



ANNUAL REPORT
2025–2026

M S Swaminathan
Research Foundation
SCIENCE FOR SUSTAINABLE DEVELOPMENT

ANNUAL REPORT 2025–2026



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M. S. Swaminathan Research Foundation

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On the cover

Clockwise:

A woman farmer calls the MSSRF farmer helpline in Odisha.
A farmer in Wayanad, Kerala, inspects *Dioscorea* vines in her farm.
A family works on their farm in Kolli Hills, Tamil Nadu.
A woman seaweed collector gathers wild seaweed in Palk Bay, Tamil Nadu.
Centre: Students explore through a microscope at MSSRF's Chennai campus as part of the Every Child A Scientist programme.

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Our Vision

We envision a future of Biohappiness – where natural resources sustainably nurture human well-being and planetary health



Our Mission

Linking science and society with equity, sustainability and resilience in the face of planetary crises



Our Purpose

Using science and technology to enable communities to flourish in harmony with nature



FOREWORD

BY THE CHAIRPERSON



If I were to summarise this year in a single word, it would be 'growth'. The organisation grew not only in staff strength but also in the range and depth of the work we undertook, the partnerships we built and the new geographies we entered. Growth was also reflected in the systems we put in place within the institution as we worked together on a new operating model and a new strategy for the years ahead.

Among the year's most significant moments was the M. S. Swaminathan Centenary Conference. Its theme, Biohappiness, the concept propounded by Prof. Swaminathan, captured an idea that has long guided our thinking: bringing together ecological security, human well-being and sustainable livelihoods in ways that are both meaningful and practical. More than 300 farmers attended the conference, and it led to a call to action that several agencies adopted and endorsed. More importantly, it moved Biohappiness from a concept to a shared agenda. We are now working to make that idea practical, measurable and usable by developing a Biohappiness index alongside several partners.

This year also marked our entry into a new geography with the signing of a Memorandum of Understanding on women farmers' empowerment and a Millet Mission with the Government of Maharashtra. We were heartened by the government's announcement of establishing four Biohappiness Centres in its agricultural universities.

A key defining effort of the year was our collaboration with the Government of Maharashtra on the Women Farmers' Empowerment Bill. We co-led consultations across the state; listened to the difficulties women farmers face in accessing credit, schemes and subsidies; and supported the shaping of the legislation, along with Vidhi Centre for Legal Policy.. The bill was passed during the monsoon session. For us, this moment is historic. It was Prof. Swaminathan's dream, now realised in Maharashtra, and one we intend to carry into other states as well.

The year also renewed our optimism about our biodiversity and eco-restoration work in Wayanad. The Biodiversity Park is shaping up well, and later this year we hope to open its trails to the public, in partnership with tribal communities who will help in its day-to-day management.

A new, important direction for MSSRF is the Climate and Health Hub, focused on the impact of heat and air pollution on health. It will advance through a consortium of organisations bringing together primary and secondary research alongside evidence-based policy guidance. Our work on heat stress and its toll on women reflects the grounded effort climate risks now demand as they press into everyday life. Our report

titled 'The Impact of Heat on the Health of Women in India' garnered a lot of interest and has led to more detailed investigations on the physical and mental health of people living in four different ecological zones in Tamil Nadu and Karnataka. Further, we will be looking at the intersection of climate, nutrition and food systems and generate data that could feed into local policymaking and decisions, especially around social safety nets.

Our Coastal and Marine Systems programme reached a milestone of its own. The Fisher Friend Mobile App received the Tech4Nature Award by the International Union for Conservation of Nature (IUCN) and Huawei, a recognition both encouraging and timely. The award was for a feature that alerts fishermen when they approach turtle nesting sites along the coast of Odisha. The tool is ready to scale, and we are working on the next steps, including stronger voice and SMS features with AI integration, so that it serves our communities even more effectively. We are also hoping to expand it to fisher communities in Southeast Asia and East Africa.

The MSSRF team continued to advance research, with 33 articles published in peer-reviewed journals and books. This year also marked the completion of the first cohort of the M. S. Swaminathan Fellowship, whose fellows explored innovative themes such as leafy greens as superfoods, seaweed-based snacks and reducing methane emissions with microbes.

Internally, this has been a year of institution-building. We have strengthened our senior leadership and worked together to shape the organisation's strategy and new operating model. Our work now rests on three programme pillars – Sustainable Food Systems, Biodiversity Conservation and Management, and Health Systems and Nutrition – supported by four cross-cutting themes: climate resilience, institutions and governance, gender equality and social inclusion, and technology and innovation.

We are very grateful to our trustees and members of our various advisory committees for their timely advice and guidance, which they so generously provide. Our work would not be possible without the trust that our various donors and partners have placed in us, and we thank them for their generosity. All our work is done in partnership with communities, and we hope to strengthen our engagement and collaboration even further in the years to come.

Dr. Soumya Swaminathan
Chairperson,
M. S. Swaminathan Research Foundation

MESSAGE

FROM THE EXECUTIVE

DIRECTOR, RESEARCH & DEVELOPMENT AND POLICY



The year 2025–2026 laid a strong foundation for the next phase of MSSRF's work. Across our programme areas, we strengthened the science–society interface by generating evidence, co-developing innovative models and translating research into practical solutions that improve livelihoods, conserve biodiversity and build resilience to climate change.

Our work this year reflected a simple belief – conservation and development must go hand in hand. From restoring ecosystems and strengthening farmer/fisher institutions to advancing digital technologies and informing public policy, we continued to demonstrate how science can improve both human well-being and planetary health.

The Coastal and Marine Systems programme expanded integrated approaches to coastal resilience with empowerment of fishers. We demonstrated seagrass restoration models, piloted community-led marine pollution management hubs across coastal villages and bolstered fisherwomen-led enterprises and value-added fisheries businesses. The programme co-developed climate-smart aquaculture and bio-saline agriculture technologies as alternate livelihood models embedding sustainable production practices. In partnership with the Andhra Pradesh Forest Department, we also developed the *Atlas of Mangrove Wetlands of Andhra Pradesh*, providing an important scientific resource for conservation planning and policy.

The Biodiversity Management programme achieved several important milestones. Four new plant species were discovered, while *Calanthe aurantiaca* was rediscovered in the southern Western Ghats after 175 years. We also demonstrated a riverbank restoration model using native riparian species along the Kabini River and strengthened tribal conservation stewardship by training indigenous youth in biodiversity conservation and ecological restoration. In Odisha, we supported 140 Biodiversity Management Committees and facilitated the preparation of 39 People's Biodiversity Registers, re-informing community-led biodiversity governance. We also collaborated with the Food and Agriculture Organization (FAO) and the Government of Odisha to assess the Mahendragiri mountains and Gandhamardan hills as potential Globally Important Agricultural Heritage Systems (GIAHS). Across our agrobiodiversity programme, 44 indigenous paddy and millet landraces were submitted for registration under the Protection of Plant Varieties and Farmers' Rights Authority, while community-led agroforestry demonstrated landscape restoration and improved livelihoods for more than 500 farming households.

The Agri-Food Systems programme advanced climate-resilient agriculture and livelihoods through sustainable farming practices, digital advisory services and farmer-led institutions. In Odisha, integrated farming systems and crop diversification enhanced the resilience of more than 2,800 tribal farmers. New initiatives included N-Balance in Rice Agroecosystem in the Cauvery Delta, targeting 15,000 farmers,

and gender-responsive climate risk assessment and adaptation planning in partnership with district administrations. Demonstrations of alternate wetting and drying in paddy reduced irrigation water use by around 20 per cent, thereby conserving more than 530 million litres of water. Digital technologies continued to transform agricultural extension. More than 108,000 farmers accessed weather-based advisories, while Plant Clinic services helped farmers adopt preventive pest management practices, reducing cultivation costs and improving productivity. Farmer Producer Organisations (FPOs) also recorded strong growth, with institutional management, digital systems and improved market access supporting greater financial sustainability and collective enterprise. For example, an FPO in Villupuram, supported by MSSRF, recorded a phenomenal turnover exceeding ₹30 million by adopting fair trade certification, while another FPO in the Kundra block linked 1,183 farmers on the Millet Procurement Automation System portal and facilitated the procurement of 1,420 tonnes of finger millet.

The Health Systems and Nutrition programme strengthened community health systems while expanding research on climate and health. Under the programme, frontline health systems tracked over 6,500 children and nearly 1,500 pregnant women to improve maternal and child health services. Our heat and health study surveyed more than 5,200 households across multiple states to better understand heat-related illnesses and enhance community resilience. We also advanced One Health research on antimicrobial resistance through collaboration across agriculture, livestock, fisheries and public health sectors in Tamil Nadu.

The Biotechnology research continued to bridge laboratory science with field applications. Research demonstrated the positive impact of natural farming on soil microbiomes, nutrient cycling and crop health, while a study involving 5,000 farmers documented improvements in soil health through green manure crops. The plant molecular biology studies identified three key salt-tolerant rice gene variants that most efficiently exclude sodium and retain potassium and developed a root system architecture mapping framework for phenotyping root traits in rice and millet under salt stress, aiding breeding of climate-resilient rice and millet varieties.

Our work on Climate Resilience generated evidence for national and global climate policy through equity-based modelling, district-level agricultural emissions assessments and research supporting inclusive climate adaptation. At the same time, our remote sensing and GIS technology team advanced GeoAI mapping of blue carbon ecosystems, integrating drone imagery, remote sensing, GIS analytics and AI-assisted machine and deep learning models to support the conservation of mangroves, seagrasses and salt marshes.

The Gender cross-cutting programme contributed to policy, research and practice. Systems are being developed to advance gender-mainstreaming strategies at the project design and implementation phases across programmes. While on the research dimension, co-development of a gender-responsive habitat restoration plan to manage human–wildlife conflict in Wayanad, a gender-responsive climate adaptation plan to promote inclusive planning in Tamil Nadu, and collective actions that shape fisherwomen's livelihoods and resource conservation were among the key highlights.

Institutions and governance are important to sustain field actions among farmers and fishers. Supporting 18 FPOs across 4 states with training, digital tools, legal aid and governance has enabled them to evolve sustainability platforms.

Across all programme areas, partnerships remained central to our approach. We empowered institutions that can sustain long-term change by working closely with governments, research institutions, communities, civil society organisations and development partners.

As we move forward, the programmes are committed to generating more evidence from the ground to effectively translate Prof. M. S. Swaminathan's vision of Biohappiness into action and policy spaces, where natural resources sustainably support both human well-being and planetary health.



Dr. Rengalakshmi R.
Executive Director, Research & Development and Policy,
M. S. Swaminathan Research Foundation

MESSAGE FROM THE EXECUTIVE DIRECTOR, STRATEGY AND OPERATIONS



The year 2025–2026 marked a period of reflection, renewal and purposeful evolution for MSSRF. Building on a strong legacy in sustainable food systems and biodiversity conservation and management, we have taken a strategic step forward – expanding into an integrated health, climate and nutrition platform. This progression reflects our long-standing interdisciplinary approach and positions MSSRF to respond more effectively to emerging development challenges at the intersection of ecosystems, livelihoods and human well-being.

This year provided an opportunity to reassess our portfolio and core capabilities through a comprehensive strategic planning process. This enabled us to sharpen MSSRF's positioning as a science-led, field-anchored applied research organisation focused on delivering scalable, equitable and sustainable solutions to complex development challenges across interconnected domains.

Partnerships remain central to our operating model. Over the reporting year, we expanded collaborations with government agencies, academic institutions, civil society organisations, foundations and corporate partners. We formalised 45 new MoUs with strategic partners; mobilised ₹934.3 million in grant and philanthropic funding; achieved a diversified funding mix across foundations, CSR, government and international donors; and advanced a robust pipeline of multiyear funding opportunities. Our engagement with government systems has been particularly critical in scaling field-level innovations into policy-aligned programmes, strengthening both reach and sustainability.

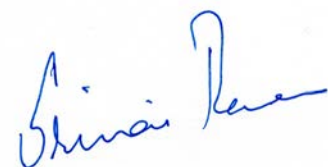
We strengthened our communications function to improve visibility, outreach and influence, reaching over 600,000 profiles through digital media platforms, producing 27 publications (including knowledge products and policy briefs) and conducting over 11 national and international events and convenings. These efforts have enabled MSSRF to translate science into accessible insights and amplify impact across stakeholders.

For MSSRF, a key priority has been advancing operational efficiency, transparency and governance rigour. This year, we successfully implemented an Enterprise Resource Planning (ERP) system, integrating finance, HR and project management, thereby enabling real-time tracking, improved financial discipline and sharper oversight. We also established a dedicated Monitoring, Evaluation and Learning (MEL) function, with programmes aligned to standardised results frameworks, and initiated a Data Analytics Centre to consolidate data integration, evidence generation and decision support. Compliance systems were enhanced, ensuring full adherence to statutory, donor and governance requirements, alongside improved internal controls and audit readiness. These investments are enabling MSSRF to scale with integrity, ensuring that growth in impact is matched by strong governance and accountability.

People remain at the core of our institutional evolution. We expanded team strength from 184 in April 2025 to 302 employees by March 2026, aligned to emerging programme priorities, reinforced leadership capacity through structured development initiatives, and institutionalised clearer roles, accountabilities and performance frameworks under the new operating model. Our evolving structure decentralises execution while maintaining superior programmatic alignment, enabling greater responsiveness and ownership at all levels.

As we look ahead, MSSRF is evolving into a more agile, future-ready institution – one that combines scientific excellence, community engagement and robust operational systems. Our expanded interdisciplinary platform positions us to address the complex linkages between climate resilience, nutrition security and ecosystem sustainability, while remaining firmly grounded in the needs of the communities we serve.

This progress reflects the collective commitment of our donors, partners, government agencies and communities. We are deeply grateful for their trust and partnership, which continue to strengthen our ability to translate science into meaningful and sustainable impact.

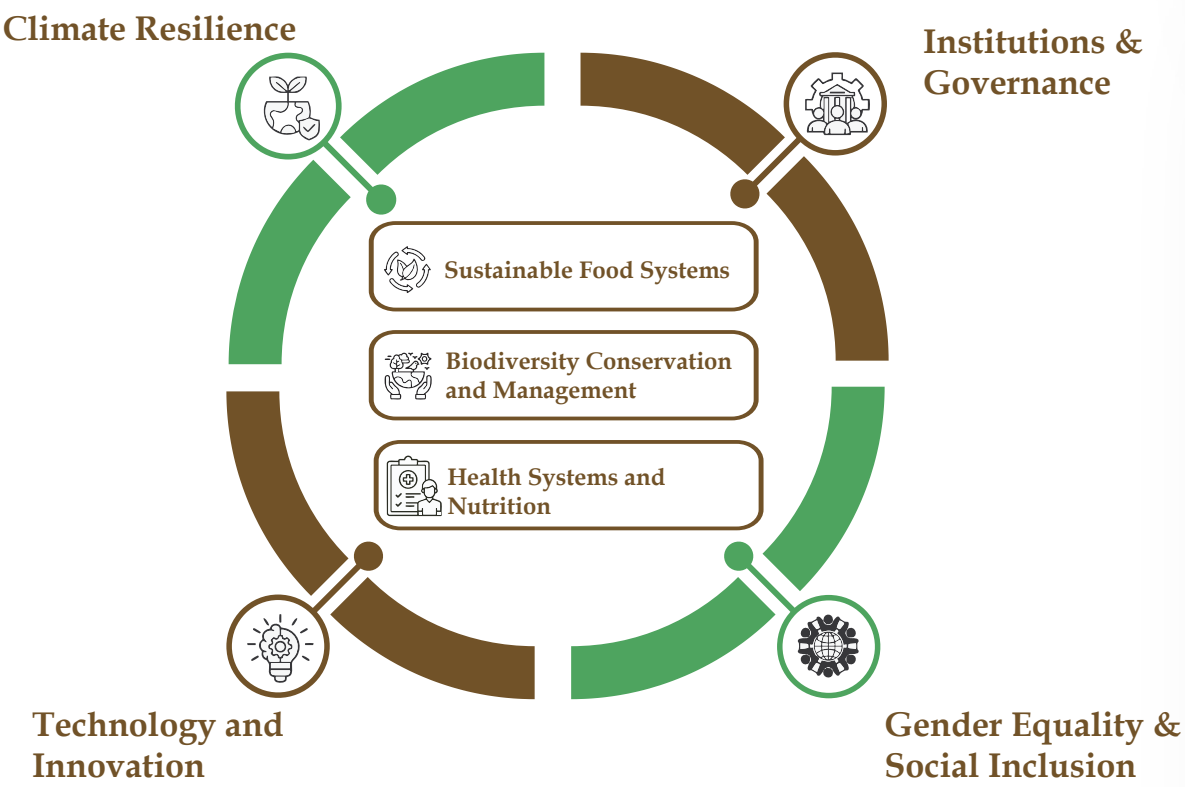


Srinivas Raman
Executive Director, Strategy and Operations,
M. S. Swaminathan Research Foundation

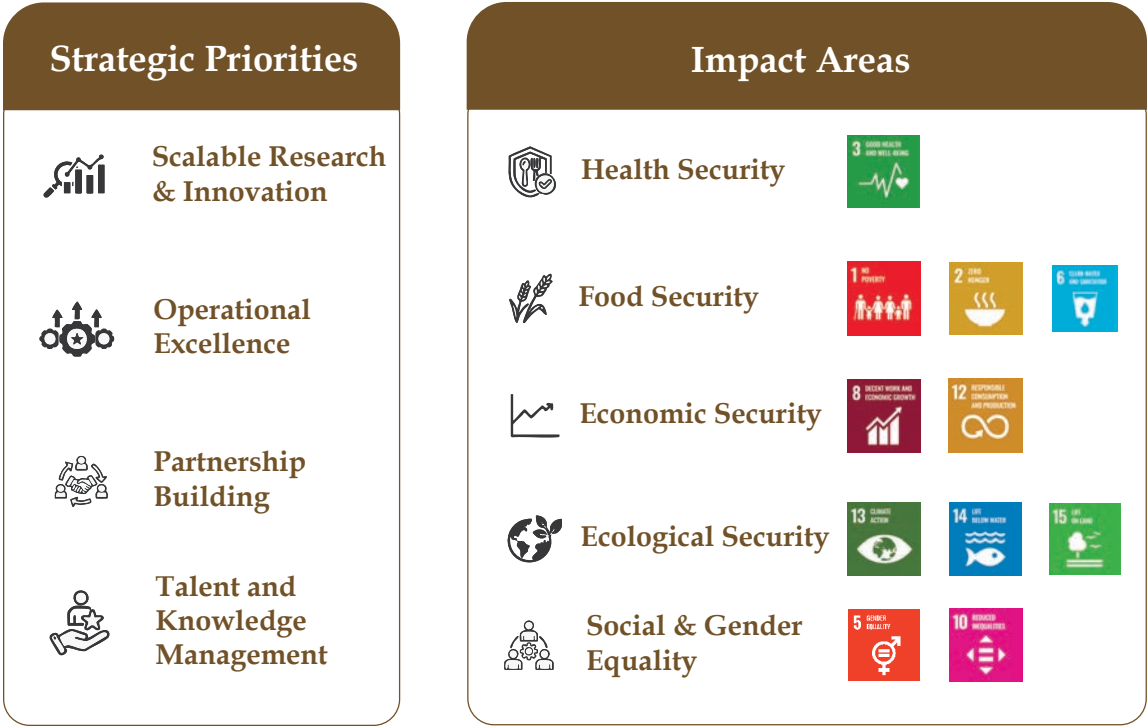


STRATEGY AT A GLANCE

2026-2031



Respect | Innovation



Collaboration | Excellence

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M. S. SWAMINATHAN CENTENARY

Celebrating a Legacy of Science and Service

The year 2025 marked the birth centenary of Prof. M. S. Swaminathan, whose vision transformed India's food systems and shaped the global conversation on sustainable agriculture. To honour his extraordinary legacy, MSSRF spearheaded a series of events and initiatives that celebrated his lifelong commitment to science, equity and environmental stewardship.

A key highlight of the centenary year was the M. S. Swaminathan Centenary International Conference, held on 7–9 August 2025, at the National Agricultural Science Complex, New Delhi. The conference, organised in partnership with the Indian Council of Agricultural Research, the National Academy of Agricultural Sciences, the Indian Agricultural Research Institute and the Ministry of Agriculture & Farmers' Welfare, Government of India, brought together more than 1,000 delegates and 7,000 virtual

participants from around the world. Inaugurated by the Hon'ble Prime Minister Shri Narendra Modi, the conference explored the theme 'Evergreen Revolution: The Pathway to Biohappiness' and reaffirmed Prof. Swaminathan's vision of linking food security, sustainability and human well-being.

The conference also saw the launch of the Award for Food and Peace, established jointly by MSSRF and The World Academy of Sciences (TWAS), to recognise contributions to food security and climate justice in developing countries. The Prime Minister presented the inaugural award to Dr. Ademola A. Adenle of Nigeria and released a commemorative coin and postage stamp in honour of Prof. Swaminathan.

The centenary celebrations extended beyond scientific discussions. Farmers from across India showcased products developed through Farmer Producer Organisations, while students from the Indian Agricultural Research Institute paid tribute through a theatrical performance on Prof. Swaminathan's life and work. Students from across the country also had the opportunity to present posters on key themes, including agriculture, climate change, and health and gender equity. MSSRF also unveiled the Biohappiness Exhibit, a collection of visual artworks developed in collaboration with The Lexicon.

The conference concluded with the Global Call to Action on Biohappiness, outlining priorities for a more equitable, sustainable and hunger-free future.

Chennai Pays Tribute

MSSRF hosted a special tribute to Prof. M. S. Swaminathan at its Chennai campus on 27 September 2025, ahead of his death anniversary. The Hon'ble Chief Minister of Tamil Nadu Thiru M. K. Stalin delivered the keynote address, honouring Prof. Swaminathan's enduring contribution to Indian agriculture and stating that "India will never forget the name of agricultural scientist M. S. Swaminathan".

The event brought together ministers, senior government officials, scientists and members of the Swaminathan family. It also marked the release of MSSRF's Annual Report 2024–2025, a commemorative MSS100 postcard set by the Tamil Nadu Postal Circle, and other publications from the foundation. The programme concluded with tribute addresses by veteran journalist and Director of The Hindu Publishing Group N. Ram and Executive Secretary and Co-founder of REACH Dr. Nalini Krishnan.



MEDIA COVERAGE





OUR DONORS

Our heartfelt thanks go to the donors who make our work possible. Support from government agencies, corporate partners, CSR initiatives, foundations, and bilateral and multilateral organisations enables us to create meaningful and lasting impact.

