financial hardships into opportunities, turning farming into an income-generating and empowering livelihood. By challenging gender stereotypes in agriculture, they are leading the way toward a sustainable, just, and pesticide-free food system.

Agronari serves as an inspiration, proving that women's leadership in agroecology is essential for a future where farming is not only sustainable but also economically empowering and socially inclusive. [READ THE FULL BOOK HERE](#)



# Driving Local Climate Action: Meenangadi's Global Impact



## Impact and achievements

- Global Recognition
- Scaling Climate Action
- Policy & Institutional Strengthening
- Knowledge Exchange & Collaboration
- Strengthened community Networks

In 2024, Meenangadi's Carbon Neutral Project and Zero Waste Initiatives gained international recognition, reinforcing the role of Panchayat Raj Institutions (PRIs) in driving climate resilience. Meenangadi's participation in two major global events the 'International Land Development Conference (ILDC)' at Flame University, Pune, and 'GAIA's International Webinar' on Zero Waste at Local Self-Governance showcased its leadership in renewable energy, land restoration, and sustainable waste management.

At ILDC, Thanal's case study on Meenangadi's Carbon Neutral Project demonstrated how grassroots governance can drive large-scale climate solutions. Experts from academia, NGOs, and government agencies engaged with the MNAL team, fostering new partnerships for future climate initiatives. The panel discussion emphasized the need for policy support, capacity-building, and the integration of PRIs into India's Net Zero roadmap, inspiring other panchayats to adopt similar models. [Read here](#)

Similarly, at the GAIA International Webinar, Meenangadi's zero-waste efforts were recognized for sustainable waste management strategies. Panchayat President K.E. Vinayan highlighted waste segregation, composting, and waste-to-energy solutions, while Neena Krishnan (NIRDPR) emphasized behavioral change and education as key drivers of zero-waste success. The event aimed to highlight the successes, challenges, and strategies involved in the Panchayat's journey toward a zero-waste future. A total of 38 participants from diverse sectors, including local governance, sustainability experts, and community leaders, joined the online session. [live](#)

## Reached out to 337 individual Knowledge Exchange & Global Recognition

Over the past year, the Meenangadi Net Zero Accelerator Lab (MNAL) and the Carbon Neutral Meenangadi (CNM) project have significantly expanded their outreach, engaging a diverse range of stakeholders, from government bodies and academic institutions to students, farmers, and the media.

### Our reach breakdown 2024-2025

#### 5 Community & Government Engagement

The Meppayur Panchayat Team: 5 representatives explored waste management, carbon neutrality, and rural sustainability gaining insights for potential adoption. MNAL played a key role in educating and motivating them to adopt carbon neutrality by sharing knowledge, best practices, and successful models.

Sriram, an Assistant Professor at Ambalavayal RARS, and former Agriculture Officer Sreekanth from Muttill Panchayat visited MNAL to study climate resilience and sustainable farming. Their discussions led to strengthened academic collaboration, better integration of government schemes, and improved farmer access to eco-friendly agricultural practices in Wayanad.

Two representatives from MoRD, facilitated by Kudumbashree, observed climate resilience efforts at meenangadi panchayat. The visit had a significant impact, MoRD officials acknowledged the potential of Kudumbashree's community-driven model for large-scale replication. They initiated discussions on policy recommendations to integrate carbon neutrality into national rural development programs, highlighting the importance of sustainable practices in shaping future policies.



## 50 Student & Youth Empowerment

A total of 48 youth visitors (10 girls, 38 boys) participated in agroecology exposure visits. Nehru Yuva Kendra's 34 volunteers gained hands-on experience in agroecology and rice biodiversity conservation, while 14 members of the Vikalpa Yatra Team explored sustainable farming and indigenous seed conservation. This initiative strengthened youth involvement in climate-resilient agriculture, fostering awareness and skill-building for sustainable practices.



**GHSS Meenangadi students** - Developed a sustainable township model with MNAL's guidance, securing 6th place in the science fair. This initiative enhanced their knowledge of sustainability, boosted confidence, and promoted practical applications of eco-friendly urban planning. It also raises community awareness, inspiring broader engagement in carbon-neutral initiatives.



