

KSCSTE NEWS



A QUARTERLY NEWSLETTER OF KSCSTE
VOL. I | ISSUE : 4 | OCTOBER-DECEMBER 2022



കേരള സയൻസ് കോൺഗ്രസ് ഉദ്ഘാടനം ചെയ്യാനെത്തിയ മുന്തി കെ. ആർ. ഗൗരിയമ്മയെ കൊച്ചിൻ യൂണിവേഴ്സിറ്റിയിൽ വൈസ് ചാൻസലർ ഡോ. ഹർഷ് കെ. ഗുപ്ത, വി. കെ. ദാമോദരൻ, പ്രൊഫ. പോൾ വടക്കുംചേരി, പ്രൊഫ. എൻ. ബാലകൃഷ്ണൻനായർ തുടങ്ങിയവർ ചേർന്നു സ്വീകരിച്ചുനയിക്കുന്നു. [വർത്ത അഞ്ചാം പേജിൽ]. -മനോരമ.

ശാസ്ത്രം സാമൂഹ്യ മാറ്റത്തിനുതകണം: ഗൗരിയമ്മ

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കൊച്ചി സാമൂഹിക മാറ്റത്തിന് ഉപകരിക്കാത്ത ശാസ്ത്രം ആർക്കും പ്രയോജനം ചെയ്യുന്നില്ലെന്നു വ്യവസായ മന്ത്രി കെ. ആർ. ഗൗരിയമ്മ അഭിപ്രായപ്പെട്ടു. സംസ്ഥാന ഗവൺമെന്റിന്റെ ശാസ്ത്ര-സാങ്കേതിക പരിസ്ഥിതി സമിതിയും കേന്ദ്ര ഗവൺമെന്റിന്റെ ശാസ്ത്ര സാങ്കേതിക വിഭാഗവും ചേർന്നു സംഘടിപ്പിച്ചു ഒന്നാമതു കേരള

പുരുഷ വരുമാനം പരക്കെ, കേരളാർപ്പാദനത്തെ തകിടംമറിക്കുന്ന "വോളൂപി അത്" കോവ്വള്ളി മോശങ്ങളെ നിയന്ത്രിക്കാൻ ശാസ്ത്രജ്ഞന്മാർക്ക് എന്തു സാധനങ്ങൾ നൽകാൻ കഴിഞ്ഞിട്ടുണ്ട്? സ്ഥലാധിക ദമ്പതി ഉത്പാദനത്തിൽ മുൻപന്തിയിൽ നിൽക്കുന്ന സംസ്ഥാനമാണു കേരളമെങ്കിലും ദമ്പതി അധിഷ്ഠിത വ്യവസായങ്ങളുടെ സാങ്കേതിക വിദ്യ

യു മറിച്ച് ഗവേഷണ ഫലങ്ങൾ ഉപയോഗിക്കാത്തതിനാലാണെന്നു നമ്മുടെ പ്രശ്നമെന്നു ബാലകൃഷ്ണൻ നായർ അധ്യക്ഷ പ്രസംഗത്തിൽ അഭിപ്രായപ്പെട്ടു. ഇരുപത്തൊമ്പതാം നൂറ്റാണ്ടിന്റെ സമ്പന്നകോൺഗ്രസ്സിൽ ഒൻപതു ദിവസം തുറന്നുവെച്ചു നൂറ്റാണ്ടോളം പ്രവർത്തിച്ച അതി നൂറ്റാണ്ടിനും ഏറ്റവും കൂടുതൽ അനുഭവം

1ST KERALA
SCIENCE CONGRESS 1989



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

കേരള ശാസ്ത്ര സാങ്കേതിക പരിസ്ഥിതി കാൺസിൽ

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Layout, Design & Printed at
Akshara Offset
Thiruvananthapuram
Ph : 0471-2471174

Cover Photo
Prasobh K, KSCSTE-MBGIPS

Published & Printed on behalf of
The Member Secretary, KSCSTE
Thiruvananthapuram

Published from
Kerala State Council for
Science, Technology and Environment (KSCSTE)
Sasthra Bhavan, Pattom, Thiruvananthapuram 695 004

(Private Circulation only)