Government

- Anusandhan National Research Foundation, New Delhi
- AP Rythu Sathikara Samstha, Department of Agriculture & Co-operation, Govt. of Andhra Pradesh, Guntur
- Department of Agriculture and Farmers' Welfare (DAFW), Govt. of Odisha, Bhubaneswar
- Department of Biotechnology, Govt. of India, New Delhi
- Department of Science & Technology, Govt. of India, New Delhi
- District Administration, Koraput, Govt of Odisha
- ICAR-Indian Institute of Millets Research, Hyderabad
- Indian Council of Agricultural Research, New Delhi
- Indian Council of Medical Research, New Delhi
- Indian Meteorological Department, Ministry of Earth Sciences, Govt. of India, New Delhi
- Indian National Centre for Ocean Information Services, Hyderabad, Ministry of Earth Sciences, Govt. of India
- Kerala Council for Science, Technology and Environment, Govt. of Kerala, Thiruvananthapuram
- Kerala State Biodiversity Board, Thiruvananthapuram
- Kerala State Higher Education Council, Govt. of Kerala, Thiruvananthapuram
- Ministry of Environment, Forest and Climate Change, Govt. of India, New Delhi
- National Bank for Agriculture and Rural Development
- National Biodiversity Authority, Govt. of India, Chennai

- National Fisheries Development Board, New Delhi
- NTPC Tamil Nadu Energy Company Ltd, Chennai
- Odisha Biodiversity Board, Govt. of Odisha, Bhubaneswar
- Science & Engineering Research Board, Department of Science and Technology, Govt. of India
- State Forest Development Agency, Govt. of Kerala, Thiruvananthapuram
- State Planning Commission, Govt of Tamil Nadu, Chennai

Companies and Corporate Partners

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- UPL Ltd, Mumbai
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 - VRUTTI, Bengaluru
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Research Institutions

International

- AKMG Humanitarian Services, Canada
 - BCI Growth & Innovation Foundation, Switzerland
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 - Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Germany
 - Food and Agriculture Organisation of the United Nations
- Fridtjof Nansen Institute, Norway
 - Norwegian Institute of Bioeconomy Research, Norway University of New Mexico, Mexico
 - University of Reading, United Kingdom
 - WorldFish, Malaysia

National

- Commonwealth Educational Media Centre for Asia, New Delhi
 - Environmental Defense Fund, Inc., New Delhi
- German Development Cooperation, GIZ, New Delhi
 - United Nations Development Programme, New Delhi

Individuals

- Mr. Ashwin Champraj Shroff
- Mr. Lakshmi Narayanan

KEY PUBLICATIONS AND RECOGNITIONS

Journal Articles:

Untangling Tightly Bound Knots: A Reappraisal of *Campbellia* (*Orobanchaceae*), with the Rediscovery of *C. aurantiaca* after More Than 175 Years

P. M. Salim, Jose Mathew, P. T. Arunraj, V. N. Sanjai and B. Gopallawa

Kew Bulletin, December 2025

Researchers from MSSRF have resolved the long-standing taxonomic uncertainties surrounding *Campbellia Wight* and *Campbellia aurantiaca Wight*, confirming their identity and status. In a significant botanical finding, *C. aurantiaca* has been rediscovered in the Western Ghats of India after more than 175 years since it was last documented. This finding clarifies its classification and highlights the rich and still-unexplored biodiversity of the Western Ghats, a global biodiversity hotspot.

Assessment and Compare Blue Carbon Sequestration in Natural and Restored Mangroves in Tamil Nadu and Andhra Pradesh, India

R. Murugan, K. Balachandar, N. Sithranga Boopathy, G. Preethi, S. Niklesh, R. Nagarajan and R. Ramasubramanian

Biomass Conversion and Biorefinery, January 2026

The carbon sequestration potential of natural and restored mangrove ecosystems was assessed in Tamil Nadu and Andhra Pradesh, India. Eight mangrove species were recorded across the natural vegetation and the restored site. Soil organic carbon (SOC) was measured and significantly associated with the species dominance index ($p < 0.01$). The study revealed that SOC stock was significantly greater than Above Ground Biomass (AGB) carbon stocks. Water quality parameters have a significant influence on the carbon storage potential of natural and restored mangrove ecosystems.

An Evidenced-Based, Farmer-Focused Revival of Traditional Cereals

Ruth DeFries, E. D. I. Oliver King, Mansi Monga, Harini Nagendra and Amrita Neelakantan

Frontiers in Sustainable Food Systems, August 2025

Revival of agrobiodiversity is a lynchpin for climate resilience, improved human nutrition, local economies and cultural diversity. It is potentially as transformative for agriculture and diets as the Green Revolution. While the Green Revolution successfully increased cereal production and self-sufficiency, in hindsight critics have identified several environmental, social and nutritional shortcomings. Based on observations from 2,000+ households survey, the authors propose three principles for an ecological, nutritional and socially secure revival.

Adult Nutrition Literacy as Part of Farming System Research: Insights Gained in Applying Adult Learning Principles

Rama Narayanan, Shilpa Pandit, Nithya D. J. and Bhavani R. V.

The Indian Journal of Nutrition and Dietetics, September 2025

Nutrition-sensitive farming can improve household nutrition security. This paper shows that combining adult-learning principles with nutrition literacy prompted behaviour change for dietary diversity. Residential training used critical reflection and dialogue to explore food and nutrition security. Trainees then crafted culturally and economically relevant nutrition messages, built on their existing food knowledge and shared them in their communities. Follow-up support and capacity building continued for 1 year. A wide diversity of action was observed at the individual, household and community levels, leading to the creation of a human resource base for nutrition-sensitive agriculture for dietary diversity.

Seasonal Variability and Efficiency of Solar and Sun Drying Techniques for Indian Anchovy: Impacts on Quality, Shelf-Life, and Sustainability

N. A. Anbuwahini, S. Velvizhi, J. Kaviarasi, S. K. Singh and P. Singha

Journal of Aquatic Food Product Technology, August 2025

This study evaluates the drying characteristics, nutritional quality and shelf-life stability of Indian anchovy (*Stolephorus indicus*) using ambient sun drying and solar drying under varying seasonal conditions in Poompuhar, Tamil Nadu, India. Solar drying consistently achieved lower moisture content (6–23 per cent) and improved drying rates (1.2 to 2.4-fold) compared with sun drying. It retained higher protein content (up to 70.5 per cent) and achieved microbiological safety and superior sensory qualities. The shelf-life extended up to 12 months under ambient storage. The findings suggest solar drying as a more effective method for producing high-quality dried fish products in coastal regions of India.

Bridging Local Knowledge and Frontier Technologies for Sustainable Wildlife Management in Agricultural Landscapes

P. Manikandan, R. Gopinath, R. Seenivasan and R. Rengalakshmi

Frontiers in Sustainable Food Systems, January 2026

Human–wildlife interactions increasingly threaten food security, biodiversity and farmers’ livelihoods in India. This study examined factors causing crop damage from wildlife. Over 90 per cent of farmers view wildlife conflict as their main production risk, reporting 50–60 per cent losses in maize and tapioca. Indigenous practices cut damage by 10–40 per cent; advanced solutions (solar fencing, AI alarms) look promising but need support for smallholder adoption. The study fills knowledge gaps and recommends ecosystem-based habitat management and policy interventions. Placing farmer practices in a technological and institutional context, it outlines practical pathways for sustainable wildlife management and resilient smallholder farming.

Book Chapter:

Climate Change Impacts, Vulnerability, and Adaptation for Food and Livelihood Security: A Case Study of Maharashtra

M. Manjula and R. Rengalakshmi

Changing Tides, Climate Action and Justice in India, 2025

Agricultural performance and growth are imperative to ensure the food and livelihood security of the teeming population of India. Household vulnerability to food and livelihood insecurity in the country depend on both macro (national) and meso (state and district) factors. Identifying these layers is essential for designing context-specific development and adaptation programmes. Using the IPCC’s Livelihood Vulnerability Index, this study ranks Maharashtra’s districts, identifying Washim, Nanded, Nandurbar, Gondia, Wardha, Buldhana and Gadchiroli as the most vulnerable and Sangli, Latur, Nasik, Kolhapur and Dhule as least vulnerable. The study recommends district-specific adaptation strategies to strengthen local coping capacities.

MSSRF Report:

The Impact of Heat on the Health of Women in India: A Cross-Sectional Study

Soumya Swaminathan, Priyadarshini Rajamani, Nandini Sengottuvel, Roubitha David, Arun Ananthakumar, Kaustav Chakraborty, Laxmi Agarwal and Rajalakshmi Ramprakash

M. S. Swaminathan Research Foundation, 2025

Women surveyed in high Heat Vulnerability Index (HVI) districts are disproportionately affected by extreme heat, with nearly 70 per cent reporting symptoms such as fatigue, dizziness, dehydration and gastrointestinal discomfort. The study also noted impacts on livelihoods and well-being, including wage losses, stress, sleep disturbances and increased vulnerability to violence. The findings underscore the need for gender-sensitive heat action plans, affordable cooling solutions and improved access to healthcare.

Award:

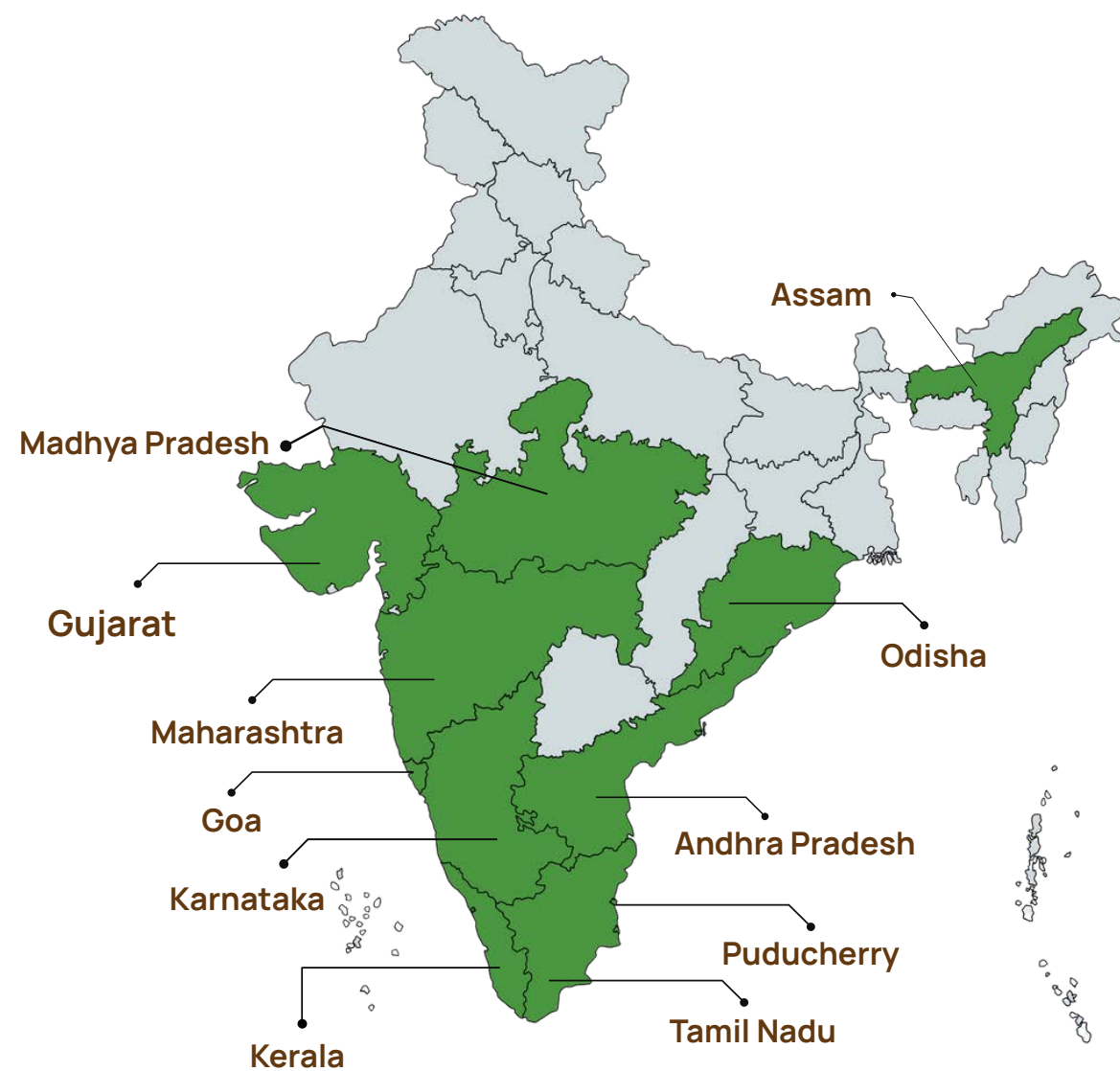
Fisher Friend Mobile Application received the IUCN Tech4Nature Award 2025

The feature ‘No Fishing Zone Alert: A Geofencing and Offline Alert System for Olive Ridley Turtle Conservation along the Odisha Coast’ was awarded in the Species Conservation Category at the IUCN World Conservation Congress 2025 in Abu Dhabi.

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PROJECT SITES



States: **11**

Districts: **97**

Villages: **2,185**



335,935

Total Households
Reached

56%

Agricultural
Households

38%

Fishing
Households

6%

Other
Households

At least 50%

of the people we
reach are women

At least 34%

belong to Scheduled
Castes and
Scheduled Tribes

PROGRAMME AREAS



HEALTH SYSTEMS AND NUTRITION

The Health Systems and Nutrition programme advanced MSSRF's work on nutrition science and food systems, community health, climate resilience and One Health through a combination of research, field action and systems engagement. During the year, the programme generated policy-relevant evidence on child undernutrition under Poshan Abhiyaan; piloted dietary assessment across tribal communities; profiled underutilised wild greens from Wayanad; strengthened maternal and child health systems in tribal Odisha; established a major baseline on heat stress and health in South India; and initiated a One Health approach to Antimicrobial Resistance (AMR) surveillance platform in Tamil Nadu.

AREA OF FOCUS

MATERNAL AND CHILD NUTRITION AND FOOD SYSTEMS

Under the theme 'Maternal and child nutrition and food systems', MSSRF focused on nutritional assessment, dietary diversity, public nutrition systems, food-based solutions and climate–nutrition linkages. Work in this area included the following: analysis of Poshan Tracker data across 112 aspirational districts, consultations with government stakeholders, dietary assessment pilots in tribal communities and research on the nutritional value of underutilised wild greens in Wayanad. The aims were to enhance evidence-based nutrition policy, improve understanding of dietary quality among vulnerable populations and identify locally available food resources that can support better nutrition security. Preparatory work also began on climate pathways influencing nutrition under the Indian Council of Medical Research (ICMR)-Centre for Advanced Research grant.

Key Activities

- A secondary data analysis of Poshan Tracker data was conducted across 112 aspirational districts to assess child nutrition service delivery.
- Qualitative data from 173 government functionaries was analysed and the findings presented to state governments and the Ministry of Women and Child Development (WCD).
- Food frequency, 24-hour dietary recall and physical activity assessment tools were piloted with 90 tribal households in Tamil Nadu, Kerala and Odisha.
- Tools to assess heat variables with respect to the high temperatures in Chennai and nutrition variables for a nutrition security study were developed.
- The laboratory profiling of four underutilised wild greens from Wayanad was performed to understand their nutrient, antioxidant, fatty acid, amino acid and anti-nutritional composition and chutney powders with up to 25 per cent leaf powder were formulated.
- Chutney powder formulations using *Zehneria maysorensis* leaf powder were developed and assessments done to understand sensory acceptability and shelf stability.

Outcomes and Impact

MSSRF's work in this area fortified both scientific and policy foundations for nutrition action. Policy recommendations on improving child undernutrition under Poshan Abhiyaan were submitted to the Ministry of WCD, and consultation proceedings from Andhra Pradesh, Telangana, Rajasthan, Chhattisgarh and Assam were shared with state and national authorities. The work also opened up discussions with the governments of Maharashtra and Odisha on developing a blueprint to improve programme delivery. In Wayanad, the nutritional profiling study showed that several underutilised wild greens have high iron and protein potential and low anti-nutritional compounds, and demonstrated promise for functional food use, while value-added product development showed practical scope for mainstreaming indigenous greens.

Looking Ahead

In 2026–2027, the programme will conduct dietary and nutritional assessment surveys among 300 tribal households each in Tamil Nadu, Kerala and Maharashtra, undertake the Chennai heat–nutrition study and plan an intervention on infant and young child feeding practices in Odisha.

AREA OF FOCUS

COMMUNITY HEALTH SYSTEMS AND GOVERNANCE

The 'Community health' focus area works to improve health, nutrition and well-being among vulnerable communities through stronger local health systems and evidence-based research. During the reporting year, MSSRF combined community health interventions in tribal Odisha through the Strengthening Access to Tribal Health through Innovation (SATHI) project and worked across 308 villages in two blocks of Koraput district to improve maternal and child health, nutrition, hygiene and local health governance through stronger frontline systems and community participation.

Key Activities

- The Poshan Tracker was used to monitor the growth and nutrition status of 6,549 children under 5 years, track 1,470 pregnant women for early identification of high-risk pregnancies and timely referrals and provide continued nutrition support and follow-up for 39 malnourished children. This included 23 children with Severe Acute Malnutrition (SAM) and 16 children with Moderate Acute Malnutrition (MAM).
- Community health governance was strengthened through regular meetings of 171 Village Health, Sanitation and Nutrition Committees (VHSNCs), engagement and training of 298 Gaggad Sathis (Community Champions) across 308 villages, and 213 AAA (Accredited Social Health Activist – ASHA, Auxiliary Nurse Midwife – ANM, and Anganwadi Worker – AWW) convergence meetings were held to improve coordination among frontline service providers.
- A total of 453 frontline health functionaries were engaged, 88 Health and Wellness Centre (HWC) review meetings were conducted, and 1,440 community members and students were reached through village and school health awareness programmes, improving coordination, service delivery and community-health linkages.

Outcomes and Impact

Project SATHI helped elevate community-linked health systems in remote tribal areas. Regular tracking of children and pregnant women improved early identification of malnutrition and high-risk pregnancy, while 39 malnourished children were linked to continued nutrition support through the Poshan Tracker. Community engagement through Gaggad Sathis, VHSNCs and AAA meetings improved local participation in health planning, strengthened accountability and increased access to government health and nutrition services.

Looking Ahead

In 2026–2027, Project SATHI plans to further consolidate maternal and child health tracking, referrals, frontline capacities and village accountability systems.

AREA OF FOCUS

CLIMATE RESILIENCE, HEALTH AND WELL-BEING

As MSSRF builds a Climate and Health hub, climate resilience and health have emerged as key focus areas that examine how rising temperatures and extreme heat affect vulnerable communities. Work under this theme focuses on understanding heat-related health risks, community awareness, adaptation practices and access to health services among rural, urban and coastal populations.

During the reporting year, MSSRF began the Reducing the Impact of Heat Stress on Health in South India (RIHSHI) study, starting with community surveys, health assessments and environmental studies to better understand the links between heat exposure and health outcomes. The evidence generated will support the development of heat-health early warning systems, fortify public health planning and help communities prepare for climate-related risks. The initiative is being implemented in partnership with the Indian Institute of Science (IISc), Bengaluru; the Schizophrenia Research Foundation (SCARF), Chennai; and the ICMR.

Key Activities

- More than 60 field investigators and supervisors across four study sites were trained on household surveys, anthropometric measurements, blood pressure and blood sugar assessments, and digital data collection tools.
- A total of 5,211 households were surveyed and data on demographics, housing conditions, economic status and access to health services was collected in Tamil Nadu and Karnataka.
- Qualitative interviews were initiated across the study sites to generate deeper insights into heat exposure, health outcomes, coping strategies and mental health status due to heat stress.
- Community outreach activities, including summer programmes for children, puppet shows, medical camps and street theatre performances, were conducted to raise awareness about heat-related health risks and preventive measures.



Looking Ahead

In the coming year, the programme will complete surveys on Heat-Related Illnesses (HRIs) across the study sites and establish a cohort for long-term monitoring. Weather-monitoring instruments will be installed to track local heat exposure and enhance data collection. The programme will also work towards developing community-based heat-health early warning systems that can help vulnerable populations prepare for and respond to extreme heat events.

AREA OF FOCUS

ONE HEALTH AND EMERGING HEALTH THREATS

The work this year also focused on health risks that emerge at the interface of human, animal, agriculture and environmental systems, with a particular focus on AMR. An ICMR-supported project on multisectoral surveillance and risk mapping of AMR across agriculture, livestock and aquaculture systems in Tamil Nadu was initiated. The project aims to build a scalable One Health model through surveillance, spatial risk mapping, governance research and digital data integration. It is designed to support farmers, producers, public institutions and health systems by reinforcing evidence, stewardship and state-level policy action on AMR.

Key Activities

- Over 1,100 stakeholders across five districts were contacted during the preparatory phase of the project, generating critical evidence on antimicrobial use practices, risk factors and stakeholder perspectives to inform One Health AMR surveillance, policy development and targeted intervention strategies.
- A memorandum of understanding was finalised in collaboration with Tamil Nadu University of Veterinary and Animal Sciences (TANUVAS).
- The design of a digital One Health AMR surveillance platform was initiated with the support of ICMR and government stakeholders.
- A research and implementation framework was developed for surveillance, risk mapping and policy translation in Tamil Nadu.

Outcomes and Impact

As field implementation has not yet begun, the major outcomes in 2025–2026 were institutional and analytical rather than at the population level. The preparatory assessment generated critical baseline evidence from more than 1,100 stakeholders across five districts, revealing widespread antibiotic use, uneven awareness of AMR, limited knowledge of withdrawal periods and weak adherence to stewardship principles across agriculture, livestock and aquaculture sectors. The findings also identified behavioural and systemic drivers such as easy antibiotic access, limited extension support and economic pressures on producers, while showing strong demand from farmers and producers for technical guidance and practical alternatives.

Looking Ahead

In 2026–2027, the focus area will prioritise burden assessment, integrated AMR surveillance, digital platform advancement, risk mapping and evidence generation to inform antimicrobial stewardship and One Health governance.

Story of Change



Earlier, we did not realise that our child needed special nutrition support. When the Gaggad Sathi and Anganwadi Worker explained that Ariya was suffering from Severe Acute Malnutrition, we understood the importance of proper feeding, regular monitoring, and timely treatment. They visited us regularly, counselled us on how to care for our child, and helped us access nutrition support through the Poshan Tracker and augmented Take Home Ration.

– Purnima Mandi, mother of Ariya (3), Gunneipada village, Odisha



AGRI-FOOD SYSTEMS

The Agri-Food Systems programme works to enhance the socio-economic and environmental resilience of smallholder farming communities.

During the 2025–2026 reporting period, the programme strengthened local food security and supported the growth of sustainable enterprises. This was achieved by integrating ecological agriculture practices, climate adaptation strategies, community-led institutions and digital advisory systems for decision making within these communities. The initiatives established a robust foundation for inclusive rural development across Tamil Nadu, Odisha, Maharashtra and Gujarat by focusing on climate-resilient farming systems and women's empowerment and reducing dependency on chemical inputs. The programme championed inclusive growth by mainstreaming gender equity, improving household nutrition and strengthening grassroots governance.

AREA OF FOCUS

CLIMATE RESILIENCE AND WATER SECURITY

Under this theme, MSSRF focused on addressing water stress due to climate variability through precision agricultural practices, water harvesting and localised climate adaptation planning. It included training sessions on Alternate Wetting and Drying (AWD) in paddy and improving water supply infrastructure. In addition, sustainable drinking water systems powered by renewable energy aimed to improve access to safe water. MSSRF's initiatives assessed climate risk vulnerabilities to enhance climate resilience and reduce risk for vulnerable rural communities.

Key Activities

- Under Project Jalodari in Theni district, AWD practices were introduced to more than 180 farmers across 140 ha of canal command paddy cultivation.
- The project enhanced supply-side water infrastructure by constructing 10 recharge pit structures and 10 farm ponds and desilting the Mannuthu tank to restore surface runoff.
- The ADAPT4R (Adaptation for Resilience) project was initiated in the Ramanathapuram district to enhance the climate resilience of vulnerable rural communities through community-led planning.
- Under the Climate Resilience in Rural India (CAFRI II) project, a Comprehensive Climate Risk Assessment (CCRA) and Gender Vulnerability Assessments (GVA) were conducted to develop climate risk-informed adaptation strategies in Virudhunagar district using the Gender Responsive Adaptation Planning Tool (GReAPT).
- Localised solar-powered drinking water delivery networks were established across Koraput district. This initiative explicitly focused on decoupling community water access from erratic grid electricity while yielding direct health benefits.

