

KSCSTE NEWS

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**KERALA STATE COUNCIL FOR
SCIENCE, TECHNOLOGY AND ENVIRONMENT (KSCSTE)**

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*Floral Decoration during Malabar
Garden Festival 2024*

Cover Story

The Malabar Garden Festival 2024

The Malabar Garden Festival 2024, held at the KSCSTE-Malabar Botanical Garden and Institute for Plant Sciences in Kozhikode, was a significant initiative aimed at increasing the visibility and accessibility of the institute. It sought to attract visitors from both the state and the country. This festival was the culmination of a shared dream, nurtured by a dedicated group of individuals over many years. It combined education, social involvement, and cultural expression within the lush and serene environment of the garden. The festival highlighted the institute's mission of generating knowledge through research and development activities and promoting environmental education, emphasizing the importance of community engagement and fostering environmental awareness.

The festival transformed the botanical garden into a visual paradise, featuring meticulously landscaped pathways and areas adorned with vibrant foliage and blooming plants. Stunning floral installations created a captivating backdrop, allowing visitors to experience the garden's beauty from a fresh perspective. The late evening atmosphere was further enhanced by cultural programs that offered a mesmerizing blend of folk and classical music, ghazals, modern compositions, and dance performances, all of which captivated the audience.

The festival also served as a platform for showcasing innovations and sustainability initiatives from government agencies and private enterprises. Exhibitions included stalls from KSCSTE, CWRDM, KFRI, NATPAC, Oushadhi, DASD, MSSRF, ZSI, and WWF, each focusing on sustainable development and cutting-edge technologies in their respective fields. One of the major attractions was the orchid collection from NRC Orchids in Sikkim, which featured rare and newly developed varieties that captivated visitors. Private enterprises highlighted local craftsmanship, innovative technologies, and agricultural products, providing an immersive experience of the region's rich heritage and agricultural significance.

The festival featured competitions that included clay modelling, spot photography, painting, pencil drawing, cartoons, and quizzes. These events attracted enthusiastic participation from both junior and senior categories, with 147 students showcasing their talents. Designed to encourage creativity and intellectual exploration, the competitions provided a platform for participants to express their unique perspectives while fostering a spirit of camaraderie and healthy competition. Winners in each category were recognized with certificates and mementoes, highlighting the high standards and success of the events.

The Malabar Garden Festival 2024 was a significant milestone that not only celebrated the institute's journey but also raised awareness about nature's remarkable ability to heal, inspire, and rejuvenate. It highlighted the crucial role of botanical gardens in nurturing biodiversity, promoting regional development, and fostering a collective sense of environmental responsibility. This celebration of biodiversity and sustainability served as a guiding light, paving the way for a greener and more harmonious future. By effectively combining education, culture, and conservation, the festival made a lasting impression on everyone involved in this remarkable event.

37TH KERALA SCIENCE CONGRESS

Kerala Science Congress (KSC) is a flagship annual event of KSCSTE which serves as a platform for the researchers, scientists, and academicians to share their knowledge and interact with each other. The 37th edition of Kerala Science Congress will be held during 7-10 February 2025 at Kerala Agricultural University, Thrissur with the focal theme Technology Transformation for a Green Future.

The Kerala Science Congress features a multitude of events, including Focal Theme Lectures, Memorial Lectures, Technical paper presentations on thirteen subject streams, Walk-with-Scientists session for school children to interact with researchers, interactions for PG students to inspire upcoming researchers. Startup Conclave for entrepreneurs and innovators; SciSol, a unique initiative encouraging young minds to address local issues through scientific and technological solutions and National Science Expo are the other major attractions of the event.

The Hon'ble Chief Minister of Kerala Sri.Pinarayi Vijayan will inaugurate the 37th Kerala Science congress on 8th February 2025.

Conclave on Role of Science and Technology in the Management of Landslides in Kerala



Prof. V. Ramachandran, Vice Chairman., Planning Board inaugurating the event



Dr. Sarada Muraleedharan IAS, Chief Secretary delivering the keynote address

KSCSTE organized a one-day conclave on 8th October 2024, at Padmam Hall, IMG, Thiruvananthapuram, focusing on the Role of Science and Technology in the Management of Landslides in Kerala. The conclave was inaugurated by Prof. V. Ramachandran, Vice Chairman State Planning Board in an event chaired by Prof. K P Sudheer, Executive Vice President, KSCSTE. Prof. A Sabu and Dr P Harinarayanan spoke during the inaugural session. Shri. John Mathai, Former Scientist, NCESS, Prof Dipankar Choudhary, IIT Bombay, Prof. Sreevalsa Kolathayar, NITK Suratkal, Dr. Younus Ali Pulpadan, IISER Mohali and Dr. Sreekrishnan S.S. IIT Roorkee delivered theme presentations. A panel discussion was also held. The event brought together a diverse group of stakeholders, including researchers, academics, technology providers, and policymakers, for in-depth discussions on the latest advancements in landslide management. The valedictory session, presided over by Sri. M. C. Dathan, Mentor Science, Government of Kerala. Dr. Sarada Muraleedharan IAS, Chief Secretary of Kerala delivered the keynote address Dr. K. P. Sudheer, (Executive Vice President, KSCSTE), Dr. Sekhar Lukose Kuriakose (Member Secretary, KSDMA Member Secretary) and Dr. A. Sabu (Member Secretary, KSCSTE) also spoke during the session.

Mission LiFE Programme

As a part of Mission LiFE programme EIACP Kerala conducted awareness programmes in Colleges and Government institutions on the themes Save Energy, Reduce Single Use Plastics, Water Saved, Reduce E-Waste and Healthy Lifestyles. 553 participants were sensitized as a part of the programme and also took Mission LiFE pledge to follow sustainable life style practices.



Participants of Mission LiFE Programme

SC & ST cell conducted field survey in the various settlements of SC and ST community in Thrissur, Pathanamthitta, Palakkad and Wayanad districts to collect the data pertaining to the livelihood to identify the requirements of Science and Technology based solution for the sustainable development.



Field Survey

During the period, IPRIC-K in association with various Institutions organized 13 IPR awareness Seminars/ Workshops/Training Programmes/Exhibitions/Patent Clinics and sensitized around 1500 Students/ Researchers/Faculty members/Startups.



View from the Patent Clinic conducted at Mar Ivanios College Trivandrum, on August 29, 2024



View from the Patent Clinic conducted in Huddle Global at Leela Raviz, Kovalam, Trivandrum, during November 28 – 30, 2024

The Bioentrepreneurship Basics Certification (BBC) Course was conducted online on 4th October, 2024. Twenty three candidates attended the programme and completed the course. A 20-minute online assessment test based on the covered course content was conducted at the end of the course.



Dr. Sarika addressing the candidates

A Study on the Recreational Carrying Capacity of Vembanad for a Sustainable Tourism

The study aims to determine the recreational carrying capacity of Vembanad Lake for sustainable tourism by assessing the impacts due to the operation of houseboats and suggesting suitable action plans to reduce the adverse impacts of houseboat tourism and its demonstration at local level. The project also aims to enhance public awareness on wetland conservation and employment generation through responsible tourism through CEPA campaigns and to support capacity building for houseboat operators

Flood Forecasting and Mitigation Measures for selected Rivers in Kerala

The project aims to forecast and suggest the mitigation measures for the flood in Chaliyar, Chalakkudy, Vamanapuram, Karamana and Neyyar River basins of Kerala

KFRI has launched Eight Research Projects and Three Training Initiatives, including Studies on Indian Rosewood management with SERB, DST, GoI; *Bonnet macaque* populations with KFD; Chalakkudy River Basin rejuvenation with River Research Centre; Pandanus-based ecosystem restoration with KFD; Munnar forest disturbance impacts on soil seed banks, KFD; Forest augmentation at IIM Kozhikode with IIM-K, the 37th Kerala Science Congress with KSCSTE; and support for CAI-K (KSCSTE). Training programs included courses on landslide risk management with MoEF&CC, GOI; Human-animal interface management with MoEF&CC, GoI; and research navigation tools.

