

2024 ANNUAL REPORT

CARBON NEUTRAL
ACCELERATOR LAB

PREPARED BY
THANAL



Annual Report

CARBON NEUTRAL ACCELERATOR LAB

2023-2024



Thanal, one of the oldest environmental organizations based in Kerala, India, has been tirelessly working for three decades to achieve Environmental Health and Justice and nurture an environmentally-conscious younger generation ever since its inception in 1986. During the last financial year, Thanal has initiated and/or continued multiple programmes to achieve its goals under its core programs, namely Agroecology, Climate Action, Sustainable Livelihood, Tribal Agriculture and Zero Waste and Circular Economy. It has been a fruitful year for the organization as several new projects were initiated, new beneficiaries were added and new relations were formed with other organizations, government entities and communities. This report provides a glimpse into all the major activities of Meenangadi Net Zero Accelerator Lab (MNAL) of Thanal has been working on for the past year, the challenges faced and new opportunities identified for expanding our works.

INTRODUCTION

The Carbon Neutral Accelerator Lab, also known as Meenangadi Net Zero Accelerator Lab (MNAL) aims to educate people about net-zero/carbon neutrality, how to achieve it, and the necessity to shift to a sustainable economy. The center will have models and information on different measures to be adopted to become sustainable, for an individual as well as for a community/district/state. It will also act as a museum for exhibiting the milestones in the Carbon Neutral Meenangadi project. The center will have a 'Tree Banking Technical Cell' to aid the beneficiaries of the Tree Banking scheme and facilitate its functioning like conducting surveys and tree tagging. There is a 'Carbon Neutral Technical Cell' in the Lab as well to coordinate all interventions under the Carbon Neutral project in Meenangadi including GHG assessment, distribution of solar lamps and thermo boxes, installation of compost bins, etc.

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.

Goals

Educate: MNAL aims to educate people about net-zero/carbon neutrality, highlighting the importance of sustainable practices and the steps needed to achieve them, both at individual and community levels.

Showcase: MNAL serves as a repository of information and models showcasing various measures for sustainability, providing tangible examples and milestones in the journey towards carbon neutrality.

Support: MNAL houses specialized technical cells, including a 'Tree Banking Technical Cell' and a 'Carbon Neutral Technical Cell,' to support beneficiaries and facilitate the implementation of sustainability initiatives such as tree banking schemes and carbon-neutral projects.

Objectives:

- 1. Emission Reduction:** MNAL seeks to minimize anthropogenic greenhouse gas emissions through mitigation measures, aiming to achieve measurable and verifiable carbon-neutral status for Meenangadi Panchayat.
- 2. Community Participation:** MNAL emphasizes participatory decentralization, empowering local communities to take leadership roles in achieving carbon neutrality.
- 3. Awareness Building:** MNAL endeavours to bridge the gap between sustainability targets and current achievements by raising awareness of viable solutions and innovations through marketing, media, and events.
- 4. Energy Efficiency:** MNAL promotes reduced consumption and wastage of electricity while advocating for increased generation of renewable energy sources.
- 5. Innovation:** MNAL serves as a platform for piloting new technologies and solutions with committed green leaders in the market, fostering innovation in sustainable practices.
- 6. Carbon Sink Enhancement:** MNAL aims to increase carbon sequestration through targeted emission reduction activities and the promotion of carbon sink initiatives.

MNAL AS A REASERACH & LEARNING HUB

The Meenangadi Net Zero Accelerator Lab (MNAL) functions as a pivotal Research and Learning Hub, offering essential technical guidance to the implementation of the Carbon Neutral Meenangadi Project. MNAL diligently collects technical data from the field by actively conducting baseline assessments from the grass-root, identifying community needs, and drafting projects accordingly, which then disseminates it to Panchayat officials and other stakeholders, facilitating informed decision-making and developing innovative projects. Last year MNAL has worked to collect datas for project like Haritha Sundaram to promote the use of electric vehicles in Meenangadi panchayat by collecting Personal data, driving license details and user fees were collected from all members of Haritha Karmasena. Also for Angan Jyothi Solar Initiatives which aims to bring sustainable energy solutions focusing to Anganwadis in the Meenangadi Panchayat. One significant aspect of this initiative was to convert Anganwadi rooftops to full solar panels, which would ensure clean and reliable energy sources for these crucial community centers. Through this, the project aims to reduce dependency on non-renewable energy sources, lower energy costs, and contribute to environmental conservation.

Additionally, MNAL plays a vital role in coordinating, monitoring, and improving the green island in Maniyaval Ward, ensuring its alignment with carbon neutrality and sustainability objectives. Furthermore, MNAL engages in the preparation of GIS maps for the project area, ensuring coordination between various government entities, NGOs and other stakeholders for the seamless execution of the programs, and continuously seeks new resources for innovative projects aimed at advancing carbon neutral and sustainability initiatives.

As a research hub, MNAL provides vital assistance and support to research fellows, media organizations, officials, and individuals interested in understanding carbon-neutral initiatives. Notably, Cheruvathoor Panchayat officials visited Meenangadi to gain insights into carbon-neutral initiatives, while media outlets such as Wayanadvision, Malayala Manorama, Kerala Vision, Mongabay, and Mathrubhumi extensively covered various aspects of Meenangadi Panchayat's initiatives. Furthermore, MNAL facilitated two significant case studies conducted in Meenangadi Panchayat last year.