Outcomes and Impact

The adoption of climate-resilient practices delivered extraordinary water savings and yield improvements. The AWD implementation conserved 53.3 million litres of water, which was 263 per cent above the Year 1 target. In total, the project conserved or harvested 58.7 million litres of water across interventions, reaching 182 per cent of the Year 1 goal. Furthermore, combining Direct Seeded Rice (DSR) with AWD on demonstration plots raised yields from 1,500 kg/acre to 3,440 kg/acre, a 300 per cent increase, while simultaneously reducing labour costs by 5 per cent. The renewable energy-powered drinking water systems successfully provided safe drinking water to 1,105 rural households, thereby decreasing the incidence of waterborne diseases and improving health metrics.

AREA OF FOCUS

SECURING LIVELIHOODS AND ENTERPRISE DEVELOPMENT

Our work in this area aims to strengthen grassroots institutions, Farmer Producer Organisations (FPOs), and value addition to ensure sustainable economic mobility for small and marginal farmers. During the reporting year, FPOs and community-based institutions expanded their outreach and improved operational capacities. MSSRF's interventions supported farmer access to markets, services and credit. These efforts contributed to greater institutional sustainability, increased economic opportunities and enhanced community participation, particularly among women. The Nallavur Farmer Producer Company Limited (FPCL) secured two prestigious awards – the Best Performing FPO Award (2025–2026), conferred by the National Bank for Agriculture and Rural Development (NABARD), and the Best FPO Award (2025–2026), conferred by Fairtrade International, validating its compliance with global ethical trade practices.

Key Activities

- The Mukhyamantri Maka Mission supported the maize value chain in Kundra block, as part of crop diversification, reaching 870 farmers (32 per cent women) and facilitating direct market linkages with large-scale processors.
- Nallavur FPCL established a Value Addition Centre that processed 39 tonnes of black gram and facilitated the procurement and sale of 114 tonnes of groundnut.
- Bamandei FPC in Kundra block mobilised 2,463 households, registered 1,183 farmers on the Millet Procurement Automation System portal and procured 1,420 tonnes of finger millet.
- Pasumai FPCL expanded institutional credit by forming 100 Joint Liability Groups (JLGs) and submitting documentation to NABARD for credit linkages.
- The institutional acquisition of 1013 sq m of land was facilitated to construct permanent structural assets for the Kukudanal FPCL, including a central administrative office, a secure godown and an open drying yard.
- Skill-building workshops, designed to build alternative income streams for landless rural households, were organised for professional tailoring and jute bag manufacturing processes.

Outcomes and Impact

Farmer-led institutions achieved systemic financial strengthening and operational independence. Nallavur FPCL recorded a phenomenal turnover exceeding ₹30 million, while Pasumai FPCL surpassed ₹2.5 million. Bamandei FPC, functioning under an all-women Board of Directors, generated a net profit of ₹1.14 million. Kukudanal FPC became an asset-owning entity with infrastructure necessary for member operations. Women members of the Kulumai Self-Help Group Federation leveraged credit mobilisation to establish stable micro-enterprises in dairy, aari work and tailoring.



AREA OF FOCUS

ADVANCING ECOLOGICAL AND SUSTAINABLE AGRICULTURE

This area works on promoting sustainable and climate-resilient agroecological farming practices for improved soil health management and environment-friendly pest control solutions. Through farmer outreach, demonstrations and localised innovations, communities have adopted more sustainable production practices, which has enhanced agricultural productivity while reducing dependence on chemical inputs. The programme has strengthened farmers' capacity to manage natural resources efficiently, supported the adoption of climate-smart approaches and encouraged the use of resilient crop varieties.

Key Activities

- Through the Shree Anna Abhiyan (Odisha Millet Mission), 1,331 farmers cultivated millets over 1,085.9 ha using improved technologies such as the System of Millet Intensification (SMI) and line transplantation.
- A total of 9 Bio-Production Resource Centers were established across Maharashtra and Gujarat to foster the decentralised production of Trichogramma cards and bio-stimulants for sustainable cotton.
- The N-Balance in Rice Agroecosystem project commenced in the Cauvery Delta, targeting 15,000 farmers to promote climate-smart nutrient management and improve nitrogen use efficiency.
- In order to validate and promote eco-friendly pest management solutions in field conditions, 30 paired demonstration plots were set up.
- Educational awareness drives were organised for promoting urban and semi-rural backyard eco-management, and terrace gardening kits were distributed.
- Specialised orientation training programmes on traditional, Ayurveda-based veterinary practices were designed and deployed to manage livestock diseases naturally, successfully lowering household dependence on expensive and over-the-counter chemical antibiotics.
- A foundational baseline on antimicrobial resistance across 20 target villages was established, allowing extension workers to replace chemical livestock inputs with natural, low-cost Ayurvedic treatments.

Outcomes and Impact

The transition towards ecological agriculture resulted in marked productivity and health gains. Finger millet yields under the Shree Anna Abhiyan reached an average of 1.9 tonnes/ha. The promotion of biocontrol inputs reduced chemical dependency and empowered farmers to manage pests safely and sustainably, while integrated farming interventions helped maize yields rise from 4.4 to 6.18 tonnes/ha under improved practices. Decentralised bio-input production created a scalable model for reducing hazardous pesticide application with natural, low-cost management measures.

AREA OF FOCUS

DIGITAL INCLUSION AND KNOWLEDGE EXTENSION

Under this theme, MSSRF promoted digital technologies, climate information services and community knowledge networks to empower farmers with timely, actionable and locally relevant agricultural guidance. Through weather-based advisories, digital learning platforms, village knowledge centres and plant health diagnostic services, farmers gained improved access to expert support for crop planning, pest and disease management and risk mitigation. These efforts accelerated the transition towards data-driven and climate-informed agriculture, strengthening farmers' decision-making abilities, improving crop productivity and resource-use efficiency and reducing cultivation risks and costs.

Key Activities

- The Agro-Meteorological Field Unit (AMFU) under the Gramin Krishi Mausam Sewa (GKMS) generated 630 district-level and 742 block-level agro-advisories for dissemination.
- A network of Village Knowledge Centres (VKCs) and Village Resource Centres (VRCs) delivered 1,550 pieces of localised thematic content to farmers across 265 villages.
- Mobile Plant Clinics conducted 299 sessions, diagnosing 4,636 crop health cases and providing integrated pest, disease and nutrient management advisories to 4,529 farmers.
- MobiMOOC courses trained around 1,500 small and marginal farmers, while voicemail advisories reached approximately 15,000 farmers in Dindigul and Karur.

Outcomes and Impact

Digital outreach transformed traditional farming into data-driven practice. Over 108,610 farmers accessed weather-based advisories digitally, with more than 55 per cent consistently relying on them to plan planting, irrigation and harvesting. Farmers utilising Plant Clinic recommendations shifted from reactive to preventive Integrated Pest Management (IPM), reporting input cost reductions of up to ₹2,000/acre and yield improvements of 12–16 per cent. Real-time WhatsApp support and helpline services bridged the last-mile gap in agricultural extension.



AREA OF FOCUS

DRIVING INCLUSIVE GROWTH: GENDER, NUTRITION AND GOVERNANCE

This theme aims to promote gender equality, thereby improving household dietary diversity and strengthening decentralised village development planning using community-based initiatives and by supporting women in leadership positions.

Key Activities

- The Nutri-Garden Initiative was implemented across Sukinda and Danagadi blocks to combat malnutrition, successfully reaching 8,194 households with organic inputs and nutritious crops such as papaya and drumstick.
- Model Gram Panchayat Development Plans (GPDPs) were collaboratively prepared across 14 Gram Panchayats in Koraput using participatory rural appraisal exercises and community mobilisation.

Outcomes and Impact

These holistic interventions enhanced dietary diversity and nutritional security in highly vulnerable, mining-affected areas. The integration of gender sensitisation profoundly improved women's economic independence and leadership. Furthermore, the GPDP initiative successfully institutionalised the participation of women and marginalised communities into standardised local governance planning, ensuring their priorities shape block-level development.

Looking Ahead

Moving forward, the programme is strategically positioned to scale its proven models and generate deeper systemic impact. Key priorities for 2026–2027 include expanding digital agriculture extension services to the village level through more precise weather forecasting and advisories. Efforts will also focus on strengthening FPO-led value chains and deepening institutional convergence to increase procurement volumes and improve access to credit.

MSSRF aims to scale AWD practices to 350 ha and expand micro-irrigation systems by shifting to independent, community-led monsoon monitoring via Community Resource Persons.

To accelerate ecological adoption, the reach of Bio-Production Resource Centres will be expanded and Plant Clinic services extended to non-cluster villages. Greater emphasis will also be placed on promoting bio-stimulants and other low-chemical solutions to advance sustainable agriculture.

In addition, the programme is working with the Bharathi Institute of Public Policy (BIPP) at the Indian School of Business (ISB) to launch the Maharashtra Millet Mission later in 2026.

Building on a scoping study conducted in the previous quarter (January–March 2026), a new initiative in Gadchiroli district (Dhanora and Korchi blocks) will commence in August. The initiative will focus on women farmer empowerment through climate-resilient production systems, strengthening allied livelihoods and enhancing non-timber forest produce (NTFP)–based enterprises.

Story of Change



Using a ‘field water tube’ or ‘Pani Pipe’ provided by MSSRF’s training team, I controlled the water levels in my field. I learnt that I need 1 in. of water to prevent sheath blight disease and 3 in. of water to control rat infestation. That knowledge and the Pani Pipe helped me control the health of my field even when water was scarce.

– Marimuthu (65), Theni district



BIODIVERSITY MANAGEMENT

The Biodiversity Management programme conserves biodiversity while strengthening livelihoods and climate resilience across the tribal landscapes of the Western and Eastern Ghats. During the year, the programme continued to combine scientific research with community-led conservation to protect agrobiodiversity, rare and threatened plant species, and indigenous knowledge. It led to the discovery of four new plant species, expanded community seed systems, restored ecologically important landscapes and strengthened local biodiversity governance. Across the states of Kerala, Odisha and Tamil Nadu, more than 13,000 farming households and community members benefited through conservation-based livelihoods, ecological restoration, capacity building and climate-resilient farming practices.

AREA OF FOCUS

BIODIVERSITY CONSERVATION AND ECOLOGICAL RESTORATION

MSSRF Biodiversity Park, Wayanad

The MSSRF Biodiversity Park in Wayanad is a centre for biodiversity conservation, ecological restoration, research and environmental education in the southern Western Ghats. It aims to conserve rare, endemic, threatened and economically important plant species through restoration programmes, scientific research and community learning. During 2025–2026, the park expanded its conservation collections, strengthened plant nursery infrastructure and trained tribal youth in conservation and ecological restoration.

Key Activities

- Collections of rare, endemic and threatened plant species were conserved and expanded and nursery infrastructure and scientific systems strengthened for ecological restoration.
- Quality planting materials and nursery products were produced to support restoration initiatives while generating supplementary livelihood opportunities.
- *Ex-situ* conservation collections of priority plant species were maintained for research, restoration and educational purposes.
- Scientific studies supporting species recovery, propagation protocols and biodiversity conservation planning were conducted.
- Livelihood opportunities were created through nursery production and farm enterprises, while tribal youth were trained in nursery management and ecological restoration to support long-term biodiversity conservation.
- Biodiversity awareness programmes, stakeholder visits and educational activities were organised.

Outcomes and Impact

A more defined role as a regional conservation hub was carved out for the Biodiversity Park by expanding conservation collections and improving plant nursery and research facilities. Increased production of quality planting material supported ecological restoration across the southern Western Ghats. Conservation research has enabled species recovery and provided the scientific foundation for future restoration programmes. Tribal youth acquired practical conservation and nursery management skills through structured training, thereby improving their employability in nature-based sectors. The park also increased public outreach through research, education and partnerships with local stakeholders, helping build greater awareness and support for biodiversity conservation.

Looking Ahead

In 2026–2027, the Biodiversity Park will expand conservation collections, strengthen ecological restoration and research, and scale up green skills training to support landscape restoration and community-led biodiversity conservation. In the coming years, visitors, including students, researchers, nature enthusiasts and local communities, will be able to explore walking trails, interactive learning systems, conservation exhibits and more. The first phase of the nature trails is expected to open in 2026–2027.



People's Biodiversity Register and Community Biodiversity Governance

The People's Biodiversity Register (PBR) and Biodiversity Management Committee (BMC) programme are involved in bolstering community-led biodiversity governance across the tribal districts of Koraput, Malkangiri and Rayagada in Odisha. In partnership with the Odisha Biodiversity Board (OBB) and local institutions, the programme documents biological resources and traditional knowledge while building the capacity of local communities to conserve biodiversity, restore ecosystems and sustainably manage natural resources.

Key Activities

- A total of 39 PBRs were prepared across Koraput, Malkangiri and Rayagada districts to document biological resources and indigenous knowledge.
- Institutional support was provided to 140 BMCs, including formalisation of 75 committees and submission of documentation to the OBB.
- Two capacity-building programmes on biodiversity governance and conservation planning were organised to benefit 180 participants, including BMC members and government stakeholders.
- World Environment Day and Van Mahotsav campaigns involving plantation drives, biodiversity awareness programmes and stakeholder consultations were organised across multiple locations.

- Collaborative ecological restoration initiatives helped in the distribution of 10,000 seed balls and planting of over 3,000 native tree saplings.
- The International Day for Biological Diversity was celebrated, which helped in promoting grassroots conservation through participation of self-help groups, BMCs, government agencies in Odisha and Community Managed Seed Systems at the national level in partnership with ICAR-National Bureau of Plant Genetic Resources, Alliance of Bioversity International and International Center for Tropical Agriculture (CIAT) and Protection of Plant Varieties and Farmers' Rights Authority (PPV&FRA).

Outcomes and Impact

The programme advanced community-led biodiversity governance across southern Odisha by expanding biodiversity documentation and capacity enhancement of community institutions. The PBRs enriched local knowledge systems and supported evidence-based conservation planning. Functional BMCs are now better equipped to prepare local conservation plans and manage natural resources. Plantation drives and restoration activities improved local ecosystems while increasing public awareness of biodiversity conservation. The programme also built partnerships between communities, local governments and the OBB, thereby creating a stronger foundation for long-term conservation and climate resilience.

Looking Ahead

In the coming year, the programme aims to expand biodiversity documentation, fortify BMCs, prepare local biodiversity action plans and scale up community-led ecological restoration across additional tribal landscapes in Odisha.

Tribal Agrobiodiversity Centre, Jeypore

The Tribal Agrobiodiversity Centre (TABC) in Jeypore is MSSRF's regional centre for conserving indigenous crop diversity, medicinal plants and traditional knowledge in Odisha. The centre combines scientific research with community-led conservation to reinforce climate-resilient agriculture, biodiversity conservation and sustainable livelihoods. During 2025–2026, it expanded germplasm conservation activities, promoted farmers' rights, supported medicinal plant conservation, enhanced biodiversity awareness and upgraded biodiversity education and community outreach.

Key Activities

- This year saw the on-farm conservation of 351 indigenous paddy landraces, 87 millet accessions, 16 pulse species, 27 vegetable species and 22 yam and tuber species, thereby safeguarding Odisha's rich agrobiodiversity.
- A total of 44 indigenous paddy and millet landraces were submitted to the PPV&FRA for registration.
- Conservation and propagation systems for 384 medicinal plant species were established. Moreover, over 5,000 medicinal plants and 4,000 fruit saplings were produced and distributed, which helped strengthen ecological restoration, household nutrition and biodiversity conservation.
- Traditional healers were trained on the sustainable use of medicinal plants and non-timber forest products.

- Conservation education programmes, biodiversity awareness campaigns, plantation drives and educational visits engaged 3,276 students, researchers, farmers and government officials, fostering greater awareness and appreciation of biodiversity conservation.

Outcomes and Impact

The TABC contributed to the conservation of Odisha's agrobiodiversity by expanding *ex-situ* and on-farm conservation of indigenous crops and medicinal plants. Distribution of planting materials supported ecological restoration and improved access to valuable plant resources. Registration of traditional landraces reinforced farmers' rights and helped in the identification of indigenous genetic resources. Through research, training and outreach, the centre also worked on biodiversity awareness and established itself as a leading regional hub for conservation, learning and community engagement.

Looking Ahead

In the coming year, the centre hopes to strengthen germplasm conservation, expand medicinal plant restoration, promote farmers' rights, enhance biodiversity education and deepen partnerships with local communities to support biodiversity conservation and climate-resilient agriculture across Odisha.

AREA OF FOCUS

AGROBIODIVERSITY, SEED SYSTEMS AND SUSTAINABLE LIVELIHOODS

Resilient Agroforestry, Kolli Hills

The Integrated Tribal Livelihood Enhancement through the Agroforestry Programme helps tribal farming communities in the Kolli Hills build climate-resilient and sustainable farming systems. Working with tribal farming households, the programme restores degraded landscapes while improving agricultural productivity, food security and household incomes. During 2025–2026, diversified agroforestry systems generated measurable livelihood gains, built ecosystem resilience and demonstrated the long-term economic and ecological benefits of community-led landscape restoration. Strengthening tribal markets through collective enterprise has also been a key area of work through the Kolli Hills Agri-Bioresource Producer Company, a Farmer Producer Organisation (FPO).

Key Activities

- Diversified climate-resilient agroforestry systems integrating fruit trees, timber species, fodder grasses and nutrition-rich intercrops were established across 500 tribal farms, enhancing farm productivity, ecosystem health and household resilience.
- Over 200 farmer training days on sustainable agriculture, agroforestry, value addition, health and hygiene, and livelihood diversification were organised.
- Collective marketing systems were used to aggregate and market 62,000 kg of millets, 32,000 kg of coffee and 210 kg of black pepper.
- Support was provided to Farmer Producer Companies (FPCs) to expand business operations across 10 village panchayats, representing 1,034 shareholder households.
- The aggregate annual household income went up from ₹9.42 million (2023–2024) to ₹11.10 million (2025–2026), representing an overall growth of 17.9 per cent.
- The Kolli Hills Agri-Bioresource Producer Company achieved an annual business turnover of ₹10.90 million, generating a net surplus of ₹230,000 while strengthening community-owned rural enterprises.
- Soil and water conservation structures, including stone bunds, earthen bunds, mini percolation ponds and community wells, were constructed to improve water security.
- A community-based processing facility equipped with grading, milling, pulverising and packaging equipment was established to improve product quality and market value.
- The cultivation of banana, finger millet, pineapple, millets, vegetables and perennial crops was encouraged to help diversify farm production and reduce climate risks.
- Market-oriented production systems linking tribal farmers with value-added enterprises and diversified income opportunities were facilitated.



Outcomes and Impact

The programme helped tribal farming families adopt climate-resilient agroforestry systems that improved productivity and resilience to climate change. Aggregate annual household income increased by 17.9 per cent over 3 years, driven by strong growth in banana, jackfruit, finger millet and diversified horticultural enterprises. Improved soil and water conservation enhanced moisture availability and reduced erosion, thereby enhancing resilience to climate variability. FPCs increased tribal farmers' participation in organised agricultural markets through collective enterprise development and value-chain integration. Overall, the programme improved food and nutritional security while establishing a scalable model for climate-smart, biodiversity-based rural development in the Kolli Hills.

Looking Ahead

In the coming year, the programme will scale up climate-resilient agroforestry, strengthen ecosystem restoration, improve value addition and enhance market opportunities, while supporting sustainable livelihoods for tribal farming communities.



JIVA Agroecology Programme: Regenerating Farms and Natural Resources

The JIVA Agroecology Programme promotes regenerative agriculture and sustainable natural resource management across the Kolli Hills by strengthening ecological farming systems, community institutions and climate-resilient rural enterprises. During 2025–2026, it enhanced farm productivity, supported local enterprises, improved access to ecological technologies and empowered tribal farming communities to build resilient, self-reliant agricultural systems.

Key Activities

- Across 87.5 ha in the Kolli Hills, 140 farmers adopted natural farming practices and diversified cropping systems using bio-inputs and ecological approaches, while 30 farmers established orchards integrating fruit trees, spices, tubers and multipurpose species.
- A total of 84 practical training programmes across 151 trainee days were conducted, building the capacity of 140 lead farmers and 6 internal farmer resource persons.
- Decentralised Bioinput Resource Centres managed by farmer groups produced 106,010 litres of liquid and 28,580 kg of solid bio-inputs, enhancing local production of organic farm inputs and reducing dependence on chemicals.
- The traditional 'Othaiku Redai' seed exchange system was used to benefit Community Seed Banks (CSBs) serving 300 farming households.
- Collective action was reinforced through CSBs, Custom Hiring Centres, coffee and pepper processing units, and family-based rural enterprises, improving mechanisation, reducing labour requirements, enhancing product quality and creating sustainable livelihood opportunities.
- Family-based poultry hatcheries, natural farming enterprises, botanical pesticides and farmer exposure visits to successful agroecology models across Tamil Nadu were promoted.

Outcomes and Impact

The programme helped tribal farmers adopt regenerative farming practices that improved soil health, biodiversity and farm productivity while reducing dependence on chemical inputs. Community-led production of bio-inputs lowered cultivation costs and increased local self-reliance. Seed banks, processing facilities, Custom Hiring Centres and poultry enterprises created new livelihood opportunities and helped community institutions to thrive.

Looking Ahead

In the coming year, the programme will expand regenerative farming, strengthen community enterprises, promote farmer-led innovation and enhance landscape-scale adoption of agroecological practices across the Kolli Hills.

Shree Anna Abhiyan: Promoting Climate-Resilient Millets

Implemented under the Odisha Millet Mission, Shree Anna Abhiyan promotes climate-resilient millet farming in Koraput district while improving nutrition, incomes and market access for tribal farmers. The programme supports sustainable cultivation practices, quality seed production, training, market linkages and millet consumption. During 2025–2026, it expanded millet cultivation, increased productivity and improved market linkages and farmers’ access to government incentives.

Key Activities

- The programme supported the cultivation of finger millet, little millet, barnyard millet, foxtail millet, pearl millet and sorghum across 1,086 hectares involving 1,331 farmers, significantly strengthening climate-resilient agriculture in Koraput district.
- It facilitated the procurement of 1420 tonnes of finger millet from 2,463 farming households, improving market access and farm incomes.
- It also supported farmers in accessing ₹4.89 million in government incentives while strengthening millet value chains through seed production, training and market linkages.
- Through 16 training programmes, 430 farmers, including 163 women, were equipped with skills in improved agronomic practices, organic input use and seed centre management.
- Approximately 2,640 farmers were reached through 10 millet awareness campaigns, food festivals, exhibitions, roadshows and nutrition outreach events.
- Improved production technologies, including the System of Millet Intensification (SMI), line transplantation, ridge-and-furrow planting and line sowing, were introduced.
- Certified seeds of the improved little millet variety OLM-217 (Kalinga Suan) were produced.
- Farmer registration and government procurement, which enabled better market access, were facilitated.

Outcomes and Impact

The programme advanced millet-based farming by helping farmers adopt climate-resilient production practices and improve access to quality seed, technical support and organised markets. These efforts increased incomes, promoted millet consumption and reinforced the role of millets in building sustainable and climate-resilient farming systems.

Looking Ahead

The programme will expand climate-resilient millet cultivation, strengthen seed systems, promote value addition, improve nutrition awareness and enhance market opportunities for tribal farming communities across Odisha.



Community Seed Bank: Conserving Indigenous Seeds

The Community Seed Bank programme strengthens community-managed seed systems to conserve indigenous crop diversity, improve seed sovereignty and enhance climate resilience among tribal farming communities in Koraput district, Odisha. Supported by a Central Seed Bank at the TABC, Jeypore, the programme enables farmers to conserve, multiply, exchange and access traditional seeds through a decentralised community-led model. During 2025–2026, the focus remained on local seed security, safeguarding traditional crop varieties and promoting resilient farming systems rooted in indigenous knowledge.