Herbal Technology Hub at KSCSTE- JNTBGRI, Proposal submitted to the Director, on behalf of CIF-JNTBGRI, and initial discussions and meetings with Kerala Startup Mission (KSuM)

Establishment of Centre of Excellence in Phytochemical Nanotechnology (2022-2024): As part of the SHRESTA programme, a new lab was established exclusively for Phytochemical Nanotechnology at STEC-Puthenthope, JNTBGRI.



JNTBGRI has signed a MoU with Chattisgarh State Medicinal Plant Board, Raipur for scaling up of production of planting materials of the medicinal plant *Salacia*.

Director Dr. V. Arunachalam has inaugurated the Bamboo Craft Center and bamboo museum at JNTBGRI on 28th November 2024. The Bamboo Museum and Craft Centre established with the financial support of Bamboo Mission is now open to the Public. There was a



Dr. V. Arunachalam, Director JNTBGRI inaugurating the Bamboo Museum

special lecture on “Bamboos” by the former Principal Scientist and HoD Dr. K.C. Koshy. As a mark of delight, bamboo rice payasam was also served during the programme. .

Stakeholder Meeting



KSCSTE-NATPAC organised a Stakeholder Meeting at the Government Guest House, Kozhikode on 27th November 2024 to showcase the activities of the Centre and to extend its support to solve various transportation issues/challenges faced by the stakeholders in Kerala.

NATPAC celebrated its 49th Foundation Day, HRIDHYAM 2024 on 6th November 2024 with a series of engaging events. The celebration was inaugurated by Prof. (Dr.) K. P. Sudheer, Ex. Officio Principal Secretary, S&T Department and Executive Vice President, KSCSTE. The event was further graced by the felicitations of Padmashree M.C. Dathan, Former Director, VSSC & Scientific Advisor to the Hon'ble Chief Minister of Kerala, Prof. (Dr.) A. Sabu, Member Secretary, KSCSTE and the Manager, SBI Akkulam Branch, who was the official sponsor of the programme.



View of Malabar Garden Festival 2024

Malabar Garden Festival 2024 was a grand celebration and an essential part of our mission. It served as a unique platform to engage younger generations and the general public, which is vital for the future of plant sciences. Held in the beautiful Botanical Garden, the festival featured a spectacular display of various flowers and plant types, along with lighting, floral installations, cultural evenings, food festivals, training sessions, competitions, and more.

The festival offered the city an opportunity to experience the beauty of the Botanical Garden in a whole new light during the late evenings and at night. Visitors were delighted by the delicious foods of Calicut. The flowers displayed at the festival represented a range of emotions, filling the atmosphere with joy and positive energy.

The main areas and pathways of the Botanical Garden were meticulously landscaped and enhanced, creating a stunning backdrop for the festival. Gaps between floral installations were thoughtfully filled with vibrant floral arrangements. This beautiful environment inspired and captivated all who attended. Overall, the ambience of the flower show was enchanting, providing an incredible way to appreciate the beauty of nature.



Hon'ble Chief Minister Sri. Pinarayi Vijayan inaugurating the building of SRIBS

Srinivasa Ramanujan Institute for Basic Sciences (SRIBS) celebrated a significant milestone with the inauguration of its Phase-I building on October 28, 2024. The event was graced by Hon'ble. Chief Minister Shri. Pinarayi Vijayan, who officially opened the building in the presence of esteemed dignitaries including Shri. V. N. Vasavan, Hon. Minister for Ports, Cooperation and Devaswoms, Adv. Chandy Oommen, Hon'ble. MLA (Puthuppally), Adv. K. Francis George, Hon. MP (Kottayam), Prof. K.P. Sudheer, Executive Vice President, KSCSTE, Prof. A. Sabu, Member Secretary, KSCSTE, and Prof. C. H. Suresh, Director of SRIBS. This momentous occasion marks a key step in SRIBS's mission to foster scientific research and innovation.

Initiated the Projects

- In Silico Studies of Ionic Liquids for Next Generation Propellant Development.
- Exploring Thermalized Coupling Constants in $\phi 4$ Theory and QED: Foundations and Extensions to QCD.
- Fourier coefficients of automorphic forms.
- Pure and doped Titanate and Lithium Titanate nanotubes fabricated by electrochemical method for environmental remediation and energy storage.

Centre of Excellence in Climate Change Studies:

The Government of Kerala has identified ICCS as a Centre of Excellence in Climate Change Studies (CoE-ICCS), with the aim of addressing the growing challenges posed by climate change in Kerala. In recent years, the state has experienced an increasing frequency and intensity of extreme weather events, including catastrophic floods and landslides. These events have highlighted the need for advanced research and data management system to support climate resilience and disaster preparedness. The project focuses on enhancing CoE-ICCS's infrastructure and manpower, and advancing research capabilities to make it a leading center for climate research in Kerala. This project is funded by the Government of Kerala through KIIFB.

Studies conducted at ICCS during this period:

- Integrated River Basin Development for the Greater Pamba Basin (Consultancy project)
- Statistical downscaling and bias correction of CMIP6 GCM models for India.
- Statistical downscaling of IMD gridded data using satellite rainfall data.
- Setting-up of satellite-based drought early warning system for Kerala.
- Investigate the influence of dimethyl sulfide on rainfall patterns over Kerala by analyzing the interaction between aerosol loading, surface winds, SST and rainfall.
- Exploring ocean-atmosphere dynamics during swell surge event along the Kerala coast.



The CoEM's first Newsletter 'Microbiome Updates' was released by Shri. K.N.Balagopal, Hon. Minister for Finance, on 16th October 2024.

Water Quality Assessment of the Ganga and Yamuna Rivers

As part of the Navami Ganga Program, Anand Sebastian Pattakunnel, the head and senior scientist of the Geospatial Science and Technology Division at the Integrated Rural Technology Center, and PhD Scholar at the Delhi Technological University, took part in the water quality testing of the Ganga and Yamuna rivers. The journey started on 13th October and ended on 29th October at Yamunasagar in Haryana. The 17-day journey covered a distance of 4800 kilometers, passing through the states of Uttarakhand, Haryana, Delhi, Uttar Pradesh, Bihar, Jharkhand, and West Bengal, during which water quality tests were conducted at 59

hotspots along the Ganga and Yamuna rivers.

Wayanad landslide field study

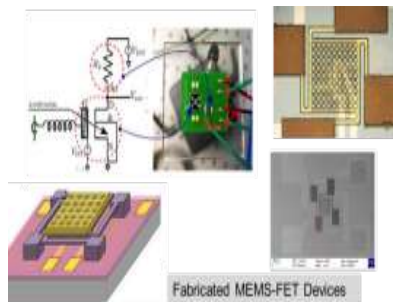
Wayanad landslide field visit for the support of LSGD officials. The visit objective also includes post-disaster plans, project developments, and climate action.

Wind potential mapping of Illikkal of Moonilavu LSGI

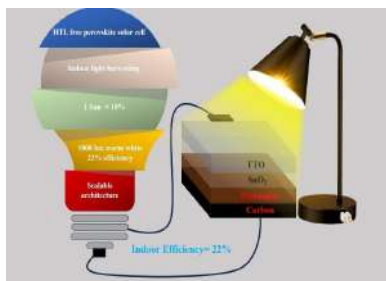
Illikkallu is one the wind potential location as far as Kerala is concerned. No major studies has not yet undergone to analyze the wind potential of the location. We have initiated a study using satellite data as well as field data with the assistance of Drone technology. Ultimately we are in search for wind energy harvesting through small turbines for make the region sustainable for energy in future.