# Connecting Communities: Through exhibition



## Thulitham: Celebrating One Year of Meenangadi Net Zero Accelerator Lab

On July 14, 2024, the Meenangadi Net Zero Accelerator Lab (MNAL) celebrated its first anniversary with the Thulitham Festival, bringing together panchayat officials, students, climate volunteers, and community members. Hosted at the Meenangadi Community Hall with the support of Thanal, the event highlighted key sustainability initiatives and the collective journey towards a carbon-neutral future.

## A Day of Learning and Inspiration

The event, inaugurated by District Panchayat President Shamsad Marakkar, featured a range of interactive stalls, models, and discussions. Over 260 participants, including 122 students from various schools and colleges, engaged with 10 thematic stalls showcasing carbon-neutral initiatives.

The event featured 10 interactive stalls, including three models developed by students of Government Polytechnic College: Carbon Neutral House, Carbon Neutral Meenangadi, and the Manivayal Solar Project. Thanal's agroecology and zero-waste stalls promoted organic farming, composting, and eco-friendly practices. Industry experts, including Baburaj from the Thrikaippatta Global Bamboo Institute, and ABR Solar, emphasized the role of bamboo and solar energy in sustainability.



Meanwhile, Manivayal ward contributed five stalls featuring locally-made sustainable products, from herbal medicines to handicrafts. Educational resources such as Thanal's publications on carbon neutrality were also available, reinforcing the commitment to spreading awareness.



## Empowering the Next Generation

A presentation on carbon neutrality by Niranjana engaged students, followed by an insightful climate dialogue featuring experts like Thanal's Executive Director Jayakumar C and environmentalists KV Biju, Pan India CEO Dileep Kumar and organic farmer Baby CV. Engaging discussions on climate change, sustainable agriculture, and community action offered valuable takeaways for the attendees. Speech competitions encouraged young voices to discuss "Carbon Neutral Development" and climate change, with 24 students participating across categories.



## Recognizing Achievements & Future Goals

The event concluded with Assistant Collector S. Gautam Raj, IAS, releasing the 'Carbon Neutral Meenangadi evaluation and Recommendations Report' Malayalam edition. Winners of speech and essay competitions were awarded, and Climate Volunteer Certificates were distributed. A folk performance by the Manivayal Thudipatt group closed the celebrations on a cultural note.



A major highlight was the distribution of a KAMCO Super Power Tiller (Model: 3210401661). As part of the UST Tribal Empowerment Program, the Kamco Super Power Tiller was provided to Nanma Manivayal farmers, who had successfully implemented regenerative agriculture using solar-powered irrigation. The tiller was officially handed over by Assistant Collector S. Gautam Raj, IAS, recognizing the farmers' efforts and commitment to sustainable agriculture.



## Fair Trade Alliance, Seed Fest 2025



Farmers, NGOs, SHGs, and students took part in the 11th Fair Trade Alliance Seed Fest 2025, gaining insights into seed conservation, climate resilience, and agroecology. Informative stalls at the major events provided educational materials, reaching a broader audience and fostering climate-conscious communities.

## 2 Media Outreach

- **DW News (Germany)** – Showcased Meenangadi's sustainability model on its YouTube channel, expanding global outreach and inspiring international audiences to learn from the Carbon Neutral Meenangadi (CNM) initiative. [DW youtube](#)
- **Fingerprint Content (Mumbai)** – Documented CNM for Defenders of Planet Earth (DOPE) web series, highlighting afforestation, waste management, and sustainable agriculture, amplifying the project's reach in India and beyond.



## 2 Evaluation & partnership

- Over the past year, MNAL has been partnership-oriented, ensuring impactful project evaluations by bridging local farmers' insights with SIDA and AID assessment teams.