Key Activities

- Across Koraput, Kundra, Jeypore and Boipariguda blocks, 13 CSBs were strengthened through community management and institutional support, improving access to quality traditional seeds and reducing dependence on external markets.
- Conservation of 217 indigenous paddy varieties and 77 millet varieties was undertaken at the Padma Shri Kamala Pujari Central Seed Bank.
- Seasonal seed exchange was facilitated by the use of a community seed repayment system that ensures continuous seed availability and long-term sustainability.
- Seed festivals were organised at gram panchayat and block levels to promote seed exchange, awareness and conservation of traditional crop varieties.
- Technical guidance was provided on seed conservation, multiplication, storage, documentation and community seed governance through the Central Seed Bank.
- Village seed committees involving farmers and community leaders were supported in decentralised management of traditional seed resources.

Outcomes and Impact

The programme improved local seed security by strengthening community-managed seed systems and reducing dependence on external seed markets. Across Koraput district, the conservation of paddy and millet varieties helped safeguard valuable genetic resources for future generations and enhance climate resilience through the continued cultivation of locally adapted crops. Community seed exchange systems reinforced collective ownership, supported farmer institutions and promoted traditional knowledge.

Looking Ahead

The programme will expand CSBs, strengthen indigenous seed documentation, improve seed quality management and promote wider adoption of climate-resilient traditional crop varieties across tribal landscapes.

Alternative Seed System Model: Building Community Seed Enterprises

The Alternative Seed System Model (ASSM) strengthens community-based seed production and sustainable seed enterprises among tribal farming communities in Koraput district, Odisha. Implemented across Koraput and Boipariguda blocks, the project enhances the production, certification, processing and marketing of quality finger millet and groundnut seeds while promoting farmer institutions and mechanisation. During 2025–2026, it improved seed security, enhanced market access and created new income opportunities for tribal farming communities through farmer-led seed systems.

Key Activities

- Odisha's community-based seed production system was strengthened and tribal farmers' incomes improved through the production and marketing of 7,700 kg of certified finger millet and groundnut seed.
- A total of 382 farmers across Koraput district benefitted through quality seed production, improved agronomic practices, mechanisation and institutional support.
- In Koraput block, 117 farming households across 54 ha benefitted from the distribution of foundation seeds of finger millet varieties Arjun and VL Mandua-380.
- Certified groundnut seeds were produced from 40 ha, engaging 98 seed growers.
- Training programmes were organised on integrated nutrient management, integrated pest management, post-harvest management and quality seed production for 265 farmers, including 78 women.
- Processing infrastructure was improved through the distribution of 11 pulse-processing mills, 9 oil extraction mills and a power tiller supporting farmer enterprises.
- The Kukudanal Farmers Producer Company was strengthened through enabling access to own office infrastructure, warehouse and drying yard infrastructure, while shareholder membership increased from 59 to 158, enhancing its operational capacity and business growth.
- Crop-cutting experiments, on-farm demonstrations and video documentation were performed to improve seed quality, productivity and knowledge dissemination.

Outcomes and Impact

The programme advanced community seed systems by producing 31.5 tonnes of certified finger millet seed and 45.8 kg of certified groundnut seed, thereby improving farmers' access to quality planting material and reach organised markets. Better farming practices increased seed quality and productivity, while procurement through the Odisha State Seed Corporation improved farmer incomes.

Looking Ahead

During 2026–2027, the programme aims to expand community seed production, strengthen farmer producer institutions, improve value addition and enhance market linkages to build resilient tribal seed enterprises.



DIVERSIFARM-India: Advancing Farmers' Rights and Seed Sovereignty

The DIVERSIFARM-India project aims to identify CSBs in India and establish a national platform for them and their supporting organisations and networks to share experiences and develop solutions for overcoming challenges, thereby unfolding their potential for food and nutrition security. Through case studies in Odisha, the project documents successful CSB models to generate evidence and identify areas for capacity-building and best practices for wider adoption. It also seeks to assess and identify ways and means to improve the institutional, legal and policy environments around CSBs to strengthen their long-term sustainability, taking Odisha as an example, and to enhance farmers' rights in India, as recognised in the International Treaty on Plant Genetic Resources for Food and Agriculture.



Key Activities

- Introductory meetings with 75 organisations across 10 states were conducted to build CSB partnerships and support mapping activities.
- Mapping of 180 CSBs across 9 states was completed, contributing to India's first national online CSB platform, which features an interactive GIS-based atlas mapping 475 CSBs across 17 states.
- A total of 180 new CSB profiles, along with more than 100 profiles from 2024 data, were prepared for the national digital platform.
- The GIS-based CSB atlas and web portal 'Community Seed Banks in India' was developed and launched on 8 September 2025. The portal has been regularly updated and project outputs disseminated through social media and stakeholder networks.
- Preparatory desk studies, fieldwork design, workshops, documentation and data management were undertaken to study the five CSBs as in-depth case studies.
- Participation in major national and international events, including the Wayanad Seed Fest, National Consultation on Climate-Resilient Seed Systems, Sree Anna Women Farmer Symposium and GB11 Side Event of the International Treaty on Plant Genetic Resources for Food and Agriculture in Lima, Peru, helped advance dialogue on community seed systems and agrobiodiversity conservation at different platforms.

- Stakeholder engagement and collaboration were strengthened through multi-stakeholder seminars at the national and state levels, bringing together practitioners, researchers, policymakers and government representatives to promote farmer-managed seed systems and identify pathways for the improved functioning of CSBs.

Outcomes and Impact

The project created the first comprehensive national knowledge base on CSBs in India by mapping 475 of them across 17 states and launching the country's first interactive Atlas of Community Seed Banks. It also developed a national typology of CSBs (6 types based on governance structure), providing a common framework for research, programme design and policy dialogue. Case studies from Odisha identified the factors that contribute to successful and sustainable CSBs, generating practical lessons for capacity building, institutional support and replication in other regions. These outputs have improved understanding of community seed systems, encouraged collaboration among stakeholders and provided a strong foundation for advancing farmers' rights and promoting community-led seed conservation across India.

Looking Ahead

The programme will finalise and roll out a CSB capacity-building manual and conduct training of trainers for stakeholders in Odisha. It will complete the review of the legal, policy and institutional environment for CSBs to inform future capacity-building and policy engagement. The programme will also build on the analysis of key bottlenecks and opportunities to promote an enabling ecosystem for CSBs, while deepening stakeholder engagement and policy dialogue to advance farmers' rights and support the long-term sustainability of community seed systems in India.



AREA OF FOCUS

YOUTH CAPACITY AND GREEN SKILLS

Building the Next Generation of Conservation Leaders

The Green Skills for Conservation Stewardship Programme equips tribal youth in Wayanad with practical skills in biodiversity conservation, ecological restoration, sustainable agriculture and nature-based enterprises. Based at the MSSRF Biodiversity Park, the programme combines classroom learning with field-based experiential training, preparing young people for green careers while supporting community conservation efforts. During 2025–2026, the first batch of graduates received their degree certificates from the University of Trans-Disciplinary Health Sciences and Technology, and an advanced apprenticeship model for a new group of trainees was launched.

Key Activities

- The first batch of 11 tribal youth graduated from the inaugural Conservation Stewardship Course, which helped equip them with professional competencies in biodiversity conservation, ecological restoration and sustainable livelihoods.
- A second cohort of 16 tribal youth representing multiple indigenous communities was launched, expanding the programme into a 9-month training and apprenticeship model.
- A comprehensive green skills curriculum was launched through hands-on field learning, providing tribal youth with training in nursery management, biodiversity monitoring, ecological restoration, mushroom cultivation, bamboo crafts, beekeeping, herbal product development, conservation science and nature-based entrepreneurship.
- In Kerala, experiential learning was facilitated through visits to botanical gardens, conservation institutions and biodiversity parks and through successful community-based enterprises.
- Entrepreneurship modules on value-added food products, medicinal plants, natural farming, aquascaping, terrarium creation and sustainable livelihood enterprises were integrated.
- Laboratories, nurseries, demonstration plots and community conservation sites were used to provide practical exposure linking scientific research with field implementation.

Outcomes and Impact

The programme created a new pathway for tribal youth to build careers in biodiversity conservation and ecological restoration. The first batch of trainees gained practical skills in conservation, nursery management, biodiversity monitoring and nature-based enterprises, which helped improve their employability and leadership skills. The launch of a second cohort and an apprenticeship programme has the potential for long-term community-led conservation and will help build a skilled local workforce to support restoration across the Western Ghats.

Looking Ahead

In 2026–2027, the programme aims to expand apprenticeships, reach more tribal youth, coordinate placement opportunities and support youth-led green enterprises that will create jobs while protecting biodiversity.



There are two sources of seeds for me – those I save from my own harvest and those I receive from our Community Seed Bank. I trust both because I know their quality, but I am not confident about seeds from the market. Last year, I cultivated the traditional paddy variety Lolat Dhan from the Community Seed Bank, and this year I have gone back to Umuriachudi, a variety my family has grown for generations because of its excellent taste. I also grow red gram from the Community Seed Bank, which has always performed well. These seeds give me confidence that I can continue farming with crops that suit our land and preserve our traditions.

– Dutika Mathpadia (65), Nuaguda village, Koraput district, Odisha

COASTAL AND MARINE SYSTEMS

The Coastal and Marine Systems programme works to strengthen coastal ecosystems and improve livelihoods of fishing and coastal communities. Using an ecosystem-based approach, the programme combines conservation, sustainable resource management, climate resilience and livelihood development.

During 2025–2026, the programme continued to focus on restoration and conservation of mangroves, seagrass and other coastal habitats. It also supported sustainable fisheries, climate-resilient aquaculture, post-harvest value addition and women-led enterprises. Digital tools and advisory services helped fishing communities access timely information, while community institutions were strengthened to support local governance and resource management. The highlight of the year was the Fisher Friend Programme's IUCN Tech4Nature Award 2025, which recognised the programme's work in linking conservation with technology-driven livelihood support. Overall, the programme demonstrated how coastal ecosystem restoration and livelihood enhancement can be effectively integrated to build resilient, sustainable and inclusive coastal communities.

AREA OF FOCUS

COASTAL ECOSYSTEM RESTORATION AND MANAGEMENT

Coastal ecosystems such as mangroves, seagrass meadows and coastal vegetation buffers are increasingly threatened by climate change, habitat degradation, shoreline erosion and unsustainable resource use, reducing their ability to protect communities and sustain fisheries-based livelihoods. In response, the programme has adopted an integrated, ecosystem-based approach combining habitat restoration, community stewardship and nature-based livelihood promotion.

Key Activities

- Wetland restoration efforts in Muthupet covered 100 ha and achieved >85 per cent sapling survival.
- A total of 24 ha of mangrove and 4 ha of non-mangrove bioshields were established across Andhra Pradesh, Tamil Nadu and Kerala to enhance coastal resilience.
- Native species were used to restore 10 ha of seagrass in Pulicat Lake, to improve the habitats.
- Active community participation led to the deployment of 240 artificial reef modules near Pulicat Lake to enhance fish stocks and reduce coastal vulnerability.
- A total of 75 women from mangrove-dependent communities were trained in enterprises such as goat rearing, backyard poultry, coconut oil extraction and coconut leaf-thatching.

Outcomes and Impact

The programme delivered substantial on-the-ground gains in the restoration and sustainable management of coastal ecosystems across Tamil Nadu, Kerala and Andhra Pradesh. Targeted interventions revitalised mangrove and seagrass habitats – vital coastal bioshields – thereby enhancing ecological integrity and strengthening shoreline protection.

At the same time, livelihood initiatives generated tangible socio-economic benefits. Women from mangrove-dependent communities engaged in coconut-based enterprises reported additional monthly incomes of ₹3,000–4,000, while livestock activities enabled asset creation and income diversification. These efforts reduced dependence on seasonal employment and strengthened women's roles in household decision-making.

Looking Ahead

In 2026–2027, the programme will place a strong emphasis on ensuring the long-term survival and resilience of bioshield plantations through sustained maintenance and monitoring. Efforts will also focus on deepening community ownership by bolstering participation in the restoration of mangrove and seagrass ecosystems. This will include building local capacities, fostering inclusive governance mechanisms and supporting community-led conservation.

AREA OF FOCUS

MARINE AND COASTAL FISHERIES MANAGEMENT

Under this focus area, the interventions in the reporting period enhanced livelihood resilience and economic security for coastal and tribal fishing households. During the year, participatory governance was advanced through co-management committees, while the Fisher Friend Mobile Application (FFMA) improved climate risk preparedness and ocean literacy. Marine pollution management, particularly ghost gear recovery and circular economy initiatives, enabled community-driven marine debris recovery across the Gulf of Mannar and Palk Bay. The Climate-Smart Fishing Villages initiative strengthened resilience through adaptive practices and sustainable livelihoods in Nagapattinam and Mayiladuthurai districts. Efforts also strengthened post-harvest value chains through enterprise incubation, technology adoption, digital inclusion, value addition and collective entrepreneurship. The Integrated Irular Development Programme reported measurable gains in children's education, health, livelihoods, nutrition and digital access.

Strengthening Fisheries Livelihoods Through Inclusive Governance and Sustainable Fishing Practices

This programme focuses on strengthening participatory governance systems for small-scale fishers, fish workers and tribal fishing communities. The Village Level Co-Management Committees (VLCMCs) were facilitated by MSSRF to identify and address local fisheries and livelihood issues. Co-management platforms improved coordination among stakeholders and enhanced community ownership over resource management and decision-making processes.

Key Activities

- Participatory village-level assessments were conducted to identify priorities related to livelihoods, fisheries management, occupational safety and community development.
- Activities focused on strengthening 20 existing VLCMCs were undertaken and 2 new VLCMCs were established.
- Targeted livelihood support (including fishing nets) was provided to 40 households, while 289 GPS devices and post-harvest infrastructure such as fish storage boxes and improved street-vending facilities were provided to 287 households, and occupational safety gear was supplied to 145 families to improve productivity and reduce risks.
- Health camps were organised for over 250 community members to improve preventive healthcare and awareness.
- Fishing efficiency, safety and operational performance was enhanced for 576 fishers through enhanced navigation and technical skills training.

Outcomes and Impact

The programme enhanced the livelihood resilience and economic security of 2,125 coastal and tribal fishing households through interventions in fisheries, safety, post-harvest management and sustainable fishing. Nearly 46 per cent of beneficiary households realized increased income, with average income gains of 20–30 per cent. GPS adoption improved fishing efficiency, with 92 per cent of households reporting higher catches and 98 per cent reducing fuel consumption, leading to increased incomes and safer operations. Women also benefited significantly, with 63 per cent reporting improved sales using post-harvest equipment and 90 per cent adopting hygienic fish-handling practices, thereby improving both incomes and product quality.

Ocean Observation, Early Warning and Ocean Literacy Through Fisher Friend Programme

The Fisher Friend Programme, implemented in partnership with the Indian National Centre for Ocean Information Services (INCOIS), improves safety at sea through early warning services and ocean literacy. During the year, Wave Rider Buoys (WRBs) were regularly maintained to measure real-time ocean surface conditions such as wave height, period and direction. The programme also received global recognition through the IUCN Tech4Nature Award 2025 under the Species Conservation Category for its 'No Fishing Zone' alert feature in FFMA, which uses geofencing technology to help conserve Olive Ridley turtles in the Odisha Coast while supporting safer and more sustainable fishing practices.

Key Activities

- A total of 1,760 fishers across 32 villages participated in community outreach events aimed at awareness and adoption of the FFMA.
- Coastal monitoring across 9 sites in 3 coastal districts through beach profiling and environmental assessments helped generate critical data on shoreline dynamics and emerging coastal risks.
- FFMA was updated with enhanced advisory and navigation features using fisher community feedback and emerging needs.
- Multichannel communication systems such as mobile apps, helplines, SMS and community radio were implemented for last-mile advisory dissemination of Ocean State Forecast (OSF) and Marine Fisheries Advisory Services, including Potential Fishing Zone (PFZ), reaching 1,520 new users.

Outcomes and Impact

During the reporting period, the FFMA onboarded 4,834 new users, increasing its total user base to 1,13,225, with 1,08,576 users actively accessing advisories and services through the platform. Coastal monitoring efforts further generated valuable evidence on shoreline changes and emerging climate risks, strengthening resilience in vulnerable coastal communities.



Marine Pollution Management, Ghost Gear Recovery and Circular Economy Initiatives

These initiatives enabled large-scale, community-driven marine debris recovery systems, demonstrating strong local ownership across the Gulf of Mannar and Palk Bay. Post recovery, a functional ghost gear, Abandoned Discarded and Lost Fishing Gear (ADLG) recovery value chain was established, linking collection, aggregation, segregation and industrial partnerships to promote the circular use of marine debris. Women Self-Help Groups (SHGs) led the community-level waste management system, enabling the decentralisation of marine debris segregation and the institutionalisation of processing systems. Awareness campaigns focused on behavioural change while voluntary guidelines were adopted by boat owners to reduce marine debris. Overall, the initiative positioned marine debris management as a livelihood-linked conservation model.

Key Activities

- A community-led ghost gear recovery value chain, which helped in linking collection, aggregation, segregation and industrial tie-ups, was established, thereby advancing circular use of marine debris.
- The systematic recovery and removal of ghost gears and other debris from coastal and marine ecosystems was undertaken with the support of 10,261 fishing communities and local stakeholders.
- Marine debris segregation centres were established and operationalised, which helped in strengthening community-based marine debris management systems with active involvement of women-led SHGs.
- Awareness programmes reaching 1,699 community members across 40 coastal villages and 8 institutions via village-level campaigns were conducted, and institutional outreach on marine pollution, ghost gear risks, marine biodiversity and responsible waste management practices was initiated.
- Voluntary guidelines were co-developed with the support of 200 boat owners to minimise the effect of marine debris in the Gulf of Mannar.
- A national policy dialogue on ghost gear management was initiated at the HCL Harit Summit 2026, bringing together over 15 organisations, including government, industry, researchers and civil society, to advance circular economy solutions for marine debris management.
- The MSS 100 Beach Clean-up, one of India's largest coordinated coastal clean-up drives, was organised by engaging 6,554 volunteers across 74.6 km of coastline. The initiative collected over 38.21 tonnes of marine debris, including nearly 12.77 tonnes of ghost gear, with support from more than 70 partner organisations.

Outcomes and Impact

Community-driven marine debris management systems were established across two clusters in the Gulf of Mannar, restoring 215.76 km of coastline and removing 70 tonnes of marine debris and ghost gear. Women-led SHGs spearheaded waste segregation and upcycling efforts, processing 30 tonnes of marine waste into value-added products. This initiative not only reduced environmental degradation but also empowered communities, generating ₹133,300 as additional source of income for participating women.



Climate-Smart Fishing Villages and Coastal Resilience

Nagapattinam and Mayiladuthurai districts have been notified by the government of Tamil Nadu as among the most climate-vulnerable in the state. In response, MSSRF, in partnership with NABARD, is developing 5 Climate Smart Fishing Villages to strengthen community resilience through adaptive practices and sustainable livelihood interventions. Community-driven Village Level Climate Risk Co-Management Committees (VLCRMCs) have been established for climate-smart planning and community-led climate adaptation. Efforts have also been initiated to strengthen the Hook and Line Fishery value chain as an energy-efficient fishing practice through the introduction of eco-friendly gear.

Key Activities

- Five VLCRMCs were established, with 60 members (including 33 women, 27 men) trained in climate risk assessment, adaptation planning and early warning dissemination.
- Climate adaptation and governance capacities were strengthened among 95 fishers to help them better prepare, respond and manage extreme events such as drought, flood, high waves, high wind, cyclones and other coastal hazards.
- Energy-efficient fishing technologies, including solar dryers for value-added fish processing, hook and line fishery value chain through the introduction of species-specific gears, development of mini-processing units and creation of urban market outlets and integrated fishery farming systems, were promoted.
- Reclamation of saline-affected soils was initiated through soil testing, distribution of soil health cards and identification of saline-affected farm fields.

Outcomes and Impact

Climate-smart fisheries and farming interventions enhanced income opportunities and strengthened livelihood resilience among coastal communities. The introduction of hybrid solar dryers, hook-and-line fishery primary processing units and fish outlets enabled the production of 2.4 tonnes of dry fish, generating a profit of ₹0.13 million and significantly reducing post-harvest losses. Additionally, integrated fishery farming system interventions yielded 4 tonnes of fish along with Azolla and vegetables, contributing to improved food diversity and strengthened household nutrition security.

Strengthening Post-harvest Fisheries Value Chain and Fisherwomen Livelihoods

MSSRF worked across coastal districts of Mayiladuthurai, Nagapattinam, Cuddalore, Ramanathapuram and Tuticorin to strengthen post-harvest fisheries and improve fisherwomen's livelihoods. The programme established an Incubation Hub, promoting solar drying technologies, development of value-added fish products, digital advisory services and strengthening of fisherwomen-led producer enterprises. These efforts helped fisherwomen move from informal fish processing to organised, market-oriented enterprises.

Key Activities

- Hands-on training was provided to 672 fisherwomen in hygienic fish handling, solar drying, scientific salting, value addition, eco-friendly packaging, branding and collective marketing. To support and scale these enterprises, an Incubation Hub was established and operationalised at the Fish for All Training Centre in Poompuhar, which helped in fortifying fisheries-based entrepreneurship and market linkages.
- The FisherWomenConnect app was enhanced by the integration of learning resources, advisory services and dedicated fisheries helpline support.
- Vetri Paavai Fisherwomen Producer Company Limited was strengthened through enterprise development support, including GST registration, FSSAI certification, branding and market linkages.

Outcomes and Impact

The initiative led to the development and standardisation of 12 value-added fish products and 20 varieties of dry fish, enabling 20 women-led SHGs to transition from informal processing practices to organised, market-oriented enterprises. Moreover, 439 participants adopted improved post-harvest practices and value addition. Collectively, these women-led enterprises now produce nearly 4 tonnes of dry fish annually, generating an income of approximately ₹0.58 million. This transition has also resulted in significant improvements such as extended shelf life of dry fish, reduced spoilage, adoption of improved salting techniques and a shift towards biodegradable packaging – all of which help in enhancing food safety and building greater consumer confidence.

The Vetri Paavai Fisherwomen Producer Company Limited further strengthened its market presence by achieving a turnover of ₹1.12 million with a net profit of ₹0.17 million. By diversifying into the fabrication of mini solar dryers and promoting the Samuthra brand, the company has positioned itself as both a community-based enterprise and a technology service provider within the fisheries sector.



Integrated Development of Tribal Fishers for Education, Health and Livelihood Security, Pichavaram

The Irular fisher community is among the most vulnerable Scheduled Tribal groups in Tamil Nadu. The Integrated Irular Development Programme has been implemented in Pichavaram, Cuddalore district, to improve education, health, livelihoods, nutrition and digital access.

Key Activities

- Health and awareness programmes were organised for more than 100 community members.
- Evening Learning Centres and Every Child A Scientist programmes were organised in schools and villages.
- Fishing nets and fish storage boxes were provided for fisheries-based livelihoods.
- Village Knowledge Centres facilitated access to 1,793 users (56 per cent women) for weather advisories, government schemes and livelihood-related support through increased community awareness and preparedness.
- Mud crab fattening and mangrove-linked aquaculture provided stable supplementary incomes, reducing dependence on capturing fisheries for 15 Irular families.

Outcomes and Impact

Foundational education and scientific literacy among tribal children improved substantially, which was reflected in a 32 per cent increase in learning levels alongside greater confidence, participation and aspirations. At the same time, the provision of post-harvest support contributed to a 20–30 per cent increase in fish catch and over 30 per cent growth in daily incomes among 100 households. Overall, the convergence model integrating health, education and livelihoods effectively addressed interconnected vulnerabilities, leading to improved socio-economic resilience, reduced risk exposure and strengthened adaptive capacity among Irular households, thereby impacting the lives of 721 people.