Significant Innovation/Invention

KSCSTE supported project titled “Design and Technology Development for Polymer MEMS Integrated FET Single Axis accelerometer Platforms” has developed the **Design, Simulation and Fabrication of Polymer MEMS SGFET for single axis measurement.**



The SGFET-based CMOS-MEMS accelerometer involves multiple domains, including mechanics, electrostatics, semiconductor physics, and circuits. This research aims at developing robust MEMS-FET accelerometer sensor that is capable of operating in open loop and closed loop with scope of the work from multi domain design/simulation to Microfabrication demanding integration of MEMS on FET.



Simplified HTL-free PSCs:

Created hole-transport-layer-free (HTL-free) perovskite solar cells with fewer interfaces, achieving notable efficiency and stability

Scalable carbon-based, printable design:

Established a carbon-based printable architecture that supports scalability for potential large-area applications.

High indoor photovoltaic efficiency:

Achieved power conversion efficiencies exceeding 20% under standard 1000 lux indoor illumination, demonstrating strong performance in low-light conditions.

Morpho-molecular systematics of *Striaticonidium kfrienze* (Stachybotryaceae), a new synnematus species from the Western Ghats, India

Eco-friendly Nursery Practices:

Coir-Based Biodegradable Root Trainers: pioneered the use of eco-friendly coir-based biodegradable root trainers as an alternative to plastic polybags in nurseries. This initiative promotes sustainable and environmentally friendly nursery practices-

Molecular Diagnostic Tools:

LAMP PCR Diagnostic Assay: developed another innovative LAMP PCR diagnostic assay a rapid and efficient LAMP-based molecular tool for the field detection of sandalwood spike disease. These tools are crucial for early detection and control of this devastating disease



Eco-friendly Nursery Settings:

Canopy-Based Seedling Arrangement: implemented an eco-friendly approach to nursery settings by arranging seedlings under the existing canopy of trees without clearing them. This method is tailored to the light requirements of individual species, minimizing environmental impact (Dr. C K Adarsh).

Developed the Temperature controlled water-bath anodization technique for synthesis of high performance TiO_2 nanotube arrays as electrodes in supercapacitors. Patent Application number: 202441098703 dated 13/12/2024 by Dr. Rachel Reena Philip (KSCSTE Emeritus Scientist)

Facilities / Infrastructure Created

Inauguration of Refurbished 5th and 6th floor at KSCSTE HQ

The official inauguration ceremony of the SC & ST Cell at KSCSTE was held on 29th November 2024. Prof K P Sudheer, Executive Vice-President, KSCSTE inaugurated the refurbished 5th & 6th building in the presence of Prof. A Sabu, Member Secretary, KSCSTE.



Prof. K.P. Sudheer Executive Vice President KSCSTE inaugurating the refurbished 5th & 6th floor of KSCSTE- HQ



Water Quality Laboratory was established at Manimalakunnu Sub Centre was inaugurated by Hon'ble MLA Adv. Anoop Jacob on 24th September 2024. The function was presided by Dr. Manoj P Samuel, Executive Director, CWRDM

Thumboormuzhi Model Compost

As part of Green Office Certification, Thumboormuzhi model compost was established at CWRDM with the financial support of Kunnamangalam Grama Panchayat and Suchithwa Mission. The compost was inaugurated by Shri. Amil Kumar, Vice President, Kunnamangalam Grama Panchayat. The function was presided by the Executive Director, CWRDM

Laying of foundation stone for Sub Centre, Kottayam



Sri. Vasavan, Hon'ble Minister for Ports and Cooperation & Devaswoms laying the foundation stone of Sub Centre

Foundation stone of a new building for CWRDM Sub Centre Kottayam & ICCS, Kottayam was laid by Sri. Vasavan, Minister for Ports and Cooperation & Devaswoms, Government of Kerala. The function was inaugurated by Sri. P. A. Mohammed Riyas, Minister for Public Works Department and Tourism, Government of Kerala. Thriruvanchoor Radhakrishnan MLA Kottayam, KV Bindu, District Panchayat President, Kottayam was present at the function.

Installation of a Confocal Raman Microscope at CAIK and the acquisition of a field camera for documentation. **Equipment worth ₹35 lakhs** was purchased for **tissue culture and molecular biology facilities** at the Kuzhur Sub Centre, along with a stereozoom microscope and other research equipment like pH meters, GPS devices, and scarifying machines. **The KFRI Central Nursery** was strengthened to handle CRT propagules with GAIL's support. Infrastructure at the Nilambur Sub Centre was enhanced through projector installations, ticketing/billing and CCTV system upgrades, Teak Museum Auditorium renovation, UPI payment implementation, and Teak Museum main door repair. Modifications were also made to the Insect Collection and Insectarium.

A Floor Stand Unit of the Nano Fiber Electro spinning Unit was installed at STEC-Puthenthope, JNTBGRI. This Electro-spinning equipment is a compact version for Nanofiber Electro spinning which is

provided with a unique support structure made of steel screwed and fixed together as a sturdy support for the Nanofiber electro spinning unit. Polymers like protein nanofibers, carbon nanotubes, inorganic nanofibers etc can be synthesized using this equipment.



Construction of Phase-1 building completed, along with access road and water facility.



New building of SRIBS



Seminar room with projector and chairs

Procured 5 Workstations for theoretical research works.



A conference cum meeting room has been set-up at ICCS. This facility can host 15 persons and is equipped with necessary projector facility for video conferencing.

Food and Water Testing Laboratory: This laboratory was established as part of a special program by KSCSTE, utilizing funds allocated by KSCSTE for this purpose. The necessary infrastructure for the first phase of the lab has been completed. As a result, the water testing facility is fully operational, and water samples from both domestic and commercial sectors are being tested. The food testing facility has commenced with testing for fish and meat products. The necessary infrastructure for the second phase of the lab, which will enable pesticide and agricultural product testing, will be established with financial support from KSCSTE.

KSCSTE-IPRICK conducted prior art patent search on 19 applications and forwarded the search reports to the inventors. Also, facilitated the filing of 6 Patents and 9 Trademarks. One Patent was granted during this period.

DBT Skill Vigyan Student and Technician Training Programme Conducted in Various institutes



A total of 288 students from different Universities in all over India have participated and got trained under the training programmes carried out at eleven partnering institutes across Kerala.

Mr. Navaneeth A, Mr. Abhijeet J Kartha, Mr.Gopal S, Mrs. Aswathi T, Dr. K.Ch.V Naga Kumar, Dr. Surendran U, Dr. Harikumar P S and Dr. Manoj P Samuel filed for copyright for the work entitled 'WATERCAT' (Water Citizens Assessment Tool).

Mr. Navaneeth A, Mrs. Aswathi, Dr. Sruthy S, Dr. K.Ch.V Naga Kumar, Dr. Surendran U Dr. Harikumar P S and Dr. Manoj P Samel filed for copyright for the work entitled 'WATERFOLKS' (Waterfolks Knowledge Platform).

In environmental conservation, KFRI developed a turtle trap and coir-based root trainers. For product development, they designed bamboo products, drafted climbing palm genomes, and created a medicinal compound isolation protocol. Analytical advancements include DNA barcodes for timber and Ayurveda drugs, an AI DNA analysis algorithm, a wood DNA isolation protocol, a teak/sandalwood SSR database, and diagnostic SNP markers. Technological innovations encompass custom medicinal plant processing machines, a forensic AI algorithm, a Sidaalniafolia processing machine, a teak seed scarifier, and standardized coir root trainers, plus field data management software. KFRI also launched websites for the Centre for Conservation Science and Biodiversity Informatics (CCSSBI), Centre for International Tropical Science and Biodiversity (CITS-India), and The Fruit Bat Project, including QR codes for the Teak Museum.