1. An Analysis of the Economic and Non-Economic Losses and Damages (ELD and NELD) Incurred By Farmers due to Climate Change in Meenangadi, Wayanad

The study encompassed visits to 19 wards of Meenangadi Panchayat to conduct surveys on the economic and financial damage inflicted upon farmers by climate change. Findings revealed that the floods of 2018 had devastating effects on crop yields, leading to significant reductions caused by frequent weather changes. During the survey, 120 farmers were interviewed to gather insights into their experiences. The impact of climate change was evident in the increased prevalence of pests and diseases attacking crops, prompting the exploration of control methods. Field tests were conducted, and temperature data from RARS at Ambalavayal were collected to observe climate changes over the past five years. Data related to agriculture was gathered from Meenangadi Krishi Bhavan, highlighting the significant damage suffered by crops like pepper and coffee. Consequently, farmers are resorting to removing pest-infested plants and cultivating new reproductive seedlings as a mitigation strategy. The study revealed a drastic reduction in the area under crop cultivation, particularly in paddy fields, with traditional crop varieties facing extinction. Arecanut cultivation, in particular, has been severely impacted, with a significant number of plants exhibiting signs of destruction since the 2018 floods. The study underscores the urgent need for measures to mitigate the adverse impacts of climate change on agriculture in Meenangadi.

2. Climate Change and Public Health in Meenangadi, Wayanad,

The study aiming to assess the relationship between meteorological changes and public health concerns. Through transect walks and discussions, the study identified an increase in heat-related illnesses, mental health impacts, vector-borne infections, and zoonoses potentially attributed to climate change. Poor infrastructure and sanitation exacerbated health risks among vulnerable populations, emphasizing the need for urgent action. However, the ongoing Carbon-neutral Meenangadi project presents an opportunity for future interventions to address public health challenges associated with climate change. Urgent measures to improve mitigative and adaptive strategies are imperative to combat climate change's adverse effects on public health in Meenangadi.



NSS Students from Govt Polytechnic College, Meenangadi visiting Meenangadi Net Zero Accelerator lab

AWARENESS SESSIONS

In 2024, MNAL conducted a series of training sessions on Carbon Neutral Meenangadi (CNM) to educate and engage Kudumbasree members, MGNREGA workers, farmers and students in the community. These sessions aimed to raise awareness about carbon neutrality, discuss potential strategies for achieving it, and empower participants to take action towards a sustainable future. MNAL is committed to promoting environmental sustainability and fostering a culture of carbon neutrality in Meenangadi. Through targeted training sessions and community engagement initiatives, MNAL aims to empower individuals and communities to mitigate greenhouse gas emissions and work towards achieving carbon neutrality.

1. Kudumbasree Training Sessions:

Throughout the year, MNAL organized a total of 9 training sessions on Carbon Neutral Meenangadi for Kudumbasree members across various wards. These sessions were designed to foster interactive discussions, presentations, and information sharing about carbon neutrality and its significance. Participants actively contributed insights, challenges, and ideas, creating a collaborative learning environment. Notably, 84 individuals from wards including Avayal, Kappikunnu, Purakkadi, Appad, Manivayal, Rattakund, Kakkavayal, Meenangadi, and Palakkamoola actively engaged in these sessions, showcasing the community's commitment to sustainability.

Key strategies discussed during the training sessions aimed to drive progress towards carbon neutrality in Meenangadi. These strategies encompassed the promotion of renewable energy sources like solar panels, encouragement of energy efficiency measures in households, and advocacy for sustainable transportation op-



CNM Awareness session conducted at Kaappikunnu Ward

tions such as electric vehicles, cycling, and public transportation. Additionally, the sessions highlighted the importance of sustainable waste management practices like composting and recycling, along with support for reforestation and afforestation efforts, and the promotion of sustainable agriculture practices.

The outcomes of these training sessions were significant. Participants experienced heightened awareness about Carbon Neutral Meenangadi (CNM) and its potential contributions to community development. Empowered by newfound knowledge and insights, participants felt motivated to take ownership of community initiatives and collaborate with others for positive change. Furthermore, the sessions instilled confidence in participants to effectively utilize CNM as a tool for community empowerment and mobilization.



Awareness Session conducted at Rattakundu Ward



Awareness Session conducted at Purakkadi Ward

Overall, the training sessions conducted by MNAL played a vital role in raising awareness about carbon neutrality and empowering Kudumbasree members to actively contribute towards achieving this goal. By equipping participants with knowledge, skills, and motivation, MNAL is facilitating the journey towards a sustainable and resilient future for Meenangadi. These sessions underscore the significance of community engagement and collaboration in addressing environmental challenges effectively.

2. Training for MGNREGA Workers

We had organized a series of training sessions for MNREGA workers in Meenangadi, aiming to educate them about the concept of Carbon Neutral Meenangadi (CNM) and its relevance in combating climate change.