Village Knowledge Centres and Village Resource Centres

Village Knowledge Centres (VKCs) and Village Resource Centres (VRCs) function as key digital knowledge and outreach platforms, connecting coastal communities with scientific information, weather advisories, government services and livelihood support. Through ICT-enabled services such as virtual VKCs, multilingual helplines, webinars and digital content, the initiative strengthened informed decision-making, climate-risk preparedness and community resilience across Tamil Nadu and Puducherry.

Key Activities

- Regular management of VRCs and VKCs was done via a 24×7 multilingual helpline that received 4,579 queries, enabling timely access to weather forecasts, PFZ advisories, conservation information and government schemes.
- A total of 826 OSF advisories were disseminated for enhanced operational planning, improved safety at sea and more fuel-efficient fishing practices.
- Knowledge exchange among scientists, institutions and coastal communities was enabled through virtual and centre-based platforms.

Outcomes and Impact

Reached over 7,900 fishers through centre-based services, webinars, advisory dissemination and multilingual helplines, the VKC and VRC network greatly expanded access to critical information and climate-resilient support for coastal communities. With 3,557 users engaging directly at VKC/VRC centres, the initiative strengthened informed, risk-aware decision-making. Overall, it advanced digital inclusion, enhanced safety at sea and improved access to essential services, contributing to stronger livelihoods and greater socio-economic resilience among coastal households.

Looking Ahead

Future efforts will focus on strengthening coastal resilience through village-level climate risk management planning, promoting climate-resilient livelihood models, reducing post-harvest fish losses, enhancing community-based fisheries governance, advancing digital solution such as FFMA and scaling digital ecosystems for fisherwomen to improve their livelihoods and be empowered.



AREA OF FOCUS

SEAWATER FARMING INTEGRATING AQUA-AGRI COMPONENTS

The programme promotes diversified, climate-resilient livelihoods across Tamil Nadu, Puducherry, Karnataka and Kerala. It supports sustainable aquaculture systems such as Integrated Multi-Trophic Aquaculture (IMTA), seabass nurseries, cage culture, mud crab fattening and mangrove-linked aquaculture. These interventions integrate scientific aquaculture practices with ecosystem-based approaches and strengthen community institutions.

Key Activities

- A community based seabass nursery was established in Mathampattinam for regular supply of fish fingerlings.
- The Kanara Fish Farmer Producer Organisation helped establish 40 seabass cages in Kumta, Karnataka.
- IMTA systems involving Asian seabass (*Lates calcarifer*) and seaweed (*Kappaphycus* sp.) were promoted through cage and raft-based farming models in Ramanathapuram district of Tamil Nadu.
- Mangrove-based crab fattening units were established in the Pichavaram region.
- Three Fish Farmers Producer companies were strengthened for collective action.

Outcomes and Impact

The interventions delivered substantial economic, environmental and institutional gains for coastal communities. The Mathampattinam nursery produced 5,200 fingerlings, generating ₹0.31 million in income for 20 families while strengthening local rearing systems. IMTA systems produced 11.1 tonnes of seaweed biomass, demonstrating resource-efficient and environmentally sustainable aquaculture. The integrated Asian seabass–seaweed model created diversified livelihood opportunities for 25 fishing families, generating nearly ₹0.5 million in collective revenue. Through short-cycle seaweed harvests every 45–50 days and annual returns from seabass production, participating households earned an average additional income of around ₹20,000. The programme also promoted wider adoption of sustainable aquaculture, with 209 shareholders embracing improved practices. Complementing these livelihood gains, 3 Fish Farmer Producer Organisations were strengthened through better access to inputs, collective marketing mechanisms and enhanced enterprise sustainability, thereby reinforcing long-term community resilience.

Looking Ahead

The programme will focus on scaling IMTA and other climate-resilient models. Efforts will strengthen fisher FPO-led enterprises, improve access to quality inputs and markets and promote value addition and diversified aquaculture practices. Emphasis will also be placed on ecosystem-based approaches, such as seaweed and mangrove-linked aquaculture, alongside continued capacity building, to enhance productivity, sustainability and long-term resilience.



AREA OF FOCUS

BIO-SALINE AGRICULTURE

MSSRF promotes bio-saline agriculture to help coastal farming communities adapt to increasing soil salinity caused by climate change. During the year, 25 women farmers in the Cauvery Delta were trained to cultivate saline-tolerant paddy variety TRY 3 using organic farming inputs. TRY 3 is recommended by the Department of Agriculture, Tamil Nadu for coastal saline soils due to its ability to withstand high salinity levels and achieve higher yields compared with traditional varieties. The adoption of this variety across 10 ha of salt-affected land in Thamarankottai South village in Muthupet mangrove forest helped farmers use previously underproductive land.

Key Activities

- Orientation and training were conducted for 25 women farmers from Thamarankottai South village on paddy cultivation in saline soils through organic cultivation with green manures and bioinputs in 10 ha.

Outcomes and Impact

The saline-tolerant TRY 3 variety helped farmers successfully cultivate in salt-affected land that was previously underproductive. The crop produced an average yield of 1.7 tonnes per acre, which is significantly higher than that of conventional local varieties. At a market price of ₹22 per kg, each farmer earned an income of ₹36,300, demonstrating the potential of reclamation s package to improve productivity, incomes and climate resilience in coastal farming communities.

Looking Ahead

Building on the success of the TRY 3 demonstration, MSSRF plans to promote the adoption of this saline-tolerant paddy variety in more salt-affected coastal areas of the Cauvery Delta. Continued training and support for women farmers will help scale up climate-resilient cultivation practices, improve productivity, and strengthen livelihoods in vulnerable coastal communities.

KEY OUTREACH INITIATIVES

M. S. Swaminathan Centenary Fisheries Fair

The M. S. Swaminathan Centenary Fisheries Fair, themed ‘Fish for All and Ever: A Pathway Towards Bio-Happiness’, was organised on 26–27 February 2026 to advance sustainable fisheries, coastal livelihoods and marine ecosystem conservation. The event brought together fishing communities, scientists, policymakers, development practitioners and civil society for knowledge exchange, policy dialogue and showcasing sectoral innovations. Key highlights included the recognition of Community Champions as ‘Stewards of Biohappiness’ for their contributions to mangrove conservation, ghost gear mitigation, sustainable aquaculture and women-led enterprises. Panel discussions focused on responsible fisheries governance,

climate-resilient practices, habitat conservation and diversified aquaculture, while exhibitions such as ghost net upcycling and marine waste innovations demonstrated community-driven circular economy solutions.

The fair also generated a strong call to action for scaling ecosystem-based approaches, strengthening participatory governance and promoting diversified, climate-resilient livelihoods. It emphasised the need to mainstream circular economy solutions, support women-led value chains and translate field-based innovations into policy and institutional frameworks. Overall, the fair reinforced the importance of integrating community leadership, scientific knowledge and evidence-based policy pathways to build resilient and sustainable fisheries systems aligned with the vision of Prof. M. S. Swaminathan.

MSS@100 Webinar Series

The MSS@100 Webinar Series titled ‘Celebrating Prof. M. S. Swaminathan’s Legacy in Fisheries and Coastal Resource Management’ served as an important knowledge-sharing platform connecting scientists, coastal communities, students and policymakers. A total of 73 webinars were conducted, engaging 3,625 participants from across the fisheries and marine science sectors. The webinars covered a wide range of topics related to marine conservation, sustainable fisheries, coastal livelihoods and climate resilience. The webinar series successfully bridged scientific knowledge and field-based community experiences, providing valuable insights for researchers, coastal communities and policymakers working towards sustainable marine resource management.



“The training programmes conducted by MSSRF opened new opportunities for me beyond traditional fish vending activities. Through training on hygienic fish handling, dry fish production, insulated ice box usage, digital literacy and financial management, I learned how to improve product quality, maintain records and access market opportunities more effectively. With continuous support from MSSRF, I became actively involved in establishing the Vetrupaavai Fisherwomen Producer Company, which has grown from 10 members to nearly 200 women.

– Sharmila, Poompuhar, Tamil Nadu



CROSS-CUTTING THEMES





CLIMATE RESILIENCE

MSSRF's Climate Resilience work connects research, field action and policy engagement across programme areas and geographies. It documents lessons from the ground, identifies gaps, generates evidence and supports capacity building and policy advocacy. MSSRF has long contributed to India's climate policy and climate equity agenda. In 2025–2026, MSSRF, in partnership with the National Institute of Advanced Studies (NIAS) and Indira Gandhi Institute of Development Research (IGIDR), developed an equity-based global modelling framework that promotes fair energy access and equitable sharing of the global carbon budget. A related study on agriculture found that marginal and smallholder farmers could be disproportionately affected by carbon taxes.

Key Highlights

Climate equity

- Supported the Government of India and other developing countries by providing inputs on climate equity for negotiations under the United Nations Framework Convention on Climate Change (UNFCCC) and reporting under the Paris Agreement.
- Developed an equity-based global modelling framework with NIAS and IGIDR on energy access and carbon budget sharing.
- Launched the second phase of the Climate Equity Monitor and also contributed to the Global Climate Equity Report for the Global Stocktake.

Climate adaptation

- Integrated aspects of climate resilience across programme areas through initiatives on climate-smart agriculture, biodiversity conservation, mangrove restoration, wetland management, and health and community-based adaptation.
- Advanced practical solutions for everyday farming issues, such as early warning systems, vulnerability mapping, resilient seed systems, crop diversification, and methods for improved nitrogen use efficiency and methane reduction in rice cultivation.

Major Interventions

- Led the preparation and coordination of the chapter on climate change impacts, vulnerability and adaptation for India's first Biennial Transparency Report (BTR-1), submitted to the UNFCCC under the Paris Agreement.
- Completed a nationwide assessment of the carbon footprints of major crops and dairy production under the Indian Council of Agricultural Research (ICAR)-National Innovations in Climate Resilient Agriculture (NICRA) project. This first-of-its-kind study helped generate district-level estimates of agricultural emissions across climatic zones and farm-size categories, providing critical evidence for climate policy and planning.
- Continued to strengthen the Climate Equity Monitor, a joint MSSRF-NIAS platform that tracks global climate equity indicators. An upgrade is underway, which will include data on sectoral emissions, climate finance, methane and nitrous oxide emissions, countries' climate commitments and reporting, and the Land Use, Land-Use Change and Forestry sector.

Knowledge and Policy Contributions

- Developed a new global integrated assessment model based on energy equity and fair share of the carbon budget for all countries.
- Provided inputs to the discussions of the Ministry of Environment, Forest and Climate Change on negotiations related to indicators for the Global Goal on Adaptation (GGA) at the UNFCCC.
- Organised the International Conference on Agrarian Change with the Foundation of Agrarian Studies.

Outcomes and Impact

MSSRF's climate resilience work contributed to both policy and practice. At the national level, it helped strengthen India's engagement in global climate processes through evidence-based inputs on adaptation and climate equity. At the community level, initiatives such as climate-smart villages, climate-resilient crop promotion and conservation of climate-resilient varieties and crops helped communities better anticipate and respond to climate shocks.

Looking Ahead

MSSRF, in collaboration with NIAS, will significantly strengthen policy engagement, with further work on the Climate Equity Monitor and the preparation of the Global Climate Equity Report. Support to the Government of India in meeting its obligations under the global climate regime will be enhanced.

In 2026–2027, MSSRF plans to deepen its work on climate adaptation and resilience. MSSRF will map emissions from garbage dumpsites, assess their health impacts, strengthen municipal systems for emission reduction, and inform the development of an environmental health policy for urban areas. The initiative will be undertaken in collaboration with research partners including the Indian Institute of Technology Madras (IIT Madras) and Sri Ramachandra Institute for Higher Education and Research, with support from the Wellcome Trust. The foundation will also work with local governments to improve solid waste management and strengthen health systems.

In collaboration with the National Institute of Rural Development and Panchayati Raj, MSSRF will support Panchayati Raj institutions in advancing climate adaptation in rural India.



EMISSION TRAJECTORIES RESOURCE CONSUMPTION ▾

The truth about Climate Equity

A massively disproportionate share of the carbon budget has been appropriated by developed countries.

PLAY STORY ▶



INSTITUTION BUILDING

Strong community institutions are essential for sustainable development. Across agriculture, fisheries, coastal, ecotechnology and rural livelihood programmes, MSSRF works to strengthen Farmer Producer Organisations (FPOs) through better governance, leadership, business planning, financial management and market access.

During 2025–2026, MSSRF supported 18 FPOs across Tamil Nadu, Kerala, Odisha and Karnataka. Key initiatives included training for Board of Directors (BoDs), Chief Executive Officers (CEOs) and farmers; digital integration and market linkages; and stronger governance and compliance systems. We also supported many FPOs that were struggling to remain operational.

Key Highlights

- Revived Illuppur FPO through the Vrutti–Apti (Accelerating Agri-Producer Prosperity Through Innovation) project and facilitated the registration and orientation of a new Fish FPO at Kasimedu, thereby strengthening the grassroots producer institution.
- Conducted governance, leadership, business planning and financial literacy programmes for BoDs, CEOs, staff and farmers across Tamil Nadu, Odisha, Kerala and Karnataka.
- Established an FPO Showcase-cum-Sales Unit, which included products from 7 FPOs, thereby creating a wider customer base through institutions, apartments, IT companies and events.
- Introduced common auditor and company secretary support for 7 Tamil Nadu-based FPOs, which helped reduce audit costs and improve compliance, transparency and financial governance.
- Promoted digital transformation across FPOs through Open Network for Digital Commerce onboarding for wider market access, Vyapaar software training for streamlined accounting and inventory management, and collaborations with ecosystem partners such as Digital Innovations and Interventions for Transformation, PayAgri, Vrutti, NABARD and NABKISAN. These initiatives helped improve digital record-keeping, financial transparency, access to credit, business planning and market connectivity, enabling FPOs to operate more professionally and efficiently.

Major Interventions

Capacity building and leadership development

- A comprehensive capacity-building programme was implemented through the iECHO platform covering governance, leadership, social capital, entrepreneurship, market linkages and government schemes. Resource institutions, including Startup TN (Startup Tamil Nadu), NABKISAN (NABARD - promoted non-banking financial company), PMFME (Pradhan Mantri Formalisation of Micro Food Processing Enterprises Scheme) and MABIF (Madurai Agri Business Incubation Forum), contributed expert sessions. Pre- and post-assessment tools were developed to evaluate learning outcomes. Institutional training was also conducted for MSSRF staff and FPO stakeholders.
- Participation in the DIGIIT Digital Women Entrepreneurs' Boot Camp and APMAS (Andhra Pradesh Mahila Abhivruddhi Society) training on FPO federations helped enhance understanding of institutional design, governance structures and business sustainability models applicable across MSSRF-supported FPOs.

Institutional strengthening and governance support

- Institutional strengthening support was provided across FPOs through governance training, compliance guidance and leadership mentoring.
- An FPO coordinator was appointed for Odisha to improve governance, member mobilisation, statutory compliance, business planning and operational systems.
- Regular board meetings, annual general meeting facilitation, share certificate distribution, member database consolidation and financial monitoring mechanisms were promoted.
- A common auditor-cum-company secretary was appointed for 7 Tamil Nadu FPOs, reducing audit costs from ₹40,000 to ₹18,000 per FPO while ensuring standardised compliance and timely statutory reporting.

Market linkages, product promotion and business development

- An FPO Showcase-cum-Sales Unit was established at MSSRF headquarters to serve as a common marketing platform for products sourced from 7 FPOs.
- Customer requirement forms, stock registers, sales reports and customer databases were developed to strengthen business operations. Packaging, branding and label development support were provided for multiple FPOs.
- Products were promoted through MSS100, MSS tribute event, chief minister's event, COL (Commonwealth of Learning) workshop, fisheries event and Diwali initiatives. Gift hampers prepared exclusively using FPO products expanded visibility, customer outreach and institutional market opportunities.

Digital integration, partnerships and enterprise development

- Digital transformation programmes focused on bolstering operational efficiency and market access were initiated. Training programmes on Vyapaar software, ONDC onboarding and digital business systems were conducted for FPOs. Partnerships with DIGIIT and PayAgri supported digital adoption and financial literacy.
- Strategic collaborations with Vrutti, a nongovernmental organisation, resulted in the SAP–Apti–C2 project for Illuppur FPO.
- Market linkage efforts included engagement with buyers and enterprises for millet, moringa and value-added products.
- A needs assessment framework was developed to evaluate institutional readiness and support future digital interventions.



Outcomes and Impact

MSSRF's institution-building efforts strengthened the governance, management and business performance of FPOs. During the year, the revival of the Illuppur FPO and the establishment of the Kasimedu Fish FPO expanded opportunities for farmers and fishers. Improved governance systems, leadership training, digital tools and market linkages helped FPOs operate more efficiently and grow their businesses. These efforts increased member participation, built confidence among shareholders and enhanced the long-term sustainability of producer institutions.

Looking Ahead

In 2026–2027, MSSRF aims to focus on strengthening FPOs through better governance, stronger market linkages and improved business performance. Efforts will be focused on expanding digital tools, enterprise development and value addition while supporting branding, packaging, quality assurance and market access. The programmes will also promote climate-smart farming, leadership development and sustainable production practices. Through these efforts, MSSRF hopes to build resilient institutions that improve livelihoods and create lasting benefits for farmers and fishers.



GENDER

Gender equality is a key cross-cutting objective of MSSRF's work. The Gender programme operates through two complementary and interconnected dimensions. The first is a research and knowledge-production component that focuses on producing robust evidence on pathways to women's empowerment and gender equality within food, land, water and health systems. The second involves the systematic integration of gender and intersectional perspectives cutting across all programmes and interventions, ensuring that these considerations are embedded throughout the project cycle, including design, implementation, monitoring, evaluation and learning. Through these mutually reinforcing approaches, the Gender programme informs policy and practice, advances gender-equitable outcomes and enhances the inclusivity and sustainability of MSSRF's programmatic initiatives. In 2025–2026, the Gender programme led important research and policy interventions. A major milestone during the year has been its collaboration with the Government of Maharashtra in drafting new legislation on legally recognising women's paid and unpaid labour in agriculture and empowering them with guaranteed rights and entitlements – an initiative that could be the first of its kind in India to recognise women as farmers in their own right.

Key Highlights

Policy initiatives for recognising women as farmers

A major focus in 2025–2026 has been to initiate our engagement with various state governments to promote gender transformations in the agri-food systems through legislative and policy reforms. As a first step towards this, the Gender Programme was involved in preparing policy papers that conducted an in-depth analysis of the status of women farmers in the states where agriculture has undergone significant feminisation such as Maharashtra, Jharkhand and Odisha to identify key concerns and inequalities and propose possible solutions. In Maharashtra, MSSRF, along with the Vidhi Centre for Legal Policy, provided technical support to the state government in drafting the Maharashtra Women Farmers’ Recognition Bill 2026. Unlike the usual law-making process, this collaboration adopted a democratic approach, sharing every draft of the bill widely through multi-stakeholder consultations and meetings with women farmers from different regions of the state to make the legislation truly transformative.

Gender-responsive climate adaptation tool

A one-of-a-kind, interactive and scalable gender-responsive climate adaptation tool was co-designed, along with the Agri-Food Systems programme, as part of a project funded by GIZ, to support local, block-level and district-level governments and relevant line departments to develop evidence-based, gender-responsive climate adaptation plans. The project team demonstrated the use of the tool to collect household-level gender-segregated data on various aspects of climate change–induced vulnerabilities and coping strategies, generating data-backed recommendations to the panchayats and block panchayats in select areas of Virudhunagar district, Tamil Nadu. It will be a one-of-a-kind, scalable model that allows for the scientific integration of gender-responsive strategies into climate action plans.

Major Interventions

- A Gender Learning Lab was set up at Cheeyambam hamlet in Wayanad to address gender inequalities at the local level through participatory action research and community-led development interventions. This supports behavioural change and creation of livelihood opportunities for tribal women farmers of the Paniya and Kattunaika communities, who are engaged in spice cultivation and minor forest-produce collection.
- Integrated gender strategies were promoted across all major projects under the agri-food systems and fisheries programmes through project design and implementation.

Knowledge and Policy Contributions

- The Maharashtra Women Farmers’ Recognition Bill 2026 was drafted, in partnership with Vidhi Centre for Legal Policy, and submitted to the Government of Maharashtra.
- A methodological framework for designing participatory habitat restoration plans to systematically address human–wildlife conflict in Wayanad was developed.
- Three research studies on gender and livelihoods of fisher-women, debt and capacity-building measures for equitable resilience were carried out.

Outcomes and Impact

MSSRF’s Gender programme contributed to both policy and practice in the reporting year. At the policy level, collaborations with state governments have resulted in important legislative and programmatic interventions that empower women farmers. At the community level, the programmes have reached, benefitted and empowered women farmers through participatory gender mainstreaming activities.

Looking Ahead

The Gender programme significantly contributed to the organisational goal of gender equality and social inclusion through both policy interventions and development initiatives. MSSRF’s policy work with the Government of Maharashtra resulted in wider discussions around the need for formal recognition of women’s work in the agri-food systems and the creation of a governance ecosystem that guarantees them basic rights and entitlements. In 2026–2027, the programme aims to work closely with other state governments to drive legislative and policy reforms that support women farmers and fishers. Within MSSRF, gender mainstreaming at the programmatic and project levels will be institutionalised through dedicated ‘gender focal points’ who will serve as change agents. The programme will also strengthen its research for development work by setting up and strengthening gender learning labs at the community level.





BIOTECHNOLOGY

MSSRF's Biotechnology theme brings together two key research streams: microbiology and plant molecular biology. Working at the cutting edge of science, both streams conduct lab-based research to address real-world challenges and develop sustainable solutions for agriculture, biodiversity, nutrition and environmental conservation.

MICROBIOLOGY

The microbiology stream works at the intersection of soil health, sustainable farming and food safety. This year, the team studied the microbial communities associated with rice plants and soils in both natural farming and conventional chemical-input farming. Preliminary research showed that natural farming supports a richer, more active soil microbiome and higher soil enzymatic activity, both of which form the foundation for healthier crops. The team also assessed the impact of a Tamil Nadu government scheme for the adoption of green manure practices, and another study tracked fungal contamination risks in stored Kodo millet.

Key Highlights

- Soil microbiome studies showed that natural farming better supported the proliferation of beneficial bacteria and the fungal microbiome and enhanced soil enzymatic activity and soil nutrient status when compared with conventional farming, thereby resulting in better nutrient cycling and plant health.
- Metagenomic analyses of rice varieties helped identify unique microbial communities linked to disease resistance and improved crop resilience.
- An impact assessment study covering 5,000 farmers across 34 districts in Tamil Nadu found that a higher adoption of green manure crops resulted in improved soil fertility, reduced fertilizer use and increased productivity.
- A high-resolution microbial analysis pipeline using advanced gene-sequencing technology was set up in collaboration with IIT Madras.
- A new partnership with Rythu Sadhikara Samstha (RySS) in Andhra Pradesh for understanding soil microbiomes and their importance in natural farming is ongoing.

Major Interventions

Rice microbiome research

MSSRF compared the microbial communities associated with traditional rice varieties – Dular and Seeraga Samba – and high-yielding released variety CO-55. The analysis identified over 15 types of beneficial bacteria that help plants grow, resist stress and absorb nutrients. This work forms the base for developing bio-based crop management strategies and treatments that can reduce dependence on synthetic fertilisers and pesticides.

Soil health under natural and conventional farming

The team, in collaboration with RySS in Chittoor and Anantapur districts, studied soil microbiomes from paddy, groundnut and vegetable fields under both natural and conventional farming conditions. Testing 105 soil samples revealed that natural farming fields had significantly higher microbial diversity and more bacteria that fix nitrogen and solubilize phosphorus, both critical for soil fertility. These findings provide scientific evidence for the large-scale Andhra Pradesh Community-Managed Natural Farming programme.