Cover Photo



**1ST KERALA
SCIENCE CONGRESS
1989**

COVER STORY

KERALA SCIENCE CONGRESS

The Kerala Science Congress is an annual event similar to Indian Science Congress and is being organised since 1989. Kerala was the first Indian State to initiate a Science & Technology Committee followed by the formation of National Committee on S&T and enact a science policy and established a department for Science and Technology. The vision of the then Chief Minister Shri. Achutha Menon was the backbone for all these activities. The STEC and later the KSCSTE spherehead the science and technology activities in the state. The establishment of R&D centers to take care of the needs of the state was also initiated during the period of Shri. Achutha Menon. Kerala Science Congress was a later addition to the science popularisation programmes and Shri. P T BhaskaraPanikar, a science writer and activist seeded the idea of this biggest event in the state of Kerala.

The KSC has grown to 35 years surpassing its childhood, teenage and youth. Organised as a three-day event during the last week of January every year with the inaugural speech of the Hon. Chief Minister and presided by the president of the congress, KSC has become the largest science popularisation programme of the State. Today the event has grown significantly ensuring the participation of the science professionals and students with considerable increase in the registration year after year.

Each year the event is organised with a focal theme either relevant to the state or of significance in current science & technology scenario. The event is organised in different districts to ensure the participation of all possible in a multidisciplinary S&T domain. The broad objective of the event is to revitalize the Research and Development (R&D) activities in the State and to identify new talents in scientific research in the state.

In addition to the focal theme, the event is enriched with twelve technical sessions in different theme areas (Agriculture & Food Sciences, Biotechnology, Chemical sciences, Earth & Planetary Sciences, Engineering & Technology, Environmental Science, Forestry & Wildlife, Fisheries & Veterinary Sciences, Health Sciences, Life Sciences, Mathematical and Statistical Sciences, Physical Sciences, Scientific Social Responsibility), memorial lectures, children science congress, PG students' interaction and a national science exhibition. Every year some new programmes will be added to the general structure to broaden the programmes and to make it more visible and scientifically eventful. The latest addition to the series is Walk with scientist programme and SciSol (scientific solutions for a major cause pertaining to the district where the KSC is being organised).

Over and above the science congress provides a forum for interaction and deliberations, review of the present state of R&D efforts, formulation of strategies for better utilisation of scientific and technical manpower for the



Inauguration of the 34th Kerala Science Congress by the Hon'ble Chief Minister

overall development of the state and above all a venue to have a get-together for all the scientific fraternity of the state.

HIGHLIGHTS

FOCAL THEME:

A focal theme will be there every year for the Kerala Science Congress and it will either be relevant to the State of Kerala or a theme scientifically relevant and currently in discussion/debate. The focal theme for the 1st Kerala Science Congress was 'Natural Resources and Industrial Development of Kerala' and that of 35th is Nano Science and Nano Technology for Human Welfare. The congress over the past 34 years covered many such themes and the deliberations are published in the form of a compendium every year.

MEMORIAL LECTURES:

Memorial lectures are integral part of the Kerala Science Congress to honour the S&T visionaries to cherish their contributions. Dr. P K Iyengar, P T BhaskaraPanicker, Dr. P K Gopalakrishnan, Dr. P R Pisharoty, Dr. G N Ramachandran, Dr. E K Janaki Ammal and Dr. Thanu Padmanabhan are the distinguished scientists of the past whose contributions will be honoured reminiscently during the lectures by eminent speakers.

TECHNICAL SESSION:

The congress will have several technical sessions for providing opportunities for intense interaction and knowledge sharing. Young researchers are encouraged to present their findings and observations through oral and poster presentations. They are also encouraged to contest for oral and poster presentation awards during the technical session. Over the years it was refined many a times and as on now the Kerala Science Congress have 12 broad subject areas for the technical sessions. They are Agricultural Sciences, Biotechnology, Chemical Sciences, Earth and Planetary Sciences, Engineering and Technology, Environmental Sciences- Forestry and Wild Life, Fisheries and Veterinary Sciences, Health Sciences, Life Sciences, Mathematical and Statistical sciences, Physical Sciences, Scientific Social Responsibility, etc.