Jawaharlal Nehru Tropical Botanic Garden and Research Institute (KSCSTE-JNTBGRI), Palode has conducted Faculty training Programme in the topic of "Gas Chromatographic Techniques in Aromatic Plants Research" from 22nd August 2024 to 6th September 2024 (14 Days).



Participants of the Training Programme

Training programmes/ Workshops/Internships organized

EEP Kerala-Thematic competitions

Thematic Quiz and Painting Competitions were organized under the Lifestyle for Environment (LiFE) mission by KSCSTE – EEP Kerala for National Green Corps ecoclub students of various districts. These competitions provide a great platform for students to showcase their talents and knowledge on environmental issues. As part of the programme district level competitions were conducted across 14 districts during January 2025



View from Competition Venue

Sustainable lifestyle workshop for Ecoclub School teachers

The Kerala State Council for Science, Technology, and Environment (KSCSTE) - Environmental Education Programme (EEP) in association with NGC District Implementation committee organised Sustainable Lifestyle workshops for ecoclub school teachers. A total of 56 training programs were planned, out of which 48 have been successfully completed. These workshops focus on a hands-on training approach rather than relying solely on lecture-based methods. The training covers a wide range of LiFE topics including the establishment and activities of Ecoclubs in schools, environmental projects, waste management, energy and water conservation, control of plastic pollution, sustainable healthy lifestyles, climate change and its impact on ecosystems, and the biodiversity around us.



Hands on training for school students

The Kerala State Council for Science, Technology, and Environment (KSCSTE) - Environmental Education Programme (EEP) in association with NGC District Implementation committee organised Sustainable Lifestyle workshops for school students in various districts. A total of 50 training programs been successfully completed. The program provided hands-on training to students on various topics such as tissue culture, waste management techniques, plantation methods, mushroom cultivation, water quality analysis, paper bag making, recycling of old clothes, LED bulb making workshops, making seed balls, identification of medicinal plants, identification of butterflies, bird watching, and traditional knowledge transfer. These training programs aim to enhance the knowledge and skills of students, promoting sustainable lifestyles and environmental conservation practices.



Nature Camps – a walk to Nature

Kerala State Council for Science, Technology, and Environment (KSCSTE) sanctioned and released financial assistance for organizing 14 nature camps during the 2024-25 financial year in various districts of Kerala in association with the NGC District Implementation committee. Out of these, 12 nature camps have been completed. The nature camps were conducted 12 several sanctuaries, including Schendurney Wildlife Sanctuary, Wayanad- Muthanga, Karimpuzha, Parambikkulam etc. These events provide opportunities for students, to learn about wildlife, and promote environmental awareness and conservation efforts by connecting with nature .

World Ozone Day:

EIACP PC Hub KSCSTE Kerala in collaboration with Department of Environmental Studies, Kannur University celebrated World Ozone Day 2024. Prof. K. K. Saju, Vice Chancellor of Kannur University inaugurated the



programme The technical talks were delivered by Dr. Abhilash S., Director, Advanced Centre for Atmospheric Radar Research, Cochin University of Science and Technology (CUSAT); Prof. Satheesh Kumar, Professor, Department of Atomic & Molecular Physics, Manipal Academy of Higher Education; Dr. Nishanth T., Assistant Professor, Department of Physics, Sree Krishna College, Guruvayur and Dr.P.Harinarayanan, Senior Principal Scientist & EIACP Kerala Coordinator. 276 participants attended the programme.

Mass Beach Cleaning Drive:

EIACP PC Hub KSCSTE, Kerala in collaboration with St Xavier's College, Thumba, Thiruvananthapuram conducted Mass Beach Cleaning Drive and Student Rally at Arattuvazhi Beach, Thumba with 310 participants attended the Beach Cleaning Drive.





Public Lecture entitled 'FROGS: Window to Life on Earth' by Prof. S. D. Biju

The first public lecture of the KSCSTE Lecture series was jointly organized with EIACP on 23rd October, 2024, at the Seminar Hall, Kerala State Science and Technology Museum and Priyadarshini Planetarium, Thiruvananthapuram. The lecture entitled FROGS: Window to Life on Earth, was delivered by Prof. S.D. Biju, famously known as the Frogman of India. In his lecture, Prof. S. D. Biju enlightened the public about the vital role frogs play in our ecosystems and emphasized the urgent need for their conservation. The event was attended by over 200 participants, including students and members of the general public, who actively engaged in the session.

Sparshaganitham phase 2:

In October 2024, Sparshaganitham Phase 2 brought visually impaired students from Thrissur to Trivandrum together at Shikshak Sadan. With hands-on activities like adapted money management and measurement, the program fostered confidence and inclusion. Culminating in an exhibition, it showcased remarkable progress, proving that learning has no boundaries.

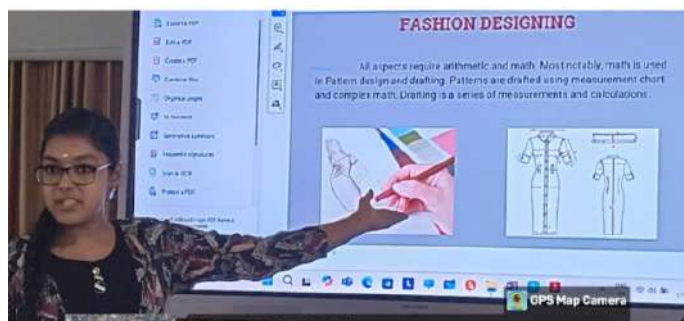
District level National Mathematics Day Celebrations:

In December 2024, district-level National Mathematics Day celebrations featured vibrant activities like the Maths Mental Challenge, a Poster Exhibition, and an Idea Pitching Competition. Students showcased creativity and problem-solving skills, while interactive sessions fostered innovation and a deeper appreciation for mathematics' real-world applications.

Sparshaganitham phase 2: Empowering visually impaired students through game-based learning in mathematics.



Real-world application of money management and measurement skills at Kanakakkumu, Trivandrum



A glimpse of the diverse events conducted across districts in connection with NMD celebration



Padmasree MC Dathan, Science Mentor to the Hon'ble CM of Kerala MC Dathan inaugurating the the 3rd Stake holder Consultation Workshop

CWRDM organized the 3rd Stakeholders Consultation Workshop at Thiruvananthapuram. In the absence of the Hon'ble Health Minister of Kerala, Padmasree MC Dathan, Science Mentor to the Hon'ble CM of Kerala inaugurated the workshop and Prof KP Sudheer, EVP presided over. Dr B Ashok, Agricultural Production Commissioner, Principal Secretary (Agriculture) and VC of Kerala Agricultural University delivered the keynote address. More than 55 state level officers from 35

Govt. departments/agencies participated. The publication on ‘Rains and Rivers in -2023: Assessing Kerala’s Water Sustainability’ was released in the event. Dr. Drissia T K, Principal Scientist and Dr. Arun P R, Senior Scientist delivered awareness talk on disasters like flood and landslide.