# Empowering Communities Through Sustainable Agriculture

In 2024, MNAL coordinated Thanal's transformative initiatives across Meenangadi Panchayat and Wayanad, focusing on sustainable agriculture, pesticide-free farming, and capacity building for farmers and environmental professionals. Through targeted training programs, knowledge-sharing campaigns, and MNAL empowered students, women farmers, and agricultural professionals to adopt eco-friendly and resilient farming practices.



**Protect Our Children (POC) Campaign:** Raising Awareness on Pesticide-Free Farming: The "Protect Our Children" (POC) campaign reached 305 students across government and aided schools, educating them on the dangers of pesticide exposure, particularly for children and women. Students learned about pesticide-related health risks, such as respiratory diseases and skin disorders and explored organic farming alternatives.

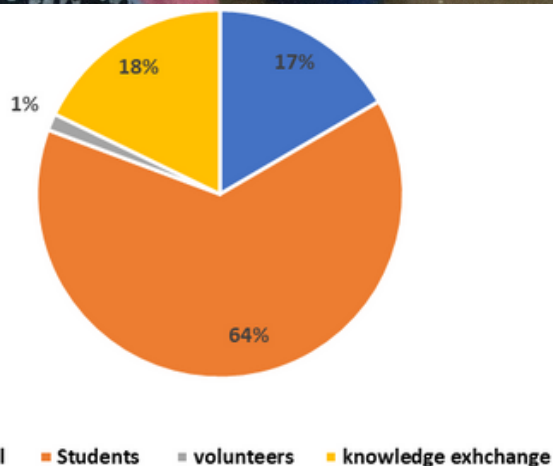
## Key Impact:

- 5 educational posters were displayed, illustrating the benefits of organic farming.
- It reaches 305 students and they share knowledge with families, encouraging community-wide discussions on reducing pesticide use.
- The campaign influenced local farmers to explore safer, sustainable agricultural practices.



# Training & Capacity Building for Women Farmers:

MNAL conducted multiple training programs for women farmers, strengthening their role in organic farming and sustainable agriculture.



Graph3: Annual Training & outreach

## Key impact:

- 84 women farmers participated in a Farmer-to-Farmer interaction program, exchanging knowledge and experiences to enhance yield while maintaining sustainability.
- 7 groups of 135 women farmers were trained in organic fertilizer production, reducing dependency on chemical pesticides.
- 263 soil samples were collected and analyzed at the Carbon Neutral Lab, providing farmers with insights to improve soil health.
- 20 women farmers participated in a biodiversity monitoring program, documenting changes in flora and fauna and promoting environmental conservation.

**Agroecology Training for Thanal Staff:** MNAL also enhanced agroecology knowledge among professionals by organizing a specialized training for Thanal staff. Led by Anoop Kumar, an agroecology consultant, the program covered soil health, plant propagation, natural fertilizers, pest management, and sustainable farming techniques.

## Key impact:

- Strengthened technical expertise of Thanal's field staff.
- Facilitated collaborative learning and knowledge exchange among participants from different districts.
- Provided practical and actionable insights, ensuring direct application in ongoing environmental projects.

# Participation

In 2024–2025, MNAL associated with Meenangadi Panchayath in many initiatives to promote sustainability, organic farming, soil health, and climate resilience. These efforts reinforced the Panchayat’s position as a leader in community-driven environmental action, earning it prestigious recognitions, including the Swaraj Trophy and Mahatma Puraskaram.



## Naadariyam Nadannariyam: Strengthening Carbon Sequestration

- Inaugurated by Panchayat President K.E. Vinayan, focusing on planting mango and vegetable saplings at GLPS Appad.
- MNREGA workers, teachers, and community members actively participated.
- Enhanced carbon sequestration efforts.



## Kisan Jyothi: Recognizing Farmers Contributions

- 300 farmers from 19 wards participated in the event.
- 4 exemplary farmers were honored for their contributions, including an organic farmer Mrs Thankamani, who is associated with Thanal.
- The Best Padasekhara Samithi Award recognized a farmer’s collective excelling in sustainable group farming.
- 80 farmers received agricultural support in the form of sprayers, coconut saplings, and mementos.