Awareness Session conducted at Manivayal Ward

The sessions, held at various working places across different wards, saw active participation from a total of 76 MNREGA participants. Participants were introduced to the CNM project and its objectives, emphasizing the importance of integrating CNM principles into rural employment initiatives like MNREGA. Discussions centered on various CNM initiatives applicable to MNREGA projects, including afforestation, adoption of renewable energy technologies, sustainable agriculture practices, tree banking, and waste management. The interactive sessions provided participants with insights into practical ways to implement CNM principles



Awareness Session conducted for MGNREGA workets at Vattathuvayal Ward

within MNREGA projects, fostering a deeper understanding of CNM's potential applications in community development. Through these sessions, participants expressed enthusiasm and readiness to contribute to carbon neutrality efforts in their communities, underscoring the significance of integrating sustainability practices into rural employment initiatives for achieving broader goals of sustainable development in Meenangadi.

3. Training for Organic Farmers

The organic farming training program conducted at Manivayal aimed to empower participants with comprehensive knowledge and practical skills in sustainable agriculture practices. Led by experienced instructors,



Awareness Session conducted for MGNREGA workets at Choothupara Ward



Awareness Session conducted for MGNREGA workets at Manivayal Ward

the sessions covered a range of topics including organic farming principles, techniques, and disease management. Participants actively engaged in discussions and sought clarification, demonstrating their eagerness to learn and implement organic farming methods. The program fostered a sense of community among participants, promoting knowledge exchange and collaboration towards environmental stewardship and community well-being.

In addition to the local program, MNAL reached out to 130 women farmers in Wayanad, providing them with organic farming training. This initiative underscores the commitment to extending the benefits of sustainable agriculture practices beyond Manivayal, contributing to broader efforts in promoting environmental sustainability and empowering rural communities. The success of the program reflects the collaborative efforts



Distributing seeds and seedlings to the women farmers in Meenangadi Panchayath



Input preparation training conducted for farmers in Meenangadi Panchayath

of the organizing team, instructors, and participants, highlighting the importance of education and capacity-building in fostering a more sustainable future.

Over the past year, MNAL has undertaken an extensive soil health assessment initiative involving 57 farmers across various panchayats in Wayanad district. Soil samples were collected from farms practicing both chemical and organic farming, with a special focus on women farmers and traditional organic farming practices. The soil organic carbon content was measured using a Soil Organic Carbon Detection Kit.

Out of the 57 soil samples tested, 52 were found to have medium levels of soil organic carbon, while 3 samples showed low levels, and 2 samples had high levels. Farms with low carbon content were observed to have significant termite infestations, and the use of *Metarhizium* was recommended as a biological control method.



Collecting soil samples from farmers fields.

During the soil sample collection process, farmers were educated on the benefits of organic farming and the impact of agricultural practices on soil carbon levels. They were informed that practices such as burning charcoal leaves can lead to a reduction in soil carbon content. This initiative aims to monitor changes in soil health over time and promote sustainable farming practices among the local farming community.



Conducting soil carbon test.

4. Facilitating Students

The session on Carbon Neutral Meenangadi (CNM) aimed to educate 145 students from the Student Police Cadet (SPC), National Cadet Corps (NCC) Army and Navy branches, and National Service Scheme (NSS) of GHSS Meenangadi School. The various sessions commenced with an insightful introduction to carbon neutrality, highlighting its imperative in mitigating climate change through a balance between carbon emissions and sequestration. Real-world examples were shared to elucidate the impacts of carbon emissions on the environment, instilling a sense of urgency for collective action.

Following the introduction, an engaging discussion unfolded, encouraging students to brainstorm strategies for achieving carbon neutrality in Meenangadi. Students explored various avenues, including promoting renewable energy, enhancing energy efficiency, implementing sustainable waste management practices, and undertaking reforestation initiatives. The interactive nature of the session facilitated active participation, allow-



CNM Awareness sessions conducted for NCC Navy students.

ing students to express their perspectives and ideas on environmental sustainability. As a result, participants gained a deeper understanding of carbon neutrality and expressed enthusiasm and empowerment to contribute towards Meenangadi's journey to sustainability. The session not only fostered critical thinking among students regarding environmental issues but also inspired them to seek innovative solutions for reducing carbon emissions. Overall, the session was highly successful in raising awareness and empowering students to become stewards of a greener, more sustainable future for Meenangadi. Additionally, a biodiversity monitoring class provided to 70 students from Govt Higher Secondary School Meenangadi further enhanced their connection to nature, reinforcing the importance of environmental conservation in their daily lives.



CNM Awareness sessions conducted for NSS students.



CNM Awareness sessions conducted for SPC students.

EXHIBITIONS

1. Jaathire: Wayanad Climate Summit and Biodiversity Agricultural Exhibition

The Wayanad district panchayat conducted Jathire' 2024 - Wayanad Climate Summit and Biodiversity Agricultural Exhibition - at the Meenangadi Gram Panchayat Stadium on February 23, 24, and 25, 2024. The event featured 70 stalls, including three highlighting Meenangadi Panchayat's carbon-neutral initiatives by MNAL. Posters on Carbon Neutrality, Climate Literacy, and an Energy Efficient Stove curbing carbon emissions were exhibited in stall 1. Stall two spotlighted Agroecology and PGS, while stall three showcased innovative compost models for Zero Waste. Thanal MNAL team and NSS Volunteers from Meenangadi Government Polytechnic manned the stalls. These stalls brought Meenangadi's eco-friendly initiatives to the spotlight.