Green manure and soil fertility in Tamil Nadu

An assessment of Tamil Nadu's Chief Minister's Green Manure Scheme found that widespread adoption of green manure measurably improved soil health, reduced chemical fertiliser use, and delivered better yields and cost savings. Policy support and subsidies on green manure seeds of preferred species were key enablers of a higher percentage of adoption. The study also flagged challenges such as seed supply gaps, climate

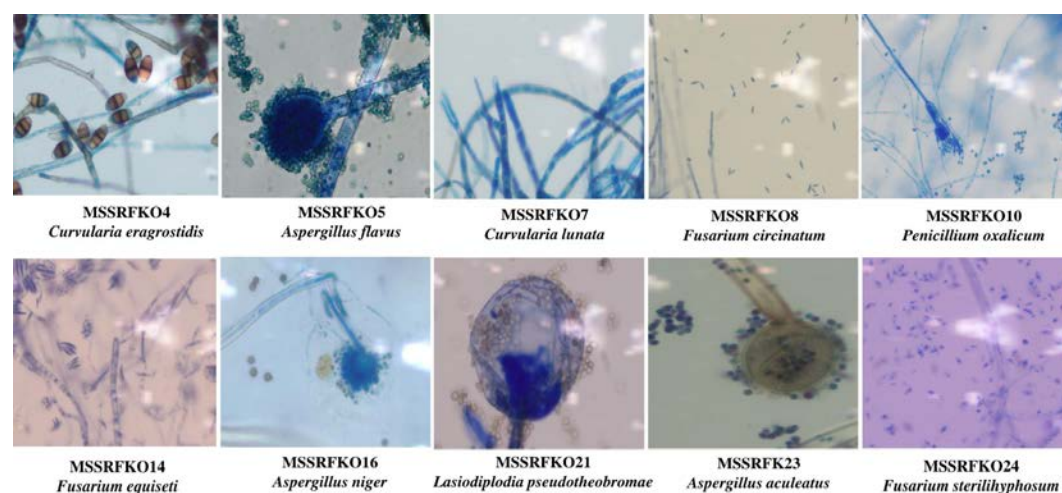
risks and uneven awareness among farmers, and recommended training and forming of green manure seed distribution systems to sustain the gains at scale.

Mycotoxin risk in Kodo millet

A survey of stored Kodo millet in three Tamil Nadu districts found 35 types of fungi, some capable of producing harmful mycotoxins or natural toxins that can adversely affect people and livestock. Poor storage conditions and high moisture were the main risk factors. Lab tests showed that a common soil bacterium, *Pseudomonas* spp., could suppress fungal growth and toxin production, offering a safe, low-cost, bio-based solution for safer millet storage.

Knowledge and Policy Contributions

- Research provided robust scientific evidence that natural farming builds richer, more resilient soil microbiomes, thus supporting the need for enhanced nutrient cycling.
- A standardised gene-sequencing workflow, developed with IIT Madras, strengthened MSSRF's capacity for reproducible soil and crop microbiome research.
- Plant-associated microbial diversity assessment identified specific beneficial microbes useful for developing bio-based crop and soil health management strategies that reduce dependence on synthetic fertilisers and pesticides. Evidence on mycotoxin risks in stored Kodo millet and the effectiveness of microbial biocontrol on grains informs food safety guidelines for smallholder grain storage.
- A framework combining metagenomics and microbial ecology supported evidence-based policy for sustainable agriculture and soil health monitoring.



Outcomes and Impact

This year's microbiology research directly supported the need for large-scale on-ground change. In Tamil Nadu, the green manure scheme reached 5,000 farmers across 34 districts, thereby improving soil fertility and bringing down expenditure on fertilisers. In Andhra Pradesh, scientific evidence from natural farming experiments strengthened an ongoing statewide programme covering thousands of farmers. Advanced microbiome analysis tools built institutional capacity for long-term monitoring. In the food safety arena, a practical bio-based approach to mycotoxin control in Kodo millet was identified, with direct relevance for smallholder communities who grow and store these crops.

Looking Ahead

In 2026–2027, the focus will be on taking microbiome research from the lab to the field at scale. The team plans to develop targeted bio-based crop treatments, expand soil health monitoring across more districts and build microbial solutions for safer millet storage. Engagement with state governments and policy bodies will continue to embed scientific evidence into framing policy and agroecological transitions.

PLANT MOLECULAR BIOLOGY

The Plant Molecular Biology stream is working to understand how plants survive and adapt to salt stress, a growing challenge as soils in coastal and irrigated areas become more saline due to climate change. The research spans mangrove species, cultivated rice and millets, evaluating both below-ground (root) adaptations and cellular-level ion transport systems. By examining how Root System Architecture (RSA) is structured in rice and millets and how it is altered under salinity, the team is building knowledge and tools that can directly inform the breeding of more climate-resilient crop varieties.

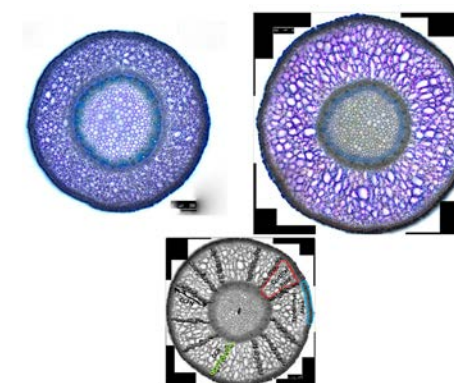
Key Highlights

- Two mangrove species co-occurring in the same tidal habitat were shown to have distinctly different root anatomical features, as adaptations to specific ecological needs.
- A key gene that controls salt tolerance in rice – *HKT1;5* – was studied across 95 rice genotypes, and 3 gene variants that most efficiently exclude sodium and retain potassium were identified.
- Tolerant rice varieties decoupled root architecture from ionic homeostasis under salinity. In contrast, sensitive genotypes showed ionic dysregulation, with length of second-order roots decreasing under salinity.
- RSA in millets varies in a species, genotype and temporal manner. Salinity alters millet RSA by reducing crown root emergence and/or length, while also limiting the growth of subsequent root orders.

Major Interventions

Root anatomy of mangroves

Seedlings of co-occurring mangrove species *Avicennia marina* and *A. officinalis* differ in the partitioning of anatomical traits of an adventitious root that occurs in line with the shoot axis. The twofold increase in root diameter in *A. officinalis* can be attributed mainly to increased cortical cell size and vascular tissue radius and in part to the number of cells that make a cortical layer. This analysis scheme can be applied in an ecological framework to link 'form to function'.



Mangrove Sectioning

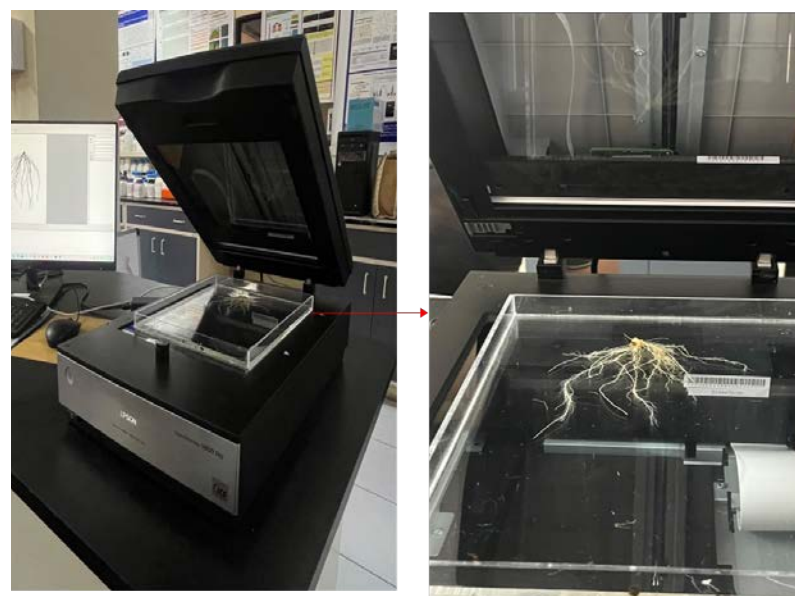
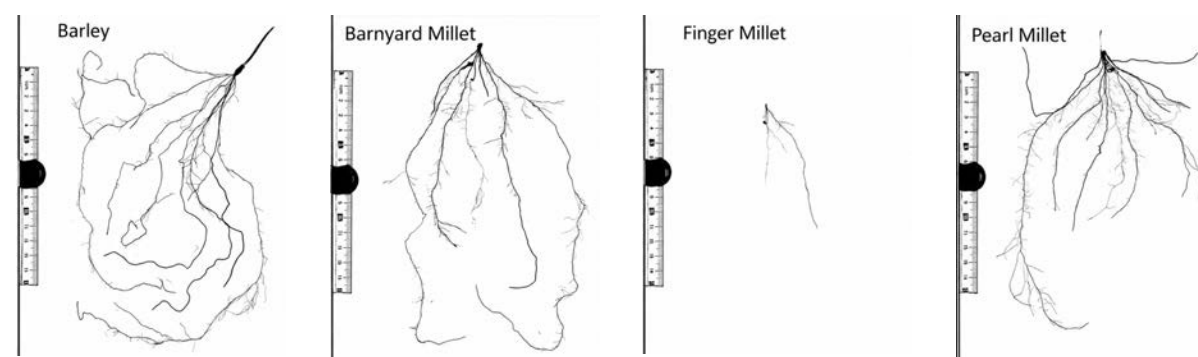
Identifying salt-tolerant rice gene variants

Sodium transporter *HKT1;5* is a major determinant of salt tolerance in rice, which confers the ability to prevent sodium from accumulating in shoot tissues under salinity. The team evaluated 95 rice varieties carrying different gene variants using physiological methods and ion measurements. Three gene variant

combinations – H4+PH6, H10+PH3 and H5+PH4 – stood out as most effective by exhibiting sodium exclusion and potassium retention under salinity. These findings can be applied to support breeding programmes for salinity tolerance in rice.

Mapping RSA in rice and millets under salt stress

RSA, the three-dimensional arrangement of plant roots, or how they branch, spread and grow, profoundly affects how a crop deals with stress. Using high-resolution scanning and image analysis software, the team mapped RSA in tolerant and sensitive varieties of rice, finger millet, pearl millet, barnyard millet and barley under salt stress. In rice, tolerant varieties showed decoupling of RSA from ion homeostasis under salinity. In millet species, genotype-specific RSA responses were observed. In particular, crown root emergence was impacted under salinity in two millet species, with concomitant RSA changes in lower root orders. The study provides a new proof-of-concept framework for defining RSA under salinity for the first time in millet species.



RSA Scanner

Knowledge and Policy Contributions

- A standardised pipeline for measuring root anatomy in mangroves was developed. This will help link plant structure to ecological function in saline habitats.
- Three *HKT1;5* gene variants associated with superior salt tolerance in rice were identified and documented. These will serve as targets for breeding.
- An RSA mapping framework was established for phenotyping root traits in rice and millet under salt stress, which is directly applicable to crop breeding and varietal selection.

Outcomes and Impact

Tools and methods developed, including root anatomy pipelines for mangroves, RSA mapping frameworks for rice and millets, and *HKT1;5* haplotype profiling, are now available for use in ecological research, genome-wide screens and breeding programmes. For rice, three gene variants linked to strong salt tolerance have been identified, and functional validation using complementary approaches is underway. For millets, RSA changes under salinity have been mapped systematically for the first time, which opens up a new avenue for developing climate-resilient varieties in crops that millions of smallholder farmers depend upon.

Looking Ahead

In 2026–2027, complementary functional studies will validate the best-performing *HKT1;5* gene variants in yeast systems and track subcellular localisation of the *HKT1;5* protein. Root architecture data will be integrated with anatomy data for rice and millets under salt stress, thereby connecting structure to function. For mangroves, root anatomical studies will be scaled up to embed findings in a broader ecological framework.





GEOGRAPHIC INFORMATION SYSTEM AND ARTIFICIAL INTELLIGENCE

Established in 1994, the M. S. Swaminathan Research Foundation's GIS, Remote Sensing and GeoAI Lab uses maps, satellite images, drone technology and artificial intelligence for research, planning and monitoring. It helps the programme team to better understand coastal and other landscapes, natural resources, agriculture and biodiversity. During the reporting year, the lab made advances in AI-assisted mangrove and blue carbon mapping of the Tamil Nadu coast. High-resolution multispectral drone surveys were conducted in the Pichavaram mangrove ecosystem. The lab also developed deep learning models for coastal ecosystem classification and conducted training programmes that reached over 500 students, researchers and the MSSRF team. Other important achievements included the development of the *Atlas of Mangrove Wetlands of Andhra Pradesh*, in partnership with the Department of Environment, Government of Andhra Pradesh.

Key Highlights

- The *Atlas of Mangrove Wetlands of Andhra Pradesh* was developed to strengthen ecosystem-based coastal planning and support informed decision making by policymakers, researchers and the forest department.
- GeoAI-driven blue carbon mapping of mangroves, seagrass and salt marsh ecosystems along the coast of Tamil Nadu was undertaken on a high-level spatial scale to establish a scientific baseline for future conservation and climate mitigation initiatives.
- High-resolution, precision-mapping drone surveys were undertaken across the Karankadu (Ramanathapuram district, Tamil Nadu) and Pichavaram mangroves (Cuddalore district, Tamil Nadu) for habitat assessment and ecosystem monitoring.
- Partnerships with government departments, academic institutions, research organisations, non-governmental organisations and technology partners were established to support collaborative geospatial and climate-resilience initiatives.
- AI-assisted deep learning models that analysed high-resolution images for classification of coastal ecosystem and environmental monitoring were developed.
- Three researchers obtained Directorate General of Civil Aviation (DGCA) certification for drone operations, while more than 500 students and researchers from academic institutions were trained in geospatial applications.
- The MSSRF team was trained on GIS and geospatial technology via the ECHO platform as part of institutional capacity-building initiatives.

Major Interventions

GeoAI-based blue carbon mapping and assessment

MSSRF initiated a GeoAI-enabled blue carbon mapping across the Tamil Nadu coast, covering mangroves, seagrass and salt marsh ecosystems, to strengthen habitat assessment, carbon estimation and spatial monitoring capabilities. The technology integrated multispectral drone imagery, satellite remote sensing datasets, GIS analytics and AI-assisted machine and deep learning models to improve accuracy. High-resolution drone surveys were completed in the Karankadu mangroves in Ramanathapuram district and Pichavaram mangrove ecosystem in Cuddalore district. These mappings in 2025–2026 serve as a baseline to plan the programmes on climate mitigation, biodiversity conservation, ecosystem restoration and sustainable coastal zone management.

Atlas of Mangrove Wetlands of Andhra Pradesh

The *Atlas of Mangrove Wetlands of Andhra Pradesh* covers the major mangrove ecosystems of the Krishna and Godavari Delta regions, along with additional mangrove patches across the coast. The study integrates GIS, remote sensing, GeoAI and machine learning techniques, and assesses shoreline dynamics, decadal changes in mangrove extent, distribution and density from 1990 onwards, species-level classification, ecosystem health and habitat changes across coastal regions of the state. The atlas serves as a valuable decision-support tool for coastal ecosystem conservation, climate resilience planning, biodiversity management and sustainable coastal resource governance.



Capacity-building programme on AI and geospatial technology

GIS and RS Lab conducted extensive capacity-building programmes on Artificial Intelligence and Geospatial Technology for school and college students to improve their geospatial skills. More than 500 participants, including students from Every Child A Scientist programme and various academic institutions, participated. In addition, 15 students did the internship programme on geospatial technologies, drone applications and spatial analysis.

Outcomes and Impact

The integration of GIS, Remote Sensing, GeoAI and drone technologies across programmes has been strengthening the generation of finer scale data sets, evidence-based planning, ecosystem monitoring and climate resilience initiatives. The ongoing blue carbon mapping in Tamil Nadu and the Mangrove Atlas Andhra Pradesh provide critical baseline datasets for policymakers, forest departments and research institutions, supporting improved coastal conservation and climate action planning. The special modules and the curriculum on geospatial technologies and AI applications have the potential to reach more students and researchers. Multi-stakeholder engagement and interdisciplinary engagements with government agencies, universities, NGOs and technology partners have added value to the application of geospatial tools in research and development.

Looking Ahead

In 2026–2027, GIS and the Remote Sensing lab will continue application of GeoAI-based tools in blue carbon assessment, biodiversity mapping and climate change monitoring across the Tamil Nadu coastal and terrestrial ecosystems. The lab will strengthen the integration of drone technology, AI-assisted analytics, cloud-based geospatial platforms and remote sensing for ecosystem restoration monitoring, carbon assessment and climate resilience planning. Focus areas will include coastal resource management, biodiversity conservation, sustainable agriculture and evidence-based environmental governance.



CAPACITY BUILDING

Capacity Building and Training continues to be a core focus area of MSSRF, strengthening the skills, knowledge and institutional capacities of researchers, development practitioners, educators and community institutions. Through digital learning platforms, structured training programmes and strategic partnerships, MSSRF promotes lifelong learning, scientific advancement and sustainable development across Tamil Nadu, Odisha, Kerala and other regions.

During 2025–2026, the programme expanded human resource development through collaborations with Extension for Community Healthcare Outcomes (ECHO) India, a not-for-profit organisation that builds capacity in healthcare, education and other sectors, as well as other national and international partners. These initiatives reached diverse stakeholder groups and enhanced competencies in agriculture, research methods, climate resilience, nutrition and technology applications while promoting innovation and collaborative learning.



Key Highlights

- Digital ECHO-based training programmes on Farmer Producer Organisation (FPO) leadership, governance, research methodology, rice fallow management and GIS applications were implemented, enabling participants to strengthen their leadership, research, technical and extension competencies.
- A Training of Trainers (ToT) programme on nutrition and climate change was conducted for Every Child A Scientist (ECAS) programme educators to integrate climate resilience into science education and classroom practice.
- A Training Needs Assessment for MSSRF staff was conducted and a structured capacity-building framework was developed along with an annual training plan to strengthen institutional learning systems.

Major Interventions

- The National Consultation on Advancing Lifelong Learning for Farmers, in collaboration with Commonwealth of Learning (COL)-Commonwealth Educational Media Centre for Asia (CEMCA), was conducted and key recommendations were documented to inform future programmes.
- The Department of Science & Technology accorded concept approval under the National Programme for Training of Scientists and Technologists Working in the Government Sector, while partnerships were expanded to support research, innovation and capacity building.
- The National Skill Development Corporation's (NSDC) Skill India Digital Hub (SIDH) accreditation process was completed, with MSSRF centres in Chennai, Jeypore and Wayanad being recommended for skill development accreditation under agricultural training programmes.

Outcomes and Impact

The programme built the leadership, technical, research and extension skills of more than 250 participants. This included 150 FPO leaders trained in leadership and governance, 45 researchers who strengthened their research skills, 30 agriculture development practitioners who improved their knowledge of sustainable agriculture and extension approaches and 25 MSSRF staff who benefited from structured professional development.

Recommendations for NSDC SIDH accreditation of MSSRF's centres in Chennai, Jeypore and Wayanad positioned the Foundation to deliver standardised agricultural skill development programmes, expanding opportunities for skills training and institutional learning across India.

Looking Ahead

In 2026–2027, the Capacity Building and Training programme will expand digital learning, strengthen institutional training systems and scale skill development across agriculture, science education and community learning.

Key priorities will include:

- Expanding ECHO-based digital learning platforms to reach more practitioners and institutions.
- Scaling the ECAS programme and experiential science learning initiatives.
- Rolling out agricultural skill development programmes through the Agriculture Skill Council of India and NSDC-accredited training.
- Strengthening the MSS Fellowship through enhanced mentoring, professional development and alumni engagement.
- Delivering specialised training programmes, including DST-supported initiatives, to promote scientific excellence, innovation and lifelong learning.



REGIONAL CENTRES





COMMUNITY AGROBIODIVERSITY CENTRE, WAYANAD

The Community Agrobiodiversity Centre (CAbC) in Wayanad, Kerala, is MSSRF's regional base in a tribal-dominated, ecologically fragile region of the Western Ghats. It is situated in a landscape shaped by rich agrobiodiversity, forest-linked livelihoods, climate stress and human-wildlife conflict and connects local realities with MSSRF's wider programme priorities. The centre brings together biodiversity conservation, sustainable livelihoods, field research and community engagement. It serves as a platform for testing ideas in practice, building local partnerships and turning field learning into institutional and policy engagement in a landscape where ecology, farming and community well-being are closely linked.

Why This Centre Matters

- Connects agrobiodiversity, livelihoods and ecological restoration in one landscape
- Supports field research, demonstrations and local partnerships
- Serves as a base for long-term community engagement and as a learning lab

Regional Flagships

Biodiversity Park

The MSSRF Biodiversity Park in Wayanad will serve as a regional hub for conservation, nursery development, research and green skills training, with a focus on Rare, Endangered, Threatened and Endemic (RETE) species and underutilised plants of the Western Ghats. It is envisioned as a lighthouse project and demonstration site for biodiversity conservation and ecological restoration, where people can learn through practice. The park will include 21 planting zones representing different ecological systems, such as evergreen forests and related sub-ecotypes, seasonally wet ecotypes, grasslands, wetlands and a pollinators' hub, along with walkways, native flora display areas and education and awareness facilities for visitors and researchers.

Green Skills for Conservation Stewardship

The Green Skills for Conservation Stewardship programme at MSSRF Wayanad builds conservation leadership among tribal youth by equipping them with practical, biodiversity-linked livelihood skills. It uses laboratory facilities, field sites, nurseries and community programmes to combine scientific training with value addition, entrepreneurship and field-based learning.

Other Major Interventions

- Conservation research on threatened endemic trees was conducted, and propagation protocols for 25 riparian species were developed. Around 100,000 seedlings and saplings were also propagated for stabilising the Kabani River bank and conserving the RETE riparian species.
- A study on the unique agrobiodiversity and traditional farming systems in the Kole Wetlands of Kerala was undertaken to support recognition as a Local Agrobiodiversity Heritage Site and strengthen science-based policy engagement.
- A research study on alternative cropping systems and bio-barriers to reduce human-wildlife conflict was carried out in partnership with the Kerala Forest Development Agency, and recommendations on habitat restoration, integrated farming systems, biodiversity conservation and equitable habitat governance were presented.
- Biodiversity knowledge was advanced by the discovery of four new plant species – *Dioscorea balakerishnani*, *Arisaema nayamakadense*, *Diplocentrum papillosum* and *Fimbristylis wayanadensis* – and rediscovery of *Calanthe aurantiaca* after 175 years. Moreover, crop characterisation and phytochemical analysis were also carried out for *Dioscorea* tuber species.

For more details, see the programme area sections on Biodiversity Management and Agri-food Systems.



TRIBAL AGROBIODIVERSITY CENTRE, JEYPORE

The Tribal Agrobiodiversity Centre (TAbC) in Jeypore, Odisha, is MSSRF's regional base in tribal-dominated Koraput, Odisha. It works with smallholder and indigenous communities to enhance livelihoods, nutrition and climate resilience, while linking traditional knowledge with scientific practice. The centre supports work on agrobiodiversity conservation, nutrition-sensitive agriculture, community seed systems and farmer-led institutions. It also serves as a platform for field learning, partnerships and long-term engagement in a region where farming, agrobiodiversity and local knowledge are closely connected.