PG STUDENTS INTERACTION:

An exclusive session for the interaction of bright Post Graduate students in science with eminent scientists and academicians is being organised along with the Kerala Science Congresses. This would provide them a window to the opportunities, scope and paths in pursuing their research interests. The selection is restricted based on nomination from academic institutions in the State.

CHILDREN'S SCIENCE CONGRESS:

Students who have participated in the National Children's Science Congress in the previous year are invited to present their chosen project work during the Children's Science Congress session and representation of the student in the district where Kerala Science Congress is organised is ensured. This will help the student to participate in the coming National Children's Science Congress.



NATIONAL SCIENCE EXHIBITION

A National Science Exhibition is also being organized along with the Kerala Science Congress. Leading Scientific organisation in the State (both Central and State), NGO's etc will be participating and showcasing their activities to the students and general public.



National Science Exhibition

WALK WITH SCIENTIST:

This is a new addition in the 35th Kerala Science Congress. A special opportunity for school students to walk with famous scientist/erudite and get inspired in science by opening the mind through morning walks in the nature. Students in the group (selected 8-10 school students) can lead the discussion and clarify their doubts. The sessions will be helpful for students in overcoming the inhibitions in questioning, generate curiosity, sharpen skill, develop scientific temper and focus in science for future.

SCI SOL

This is another unique programme initiated during the 35th Kerala Science Congress to spot challenging local problem and prepare a scientific solution. Youth between 15-25 years of age can participate and identify local problem pertaining to the host district of Kerala Science Congress. Cash Awards and prizes will be given for the best scientific solution.



Cultural Programme by students

HIGHLIGHTS OF IMPORTANT PROGRAMMES

KSCSTE HQ

35th Edition of Kerala Science Congress

The 35th edition of Kerala Science Congress will be held at Kuttikkanam, Idukki during 10-14th February 2023. KSCSTE-KFRI and Mar Baselios Christian College of Engineering and Technology, Kuttikkanam are the host Institutions. The focal theme of the 35th Kerala Science Congress is "Nanoscience and Nanotechnology for Human Welfare". The Science Congress will be inaugurated by the Hon'ble Chief Minister of Kerala. There are 708 delegates registered for the participation, and 512 delegates submitted their papers for presentation / poster sessions. The Science Expo will start two days before the start of technical session. The 35th Kerala Science Congress will have two new programmes: SciSol and Walk with Scientists.

SciSol: A unique programme to spot challenging local problems and propose scientific solutions. Youth

between 15-25 years of age can participate and identify local problems pertaining to Idukki District and suggest possible S&T solution

Walk with scientist : A special opportunity for school students to walk with famous scientists / erudite and get inspired in science by opening the mind through morning walks in the nature. Students in the group (selected 8-10 school students) can lead the discussions and clarify many doubts and questions. The session will be helpful for students in overcoming the inhibitions in questioning, generate curiosity, sharpen skills, develop scientific temper and focus in science for future.



"Issues and Challenges faced by Idukki district and Science & Technology Interventions as solution"
A Challenge to Youth of Kerala

Science Literature Awards announced

Kerala State Council for Science, Technology and Environment announced the prestigious Science Literature Awards - 2021. The awards under four categories are conferred on Science writers who have

made commendable contributions to Science Literature in Malayalam through their works published during the year 2021. Each category Award comprises of a cash prize of Rs. 50,000/- along with a Plaque and Certificate. The Awards are as detailed below.

Children's Literature

Dr. Muhammed Jaffer Palot and Sri. Jenu has been selected for their book 'കൊണ്ടാണക്കാലത്ത് ഒരു വസ്ത്രം' published by Kerala Sasthra Sahithya Parishath. **Dr. Muhammed Jaffer** is working as a Scientist at Zoological Survey of India, Western Regional Centre, Pune. He is a well known environmentalist and the founder secretary of Malabar Natural History Society. He is a native of Kannur.

Sri. Jenu is a member of Kerala Sasthra Sahithya Parishad (KSSP) and he was an editor of Eureka. He resides in Kolayadu, Kannur.



Dr. Muhammed Jaffer Palot



Sri Jenu

In-depth Science

Dr. Sudhikumar for his book "കേരളത്തിലെ ചിലന്തികൾ" published by State Institute of Languages, Kerala. He is working as an Assistant Professor in Zoology Department, Christ College Irinjalakuda. He is a native of Varappuzha, Ernakulam.