At the Jathire fest organized by Wayanad District Panchayat, the Carbon Neutral Wayanad report was released amidst great anticipation and enthusiasm. Dr. N H Raveendran, Retd Professor from the Centre for Sustainable Ecologies at the Indian Institute of Bangalore, unveiled the report during the Wayanad Climate Conclave. The event was presided over by District Panchayat President Samshad Marakkar, alongside esteemed dignitaries including Dr. Sijo Joseph from the Climate Resilience and Environment Centre at KUFOS, Dr. S Abhilash, Director of the Radar Research Centre at CUSAT, and C K Vishnudas, Director of the Hume Centre for Ecology and Wildlife Biology in Kalpetta. C Jayakumar, Executive Director of Thanal, presented the report to the public, marking a significant milestone in Wayanad's journey towards sustainability. The Carbon Neutral Wayanad report represents a collaborative effort between Thanal and the District Panchayat, laying out comprehensive strategies and recommendations to achieve carbon neutrality in the district. As part of the drafting of the MNAL had played a pivotal role in collecting data, preparing maps and graphs and writing and editing the report.



Release of Carbon Neutral Wayanad Report at Jaathite Fest.

2. Thirunelli Grama Panchayath Seed Festival and Gothra Fest

The Thirunelli Gram Panchayat organized the Seed Festival from March 1st to 3rd, at the Thirunelli Gram Panchayat Stadium Ground. This event, conducted under the leadership of various local governments and environmental organizations, aimed to celebrate and promote traditional seeds, culinary diversity and environmental awareness, particularly focusing on the challenges of soil and water degradation. MNAL actively participated in the festival, setting up two informative stalls. Stall one highlighted the diversities of millets and pulses, agroecology, biodiversity monitoring, and Participatory Guarantee System (PGS). Stall two focused on significant environmental issues, such as Carbon Neutrality, Climate Literacy, and an Energy Efficient Stove to curb carbon emissions. Educational posters and models showcasing composting for Zero Waste were also displayed, contributing to the overall eco-friendly atmosphere of the event.



MNAL Team interacting with people on Thirunelli Exhibitions.

Zero Waste Survey

A survey was conducted in the Manivyal and Kakkavyal wards to promote sustainable waste management practices and achieving a zero-waste environment. The major objective of this survey was to understand the current waste disposal methods employed by households in these areas and to provide guidance on proper waste management practices. Several households were found to have Thumburmuzhi composting facilities installed. However, these facilities were often lying idle due to a lack of necessary knowledge on how to effectively utilize them. Many were unaware of the benefits of composting and how it could contribute to reducing waste and environmental degradation.

Communication Materials

Throughout the previous year, the Meenangadi Net Zero Accelerator Lab (MNAL) has been dedicated to public education on climate change and carbon neutrality through various communication materials. These efforts included the creation of 8 informative posters, 6 engaging videos, and numerous social media posts. Each of these materials served as a valuable tool for raising awareness and disseminating crucial information about the urgent need for action against climate change and the transition towards carbon neutrality. The communication and education materials were displayed in exhibitions, fests, trainings and workshops provided, empowering individuals to make informed decisions and contribute to a sustainable future.

CLIMATE LITERACY CAMPAIGN

Climate Literacy campaign was rolled out by the Panchayath as a second phase of the CNM project in May, 2022 with the support of NABARD and Thanal .Climate Literacy is the understanding a person or a community has of their impact (individually and as a whole) on a region's climate, as well as the effect of climatic conditions on human activities in the region. This campaign was inaugurated by Sri. Shreyams Kumar, Ex MP at Meenangadi. Thanal organised month-long ward consultations and door to door awareness programmes at Meenangadi grama panchayat of Wayanad district.

Under the program:

- Special Climate Grama Sabhas were held in all 19 wards in Meenangadi
- Organized 16 Climate Literacy Campaign sessions
- Conducted an exhibition of informative posters
- Conducted a press conference for the program at Meenangadi



CARBON NEUTRAL WAYANAD

The District Panchayat of Wayanad initiated the **Carbon Neutral Wayanad** project in 2022 to transform the whole district of Wayanad into carbon neutral within this decade. Considering the successful journey of Meenangadi panchayat, Thanal became the technical partner for Wayanad district in this ambitious project and currently GHG emission and sequestration assessment is being carried out for the district.



EVENTS & PRESENCE

- ➔ On World Health day, Thanal team member Ajith Tomy presented about Carbon Neutral Meenangadi, on behalf of Meenangadi Gramapanchayat, at the Nationwide workshop on National Programme on Climate Change and Health (NPCCHH) organised by National health Mission at Kozhikode.
- ➔ Thanal Executive Director, Sri. Jayakumar. C presented a paper on 'Wayanad Carbon Neutral brand and global potential - In the context of today's climate challenges' at the All India Kisan Sabha two day conference for Coffee farmers, held at Virajpet, Karnataka on June 11th.
- ➔ Thanal was invited to present our assessment of Greenhouse gases emissions and Sequestration of Kerala for the workshop hosted by the Directorate of Environment and Climate Changes under the Dept. Of Environment (Govt. of Kerala) titled 'Carbon Neutral Kerala- Consultative workshop on GHG Inventory' on 27th July. Our Team member, Miss. Lakshmy. S attended the seminar and made the presentation.