Why This Centre Matters

- Connects agrobiodiversity, livelihoods and climate-resilient farming in the Eastern Ghats landscape
- Supports participatory field research, demonstrations and partnerships with tribal communities
- Serves as a base for long-term community engagement and as a learning lab

Regional Flagships

Integrated Farming Systems Model

The Integrated Farming Systems Model promotes diversified, climate-resilient livelihood systems among tribal smallholders by integrating agriculture, aquaculture, poultry and nutrition-sensitive interventions. Implemented across Koraput and Nabarangpur, it improves productivity, resource use and dietary diversity while reducing risk in rainfed and resource-constrained settings. During the reporting year, the model was instrumental in

- improving productivity, resilience and income diversification in over 2,800 households;
- raising yields in finger millet, maize and pigeon pea through improved practices and efficient resource management; and
- supporting mushroom cultivation and other nutrition-sensitive livelihood activities through 150 women's groups.

Millet and seed sovereignty initiative

This initiative promotes millet cultivation, decentralised seed systems and agrobiodiversity conservation through the Odisha Millet Mission, Alternative Seed System and Community Seed Banks. It enhances local seed sovereignty, improves access to climate-resilient varieties and supports processing, value addition and procurement systems in rainfed tribal areas.

Other Major Interventions

- A survey, in collaboration with the Food and Agriculture Organization (FAO) and the Government of Odisha, was carried out in proposed Globally Important Agricultural Heritage Systems (GIAHS) sites in the Mahendragiri mountains and Gandhamardan hills.
- Maize cultivation was strengthened as part of crop diversification strategy and facilitated aggregation and market linkages through FPOs.
- Tribal health resilience was supported through better maternal and child health tracking, awareness and service use.
- Women's economic empowerment was promoted through self-help groups, producer groups and FPOs in value addition, seed systems and diversified livelihoods.
- Participatory Gram Panchayat Development Planning was supported in partnership with Panchayat Raj institutions and district administration.

For more details, see the programme area sections on Biodiversity Management and Agri-food Systems.



FISH FOR ALL RESEARCH AND TRAINING CENTRE, POOMPUHAR

The Fish for All Research and Training Centre (FRTC) in Poompuhar, Tamil Nadu, is MSSRF's coastal field base at the tail end of the Cauvery Delta coast. It works with small-scale fishers, tribal households and coastal communities facing climate change, declining fishery resources, marine pollution and livelihood insecurity. The centre supports sustainable fisheries, coastal resilience, research, training, digital advisory services, ecosystem restoration and enterprise development. It also serves as a platform for field learning, partnerships and long-term engagement in coastal geographies.

Why This Centre Matters

- Connects fisheries, livelihoods, resilience and ecosystem restoration together as a holistic development model
- Supports research, demonstrations, advisory services and community partnerships
- Serves as a base for long-term community engagement and as a learning lab

Regional Flagships

M. S. Swaminathan Post-Harvest Fisheries Incubation Hub

The M. S. Swaminathan Post-Harvest Fisheries Incubation Hub is a platform for innovation, entrepreneurship and value addition in the post-harvest fisheries sector. It supports fisherwomen, start-ups, Fish Farmer Producer Organisations (FFPOs) and students through skill development, technology transfer, shared infrastructure, product innovation, regulatory guidance, market linkages and mentoring. During the reporting year, the hub was involved in the following:

- developing 12 value-added fish products and 20 hygienic dry fish varieties;
- establishing processing, drying, packaging and quality-assurance facilities with standard operating protocols;
- strengthening entrepreneurship through upskilling, business mentoring and institutional and market linkages; and
- training and providing exposure to 672 participants, including fisherwomen, students, entrepreneurs and officials.

Fisher Friend Programme and Ocean Information Services

The Fisher Friend Programme supports digital inclusion, ocean literacy and climate-risk preparedness through real-time advisory systems and Information Communication Technology (ICT) enabled services. In collaboration with the INCOIS, it expands access to ocean state forecasts, potential fishing zone advisories and early warning information through the Fisher Friend Mobile Application, Village Knowledge Centres, helplines and community outreach programmes.

Other Major Interventions

- Participatory fisheries governance was strengthened through village-level co-management institutions.
- Climate-smart fishing villages and ecosystem-based adaptation approaches were encouraged.
- Community-led marine pollution management was advanced through ghost gear recovery, clean-up drives and marine debris segregation.
- Integrated aquaculture systems and seawater farming models were promoted.
- Education, health, nutrition and livelihood security among the vulnerable Irular tribal communities were prioritised.

For more details, see the programme area section on Coastal and Marine Systems.

COMMUNITY SPEAKS



“ MSSRF gave me the skills and confidence to build a stable livelihood. Today, I proudly balance three roles, supporting my family, working my farm and managing the overall operations of our Value Addition Centre at Nallavur Farmer Producer Company. ”

– Govindhammal (54), Nallavur village, Tamil Nadu

“ For many years, my family depended entirely on fishing, and during difficult seasons I had to work as a daily wage labourer to support my five children. Through MSSRF's Ghost Gear Project, I learned how abandoned fishing nets and marine waste affect the sea and our livelihoods. Today, I lead the Neithal Self-Help Group and work with 10 women managing the Ghost Gear Segregation Centre in Vedhalai. We collect, sort and sell marine waste to authorised recyclers, creating an additional source of income while protecting our coastal environment. The biggest change is not only the earnings but the confidence we have gained. ”

– Pechiyammal (50), Vedhalai village, Tamil Nadu



“ Earlier, I used to dry fish in the open beach area. Many times, dust, sand, insects and sudden rain spoiled the fish, and we could not get a good price in the market. Income was not regular, and it was difficult to sell our products beyond the village. After getting support from MSSRF, I learnt how to use the solar dryer and prepare different value-added fish products. Now, I can process fish hygienically and produce many varieties. So far, I have processed nearly 700 kg of fish and developed 12 different value-added products. ”

– Bavani (34), Vanagiri village, Tamil Nadu



“ I used to feel tired, get frequent headaches, and sometimes feel uneasy, but I ignored it. During the household health check, the RIHSHI project team measured my blood pressure and found that it was high. They counselled me to seek medical care. I am grateful because this check-up helped me take my health seriously. ”

– Vinodha Bhai (47), Challakere, Karnataka

“ When my husband suffered a paralysis attack, I struggled to support the household. I was introduced to cage fish farming by MSSRF. I started with a single cage and, within six months, earned a profit of nearly ₹1 lakh. With further support from MSSRF and the Pradhan Mantri Matsya Sampada Yojana (PMMSY) scheme, I now operate six fish cages and earn an annual income of around ₹4–5 lakhs. This livelihood has transformed my family’s financial situation and inspired more than 15 women in my community to take up cage fish farming. Today, I proudly serve as a Director of the Kanara Cage Fish Farmer Producer Company Limited. ”

– Nagaveni Ambig, Kumta village, Karnataka



“ Support from the Kulumai Milk Producers Company, a FPO in our area, changed everything for me. The milk collection centre brought transparency, fair pricing and dignity to my work as a woman dairy farmer. In our village, men are usually seen as the breadwinners, even though it is not always true. I am glad that I was able to build my own identity in the village and ensure that my children receive a good education. ”

– Neela (35), Maniyakaranpatti village, Tamil Nadu





M. S. SWAMINATHAN FELLOWSHIP

The M. S. Swaminathan Fellowship is a 2-year programme for postgraduate scholars to carry out research addressing agriculture, nutrition and ecological challenges aligned with the Sustainable Development Goals. Initiated in 2024, a total of 6 fellows were shortlisted from among 500 applicants through a rigorous process. The research spans diverse themes aimed at strengthening science–society linkages for community benefit, tackling nutritional deficiencies through value-added products from nutrient-rich green leafy vegetables and edible seaweeds, pollination and the role of insects, reduction of methane emissions in paddy fields, paddy production under saline conditions, and carbon credit opportunities in agroecosystems.

RESEARCH PROJECTS

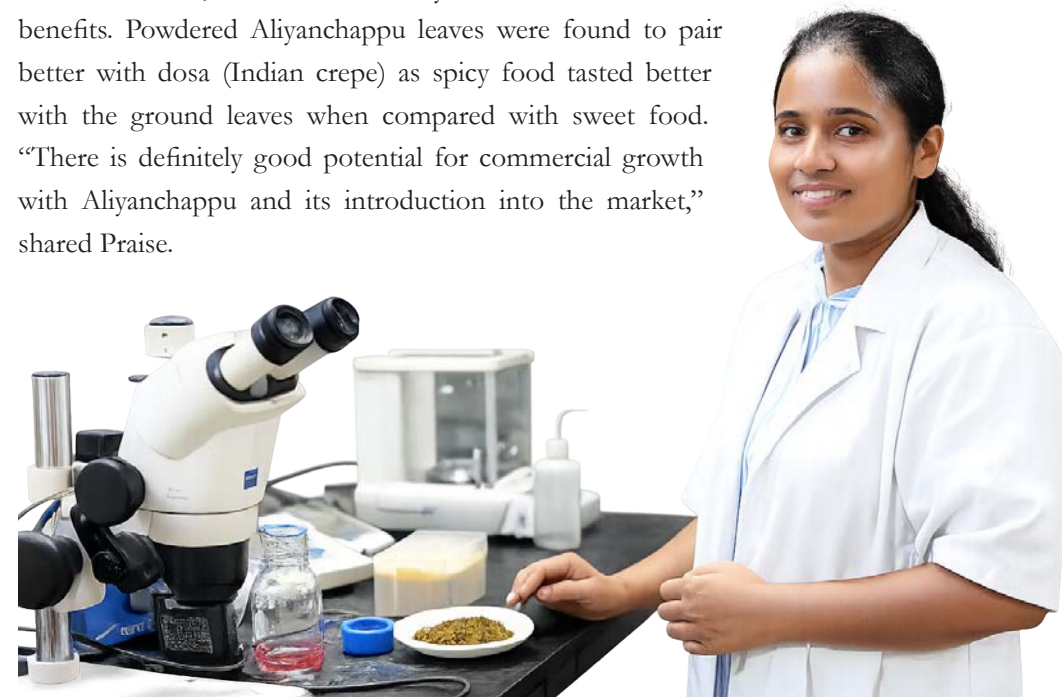
Research Project 1: Evaluating lesser-known green leafy vegetables as potential superfoods

Ms. Praise Alex, MSc, Food Science

When Praise reviewed the database of 50 edible plants at MSSRF's Community Agrobiodiversity Centre (CAbC) in Wayanad for nutritional profiles, she observed that 4 green leafy vegetables had very little documented information. With her background in food science, she set out to explore the nutritional properties of these lesser-known green leafy vegetables consumed by tribal communities as a research question for her M. S. Swaminathan Fellowship. She profiled Aliyanchappu (*Zehneria maysorensis*), Neelavela (*Cleome rutidosperma*), Marakkeri (*Embelia tsjeriam-cottam*) and Vayalchulli (*Hygrophila schulli*), and found Neelavela to have the best nutritional profile with high levels of protein and iron.

“We test for the same things you see on the label of any packaged food – proteins, carbohydrates, salts, minerals, vitamins etc. We also check for ‘anti-nutritional factors’, compounds that interfere with the nutrient absorption,” said Praise.

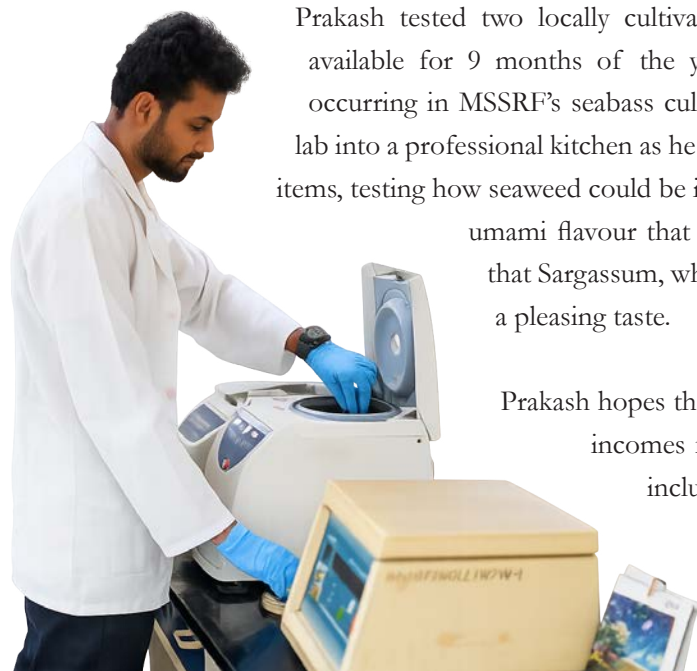
Despite Neelavela having the best nutritional profile, upon testing, Aliyanchappu showed better acceptance of taste, while also providing significant nutritional advantage. According to Praise, “Generally, herbs like mint, when added more than 10 per cent to food will give a bitter taste. But I could add up to 20 per cent Aliyanchappu and it was acceptable in taste.” Aliyanchappu was also found to have 10-fold more calcium and 1.5-fold more magnesium compared with fenugreek leaves and drumstick leaves, which are commonly known for their nutritional benefits. Powdered Aliyanchappu leaves were found to pair better with dosa (Indian crepe) as spicy food tasted better with the ground leaves when compared with sweet food. “There is definitely good potential for commercial growth with Aliyanchappu and its introduction into the market,” shared Praise.



Research Project 2: Value-added products to diversify incomes for seaweed farmers

Mr. Prakash Saravanan, MTech, Aquaculture Engineering

Fishers in Rameswaram regularly cultivate seaweed for sale to industrial buyers. Prakash, who had previously worked with seaweed, wanted to explore if more could be done to use it as a food additive. “Food made with Indian seaweed species is rare, and I wanted to change that,” he explained. “Seaweed is rich in fibre, calcium and magnesium. It is an important vegan source of omega-3 fatty acids.”



Prakash tested two locally cultivated seaweed species: *Sargassum wightii*, abundantly available for 9 months of the year; and *Ulva lactuca*, less common and naturally occurring in MSSRF’s seabass culture areas. He experimented with both, turning his lab into a professional kitchen as he dried, ground, baked, roasted and fried various food items, testing how seaweed could be integrated into different products. “Ulva has a lovely umami flavour that worked well in dosa podi,” he said. He also added that Sargassum, when included in baked crackers and ribbon chips, had a pleasing taste.

Prakash hopes that these value-added seaweed offerings will diversify incomes for fishers, while some products may encourage the inclusion of seaweed in their diets. “If we could learn how to culture Ulva, I would recommend it as a business model, as it may be more appealing to consumers.”

Research Project 3: Optimising pollination through bees – linking weed management and crop productivity

Ms. Indhu A., MSc, Climate Change

“When you think of insects, what comes to your mind?” Indhu asked farmers in Chengalpattu and Tiruvallur. They saw insects as pests to be removed as they wanted higher crop yields from their farms. Indhu’s research challenged this view by showing promising results on how bees can help improve crop yields.

“I briefly worked on the POLLIN project at the French Institute of Pondicherry, where I was introduced to the fascinating world of pollinators and plant–pollinator interactions. That experience sparked my interest in pollination ecology and inspired me to investigate the factors influencing crop yields in Indian farming systems,” said Indhu.

For the M. S. Swaminathan Fellowship, she focused on two native bee species – *Apis cerana* and *Tetragonula iridipennis* – as they were commonly found across the 12 farms in Tamil Nadu that she was studying.

Indhu expertly differentiates between nectar- and pollen-collecting bees by observing their behaviour. “I look at how long they stay and how they move before gently trapping them,” she explained. After collecting pollen samples, she releases the bees unharmed. Her work also includes a citizen science approach by



encouraging farmers to observe insect behaviour in their fields and using their findings to inform her research.

Her research revealed that brinjal and cucurbits farms with fewer surrounding weeds may influence lower yields. “Weeds provide refuge when crops are not at the flowering stage. Once flowering occurs in crops, the same bees enable cross-pollination,” she noted. Armed with these findings, Indhu is in the process of developing interventions for managing flowering weeds such as *Tridax procumbens* and *Solanum torvum* (sundakkai) to support pollinators. She aims to help farmers use weeds to encourage pollination services without affecting crop yield. She is also developing a flowering calendar of weed species to support crop planning.

Research Project 4: Microbial solutions – reducing methane emissions in paddy using bacteria

Ms. Ezhil Dhanasekaran, MSc, Biotechnology

Paddy fields with stagnant water are excellent breeding grounds for microorganisms such as methanogens, which thrive in flooded, oxygen-depleted soils, producing methane as a by-product of metabolism. Rice cultivation accounts for 10–12 per cent of the annual global anthropogenic methane emissions, which adds to greenhouse emissions.

“After working with plant growth promoting bacteria and being aware of the methane produced in paddy fields, I wondered if there existed a bacterium that promotes plant growth and helps in methane mitigation,” said Ezhil.

She set out to find a solution to reduce these emissions. Through the M. S. Swaminathan Fellowship, she studied multiple bacteria found in the paddy fields. Her research also focused on studying the bacteria in rhizosphere soil, roots, stems and leaves of rice to see how they help reduce methane emissions.

Ezhil isolated a group of bacteria called methanotrophs from rice crops that have the potential to reduce methane emissions in paddy fields. She also identified two bacterial strains – MSSRFCCB214 (*Methylobacterium populi*) and MSSRFCCB219 (*Methylobacterium aminovorans*) – that showed presence of the *mxrF* gene, which confers the ability to break down methanol. In addition, these strains exhibited multiple plant growth–promoting traits, including nitrogen fixation and tolerance to drought stress.



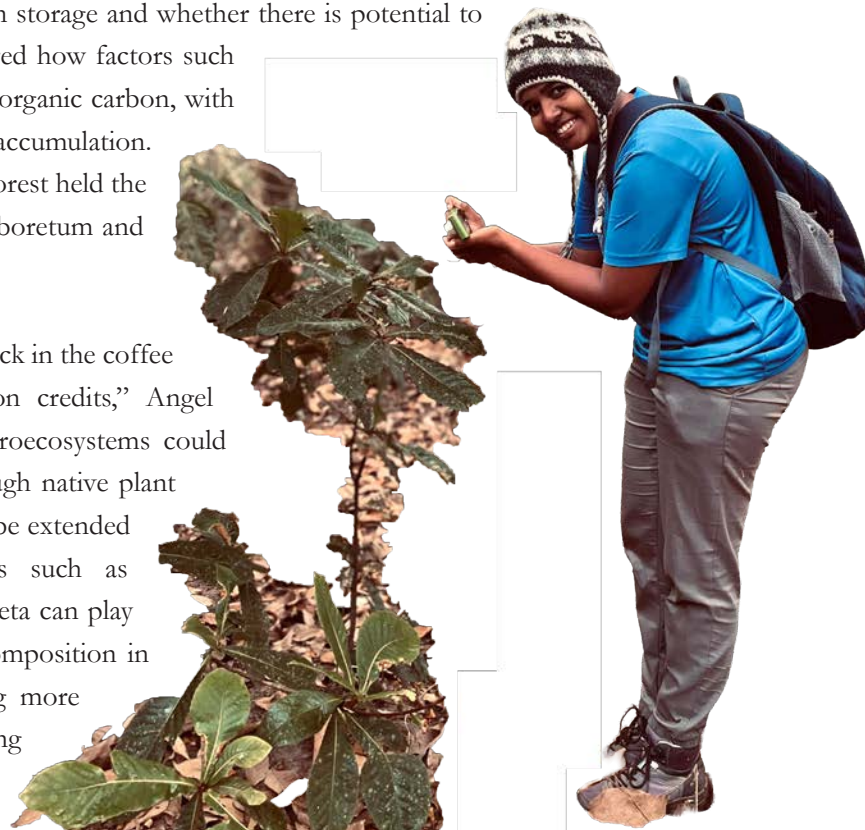
Research Project 5: Improving opportunities for carbon credits – a case study from MSSRF, Wayanad

Ms. Angel, MSc, Botany

The Western Ghats, a 1,600 km long mountain chain covering roughly 140,000 sq km, is a UNESCO World Heritage site and one of the world's eight biodiversity 'hotspots'. It contains unique ecosystems and has substantial potential for carbon sequestration, particularly when healthy forests and tree cover are maintained, which can also create opportunities for carbon credits. Angel learned that the 40-acre area in which the MSSRF Wayanad Centre is established was formerly forested but has now been segregated into three distinct land-use systems: a contiguous forest, an arboretum and a coffee agroecosystem.

Given the land's history, she conducted a study to measure carbon stocks in those three ecosystems to assess how land-use change has affected carbon storage and whether there is potential to increase sequestration. She also considered how factors such as the age of the land use influence soil organic carbon, with older systems generally showing greater accumulation. Her results showed that the contiguous forest held the highest carbon stock, followed by the arboretum and then the coffee agroecosystem.

"There is potential to increase carbon stock in the coffee plantation and help farmers get carbon credits," Angel explained. She observed that coffee agroecosystems could enhance their carbon contribution through native plant restoration, an approach that could also be extended to other shade-loving agroecosystems such as cardamom. She further noted that arboreta can play a critical role by imitating forest tree composition in ex situ conservatories, thereby enabling more efficient light utilisation and increasing carbon storage.



Research Project 6: Exploring factors controlling expression of the salt tolerance gene *HKT1;5* in African cultivated rice

Ms. Gopika Jawahar, MTech, Agricultural Biotechnology

Anthropogenic interventions have contributed to increasing soil salinity. However, using salinised (salty) water for paddy cultivation results in lower crop yields as excess sodium hinders the availability of potassium necessary for plant growth. To address this issue, M. S. Swaminathan Fellow Gopika studied rice varieties that are naturally saline tolerant. She asked crucial questions: why are some rice varieties able to produce good crop yields in saline soils? What happens at the genetic level? Is there a 'genetic switch' that controls salt tolerance across rice genotypes?

Her study compares the performance of cultivated African rice with Asian (*Oryza sativa*) genotypes of rice under salinity conditions. She shared, "In my study, the Indian genotype, Pokkali (*O. sativa*) was found to be more salt-tolerant than African cultivated rice *O. glaberrima*."

To understand what is happening at the expression (mRNA) level, she examined the rice plants in or without salinity conditions and found that the expression of the gene responsible for salt tolerance (*HKT1;5*) is higher in tolerant Asian rice genotype Pokkali compared with *O. glaberrima*, which may contribute to the latter's stronger salt tolerance. In addition, an unexpected finding was that there is a marked reduction in the expression of this gene at night, suggesting that the control of gene expression may be under an inherent diurnal or circadian rhythm (synchronised with the light-dark cycles).

By studying such differences in gene expression, Gopika aims to identify 'genetic switches' that control *HKT1;5* expression, thereby enabling future breeders with the knowledge required to develop more salt-tolerant rice varieties. "The *HKT1;5* gene is present in all rice. It is ultimately about controlling when it is expressed that governs salinity tolerance, to some extent," she shared.





COMMUNICATIONS AND OUTREACH

The Communications team at MSSRF serves as a bridge connecting the institution's work with partners, relevant stakeholders and the public at large. Our goal is to make the Foundation's research and science-based work easy to understand, relevant and meaningful for diverse audiences. We strive to use clear, engaging and accessible language to spark curiosity, build understanding and encourage people to connect with the science behind sustainable development. In the fast-moving and crowded information landscape of today, we often adopt a digital-first approach to reach the masses. Through these efforts, we seek to inform and act through public dialogue, amplify evidence-based insights and support positive policy change.

Media Engagement

The Media Resource Centre (MRC) at MSSRF works to improve public understanding of science by engaging closely with journalists and media organisations. Through regular interactions, media workshops, press releases, opinion pieces and expert commentary, the MRC helps bring science-based evidence and development issues into public conversation. During the reporting year, MSSRF's work received extensive coverage in both English- and regional-language media. The following were the key achievements:

- **Media Outreach and Coverage:** MSSRF experts published over 10 opinion pieces in leading media outlets, and more than 75 media stories featured or referenced MSSRF's work.
- **Reframing the Narrative:** As part of the activities commemorating the International Year of the Woman Farmer, MSSRF organised a 2-day national media workshop on Gender and Agrifood Systems. It brought together more than 20 journalists from across India to explore issues of women's identity, rights and agency in agriculture, including fisheries.
- **Framing Gender:** Storytelling Across Platforms – held as part of the annual tribute to Mina Swaminathan, this panel discussion brought together voices from theatre, television, print and radio to examine how women's experiences are represented across media. The event featured opening remarks by Arun Ram, Resident Editor, *Times of India*, Chennai.