Science Journalism

Sri.M. Jayathilakan for his article in Mangalam Daily entitled "ജലാശയങ്ങൾ വിഴുങ്ങുന്ന ദുർഭരം". He was the former Chief Reporter of Mangalam Daily, Kozhikode. He is a native of Kinaloor, Kozhikode.



Popular Science

Award shared by **Dr. M.S Valiathan and Sri.V.D. Selvaraj** for their book "മയൂരശില ജീവിതം അനൗപമം അറിവ്" published by Chintha Publishers & Dr. V. Ramankutty for his book "എപ്പിഡെമിയോളജി : രോഗവ്യാപനത്തിന്റെ ശാസ്ത്രം" published by Kerala Sasthra Sahithya Parishath.

Dr. Valiathan is a well known Indian Cardiac Surgeon, the founder director of Sree Chitra Tirunal Institute for Medical Sciences and

Technology (SCTIMST) and the first Executive Vice President of KSCSTE. Presently he is the National Research Professor, Manipal School of Life Sciences. He is a native of Mavelikkara, Alappuzha.

Sri.V.D. Selvaraj is working as a Deputy Editor at Kala Kaumudi Weekly and he is a native of Pathanamthitta.



Dr. M.S Valiathan



Sri.V.D. Selvaraj

Dr. V. Ramankutty, Rtd. Senior Professor, Achutha Menon Centre for Health Science Studies and well known Indian health economist, epidemiologist. Presently he is the Research Director of Amala Cancer Research Centre, Thrissur. He is a native of Thrissur.



Dr. V. Ramankutty

TECHFEST-2022

Technological Festival (TECHFEST) is an annual programme of Kerala State Council for Science, Technology and Environment (KSCSTE), and houses contest for innovative engineering projects developed by the students of Engineering Colleges in Kerala. The programme aims at providing a platform to the engineering students to showcase their projects and share their experiences, ideas, and knowledge.

KSCSTE TECHFEST - 2022 was organized at Cochin University of Science and Technology during 26th - 28th October, 2022. A press conference was held on 25th October, 2022 and the programme got wide media coverage. KSCSTE TECHFEST-2022 was inaugurated by Dr. K. Ajith Kumar, Director, DRDO - Naval Physical and Oceanographic Laboratory (NPOL) on 26th October, 2022 in a function presided by Prof. K. P. Sudheer, Executive Vice President, KSCSTE. Padmasree M. C. Dathan, Mentor (Science), Office of the Chief Minister, Govt. of Kerala gave the special address. The proceedings of KSCSTE TECHFEST - 2022 was released by Padmasree M. C. Dathan during the inaugural function.



TECHFEST-2022 project exhibition

registrations were received for the event and 70 teams were selected to the final round of 24 hour hackathon. The contest began on 27th October 10 AM and ended on 28th October 10 AM.

The Valedictory function of KSCSTE TECHFEST 2022 was held on 28th October, 2022 at 3:00 p.m. Shri. P. Rajeeve, Hon'ble Minister for Industries Law and Coir was the Chief Guest for the valedictory function. The awards of TECHFEST and Make-a-ton was distributed by the Chief Guest during the valedictory function.



KSCSTE TECHFEST-2022 - Inauguration

In order to attract more public to the event, a Science and Technology exhibition named TECHEXPO was also organized as part of the TECHFEST-2022. The Science and Technology exhibition had stalls of premier organizations such as NPOL, Dentcare, R&D Organizations of KSCSTE and many more. The TECHEXPO also had the 'Science on Wheels' bus of ISRO and 'Suraksha Rath' bus of the Dept. of Factories and Boilers.

A newsletter named Scientwists was also published on the first two days of TECHFEST briefing the highlights of the programme during the days.

The Advisory Committee also recommended that apart from the project contest, engineering fun events may also be co-ordinated as part of TECHFEST-2022. The CITTIC, CUSAT came forward with the conduct of a Hackathon named as Make-a-ton in partnership with the IEEE Kochi subsection and XENA Intelligence. Over 500



Scientwists 28/10/2022 - Front Page



KSCSTE TECHFEST-2022 Prize distribution during Valedictory ceremony

The TECHFEST-2022 was well received and there was a lot of public participation as visitors to the event. The project exhibition and the TECHEXPO was also visited by a lot of students from CUSAT and the neighbouring educational institutions.