REGENERATIVE AGRICULTURE ; THE MANIVAYAL MODEL

In Manivayal, 19th Ward of Meenangadi Gram Panchayat, a group of 14 farmers decided to grow organic vegetables cultivation using solar water pump with the help of Thanal in 8 acres of fallow land. As part of this, different types of vegetables and flowering plants were cultivated.



After years of cultivation, the farmers in Manivayal faced a persistent challenge: they could only harvest one crop annually due to severe water scarcity. This limitation not only affected their livelihoods but also slow down the agricultural potential of the region. Recognizing the urgency of the situation, Manivayal Ward Member, Shanti Sunil, took proactive steps to address this issue. Shanti Sunil brought it to the attention of the Panchayat President and formed a pilot project with the financial support of Thanal. The pilot project aimed to create a sustainable water management system by using solar energy to tackle the problem of water scarcity. This innovative approach not only ensured access to water but also used renewable energy, minimizing the project's carbon footprint.



8 acres of fallow land in Manivayal

Pilot project included regenerative farming methods. Regeneration scheme has been devised where the water obtained from the river through a solar water pump is brought back to the water source itself after being used in the farms. Also, there is a plan to bring back the structure of the soil that has changed through the application of chemical fertilizers over the years through the application of organic fertilizers. Regenerative agriculture is a holistic approach to farming that aims to improve soil health, enhance biodiversity, and increase resilience to climate change while also promoting sustainable and profitable farming practices. Implementing regenerative agriculture techniques at Manivayal land, not only can the soil health be improved, but water resources can be conserved, biodiversity can be enhanced, and the community can be engaged in sustainable farming practices that benefit both people and the planet.

During the initial meetings, thorough site assessment were conducted to ensure optimal sunlight exposure and accessibility to water sources, crucial for the effective operation of the solar water pump system. Considering the limited water availability in the river, a strategic decision was made to dig a well adjacent to the river. The well, with a depth of 11 rings, aimed to secure a reliable water source for irrigation purposes, mitigating the impact of fluctuating river water levels and ensuring consistent water availability for the farm. The solar water pump system was designed to efficiently extract water from the well and deliver it to the fields for irrigation. Utilizing a 1 1/2HP motor and 6 panels with a total capacity of 2400 watts, the system had the capacity to pump approximately 20,000 liters of water per day.



Solar Panels installed in Manivayal as part of the project

On 23 February 2024, Panchayat President, KE Vinayan inaugurated the pilot project took place with the presence of various stakeholders, including Meenangadi grama panchayath members, National Service Scheme (NSS) volunteers, organic farmers, representatives from Thanal, and other local residents. During the inaugural speech, President KE Vinayan expressed his vision for the project to serve as a catalyst for change, inspiring replication and expansion to other wards of the Meenangadi Panchayat.



Panchayat President K E Vinayan inaugurating the project by planting seeds.

To promote organic farming, organized a meeting for Manivayal farmers with the presence of ward member. Under the guidance of thanaland presence of the ward member, the comprehensive plan for transitioning to organic farming was explained to the attendees. From the attendees, farmers interested in organic methods were chosen to form a group. Initially, the group included around 20 members, but it eventually decreased to 14, comprising 8 males and 6 females, all from the tribal community.



Aerial view of the 8 acre fallow land in Manivayal.

With the assistance of Thanal, farmers carried out agriculture by identifying the locations and methods for each crop based on the landscape of the fields. Thanal provided 15 types of high-yielding vegetable seeds and seedlings include, beans, ladies finger, brinjal, pumpkin, cucumber, amaranthus, tomato, green chilli, carrot, beetroot, radish, cabbage, coli flower. Also provided to cultivate three varieties of millets namely chama, cholam and muthari, as well as marigold and sunflower seeds were planted in the 8 acre selected agricultural land. Most of the farmers using chemical fertilizers in their farming practices.



Irrigating the field using the water pumped by solar motor pump.

The transition to organic farming posed a challenge due to a lack of clear understanding among farmers about organic methods. However, through regular field visits and close monitoring, the project gradually achieved success. Thanal played a crucial role in providing awareness classes to farmers, educating them about the principles and practices of organic farming. These sessions focused on important aspects to be considered in organic farming, such as soil health management, composting techniques, and the use of organic fertilizers. Additionally, farmers were trained in methods of biological pest control, emphasizing natural and sustainable approaches to



MNAL Team conducting input preparation training for the farmers.

manage pests without relying on synthetic chemicals. Through these educational initiatives and hands-on training sessions, farmers gained confidence and knowledge in adopting agroecology farming practices, ultimately contributing to the success of the project.



MNAL Team conducting regular meetings and input preparations trainings at Manivayal.