National Workshop on ‘Soil and Water Assessment Tool

CWRDM organised a one-day National Workshop on ‘Soil and Water Assessment Tool (SWAT) for Water Resources Management on 28th September 2024. The programme was inaugurated by Dr. E J James, Pro Vice Chancellor, Karunya Institute of Technology and Sciences, Coimbatore and presided by Dr. K P Sudheer, Executive Vice President, KSCSTE. Prof. Raghavan Srinivasan, Director, Agri Life Blackland Research & Extension Centre, Texas A & M University, USA delivered Key note lecture on ‘SWAT: Global Water and Water Quality Applications’ and Prof. Balaji Narasimhan, Department of Civil Engineering, IIT Madras delivered Invited lecture on ‘Development of a Hydrologic Hydrologic Unit Model of India (HUMID) in SWAT’. Technical presentation was by Dr. Ambili G K, Senior Scientist, CWRDM on SWAT as a Tool for Risk Assessment in Irrigated Agriculture. The service rendered by Dr Celine George, Senior Principal Scientist & Head, Ernakulum Sub centre, CWRDM superannuating from CWRDM service on 30th September 2024 was honoured at the function. Dr. K P Sudheer, Executive Vice President, KSCSTE and Dr. Magesh NS, Scientist B, CWRDM who was included among the World Top 2% Scientist list published by Stanford University and Elsevier was also honoured.



Dr. E J James, Pro Vice Chancellor, Karunya Institute of Technology and Sciences, inaugurating the function

CWRDM organized a training program on “Hydrologic Modelling under changing climate and land use using SWAT” from October 16th to 19th, 2024, at CWRDM, Kozhikode in physical mode

Stakeholder Workshop ‘Water related Disaster Management in Meenachil River Basin’

CWRDM organised a Stakeholder Workshop on ‘Water related Disaster Management in Meenachil River Basin’ in association with Meenachil River- Rain Monitoring Network (MRRM) on 24 September 2024 at St. Thomas College, Pala. The Workshop was inaugurated by Shri. John V Samuel IAS, District Collector, Kottayam. A booklet on ‘Landslides: Causes and Preventive Measures’ was released at the event.

Training of Trainers (ToT) on Mastering Disaster in a Climate Change: Disaster Risk Reduction through Resilient Water Resource Management)

Organised Training of Trainers (ToT) - training programme on “Mastering Disaster in a Climate Change: Disaster Risk Reduction

through Resilient Water Resource Management”, funded by the Ministry of Jal Shakti, Govt. of India from 22 to 27 July, 2024. Around 25 Officers from different parts of India have attended the training. The training was inaugurated by Dr. K Rajendran, Director, ICCS.



Dr. K Rajendran, Director, ICCS inaugurating the ToT Programme

CWRDM organized a **Zonal Workshop** for the programme coordinators/ directors of extension/ principal and senior scientists and professors from different Krishi Vigyan Kendras under ICAR and State Agricultural Universities in Kerala, Karnataka and Lakshadweep visited CWRDM on 2nd September 2024



CWRDM organized two days Training Workshop on ‘Sustainable Wetland Management’ sponsored by State Wetland Authority Kerala during 4-5 December 2024 at KTDC Aqualand, Kollam

Workshop on ‘Water Sensitive Cities’

A one-day workshop focusing on the critical role of community engagement in water management and conservation at the water level was organized at the Ramakrishna Mission higher secondary School by CWRDM under the ‘Water for Change’ research project, an India Netherlands collaborated project funded by DST, GoI. The event brought together experts, local leaders, community members and students to discuss sustainable water management practices. The Workshop was inaugurated by Dr. Manoj P Samuel, Executive Director, CWRDM

CWRDM and Kerala Start up Mission jointly organised an Exposure visit of Start-up Entrepreneurs to CWRDM on 25th September 2024.



View of the Exposure visit of Start-up entrepreneurs in CWRDM

Workshop on “Sustainable Wetland Management



Sri. Devidas N IAS, the District Collector of Kollam inaugurating the Workshop

The two-day workshop on “Sustainable Wetland Management” was organized by the Centre for Water Resources Development and Management (CWRDM) in Kollam, Kerala, from December 4-5, 2024, as part of the Integrated Wetland Inventory Assessment and Monitoring System (WIAMS), with support from the State Wetland Authority Kerala (SWAK). The workshop was inaugurated by Sri. Devidas N IAS, the District Collector of Kollam, with a keynote address delivered by Dr. Manoj P. Samuel, Executive Director of CWRDM, on the topic “Wetlands: The Key to Coping with Climate Change.”

Stakeholder workshop

CWRDM organized one day workshops at Adat, Tholur, Karalam and Poyya GP's during 3-5 October 2024 in connection with NHP-PDS project Delineating the boundary of shallow saline zones encountered in Poyya, Karalam, Adat and Tholur Panchayats in Thrissur District, Kerala and investigating their origin and possibility of any underlying fresh water aquifers through geophysical surveys”. The workshops were inaugurated by the President/ Vice President of the respective Grama Panchayats.

KFRI held an RS/GIS training at Peechi and Ashwagandha-focused programs in and Kerala. Staff also participated in trainings on hydro-climatic analysis in Roorkee and academic communication at Kerala Agricultural University.

KFRI was involved in six workshops: biodiversity monitoring, mangrove tourism/livelihoods, research navigation using Zotero, web services and AI, tree improvement, forest phenology using Phenocam, and habitat management strategies for human-wildlife conflict.



Training on “Landslide Risk Management and Mitigation Strategies” during October 22 to 24, 2024



Bamboo Processing and Preservation Techniques during 30th & 31st December 2024 at Unarvu Schedule Tribe Co-operative Society, Venmony, Idukki



Bamboo Fest 2024 “21st Edition” At Marine Drive Ground, Cochin During 07th – 12th, December 2024



Dr. K. B. Rameshkumar, has coordinated two weeks Refresher Course for 20 Faculties. DBT Skill Development Programme, Govt of India. August 22nd to September 13th, 2024.



An one day training programme was conducted for making Bamboo Souvenirs, at JNTBGRI Bambusetum on the 28th of November 2024. A total of 17 participants including 7 ladies were given training in preparing value added products using bamboos.



A one-day workshop on 'Introduction to GIS' was also conducted on 6th December 2024 in association with School of Engineering, CUSAT, Ernakulam. 36 students participated.

Online presentation by ARRB Systems India who specialized in advanced road condition assessment technology, and offers innovative solutions like the intelligent Pavement Assessment Vehicle (iPAVe) and the Hawkeye platform for Scientists/Technical officers/Project Fellows, 3rd October 2024.

An online demo of Web of Science, one of the most authoritative and established multi-disciplinary research citation indexing database, 18th October 2024.

Expert session – 'An overview of statistical applications in transportation research', Dr.Christabell P J, Associate Professor of Economics, University of Kerala, 23rd October 2024.



Presentation on the ISRO-sponsored NNRMS Faculty Development Program titled "Remote Sensing & GIS Technology and Applications" by Dr.Sabitha N M, Senior Scientist, 5th December 2024.

Training programme on 'Remote Sensing and GIS Technology and Applications' for all technical staff and students (project/internship) affiliated with NATPAC.

Hands-on training on "Introduction to GIS" – 6th December 2024

Hands-on Training on SRTM Data Analysis – 9th December 2024

Introduction to Google Earth Engine – 13th December 2024

Demo and discussions with Trois Infotech regarding Video Analytics in the field of Transportation, 9th December 2024.

Demo and discussions with DromoLys Research and Development Pvt. Ltd. regarding Video Analytics in the field of Transportation, 16th December 2024.

Knowledge Dissemination Sessions on 'Road Safety Executive Leadership Course' (RSEL), co-organized by the Johns Hopkins International Injury Research Unit (JH-IIRU) and the Global Road Safety Partnership (GRSP), with support from Bloomberg Philanthropies held at Kula Lumpur, Malaysia, by Dr.Samson Mathew, Director, 26th and 27th December 2024.