RIM-2022

Rural Innovators Meet (RIM) is a unique annual event of KSCSTE, for encouraging and promoting the unorganized rural and grass root innovators. The programme provides a platform for the rural innovators to exhibit/demonstrate their innovations/products and also to interact with the Scientists and fellow innovators. During the programme, innovators are given technical inputs on various issues including marketing methods/techniques, IPR issues, microfinancing, etc. They are also given opportunity to discuss their problems and challenges with the experts and get their technologies upgraded and perfected. Attractive awards & cash prizes are given to the best innovations contested in RIM.

RIM-2022 is jointly organized by KSCSTE and Central Plantation Crops Research Institution (CPCRI) at Kasaragod during the last week of November, 2022.

ASPIRING STUDENTS IN PROGRESSIVE AND INNOVATIVE RESEARCH AND EDUCATION (ASPIRE)

The Scheduled Caste and Scheduled Tribe cell at KSCSTE in Collaboration with Scheduled Tribes Development Department, organised a week-long science orientation cum institutional study visit programme for +2 science Scheduled Tribes students from Model Residential Higher Secondary schools in Kerala. The week-long programme was conducted at KSCSTE - MBGIPS, Kozhikode from 10th to 14th October 2022. 45 students participated in the programme. The students visited MBGIPS, CWRDM, KSoM, IISR, ZSI Western Ghat Regional Centre, Regional Science Centre and Planetarium, Kadalundy Community reserve and

MBGIPS, Kozhikode. The programme was inaugurated by Prof. M K Jayaraj, Vice Chancellor, Calicut University in the function presided by Prof. K P Sudheer, Executive Vice President, KSCSTE. Shri. M C Dathan, Mentor Science, Government of Kerala, Dr. S Pradeep Kumar, Member Secretary, KSCSTE, Prof M Sabu, Emeritus Scientist, MBGIPS, Dr. N S Pradeep, Principal Scientist, KSCSTE-MBGIPS and Dr. P Harinarayanan, Principal Scientist & State Coordinator NCSC were presented. 108 projects were presented during the programme and 16 projects were selected to the National Children's Science Congress scheduled on 27-31 January, 2023 at Ahmedabad, Gujrat. Shri. M C Dathan, Mentor Science, Government of Kerala distributed the certificate, cash awards and mementos to the winners. District level Children's Science congress held in all the 14 districts prior to the state level programme.



Calicut University Botanical Garden. The programme was inaugurated by Prof M Sabu, Emeritus Scientist, MBGIPS. The valedictory address was delivered by Shri. N. Prasanth IAS, Special Secretary, Scheduled Caste, Scheduled Tribes & Backward Classes Development Departments in a programme presided by Prof. K P Sudheer, Executive Vice President, KSCSTE, Dr. S Pradeep Kumar, Member Secretary, KSCSTE, Dr. N S Pradeep, Principal Scientist, KSCSTE-MBGIPS and Dr. P Harinarayanan, Principal Scientist KSCSTE were present.

NATIONAL CHILDREN'S SCIENCE CONGRESS

National Children's Science Congress is programme of Department of Science and Technology, Government of India, targeted to spread the concept of the method of science among the children through their project activities adopting the principle of 'Learning through Doing'. The State level Children's Science Congress was organised by KSCSTE during 8th and 9th December 2022 at KSCSTE-



16 child scientists selected from Kerala to 30th National Children's Science Congress

Mission LiFE organized by NGC Kerala

Kerala State Council for Science Technology and Environment (KSCSTE), Implementing Agency of Environment Education Programme (National Green Corps) of MoEF&CC joined hands with Ecoclubs of the State of Kerala to display Mission LiFE posters on school notice boards for creating awareness among students and

teachers and to urge all to ChooseLiFE. Teachers also explained to students the importance of saving energy and water in our everyday life.

LED bulb making programme organized by NGC Kerala

LED bulb making programme was conducted by National Green Corps of St. Mary's Higher Secondary School, Thiruvananthapuram. The program was organised as part of the Carbon Neutral Kerala Campaign of NGC. The students were given training on how to make a new LED bulb as well as how to recycle a broken bulb. Certificates were also given to those who complete the training.