Farmers received regular training sessions on making and using biofertilizers to help them adopt organic farming methods successfully. These biofertilizers, including jeevamrutham, anchilakeedaviratti, garlic turmeric powder mixture, yellow traps, and fish amino acid, were unfamiliar to many farmers initially. Thanal played a key role in conducting these training sessions, providing detailed guidance on the preparation and application of each biofertilizer. During the training sessions, farmers learned step-by-step procedures for making biofertilizers, including the ingredients required, preparation methods, and application techniques. Additionally, farmers were introduced to the benefits of using biofertilizers, such as improving soil fertility, enhancing nutrient uptake by plants, and promoting overall soil health. Thanal conducted detailed field visits and provided ongoing guidance and suggestions at various stages of each crop's growth cycle.



Manivayal field after planting.



Manivayal Vegetable cultivation as part of the Regenerative agriculture using solar water pump.

On May 2nd, 2024, Meenangadi Gram Panchayat President KE Vinayan inaugurated the Harvest Festival. The event was attended by members of meenangadi panchayath, organic farmers, Thanal representatives, local residents, and local news channels. During the festival, President Vinayan suggested to producing a special brand of organic vegetables in Manivayal and selling them in the market. This could help attract more attention and provide a livelihood for the farmers. Facilities for selling vegetables were arranged at the festival. Since the vegetables were organic, people in need could come directly to buy them and take them home.

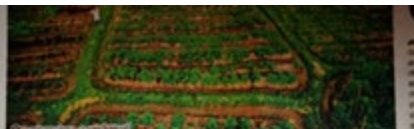


Panchayat President K E Vinayan inaugurating vegetable harvest festival in Manivayal



കൊടും വേതലിലും പച്ചക്കറി വിളയിച്ച് കർഷക കുടുംബ

കൊടും വേതലിലും പച്ചക്കറി വിളയിച്ച് കർഷക കുടുംബം. കർഷകർക്ക് കൂടുതൽ ഹാർവെസ്റ്റ് നേടാനും വിൽപനയ്ക്ക് എളുപ്പമാക്കാനും ഇത് സഹായിക്കുന്നു. കർഷകർക്ക് കൂടുതൽ ഹാർവെസ്റ്റ് നേടാനും വിൽപനയ്ക്ക് എളുപ്പമാക്കാനും ഇത് സഹായിക്കുന്നു.



വേതലിലും മറികടന്ന് മണിയറയിൽ പച്ചക്കറിവിളവം

വേതലിലും മറികടന്ന് മണിയറയിൽ പച്ചക്കറിവിളവം. കർഷകർക്ക് കൂടുതൽ ഹാർവെസ്റ്റ് നേടാനും വിൽപനയ്ക്ക് എളുപ്പമാക്കാനും ഇത് സഹായിക്കുന്നു. കർഷകർക്ക് കൂടുതൽ ഹാർവെസ്റ്റ് നേടാനും വിൽപനയ്ക്ക് എളുപ്പമാക്കാനും ഇത് സഹായിക്കുന്നു.

കർഷകരെ ചേർത്ത് പിടിച്ചാൽ 100 ഹെക്ടറി വിളയും ലാഭവും ഉറപ്പ്

മീനങ്ങാടിയിൽ നിന്നൊരു വിജയകഥ

മീനങ്ങാടിയിൽ നിന്നൊരു വിജയകഥ. കർഷകർക്ക് കൂടുതൽ ഹാർവെസ്റ്റ് നേടാനും വിൽപനയ്ക്ക് എളുപ്പമാക്കാനും ഇത് സഹായിക്കുന്നു. കർഷകർക്ക് കൂടുതൽ ഹാർവെസ്റ്റ് നേടാനും വിൽപനയ്ക്ക് എളുപ്പമാക്കാനും ഇത് സഹായിക്കുന്നു.



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Meenangadi panchayat sets a model for water conservation

Solar-powered system helped farmers irrigate land from 8 a.m. to 6 p.m., and they cultivated different varieties of vegetables the organic way; excess water after irrigation channelled to the Maniyaval rivulet to rejuvenate it

E.M. Manel
KALPETTA

At a time when the long dry spell has damaged acres of paddy and other crops in many parts of the State, Meenangadi grama panchayat in Wayanad has set a model in water recharging and rejuvenation of water and soil resources using solar power.

The tribal farmers of Maniyaval hamlet under the panchayat had been cultivating paddy on eight acres on the banks of the Maniyaval rivulet during the monsoon and other short-term crops in the summer by using water from the rivulet for the past many decades. However, they were forced to keep the land fallow from last year owing to shortage of water for irrigation, especially for the summer crops, said Sivaraman, a member of the Maniyaval



Green and clean: An aerial view of the Maniyaval hamlet under the Meenangadi grama panchayat in Wayanad after the installation of the solar-powered water pump. SRECOIL/SHREYAS

grama panchayat authorities in the matter. Since cultivation was the major source of income for the

they cultivated different varieties of vegetables the organic way. The excess water after irrigation is channelled to the rivulet to rejuvenate it.

"We have cultivated eight varieties of vegetables and are selling them at a premium price. We have received good response from customers as the product is organic, but we have not been able to cater for all of them," said Eijitha, convenor of the collective.