Hands-on Training on "Basics of VISSIM software" at Seminar Hall, Sophisticated Testing and Instrumentation Centre (STIC), CUSAT

campus to B.Tech/ M.Tech students from various Engineering Colleges, 31st December 2024. 35 students attended.

TransTech Talk Series

KSCSTE-NATPAC has initiated a technical talk series entitled "TransTech Talk Series" focussing on various aspects of Transportation sector.

The eighteenth talk in the series was delivered online by Mr. Krishnan Srinivasan, Senior Transport Consultant, Multilateral Development Banks on the topic "Improving Road Safety Engineering and Management Capacity in India" on 12th July 2024.

The nineteenth talk in the series was delivered online by Shri. Mohammed Nizar Poovanmadathil, customer success manager at Shipshave in Stavanger (Norway) on the topic "The path to greener seas : Latest trends in maritime decarbonization" on 9th August 2024.

The twentieth talk in the series was delivered online by Muneeza Mehmood Alam, PhD, Senior Transport Economist, World Bank on the topic "The Role of Public Transport in Women's Economic Empowerment" on 6th September 2024.

The twenty first talk in the series was delivered online by Dr. Manoj Mukundan, Senior Geotechnical Consultant at Somehsa Geosciences Pte Ltd, Singapore on the topic "Geotechnical Aspects of Planning and Design of Port and Harbor Structures" on 28th October 2024.

The twenty second talk in the series was delivered online by Dr. Sushant Sharma, Asst. Program Manager and Research Scientist in the Multimodal Freight Program of the Texas A&M Transportation Institute (TTI), Texas A&M University, USA on the topic "Freight Technologies and Strategies for Resilient Future" on 15th November 2024.

The twenty third talk in the series was delivered online by Dr. Phanikumar Mantha, Ph.D. Professor, Michigan State University on the topic "Coastal Water Quality and Public Health in the North American Great Lakes: The Science, Technology & Policy Behind Beach Management" on 23rd December 2024.

TransPedia Research Talk Series

TransPedia is a distinctive endeavour from NATPAC, envisioned to promote research for shared benefits, by disseminating knowledge on diverse topics from cutting-edge technologies to sustainable solutions. This also brings out a platform for young researchers across the globe to connect and interact to better shape the future of research and development in transportation.

The thirteenth talk in the series was delivered online on the topic "Recommendations for LMICs Based on Road Safety Science Principles to Realize the Global Targets" on 27th August 2024 by Dr. Laxman Singh Bisht, Assistant Professor, Centre of Excellence in Safety Engineering & Analytics, IIT Kharagpur.

The fourteenth talk in the series was delivered online on the topic "Understanding Pedestrian Behaviour: Insights from Crowds and Laboratory Studies" on 25th September 2024 by Dr. Karthika P. S, Transportation Consultant, Bengaluru.

The fifteenth talk in the series was delivered online on the topic "Design of FRC pavement with experimentally validated design fatigue models" on 30th October 2024 by Dr. Ajeesh K, Research Associate, Department of Civil Engineering, Indian Institute of Technology Palakkad.

The sixteenth talk in the series was delivered online on the topic "Development of Crash Conflicts and Assessment of Safety Performance Functions for Urban Roundabouts in Indian Context" on 28th November

2024 by Dr. Vinayaraj V S, Research Scientist, Department of Civil Engineering, IIT Bombay.

The seventeenth talk in the series was delivered online on the topic “Freight Congestion and Framework: Understanding Truck Traffic through Socio-Spatial Structure” on 26th December 2024 by Dr. Sarvani Duvvuri, Transport Analyst, Maricopa Association of Government, Arizona.

Research Workshop on Dynamics: Complex, Arithmetic and Ergodic (in association with NBHM) - December 02, 2024 to December 07, 2024

This workshop aimed to bring together young researchers and experts in India working on dynamics – complex, arithmetic and ergodic. The plan is to have mini-courses on quasiconformal techniques to study dynamics and parameter spaces (holomorphic dynamics), ergodic theory of group actions on homogeneous spaces (homogeneous dynamics), and topics from arithmetic dynamics namely, Berkovich dynamics and moduli spaces of dynamical systems, with a view towards the interplay between these areas. We attempted to introduce various directions of work in the three basic topics of dynamics and introduced a few recent progresses in them to motivated researchers. The workshop included a few research talks as well.



Workshop in Mathematics SWIM@KSoM 2024 in association with the Department of Mathematical Sciences, Kannur University

KSoM has jointly organized the winter edition of SWIM@KSoM 2024 with the Department of Mathematical Sciences, Kannur University from December 19 – 30, 2024 at Thavakkara Campus, Kannur University. SWIM@KSoM is an intensive instructional school in Mathematics and involved lectures on Analysis, Algebra and Linear Algebra, which are augmented by problem solving sessions. This workshop was intended for highly motivated final year BSc students. The lectures were given by experienced and well known mathematicians.

SRIBS Summer Student Research Program – 4

The SRIBS Summer Student Research Program successfully concluded with four talented students completing their research projects. The program provided a platform for young researchers to engage in hands-on scientific exploration under expert guidance, fostering their interest in research and innovation. This initiative highlights SRIBS’s commitment to nurturing the next generation of scientists.

The ICCS hosted a three-day national workshop on “Decoding Climate Change: From Modelling to Machine Learning”. Renowned experts from eminent Institutes across the country congregated to deliver insightful talks on critically relevant topics related to the fundamentals of climate modelling, techniques for distinguishing between natural and anthropogenic climate change, and the innovative application of Artificial Intelligence (AI) and Machine Learning (ML) in climate

research. Around 30 researchers, educators, and early-career scientists across India were participated in this event held from September 2 to 4, 2024 at National Institute of Rubber Training (NIRT), Kottayam, Kerala.



Participants of the National Workshop



Padmasree M. C. Dathan, Mentor Science, Government of Kerala inaugurated the three-day national workshop: “Decoding Climate Change: From Modelling to Machine Learning”.



Hands-on session on the second day of the workshop on the topic ‘Application of Machine Learning in Hydro-Climate Modelling,’ conducted by Dr. K. S. Kasiviswanathan, Associate Professor, Department of Water Resources Development and Management, IIT Roorkee. .

A climate outreach activity was successfully organized at the Government U.P. School, Velloothuruthy to raise awareness and engage students in climate action initiatives on 5th October 2024.

Four-day hands-on Training program on the Fundamentals of Geographic Information Systems (GIS) and Remote Sensing on 28 - 31 August, 2024.

Three-day field visit program completed for 40 sociology students from Nobel Women's College, Manjeri, Kerala

Student project ideation workshop – Students project support for different BRC as part of CUSAT stream projects. Project scrutiny, objectives refinement, methodology standardization and scientific technical support for the different streams of project like water quality, environment impact wastewater testing and treatment and renewable energy and auditing.

Participated in “Sector meeting on Waste Management Recycling and Waste to Energy” organized by the Kerala State Industrial Development Corporation (KSIDC). This meeting aims to bring together key industry leaders, entrepreneurs, and policymakers to explore the latest innovations, sustainable practices, and investment opportunities within Kerala's thriving recycling and waste-to-energy waste management sector.

One-week residential training program on “Reimagining the Built Environment: A Circular and Climate-resilient Approach” and completed the hands-on training in Delhi and Rajasthan organized by the Centre for Science and Environment, Delhi.



STIC conducted four days training programme on “Laboratory Quality Management System and Internal Audit as per ISO/IEC 17025 : 2017” during 9th to 12th December 2024

Green Skill Program for tribal youths aimed at empowering and educating selected tribal youths for 6 months in the area of garden management



STIC Conducted Two Day Training Programme On **Method Validation, Verification & Measurement Uncertainty As Per Iso/IEC 17025 : 2017 In Microbiology** During 14 & 15 October 2024



An Industry Interaction meeting was conducted by STIC on 29.10.2024. Around 30 industrialists attended the meeting



STIC conducted Sustainable life style workshop for school students under national Green Corps, MoEF & CC – EEP Kerala supported by KSCSTE. The four day training programme on ‘Water Quality Analysis’ was held during 4 – 7 December 2024.