## Mannariyam Krishi Cheyyam: Soil Health program

- Farmers received training on improving soil quality through organic practices and natural soil enrichment techniques.
- Discussions with agricultural officers helped design sustainable land-use strategies for increasing productivity.



### **Focus Group Discussion: Climate Change & Local Governance**

- Led by Mrs. Sanjana (Rajiv Gandhi National Institute) at Manikav School. Farmers highlighted shifting seasons, water scarcity, & deforestation concerns.
- Farmers learned how climate change impacts their livelihoods and discussed ways to adapt.
- Farmers suggested solutions like using fallow land for farming and creating community monitoring groups.
- The session emphasized the role of panchayats and institutions in climate resilience, leading to potential policy recommendations.



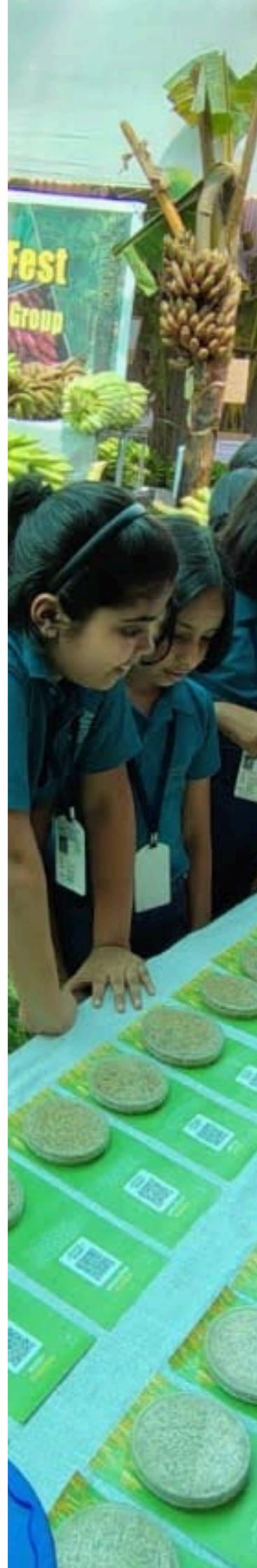
### **Awards & Recognition: A Model for Sustainability**

- Meenangadi Panchayat won the Swaraj Trophy & Mahatma Puraskaram for the 4th consecutive year.
- Recognized as a leading sustainable panchayat in Kerala.

These achievements position Meenangadi as a model Panchayat, proving that sustainable governance, active community participation, and forward-thinking policies can drive meaningful environmental and agricultural transformation.

## Future Opportunities

- **Enhancing Climate Literacy:** Currently, climate education and awareness programs are being conducted at both the school and community levels. However, there is a need to expand these efforts to reach a larger audience and ensure more people are informed and engaged in climate action. MNAL aims to enhance climate literacy through workshops, educational models, and community engagement. By expanding outreach, this initiative empowers individuals to adopt eco-friendly practices, fostering a climate-conscious society committed to sustainability and resilience.
- **Reassessment study:** To ensure Meenangadi's progress toward carbon neutrality, it is essential to reassess emissions and identify key sources. Conducting the Carbon Neutral Meenangadi Reassessment Survey will provide updated carbon calculations, helping to monitor progress effectively. By evaluating the panchayat's carbon neutrality status, major emission sources can be identified, allowing for targeted mitigation strategies to minimize carbon footprints. Implementing these solutions will strengthen sustainability efforts, promote eco-friendly practices, and bring Meenangadi closer to achieving full carbon neutrality.
- **Solar installation:** The first phase of the survey identified the energy sector as a major contributor to carbon emissions in Meenangadi, particularly in Anganwadis, schools, health centers, and government centers. To address this, assessing the carbon neutrality status of these institutions is crucial. By implementing solar solutions, we can enhance renewable energy adoption, reduce dependence on conventional power sources, and promote long-term sustainability. This initiative will significantly lower carbon footprints, increase energy efficiency, and support the transition toward a greener and more self-sufficient community.
- **Community need assessment:** Gathering insights from communities and institutions helps identify challenges and develop targeted sustainability solutions. By addressing specific needs, this approach enhances resource efficiency, promotes eco-friendly practices, and strengthens community engagement. Implementing these solutions fosters long-term sustainability, environmental responsibility, and a more resilient future for institutions and society.