As the irrigation system was solar, there were no recurring expenses to operate it, said Mr. Sivaraman.

"It is anticipated that the organic way of cultivation will facilitate the restoration of the soil structure besides contributing to carbon neutral activities in the panchayat," said M. Vinayan.

The panchayat has bagged the prestigious Carbon Neutral Vishesh Parichay Puraskar Institute

The news of the harvest in Maniyaval was widely covered by local channels such as Wayanad Vision and Malanad Vision. This increased awareness about the organic produce, leading to more people showing interest in buying it. Harvesting started on April 13th, 2024, and continued until May 12th, 2024. During this period, a total of 11 crops were harvested from the fields. The farmers sold 437 kilograms of harvested crops, earning Rs. 26,185 in turnover. This successful sale not only showed that organic farming works but also helped the farmers financially.

The transformation of the Maniyaval fields, previously barren and unproductive, into fertile and green landscapes was clearly evident. All 14 farmers involved in the project expressed their satisfaction with the outcomes and affirmed their commitment to continuing similar farming practices in the upcoming year. They emphasized the importance of ongoing support and assistance from Thanal to sustain their efforts. After completing the vegetable harvest by the end of May, the farmers decided to use 8 acres of land to grow paddy. This helped increase agricultural productivity and ensured sustainability for the farming practices in the Maniyaval community.



BEFORE



AFTER

Aerial shot of 8 acre field in Manivayal before and after implementing the piolet project.

Annual Highlights

The Carbon Neutral Accelerator Lab (MNAL) has made significant strides in its mission to promote carbon neutrality and sustainability over the past year. Key achievements include:

1. Carbon Neutral Initiatives:

- **Tree Banking and Carbon Neutral Technical Cells:** MNAL established these specialized units to support beneficiaries and facilitate the implementation of sustainability initiatives. These cells have been instrumental in coordinating interventions such as GHG assessments, solar lamp distributions, and compost bin installations
- **Climate Literacy Campaign:** Launched in May 2022, this campaign included ward consultations, door-to-door awareness programs, and exhibitions. The initiative successfully engaged the community through 16 climate literacy sessions and special Climate Grama Sabhas in all 19 wards

2. Research and Learning Hub:

- **Technical Data Collection and Support:** MNAL collected vital data for projects like Haritha Sundaram and Angan Jyothi Solar Initiatives, supporting informed decision-making and the development of innovative projects. MNAL also provided assistance to research fellows and media organizations interested in carbon-neutral initiatives
- **Case Studies:** MNAL facilitated significant research studies on the economic and non-economic losses due to climate change and its impact on public health in Meenangadi. These studies highlighted the urgent need for adaptive strategies to mitigate the adverse effects of climate change.

3. Community Engagement and Education:

- **Training Sessions:** A series of sessions were conducted to educate and engage community members, including Kudumbasree members, MGNREGA workers, farmers, and students. These sessions aimed to raise awareness about carbon neutrality and empower participants to contribute to sustainability efforts
- **Communication Materials:** MNAL created 8 informative posters, 6 engaging videos, and numerous social media posts to educate the public about climate change and carbon neutrality. These materials were displayed in various exhibitions, training sessions, and workshops.

4. Collaborations and Partnerships:

- **Carbon Neutral Wayanad Project:** Thanal, as a technical partner, assisted the Wayanad District Panchayat in initiating the Carbon Neutral Wayanad project. This ambitious project aims to transform the entire district into a carbon-neutral region within the next decade.
- **National and International Presence:** MNAL's initiatives and findings were presented at various workshops and conferences, including the National Programme on Climate Change and Health and the All India Kisan Sabha conference. These platforms highlighted MNAL's efforts and fostered broader collaborations.

5. Farmer Support Initiatives:

Organic Farming Training: MNAL conducted comprehensive training programs on sustainable agriculture practices. These sessions empowered farmers with knowledge on organic farming principles, techniques, and disease management. By reaching out to 130 women farmers in Wayanad, MNAL extended the benefits of sustainable agriculture practices beyond Meenangadi.

- **Solar Water Pump Pilot Project in Manivayal:** A notable achievement was the Manivayal pilot project, which successfully transformed 8 acres of land into fertile ground during Kerala’s heatwaves through regenerative agriculture and the installation of a solar water pump. This project, supported by Thanal, provided hands-on guidance to 16 farmers, resulting in the production of 437 kg of diverse vegetables. This initiative not only enhanced food security but also demonstrated the resilience and productivity of sustainable farming practices.
- **Soil Health Assessment:** MNAL’s soil health assessment initiative involved 57 farmers across various panchayats in Wayanad. This project focused on measuring soil organic carbon content and promoting sustainable farming practices to improve soil health and combat climate change.
- **Seed and Seedling Distribution:** As part of their support for sustainable agriculture, MNAL distributed seeds and seedlings to women farmers, fostering a community-oriented approach to environmental stewardship and enhancing agricultural productivity.
- **Input Preparation Training:** Farmers received training on preparing organic inputs, which are crucial for maintaining soil fertility and crop health without relying on chemical fertilizers and pesticides.