One-month DBT Skill Vigyan Program completed in the areas of Organic Grower, Mushroom production & Value Addition and Tissue Culture

A series of training programs celebrating Farmers' Day and Farmers' Week (Jai Kisan Jai Vigyan) were organized

- Training program on Conservation of Plant Genetic Resources for farmers engaged in community conservation of banana, pepper, tubers and vegetables
- Training program on sustainable use of Non Timber Forest Produce (NTFPs) in collaboration with Forest Deptt. Officials
- Training program for school students to educate about farming systems and interaction with farmers & researchers
- Training & awareness program for Seed village farmers and other tribal farmers for mainstreaming agrobiodiversity conservation and empowering Grass root institutes for empowering farmers in Wayanad

Training program for youths educating them about ecosystem and developing a mini ecosystem model through terrariums

Training program for farmers on pepper cultivation focusing on various aspects like crop disease & pest management, conservation and marketing aspects.

A one-day support program for young kids affected by the Chooralmala landslides that occurred in Wayanad.

Training program for Anganwadi officials on the occasion of World Food Day, Oct 16, 2024 and showcase of nutria-rich agrobiodiversity by school students

One Day Workshop On Climate Change & Defensive Measures for Students from Sugandhagiri.

Memorial Lectures

As a prelude to 37th Kerala Science Congress, KSCSTE organised three memorial lectures during this period and the details are as follows.



- Dr. Jauhar Ali, Principal Scientist & Research Unit Leader, the International Rice Research Institute (IRRI), Philippines delivered the commemorative lecture on E.K. Janaki Ammal Memorial Lecture which was held on 6th December 2024 at EMS Seminar Hall, Kariavattom Campus, University of Kerala, Trivandrum.



- P R Pisharoty Memorial Lecture was organised on 12th December 2024 at University of Calicut. Dr. Thamban Meloth, Director, National Centre for Polar and Ocean Research, Goa delivered the commemorative lecture.



- G. N. Ramachandran Memorial Lecture was organised on 16th December 2024 at Kannur University. Prof. P. Balaram, Emeritus Professor, National Centre for Biological Sciences, Bengaluru & Former Director, Indian Institute of Science, Bengaluru delivered the lecture.

KBC and KSCSTE partnered with KLIP, KSIDC and participated as a State Partner in the 'Global Bio India 2024' a mega international congregation of biotechnology stakeholders jointly organized by Department of Biotechnology (DBT), and Biotechnology Industry Research Assistance Council (BIRAC) on 12 – 14 September 2024 at Bharat Mandapam, Pragati Maidan, New Delhi.



Participants of Global Bio India 2024

KLIP invited KSCSTE and KBC to be institutional partners in Bioconnect 2.0 Kerala 2024, to showcase the activities of KBC at the exhibition stall allotted at the venue of the event, Bioconnect 2.0 Kerala 2024, organized by KLIP, KSIDC, and the Government of Kerala at Hotel Hyatt, Thiruvananthapuram on 27-28 September 2024.

KFRI staff participated in an ICFRE research conference, a 21-day agricultural summer school, an APFISN invasive species biocontrol webinar, and Ayurveda Parv 2024

Dr. Ajith Ashokan, Department of Biology, University of Naples Federico II, Napoli, Italy has delivered a talk at JNTBGRI on the topic "On the evolution of some endemic Angiosperm lineages in the tropics", on 05-11-2024.

JNTBGRI took part in the 21st edition of the Kerala Bamboo Fest held from December 7–12, 2024 at Marine Drive Ground in Kochi, Kerala. JNTBGRI participated in the festival by setting stalls along with artisans, craftsmen, SHGs, NGOs, private enterprises, government departments, institutions, machinery suppliers, and research organizations. JNTBGRI stall was the centre of attraction of the event which exhibited a variety of bamboo products and saplings. A total of 800 saplings belonging to 15 species along with 200 products were displayed. The event was organized by the Kerala State Bamboo Mission (KSBM), Kerala Bureau of Industrial Promotion (KBIP), and National Bamboo Mission, Government of India. The Kerala Bamboo Fest is a national event that showcases the creativity of bamboo artisans and craftsmen from across the country. It also provides a platform for artisans to interact with their peers in the industry.



Dr. V. Arunachalam, Director JNTBGRI in the stall of Bamboo Museum

As part of GIS Day 2024, NATPAC organized an expert talk and webinar on 20th November 2024 at NATPAC Campus, Aakkulam. The expert talk was delivered by Dr. Radhakrishnan T, Project Coordinator (Geospatial Data Analytics), Digital University Kerala on the topic "Geospatial Analytics and Geospatial Predictions". This talk explored the foundations and advancements of Geo-AI, a multidisciplinary field that combines GIS, remote sensing, machine learning and deep learning

to analyze and predict spatial patterns. The session introduced new possibilities in spatial decision-making, showcasing how Geo-AI can shape a resilient and sustainable future by providing actionable insights into our changing world.



Participants of GIS Day 2024

A webinar was also conducted on the topic “Transportation with Spatial Analytics – Driving Smarter Mobility”, by Ms. Esther Jesintha Nallathambi, Engineer, ESRI India. This session explored how spatial analytics enhances planning, from road network development to urban mobility management, with real-world examples of GIS applications in action. The webinar demonstrated how Esri’s collaborative platform facilitate seamless data sharing, fostering better-connected transportation systems.

Organised Road Safety exhibition in connection with Malabar Garden Festival 2024, organised by Malabar Botanical Garden and Institute for Plant Sciences, Kozhikode, 20.12.2024 -29.12.2024.

One - day National Seminar on Cytogenetics, Genomics and Plant Breeding held in connection with Prof. A. Abraham Endowment Programme 2024 on 21 August 2024.



National Mathematics Day Celebration 2024 celebrated on December 27, 2024



District level National Mathematics Day celebrations at SRIBS on December 19, 2024

On December 19, 2024, National Mathematics Day celebrations were held at the Srinivasa Ramanujan Institute for Basic Sciences (SRIBS), Pampady, Kottayam, to honor the extraordinary legacy of Srinivasa Ramanujan. The event, organized in collaboration with the Kerala State Council for Science, Technology & Environment (KSCSTE), National Council for Science & Technology Communication (NCSTC),

and the Department of Science & Technology (DST), Government of India, featured a series of engaging competitions for college students of Kottayam district. Highlights included the “Maths Mental Challenge” quiz competition, an Idea Pitching competition, and a Poster Presentation competition, all designed to encourage mathematical thinking and creativity among the participants.

Seminar-Webinar on “Madhava of Sangamagrama and Studies on Infinite Series in Medieval Kerala” on August 29, 2024 by Dr. Jolly K. John, Fellow-Inter University Centre for Social Science Research and Extension (IUCSSRE), MG University, Kottayam, Kerala

On August 29, 2024, SRIBS hosted a seminar-webinar on “Madhava of Sangamagrama and Studies on Infinite Series in Medieval Kerala.” Dr. Jolly K. John, Fellow at the Inter University Centre for Social Science Research and Extension (IUCSSRE), MG University, Kottayam, Kerala, delivered an enlightening talk. The session highlighted Madhava’s groundbreaking contributions to mathematics and their profound impact on the development of infinite series, showcasing the rich intellectual heritage of medieval Kerala.