- **Soil to soul campaign:** Farmers often struggle with maintaining soil health due to a lack of proper training, soil testing, and access to organic inputs. The Soil to Soul Campaign aims to address this challenge by selecting 400 farmers from Meenangadi Panchayat, including 20 master farmers, who will receive comprehensive training, organic seeds, and biofertilizers. Continuous support will be provided through field visits, soil testing to analyze nutrient levels, and advisory services to enhance sustainable farming practices. As part of this initiative, MNAL will establish a soil testing lab to provide scientific analysis and tailored recommendations. This approach will improve soil fertility, boost agricultural productivity, promote organic farming, and ensure long-term environmental sustainability.
- **Youth led Biogas project:** Methane emissions from livestock and paddy fields are a major contributor to Meenangadi's carbon footprint, with a 2016 survey revealing that 74% of emissions came from cattle farming. Additionally, youth in the region face limited opportunities in green jobs and climate action. To address this, a youth-driven biogas plant will be established, with a selected cattle farmer leading the project. Regular monitoring and lab tests will ensure efficient gas production, reducing methane emissions and generating sustainable energy. A youth volunteer program will provide training in sustainable agriculture, renewable energy, afforestation, and waste management, creating employment and empowering youth to drive climate action and Meenangadi's carbon-neutral vision.
- **Afforestation programs:** Deforestation and biodiversity loss threaten sustainability. To combat this, Sugathakumari Teacher Ormanam will drive afforestation, establishing one Green Island (Pachathuruthu) in 19 wards to boost carbon sequestration. Manikav School's carbon-neutral model will inspire similar efforts in other schools, strengthening biodiversity, engaging communities, and advancing Meenangadi's carbon-neutral vision.
- **Energy-Efficient Stove Distribution:** A total of 100 energy-efficient stoves will be distributed to 100 families, reducing indoor air pollution and minimizing smoke exposure. This initiative is expected to offset approximately 400 tonnes of CO<sub>2</sub>, promote sustainable cooking practices, and support Meenangadi's carbon-neutral goals, while enhancing the well-being of women and families.
- **Sustainable Schools Initiative:** To foster a culture of sustainability, schools will implement practical, eco-friendly initiatives that offer students direct interaction with nature. This year, MNAL successfully implemented kitchen gardens in selected schools, giving students hands-on experience in growing food and understanding ecosystems. Building on this, MNAL is expanding support for butterfly gardens, kitchen gardens, rainwater harvesting, and composting programs, promoting biodiversity, water conservation, and waste management. These initiatives provide hands-on experiences, fostering a culture of sustainability from an early age.



## Conclusion

The past year has been a remarkable journey for MNAL, reinforcing our dedication to environmental stewardship and community-driven sustainability. Our initiatives, from enhancing carbon sequestration through afforestation to promoting renewable energy solutions and climate education, have paved the way for a more resilient and eco-conscious Meenangadi. These collective efforts have not only strengthened local capacities but also positioned MNAL as a model for carbon neutrality and sustainable development.

As we move forward, MNAL remains committed to scaling up our impact by expanding successful programs, integrating innovative sustainability strategies, and fostering deeper collaborations with communities, institutions, and policymakers. By building on our achievements, we aim to accelerate the transition towards a carbon-neutral future, ensuring that Meenangadi continues to thrive as a beacon of sustainability for years to come.



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## **MNAL's Role in Driving Impact**

- Facilitated knowledge-sharing and implementation of organic farming and carbon sequestration initiatives.
- Trained farmers and community members on sustainable agricultural practices and soil enrichment.
- Coordinated local farmers in adopting chemical-free farming, increasing soil fertility and biodiversity.
- Led discussions on climate action, proposing community-led environmental programs.