MNAL’s achievements over the past year underscore its commitment to fostering a culture of sustainability through education, innovation, and collaborative action. The lab continues to lead by example, promoting carbon neutrality and sustainable practices in the Meenangadi Panchayat and beyond.



Green Volunteers spreading awareness through posters

Conclusion

The past year has been a testament to MNAL's unwavering commitment to fostering sustainable development and supporting local communities in their journey towards carbon neutrality. Through various initiatives such as the Tree Banking scheme, the Solar Water Pump Pilot project, and climate literacy campaigns, trainings and soil health assessments, MNAL has significantly contributed to enhancing the agricultural productivity, energy efficiency, and overall environmental health of the Meenangadi Panchayat. These efforts have not only helped mitigate the impacts of climate change but have also empowered local farmers and communities by providing them with the necessary tools, knowledge, and resources to adopt sustainable practices.

As we look to the future, MNAL is excited to build on these achievements and continue driving forward with our mission of achieving carbon neutrality and fostering a culture of sustainability. Our plans for the upcoming year include:

- **Climate Education:** Recognizing the pivotal role of knowledge in combating climate change, MNAL aims to increase climate literacy among Meenangadi residents and public. We will conduct interactive workshops, develop educational models, distribute educational materials, and engage in community meetings to spread awareness about sustainable practices and climate change mitigation strategies.
- **Agroecology:** To promote sustainable agricultural practices, MNAL aims to identify and support 2000 more farmers in transitioning to agroecology farming. This initiative includes providing comprehensive training sessions, distributing organic seeds and biofertilizers, and offering continuous support through field visits and advisory services. These efforts will help maintain ecological balance while increasing agricultural productivity and ensuring long-term soil health.
- **Renewable Energy Initiatives:** In our quest to increase the use of renewable energy sources, we plan to install additional solar water pumps in fields and convert the rooftops of Anganwadis to full solar panels. By securing funding and collaborating with renewable energy companies, we aim to implement these installations with the help of local technicians. This will not only reduce dependency on non-renewable energy but also lower energy costs for the community.
- **Sustainable Transportation:** To promote the use of electric vehicles, MNAL will encourage households to switch to electric vehicles through awareness campaigns, procuring and distributing electric vehicles for Haritha Karma Sena workers and the establishment of charging stations in key areas. This initiative aims to reduce carbon emissions from transportation and foster a cleaner environment.
- **Community Engagement:** Recognizing the power of collective action, we aim to facilitate climate volunteers and organize various climate action initiatives within the panchayat. By launching volunteer programs, providing training, and coordinating community-led sustainability projects, we aim to foster a culture of environmental stewardship and collective responsibility.
- **Zero Waste Initiatives:** MNAL is committed to promoting sustainable waste management practices with the goal of achieving zero waste status in 10 wards. We will conduct surveys, offer practical workshops on composting and recycling, and provide necessary resources like compost bins through Haritha Karma Sena and Meenangadi Panchayat. These efforts will help reduce waste and promote a circular economy within the community.

- **Afforestation Projects:** To increase the green cover in the panchayat, we will establish Pachathuruth (Green Islands) in each ward, accelerate tree banking activities within the panchayat and also we are planning to develop Sugathakumari Teacher Ormavanam. This involves identifying suitable land, planting native trees, and maintaining these green spaces with community participation. These projects will enhance biodiversity, improve air quality, and provide recreational spaces for the community.
- **Energy Efficient Stoves:** MNAL will distribute 3000 energy-efficient stoves to households to reduce carbon emissions from cooking. By partnering with various stakeholders and conducting demonstrations, we aim to promote the adoption of these stoves, which are more environmentally friendly and cost-effective.
- **Carbon Neutral Schools:** We aim to facilitate schools in the panchayat to achieve carbon-neutral status. This involves implementing energy-saving measures, promoting renewable energy use, and integrating sustainability into the curriculum. By doing so, we hope to instill a culture of sustainability in young minds and create eco-friendly learning environments.
- **Eco-Tourism Promotion:** To develop eco-friendly tourism, MNAL will establish bicycle hubs to promote sustainable tourism. We will set up bicycle rental stations, create eco-tourism trails, and market these initiatives to attract tourists. This initiative aims to boost the local economy while preserving the natural beauty of the region.
- **Reassessment Studies:** MNAL will conduct reassessment studies in Meenangadi Panchayat to monitor the progress of the entire carbon neutral project. These studies will provide valuable insights into the effectiveness of our initiatives and guide future improvements.

MNAL will implement all of these programs in close collaboration with Meenangadi Panchayat, ensuring that our efforts are aligned with local needs and priorities. Additionally, we will seek funds from various organizations to support and expand these initiatives. By integrating various sectors and fostering collaboration, we aim to create a synergistic impact that benefits both the environment and the community.

By focusing on these areas, MNAL aims to create a more sustainable and resilient community, contributing to the global effort to combat climate change. These initiatives will not only enhance the quality of life for residents but also set a benchmark for other communities striving for carbon neutrality and environmental stewardship. Through education, innovation, and community participation, MNAL is committed to fostering a culture of sustainability and achieving measurable progress towards a greener future.



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