SRIBS conducted a two-day webinar cum hands-on session on LaTeX, focusing on “LaTeX for Beginners” on September 30, 2024, and “LaTeX for Intermediates” on October 1, 2024. The sessions aimed to equip participants with essential LaTeX skills for academic



and professional document preparation, progressing from fundamental concepts to intermediate-level techniques. The interactive format allowed attendees to practice in real-time, enhancing their proficiency in this powerful typesetting tool.



- CoEM observed World Microbiome Day-2024 in association with National Academy of Sciences at Mar Ivanios College, Trivandrum, inaugurated by Dr. Rajan Khobragade IAS, Principal Secretary, Health and family welfare and Shri. M.C. Dathan as esteemed guest of honor. CoEM’s first Agar Art competition was held and prizes were distributed in this event.
- CoEM has co-organized a national workshop on Coastal Microbiome -NWMCE 2024 in association with Dept. of Environmental Sciences, University of Kerala. Inaugurated by Padmashree M.C Dathan, Mentor, Science to Hon. Chief Minister and Valedictory address by Prof. K.P.Sudheer, EVP, KSCSTE & Principal Secretary, Science and Technology Dept.

CoEM has co-organized an international symposium ALARM 2024, on Nov 22 & 23 in association with Amrita School of Biotechnology, as part of World Antimicrobial Resistance Awareness Week

MoU was signed between CWRDM and Ecoway Technologies Pvt. Ltd Kochi on 9th August 2024.



CWRDM signed MoU with the School of Environmental Sciences and School of Polymer Science and Technology, MG University, Kottayam

MoU was signed between CWRDM and Kerala Infrastructure Investment Fund Board (KIIFB)

KFRI made multiple GenBank submissions, including 25 new accessions, a series of gene accession numbers representing various fungal species and their genetic markers.

KFRI researchers documented several new species and records to taxonomic knowledge: three new lichen species: *Solenopsora rhizomorpha* (distinguished by rhizines, found in Eravikulam and Mathikettan Shola National Parks), *Malmidea glabromarginata* (characterized by verrucose thallus and small apothecia, found in Odisha), and *Malmidea incrassatispora* (distinguished by ascospores with end wall thickenings, found in Karnataka); two new fungal species: *Paramyrothecium indicum* (from *Hibiscus hispissimus* leaves in Kerala) and *Trichoglossum syamviswanathii* (from soil near bamboo in Kerala); twelve lichen species new to India, including *Allographa cinerea* (Kerala), *Bactrospora paludicola* (Assam), *Didymocyrtis cladoniicola* (Uttarakhand), *Epicladonia simplex* (Uttarakhand), *Gyalidea fritzei* (Assam), and several *Malmidea* species (*M. fenicis*, *M. leptoloma*, *M. piae*, *M. piperina*, *M. reunionis*, *M. sulphureosorediata*, and *M. vinosa*) from various locations.



Dr. Biju H., Technical Officer, Microbiology Division has been elected as the Fellow of the Indian Lichenology Society, during the National Conference on Advances and Perspectives in Cryptogam Research at CSIR-NBRI, Lucknow. Fellowship of ILS is awarded to active cryptogam researchers who have demonstrated proven excellence through impactful publications and significant contributions in the field. Recipients are honoured with a certificate bearing the title “Fellow of Indian Lichenological Society” and an accompanying citation.



The IIT Bombay (Indian Institute of Technology Bombay) and the KSCSTE-National Transportation Planning and Research Centre (NATPAC) signed a memorandum of understanding on 9th October 2024 to collaborate on research in various sectors.

The official launching of the project titled “Creating Native Orchid Enhanced Urban Landscapes: Connecting People with Nature” (a potential partnership established between Royal Botanic Gardens, Kew with Kerala State Council for Science Technology and Environment which includes 3 research institutes, including MBGIPS, Kozhikode, KFRI, Thrissur and JNTBGRI, Thiruvananthapuram) was inaugurated by Dr. V. Balakrishnan, Member Secretary, Kerala State Biodiversity Board on November 1st, 2024 at Sarovaram Biopark.

Appointments/Promotions/Retirements/ Promotions:



Dr. Celine George, Senior Principal Scientist & Head, Manimalakkunnu SC, CWRDM superannuated from service on 30th September 2024.



Dr. V. Arunachalam joined as the Director of JNTBGRI on 25th October 2024.



Mr. Balachandran, Driver Grade 1 superannuated on 30th November 2024.



Dr. Aiswarya K. P. joined as the Junior Scientist at ICCS from 2nd December 2024



Dr. Rajan P joined as Scientist B on 19th August 2024.



Ms. Jasmin James appointed as Finance and Administrative Officer on Contract basis on 22nd June 2024.



Renjini Ramakrishnan joined as Administrative Officer on 11th July, 2024



Ms. J. Sailaja, Section Officer superannuated on 31st May 2024.



KSCSTE HQ

Ms. Deepthi B joined as Scientist B, on 20th November 2024

Remarkable / Outstanding Achievements

CWRDM Principal Scientist Dr. Drissia T K is included as the State level expert team member for assessing the cause of the landslide disaster at Mundakkai-Chooralmaal region of Wayanad.

Dr. Manoj P Samuel, Executive Director selected as the member of Advisory committee for establishing Climate Studio in the State of Chhattisgarh.

Dr. Manoj P Samuel, Executive Director selected as member of Curriculum Committee, Department of Civil Engineering, IIT Palakkad.

Awards/Honours

Dr. Manoj P Samuel, Executive Director, CWRDM is conferred with the prestigious Fellowship of Indian Society of Agricultural Engineering

Dr. Magesh N S appeared in the list of 'Top 2% of World Scientist' (single year category) released by Stanford University and Elsevier BV 2024

Shaheem S, Principal Scientist, awarded Ph D in Civil Engineering from NIT Tiruchirappalli on the topic "Integrated Approach for Increasing Public Transport Share in Medium-Size Cities".

Ebin Sam S, Scientist, received the best paper award at the 10th International Conference on Transportation System Engineering and Management (CTSEM 2024), organised by Department of Civil Engineering Visvesvaraya National Institute of Technology, VNIT Nagpur, 19th -20th July 2024.

V S Sanjay Kumar, – Principal Scientist, received the ITS Support from SERB for attending the 'Australasian Road Safety Conference 2024, Australia, 30th September 2024 – 3rd October 2024.

Tinku Casper D'Silva, Junior Scientist, received the Young Scientist Award in the Engineering & Technology session at the

31st Swadeshi Science Congress and National Conference on 'Towards Net Zero Emission: Approaches & Strategies' held at ICAR-CIFT Kochi, 7th - 9th November 2024.

Vasudevan N, Junior Scientist; Anila Cyril, Junior Scientist; B Anish Kini, Scientist, Awarded the prize for best paper "Formulating and prioritizing transit supportive policies to augment metro ridership: an integrated choice and latent variable approach". 2nd International Conference on Innovations in Infrastructure (ICIIF 2024), organized jointly by the Institute of Technology Research and Management (IITRAM), India and Universite Polytechnique Hauts-de-France (UPHF), France, 15th - 17th November 2024

Dr. Suresh C. H., Director - Appeared in the Stanford's list of top 2% scientists worldwide, for the sixth consecutive time.

Dr. Sreejith M. M., Postdoctoral Fellow - Received the NASC Doctoral Dissertation Award (Mathematics) 2024, constituted by the Nehru Arts and Science College Kanhangad, Kasaragod, Kerala

Ms. Hamy Michel has won First prize in the Agar Art Competition conducted by the Centre for Excellence in Microbiome (CoEM) – KSCSTE as part of the World Microbiome Day observation.



**KERALA STATE COUNCIL FOR
SCIENCE, TECHNOLOGY AND ENVIRONMENT (KSCSTE)**
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