Bioentrepreneurship Certification Programme

Bioentrepreneurship Certification Program of Kerala Biotechnology Commission provides the opportunity for graduate / postgraduate students in biotechnology and allied subjects to become aware of and get trained in various aspects of bio-entrepreneurship. The first two levels of the programme were conducted during November and December 2022 respectively. The One-day Bioentrepreneurship Basics Certification (BBC) programme was conducted during 3rd November, 2022 which was inaugurated by Prof. K. P. Sudheer, Chairman, KBC. The sessions were handled by

Dr. C. N. Ramchand, CEO, Saksin Laboratories Pvt. Ltd., Dr. E. K. Radhakrishnan, Director, BIIC, MG University and Dr. R. Dileepkumar, CEO, Indriyam Biologics Pvt. Ltd. The selected candidates from the first level were given advanced training cum certification through the 5-day Residential Bioentrepreneurship Advanced Certification (BAC) cum Boot Camp conducted from 19 - 23 December 2022 in partnership with Business Innovation and Incubation Centre (BIIC), Mahatma Gandhi University, Kottayam. The programme provided a rich learning experience to the participants; the selected candidates from this programme will be attached to biotech startup / industry / incubation centre for one year industrial training in bio entrepreneurship.



Bioentrepreneurship Advanced Certification (BAC) Course at the Business Innovation and Incubation Centre (BIIC), MG University, Kottayam during 19-23 December, 2022 as residential bioentrepreneurship training cum boot camp.

Junior Scientists' Orientation Programme

With a view to provide an overview of the functions of the KSCSTE and its R&D Centres to the newly joined scientists in KSCSTE system, an orientation programme was convened during 14-19 November 2022. The event began with an inaugural ceremony at KSCSTE

headquarters followed by scientific sessions and field visit to the different R&D centers namely JNTBGRI, KFRI, MBGIPS, KSoM, NATPAC and CWRDM. Technical sessions focusing on KSCSTE rules and procedures, financial management, S&T management, speculations from the Scientists, scientific and social responsibility,



etc. were arranged. The participants were familiarized with the organizational structure, functionalities, activities and organizational culture in the various centres under the ambit of KSCSTE and to explore possibilities of inter-institutional research collaborations.



Patent Clinic as part of TECHFEST-2022

As part of KSCSTE TECHFEST-2022 held at CUSAT during October 26 - 28, 2022, IPRIC-K organised a patent clinic for providing IPR related services to the Students. Quick patent search facility to determine the patentability status of inventions was arranged for the students. Around 90 Students visited the clinic and availed the services. Booklet on IPR was also distributed to the students.



Grass root Innovators. On the spot patent search facility to determine patentability status of inventions was arranged for the innovators. Around 40 Innovators visited the clinic and availed patent related services. Technical Session on IPR was also conducted for the participants.



Five Day Virtual Workshop on IPR

KSCSTE-IPRICK jointly with Kristu Jyoti College of Management and Technology, Chengannur, organized five days National level Virtual Workshop on IPR, from October 18 - 22, 2022. Five Technical Sessions on Overview of IPR, Prior Art Patent Search, Indian Patent System and Patent filing procedure, Significance of Trademarks, Copyrights and Industrial Design and IP Management & Technology Transfer were handled in the Workshop. Around 100 participants attended the Workshop.

Patent Clinic and Session on IPR as part of RIM-2022

In connection with KSCSTE RIM - 2022, held at ICAR - Central Plantation Crops Research Institute, Kasaragod, during November 25 - 27, 2022, IPRIC-K arranged a Patent Clinic for providing patent related services to the

CWRDM

- Environmental isotope studies for understanding frequent occurrence of convective rainfall events and their impact on stream flow generation processes in the Chaliyar river basin, Southern India, funded by International Atomic Energy Agency.
- Development of AI based prediction system coupled with Ecological mitigation technologies, along with NIT Suratkal, funded by the DST.
- Investigations on use of Grey water usage for irrigation, funded by Indian National Committee on Ground Water.
- Rainwater harvesting as a climate adaptation

strategy to enhance groundwater resilience and agricultural sustainability of Paniya tribes of Wayanad, funded by Cochin Ship Yard Ltd.