Mina Swaminathan Media Fellowship

The Mina Swaminathan Media Fellowship, established in 2020, is a key MSSRF initiative aimed at promoting gender-sensitive reporting in regional-language media by mentoring journalists reporting on issues at the interface of science, development and gender. The fellowship provides resources to support journalists conducting field reporting. In March 2026, MSSRF welcomed a new cohort of fellows. This year, the fellowship was expanded to include two additional languages – Marathi and Hindi – thereby bringing the total number of fellows to 5. The 2026 fellows are:

1. Mukund Pingale, Agricultural Journalist, *Agrowon*, Sakal Media Group (Marathi)
2. Sana Ejaz, Principal Correspondent, *Dainik Bhaskar* (Hindi)
3. Kanmani Tangarasu, Assistant Editor, Doordarshan (Tamil)
4. Subhashree Parida, Independent Journalist (Odia)
5. Richard Joseph, Senior Reporter, *Deepika* (Malayalam)

Outreach

Wetlands walk

To mark World Wetlands Day, MSSRF organised wetlands walk at Adyar Eco Park (Tholkappia Poonga), bringing together nearly 50 participants, including students from Presidency College. Guided by experts, participants explored the biodiversity of Chennai's wetlands and learned about their importance in urban ecosystems.

Wetlands photography competition and exhibition

MSSRF received over 350 entries from professional and amateur photographers capturing the ecological and cultural significance of India's wetlands. Selected photographs were showcased at the Institute of Mathematical Sciences (IMSc) and awards presented to the top entries in each category.

Social Media Engagement and Multimedia

As communication habits continue to evolve, MSSRF has increasingly adopted a digital-first approach to public engagement. Beyond sharing updates and event highlights, we create science-based content designed for today's fast-paced digital audiences. This includes short-form videos, reels, social media cards and easy-to-understand explainers that make complex topics accessible and engaging. In response to the growing appeal of audiovisual storytelling, we expanded our focus on multimedia content during the year through YouTube features and Shorts. We reached over 600,000 profiles through our digital media platforms during the reporting year. Our current followers across platforms (updated as of June 2026) are:



Facebook: 10K



X: 9.9K



Instagram: 2.9K



LinkedIn: 47.7K



YouTube: 4.23K

Short Films

MSSRF continued to invest in visual storytelling through short films. These films help communicate the Foundation's history, research and impact in a clear and engaging manner, making complex ideas accessible to wider audiences.

Some of the short films released during the year include the following:



How MSSRF Is Reviving Pulicat's Seagrass Meadows



How Woman Farmers Are Saving Indian Traditional Rice Varieties

Stories of Change

MSSRF continued to strengthen its storytelling efforts by documenting impact from its field offices, regional centres and programme teams. During the year, the Foundation published 16 'Stories of Change' on its website, covering themes such as millets, water management, wetlands and sustainable livelihoods. Content formats have now expanded beyond news updates to include feature stories, photo essays and explainers.

Scan to Read



In Odisha, a Woman Farmer Finds Strength in Millets



Parasitic Plant Presumed Extinct Rediscovered in Wayanad After 175 Years

Newsletter

MSSRF's official newsletter reaches subscribers every 2 months, sharing updates, insights and stories from across the Foundation. Over the years, the newsletter has expanded its reach while evolving in both design and content to better engage its growing audience. The reporting year saw several key achievements that underscored the growing interest in MSSRF's work.

- Six editions of the newsletter were published.
- The subscriber base grew from 607 in April 2025 to 3,481 in March 2026.

Scan to Read



Lectures and Webinars

The M. S. Swaminathan Centenary Lecture Series

The M. S. Swaminathan Centenary Lecture Series celebrates the enduring legacy of Prof. M. S. Swaminathan while advancing dialogue on sustainability, equity and climate resilience. Since its launch in October 2024, the 13 webinars conducted under this series brought together distinguished speakers from across disciplines. The series concluded in December 2025 with a lecture by Dr. Mariangela Hungria, agroecologist, soil microbiologist and the 2025 World Food Prize laureate, whose work has transformed sustainable agriculture through biological nitrogen fixation.

Webinar on diversity in STEM and its impact on India's economy

To mark the International Day of Women and Girls in Science, MSSRF's Media Centre organised a webinar on the importance of diversity in STEM and its role in driving innovation and economic growth. The discussion featured Dr. Soumya Swaminathan, Dr. Ravinder Kaur, Dr. Karishma Kaushik and Dr. Nandita Jayaraj.

Looking Ahead

We at MSSRF believe in constantly exploring new and creative ways to make science accessible and engaging. The Communications team began using gamification to simplify complex topics such as blue carbon mapping and biodiversity conservation. A new podcast series, Science Simply, hosted by Dr. Soumya Swaminathan, was also launched to bring science closer to wider audiences. In the coming year, MSSRF plans to continue experimenting with innovative formats and digital storytelling to engage diverse audiences and strengthen public understanding of science.



EVERY CHILD A SCIENTIST

Every Child A Scientist (ECAS) is a year-round initiative dedicated to fostering curiosity-driven science learning among middle-school students from government, rural and tribal schools. Launched in 2021 at the MSSRF main campus in Chennai, the programme has since expanded to four locations: Poompuhar, Pichavaram, Pudukottai and the Kolli Hills in Tamil Nadu.

At its core, ECAS provides quality learning opportunities and combines experiential, hands-on learning with nutrition-focused initiatives to build scientific temper and boost academic performance. By encouraging young minds to think creatively, the programme instils the confidence needed to solve complex, real-world problems. In today's era of accelerating climate change, cultivating this scientific mindset is vital to equip future generations to become the changemakers of tomorrow.

This year, the ECAS programme saw participation of 1,136 students from Chennai, Poompuhar, Pichavaram, Pudukottai and Kolli Hills for its 15-day experiential learning curriculum.

Key Initiatives

Summer camps

Summer camps and educational field visits were organised for students from Kolli Hills and Poompuhar, which offered hands-on exposure to new themes of inquiry and experiential learning opportunities.

In collaboration with the Tamil Nadu Science Forum, ECAS students participated in an astronomy observation programme in Pudukkottai, where they explored the night sky and observed stars, planets and other celestial bodies through a telescope.

Guest lectures

To provide students with deeper, subject-specific insights, guest lecturers from MSSRF and premier institutions across India were invited to deliver both in-person and virtual sessions. These lectures exposed students to a wide range of disciplines and enabled them to interact with experts in their respective fields.

Teacher training

A teacher training workshop was conducted on 9 January 2026 at MSSRF, Chennai, for 25 Chennai corporation school teachers. The interactive sessions focused on innovative pedagogical approaches and increased awareness of digital tools, online resources and technology-enabled teaching methods that can enhance classroom learning.

Experiential and inclusive learning

Group project-based learning initiatives were introduced to encourage creativity, strengthen communication skills, build self-confidence and foster teamwork through co-creation and collaborative problem-solving.

Special occasions such as Children's Day, National Science Day, Environment Day and Millet Day were celebrated through educational games, competitions and infotainment activities. These events promoted active participation and reinforced learning through engaging, gamified experiences.

To ensure inclusivity and respond to local community needs, the ECAS programme is delivered through a flexible model. In most locations, children participate in 2-week sessions conducted at MSSRF field offices. For students in remote and hard-to-reach areas, the complete ECAS learning setup is brought directly to schools, ensuring equitable access to quality educational resources and learning experiences.

Learning outcomes

The ECAS programme has contributed to measurable improvements in student learning. For example, learning levels have improved by 32 per cent among 110 children from the Irular tribal community enrolled in the Evening Learning Centres at MGR Nagar and Kalaignar Nagar in Pichavaram.

ECAS is implemented in government schools located within Irular settlements, with MSSRF providing essential learning infrastructure, including computers, smart boards and science experiment kits. These resources have helped create an engaging learning environment that supports improved educational outcomes and greater student participation.

Impact Through Voices



Navaneesh S. (13),
GTR Higher Secondary
School, Kolli Hills

ECAS made science exciting for me. I was afraid of difficult science lessons, but the teachers explained everything through activities and experiments. I enjoyed working with my friends and learning together. I feel more confident in my science class, and I want to participate in science exhibitions in the future.



Mukilan M. (14),
GTR Higher Secondary
School, Kolli Hills

The best part of ECAS was doing experiments with my own hands. After the training, I started reading more science books and watching science videos at home. My parents also noticed that I ask many questions now. I enjoy science much more than before and hope to learn even more.



S. Varshini, 8th Grade,
CHSS, Chennai

We visited the M. S. Swaminathan Research Foundation and learned many useful things. We understood farming in detail, visited the biology lab, and learned how to observe micro-organisms. We also learned about the vitamins and proteins present in different fruits. Smart board classes made learning more interesting. This visit increased my interest in biology, laboratory work and scientific research. It was a very useful and memorable learning experience.



**N. U. Keerthilakshmi (12),
7th Grade, Municipal High
School, Pudukottai**

Before joining Every Child is a Scientist programme, I had never seen the moon and stars through a telescope. It was a wonderful experience. I was really amazed to see the moon in the sky so clearly. I also saw a bright star that looked very small with my eyes but appeared much clearer through the telescope. This experience made me curious about space and the night sky. Now, whenever I look at the sky, I remember what I learned during the ECAS course. The Tamil Nadu Science Forum (TNSF) activist Mr. S. T. Balakrishnan clearly explained the wonders of the night sky and helped the students understand the moon, stars, planets and other objects in a simple and interesting way. I am thankful to the ECAS programme for giving me this opportunity and inspiring me to learn more about science.



**Sanjay A. (14),
GTR Higher Secondary
School, Kolli Hills**

Before joining ECAS, I thought science was only about reading textbooks. During the programme, I did experiments myself and understood how things work. My favourite activity was making simple science models because it was fun to learn by doing. I want to become a scientist one day and keep learning new things.



**Santhoshini S. (13),
7th Grade, Government
High School, Poompuhar**

Before ECAS, science felt boring. But learning about marine biology, fish, and using a microscope made me curious. Practical activities made science fun and easy to understand. I now realize how much there is to discover in the ocean, and this programme has inspired me to become a scientist and explore marine life beyond textbooks.



**N. R. Rakshini, 8th Grade,
CHSS, Chennai**

Students from Classes 6 to 8 visited the M. S. Swaminathan Research Foundation. They taught us mathematics and science in a very clear and practical way. They also provided us with valuable academic guidance and taught us very well. They also kindly provided us with lunch. Most importantly, they engaged us in many interesting activities and scientific experiments, which helped us understand the concepts better. Through the experiments and guidance provided by the M. S. Swaminathan Research Foundation, I was able to score 100 out of 100 in science. I am very grateful for their support and encouragement. Thank you, M. S. Swaminathan Research Foundation.



**J. Loga Janani (12),
7th Grade, Corporation
Middle School, Pudukottai**

Before joining ECAS programme at the M. S. Swaminathan Research Foundation I used to study by memorising lessons. Now I always ask “How?”, “Why?”, and “When?” before accepting anything. Every activity helped me think scientifically and understand the reason behind what I learn. This way of learning will help me in my future studies and exams. Earlier, I did not even know how to switch on a computer. Now I can use basic MS Office programmes with confidence. I had never spoken using a microphone before, but during this training I got many chances to speak in front of others.



**R. Rajesh, 8th Grade,
Panchayat Union Middle
School, Pichavaram**

The best part of ECAS was learning by doing. We conducted experiments, watched science demonstrations, and worked together with friends. I learned about coastal and fish biodiversity, the environment, and how science is useful in daily life. Earlier I was shy to answer questions, but now I participate confidently in class activities. I want to continue learning science because it has helped me think differently and believe that I can achieve my dreams.



OUR PEOPLE

The strength of MSSRF lies in its people. Scientists, field teams, programme staff, technical experts and support teams work together across disciplines and geographies to advance the Foundation's mission.

As MSSRF's work continues to grow, so has its team. During the reporting year, staff strength increased from **184 in April 2025 to 302 by March 2026**, reflecting new investments in research, programme delivery, communications, monitoring and evaluation, and organisational development. This year, MSSRF also strengthened its leadership team and welcomed new talent across programme areas, adding fresh perspectives and diverse expertise.



COMMITTEES AND SUB-COMMITTEES

Centre for Research on Sustainable Agricultural Development and Rural Development

- Mr. G. Venkataramani, Journalist, Secretary, CRSARD
- Dr. Malavika Vinod Kumar, Managing Trustee, Sundar Serendipity Foundation, Treasurer, CRSARD
- Rtn. Mr. S. S. Rajasekhar, Managing Trustee of the National Agro Foundation
- Vice-Chancellor, Tamil Nadu Agricultural University
- Vice-Chancellor, Tamil Nadu Veterinary and Animal Sciences University
- Vice-Chancellor, Anna University
- Vice-Chancellor, University of Madras
- Shri N. Gopalaswami, IAS (Retd)
- Dr. A. A. Nambi, Director, Climate Resilience Practice, World Resources Institute
- Dr. Soumya Swaminathan, Chairperson, MSSRF
- Dr. R. Rengalakshmi, Executive Director, Area Operations, MSSRF
- Mr. K. Sethu, Kalyanasundaram & Associates

Programme Advisory Committee

- Dr. Renu Swarup (Chair), Trustee, MSSRF
- Dr. R. Rengalakshmi (Member Secretary), Executive Director – Area Operations, MSSRF
- Dr. Soumya Swaminathan, Chairperson, MSSRF
- Prof. K. C. Bansal, Trustee, MSSRF
- Prof. Nitya Rao, Trustee, MSSRF
- Dr. Jagdish Krishnaswamy, Trustee, MSSRF
- Dr. Purvi Mehta, Trustee, MSSRF
- Prof. Jiju P. Alex, Trustee, MSSRF

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- Mr. Ramesh Narayan (Member Secretary), Head, Finance, MSSRF
- Dr. C. Chandramouli, Trustee, MSSRF
- Dr. Soumya Swaminathan, Trustee, MSSRF
- Mr. S. Mahalingam, Trustee, MSSRF
- Ms. L. Maithili, Trustee, MSSRF

Ethics Committee

- Ms. L. Maithili (Chair), Trustee, MSSRF
- Ms. Meera Sundararajan (Member Secretary), Head Monitoring and Evaluation, MSSRF
- Prof. Jiju P. Alex, Trustee, MSSRF
- Dr. Renu Swarup, Trustee, MSSRF
- Dr. C. Chandramouli, Trustee, MSSRF

Nomination Review Committee

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- Human Resource Officer, MSSRF (Member Secretary)
- Dr. C. Chandramouli, Trustee, MSSRF
- Dr. Soumya Swaminathan, Trustee, MSSRF
- Prof. Nitya Rao, Trustee, MSSRF
- Prof. M. S. Sriram, Trustee, MSSRF
- Mr. S. Mahalingam, Trustee, MSSRF

Steering Committee: Tribal Agrobiodiversity Centre, Jeypore

- Principal Secretary (Chair), DA&FE, Govt. of Odisha
- Mr. Prashant Parida (Member Secretary), MSSRF, TABC, Jeypore, Koraput
- Dr. Sanghamitra Pati, Indian Council of Medical Research, Bhubaneswar
- Prof. Rabinarayan Patra, COATS, Koraput, Odisha
- Dr. Nihar Ranjan Nayak, Regional Plant Resource Center, Bhubaneswar
- Dr. Sabita Mishra, Former Scientist, ICAR-National Institute for Women in Agriculture, Bhubaneswar
- Dr. Arun Padiyar, World Fish India, Bhubaneswar
- Mr. Siba Sankar Mahapatra, Hindalco Industries Ltd

Steering Committee: Coastal Resources and Fisheries Programme, Poompuhar

- Dr. B. Meenakumari (Chair), Former Secretary, National Biodiversity Authority, Chennai
- Dr. Velvizhi (Member Secretary), Programme Director, MSSRF, Coastal Resources and Fisheries, Poompuhar
- Dr. E. Vivekanandan, Consultant, Bay of Bengal Programme Intergovernmental Organisation, Chennai
- Dr. T. Balasubramanian, Former Vice-Chancellor, Chettinad Academy of Research & Education, Chennai
- Prof. Dr. K. Kathiresan, Former Dean, Director, Centre of Advanced Study in Marine Biology, Chidambaram
- Dr. Rohan Arthur, Marine Biologist, Nature Conservation Foundation, Mysore

Steering Committee: Community Agrobiodiversity Centre (CAbC), Wayanad

- Dr. K. K. Narayanan (Chair), Agrigenome Labs Pvt. Ltd, Kakkanad, Ernakulam
- Dr. Niraj Joshi (Member Secretary), MSSRF, Director, CAbC, Wayanad
- Dr. Sarada Krishnan, Director of Programs, The Crop Trust
- Member Secretary, Kerala State Council for Science Technology and Environment, Thiruvananthapuram
- Dr. B. Sesikeran, Former Director, ICMR-National Institute of Nutrition, Hyderabad
- Chairman, Kerala State Biodiversity Board, Thiruvananthapuram
- Dr. Harisankar Sreedharan Nair, Former MD and CEO, Punjab and Sind Bank, Thiruvananthapuram
- Dr. D. Girija, Former Registrar & ICAR Emeritus Professor, Kerala Agricultural University, Thrissur
- Dr. C. L. Laxmipathi Gowda, Former Deputy Director General, ICRISAT, Karnataka

Advisory Team: Biopark, CAbC, Wayanad

- Mr. Pranay Lal, Senior Fellow, Health Systems Transformation Platform (HSTP), New Delhi
- Dr. Aparna Watve, Coordinator, RLA, IUCN SSC Western Ghats Plant Specialist Group
- Mr. Vijay Dhasmana, Founder and Ecological Restoration Practitioner, The Rewilders
- Ms. Suprabha Seshan, Restoration, Education and Outreach, Lead, Gurukula Botanical Sanctuary
- Mr. Ethan Freid, Botanist, The Bahamas National Trust
- Dr. Duruvu Narasimhan, Member, Expert Committee on Access and Benefit Sharing, National Biodiversity Authority
- Dr. Yash Veer Bhatnagar, Country Representative, International Union for Conservation of Nature, India
- Dr. Ruchi Pant, Head, Climate Adaptation, NRM and Biodiversity, UNDP-India
- Mr. Sammilan Shetty, Founder of Sammilan Shetty's Butterfly Park, Belvai, Karnataka
- Dr. Jagdish Krishnaswamy, Dean, School of Environment and Sustainability, IIHS and Trustee, MSSRF
- Ms. Pacheco Rosario, Manager, Planning and Environment, VIDA Roads, Mumbai
- Dr. Kiran Mazumdar, Founder, Biocon Group, Bengaluru
- Dr. Oliver King, Director, Terrestrial and Agro-biodiversity, MSSRF

Scientific Advisory Board

- Dr. Soumya Swaminathan (Chair), Chairperson, MSSRF
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- Dr. Cherian Varghese, Former Lead, Non-Communicable Diseases and Special Initiatives, World Health Organization
- Dr. Brinda Viswanathan, Professor, Madras School of Economics
- Dr. Vandana Prasad, Founder Secretary and Technical Advisor, Public Health Resource Society
- Dr. Srinivas Goli, Associate Professor, International Institute for Population Sciences
- Dr. T. Jayaraman, Visiting Professor, National Institute of Advanced Studies
- Dr. Rajalakshmi, Social Scientist and Policy Researcher, Health Systems
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- Dr. Siddarth Ramji, Dr. C. G. Pandit National Chair at the Indian Council of Medical Research
- Dr. A. K. Singh, Former Director and Vice-Chancellor of the Indian Agricultural Research Institute

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- Dr. Siddarth Ramji, Dr. C. G. Pandit National Chair at the Indian Council of Medical Research
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- Dr. Indumathi M. Nambi, Professor, IIT Madras
- Dr. Anuradha Khati Rajivan, IAS (Retd) Former Head, Tamil Nadu State Planning Commission
- Ms. Geeta Ramaseshan, Lawyer

POSH Committees

Head Office, Chennai

- Ms. Meera Sundararajan (Presiding Officer)
- Dr. Manikandan (Member, Regional Centre)
- Ms. S. Lakshmi Priya
- Dr. Rama Narayanan
- Dr. Rupesh Bhomia
- Ms. Adilakshmi (Independent Member and Lawyer)

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- Ms. Dhanya
- Dr. Archana Bhatt
- Mr. Sijo Thomas
- Mr. Moidu (Independent Member and Lawyer)

Auditor

- Brahmayya & Co. Chartered Accountants

Regional Centre, FFTA, Poompuhar

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- Mr. Thamizhazhagan
- Ms. Adilakshmi (Independent Member and External Lawyer)

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- Mr. Akshay Kumar Panda
- Mr. Abhishek Mishra
- Mrs. Sujata Achary (Independent Member and External Lawyer)

FINANCIAL STATEMENT
2025-2026

M S SWAMINATHAN RESEARCH FOUNDATION
No.6, Third Cross Road, Taramani Institutional Area, Taramani, Chennai - 600 113

BALANCE SHEET AS AT MARCH 31, 2026

(In Lakhs)

PARTICULARS	Sch. No.	AS AT	
		31ST MARCH 2026	31ST MARCH 2025
SOURCES OF FUNDS			
Corpus Fund	1	168.06	168.06
Endowment Funds	2	4,985.73	4,985.73
Reserve Funds & Other Funds	3	5,187.93	4,351.58
Restricted Funds - Obligations	4	2,981.77	2,659.97
TOTAL [A]		13,323.49	12,165.35
APPLICATION OF FUNDS			
Fixed Assets (Net Block)	5	398.56	389.33
Investments - Including Fixed Deposits with Banks and Institutions	6	5,752.63	6,848.52
Current Assets, Loans & Advances			
Cash & Bank Balances	7	6,520.81	5,023.12
Loans, Advances and Other receivable	8	318.50	332.28
Other Assets	9	36.83	22.14
Restricted Fund- Receivables	10	392.39	309.60
Total Current Assets		7,268.53	5,687.14
Less: Current Liabilities	11	96.23	759.64
Net Current Assets		7,172.30	4,927.49
TOTAL [B]		13,323.49	12,165.35

M S SWAMINATHAN RESEARCH FOUNDATION
No.6, Third Cross Road, Taramani Institutional Area, Taramani, Chennai - 600 113

INCOME & EXPENDITURE STATEMENT FOR THE YEAR

ENDED MARCH 31, 2026

(In Lakhs)

PARTICULARS	Sch. No.	FOR THE YEAR	FOR THE YEAR
		ENDED 31st March	ENDED 31st March
		2026	2025
INCOME			
Interest Income	12	658.74	571.82
Donations	13	892.87	513.04
Contribution Receipts - Core activities	14	163.51	38.21
Project Grant	4&10	4,724.40	6,457.13
Other Income	15		
Rental Receipts		35.56	26.37
Miscellaneous Receipts		125.16	145.53
TOTAL INCOME [A]		6,600.25	7,752.11
EXPENDITURE			
Salaries	16	1,926.22	1,571.98
Endowment Expenses	17	37.00	63.34
Meetings & Other Related Expenses	18	69.75	83.81
Depreciation on Fixed Assets	5	30.67	31.67
Project and Other Expenditure	19	3,997.10	5,509.92
Less: Overheads Recovery	19	-377.00	-277.90
Non Recurring Expense	20	99.24	190.65
TOTAL EXPENDITURE [B]		5,782.97	7,173.48
EXCESS OF INCOME OVER EXPENDITURE		817.28	578.63
TRANSFERRED TO GENERAL FUND			





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