- Centre of Excellence in water related disaster management in Kerala.
- Demonstration of protected cultivation of spices crop in naturally ventilated polyhouse with automated irrigation systems.
- Water conservation measures to mitigate drought effects in Wayanad as "Rain water harvesting as climate adaptation strategy for enhancing ground water and agricultural resilience of Paniya tribe, Wayanad, Kerala"

- Restoring IUCN Red-listed Tree species and Ecosystems of Kerala joining hands with the global one trillion tree initiative programme a 'Green Kerala Initiative' launched under the coordination of KSCSTE to meet the twin objectives of species conservation and habitat restoration.
- Bamboo planting for the protection of canals banks in Model Shrimp Farm & Camp, Training Centre (ADAK), Poyya, Thrissur supported by National Bamboo Mission, GoI, Dtd. 28-10-2022. Programme inaugurated by V R Sunil Kumar, Honorable MLA Kodungallur Constituency, Kerala.
- Addressing the untimely endangerment in the Western Ghats, a reintroduction to enrich the genetic base of the degraded natural populations and establishment of a field gene bank in situ of threatened species along with the knowledge on population size and propagation protocols is ongoing under the Triparty Action Plan for the reintroduction of Red plants of Kerala.
- Conducting ecological studies on post-restoration success of threatened plants in situ.
- Addressing Plantation technology for Jiggat species envisaged as a viable solution to solve the problems in the development of agro-techniques, planting stock development, seedling planting trials etc.

- Three research projects viz. wild edible fruits, wild edible mushrooms and database on anti-viral plants with emphasis on nutraceuticals were sanctioned by Kerala State Biodiversity Board to the PIs viz. Dr. Nazarudeen Ahammed, Dr. C.K. Pradeep and Dr. S. Sreekumar.
- Leading 2 consultancy programmes 1) Establishment of a green ambiance at the Institute of Advanced Virology Phase IA building premises and, 2) Landscaping and Gardening at G.V. Raja Sports School campus is progressing. Concept proposal for a consultancy programme "Gardening at Energy Management Centre, Sreekariyam and Ecotourism programme of Karichal Kayal" at Athiyanoor Block Panchayat has been submitted for realization.
- Establishment of a Bamboo Craft Centre, Bamboo Tissue Culture Unit and Expansion of Bamboo Conservatory in JNTBGRI, funded by Kerala State Bamboo Mission is progressing along with germplasm maintenance, conservation, propagation, popularization and hybrid studies in the Plant Genetic Resources Division.
- A total of 34 accessions belonging to 12 species of Salacia (Hippocrateaceae) were collected from Kerala and Karnataka States as part of a project aided by NMPB and those accessions were maintained in the field as well as in vitro bank for further studies. The work begun as

part of the project "Habitat distribution modeling and reinforcement of two threatened trees in the Kerala region of the Western Ghats for the improvement of their conservation status" funded by MoEFCC, Govt. of India.

- Elite Genotypes of the Sweet flag *Acorus calamus* previously identified and collected were subject to multi-location field trials to verify the consistency in the phytochemical content.
- A mosquito repellent formula from the essential oil of *Etligeria fenzlii* has been processed and its efficacy/reliability/CPT/Outdoor-Indoor suitability tests are in the trial run.
- A few endophytes from orchid roots has been tested for their antagonism against pathogenic fungi to use as disease prevention agents.
- Initiated the screening for novel antibiofilm/antimicrobial agents from *Streptomyces* diversity from selected spots in Western Ghats.
- Triparty action plan for the reintroduction of Red Listed Plants of Kerala aided by Kerala Forest Department, Govt. of Kerala is progressing and activities were undertaken with the reintroduction of the seedlings of *Dipterocarpus bourdillonii* and *Hopea racophloea*.
- Studies on the reproductive biology of two endemic *Humboldtia* species of Western Ghats is in progress. The study mainly focused on reproductive biological aspects such as phenology, floral biology, pollination, plant-animal interactions, breeding system and seed biology with an intention to find out the causal factors that leads to narrow distribution of the species in the wild.
- Population of biology of *Humboldtia unijuga* var. *trijuga*, an endangered tree distributed in three small populations in an area of 12 km² in Agasthyamala Biosphere Reserve is progressing.
- Conservation of Sandalwood (*Santalum album* L.), a vulnerable tree species through propagation and reintroduction is progressing. The study mainly focuses to raise quality planting material through seed germination using different temperature and plant growth regulators, standardize nursery techniques for producing quality seedlings and transplant seedlings to depleted natural populations and monitor their establishment.
- The 'Green Kerala Initiative' funded by KSCSTE which envisages multiplication and restoration of threatened tree species of Kerala is in full swing. The project is jointly being carried out by MBGIPS, KFRI and JNTBGRI. JNTBGRI deals with the following species: *Buchanania abrahamiana*, *B. barberi*, *B. lanzan* var. *palodensis*, *Calophyllum apetalum*, *Cycas anaikalensis*, *Cynometra bourdillonii*, *Gymnacranthera canarica*, *Humboldtia vahliana*, *Madhuca balakrishnanii*, *Syzygium caryophyllatum*, *S. caryophyllatum* var. *abrahamianum*, *S. makul* and *S. stocksii*.
- Systematic documentation and Bio-prospecting

of ethnomedically important medicinal plants on tribal/traditional knowledge through molecular pharmacological approach with the aim of Systematic documentation of ethno-medico-botanically important plant species used for food and medicine by different tribal communities and fishermen folks is being carried out. In vitro pharmacological screening of selected medicinal plants/ nutraceuticals based on tribal/traditional/ Ayurvedic knowledge Pharmacognostical characterization of selected ethnomedicinal plants of

Western Ghats to enrich Ayurvedic Pharmacopoeia of India. Molecular docking and pharmacological screening of potent medicinal plants selected based on tribal/traditional knowledge through molecular pharmacological approach.

- KSCSTE SHRESTA programme 'Establishment of Centre of Excellence in Phytochemical Nanotechnology at KSCSTE-JNTBGRI' for a total 200 Lakhs (five years) initiated.

MBGIPS

■ Green Kerala Initiative Programme: The project sanctioned by Kerala State Council for Science Technology and Environment with the objectives of propagation of selected IUCN red listed species and reintroduction of the same to the natural habitat and standardization of the protocol for propagation of selected 12 plant species.



■ ASPIRE: Aspiring Students in Progressive and Innovative Research and Education" – a week long study programme for +2 Science Students (Scheduled Tribes) of Model Residential Higher Secondary Schools was conducted by KSCSTE at MBGIPS from 10th to 14th October 2022 with the participation of selected 45 students from 9 schools. 27 District/Academic Co-ordinators and 15 escort teachers attended the programme.

- Nature Awareness and Bird Watching Programme: A nature awareness programme including bird inventory was conducted during 24th & 25th December 2022. This was guided by "Parava" a birders group of 27 including experts and children from Kasaragod, that has been initiated by the NGO, Pulari Aravath. 36 persons from nearby localities of MBGIPS also registered and participated in this programme. The birds of the campus were recorded and this is towards preparing an inventory of the birds of the campus.



- 30th National Children's Science Congress: The State level competition of 30th National Children's Science Congress was held at MBGIPS on 08th & 09th December 2022 with the participation of 45 students in Junior section and 63 in Senior section.



International Conference on Class Groups of Number Fields and Related Topics-2022

- November 21-24, 2022. This program Started in 2017 at Harish-Chandra Research Institute (HRI), Allahabad. Last year, ICCGNFRT has moved to Kerala School of Mathematics (KSoM), Kerala. This edition of ICCGNFRT held from 21st to 24th of November, 2022. The areas of particular interest include Ideal class groups of number fields: algebraic, analytic and computational aspects, Relative class numbers of number fields. The conference had about 25 invited talks on the current problems and techniques of these subjects delivered by leading experts of the world.
- Interactions in Several Complex Variables-Workshop & Conference December 19-23, 2022. This research workshop and conference on several complex variables aims to foster interaction among complex analysts in India. This program conducted during 19-23 December, 2022 at Kerala School of Mathematics.
- National Mathematics Day is marked on December 22 every year. It commemorates the birth anniversary of Srinivasa Ramanujan, India's most famous mathematician. KSoM celebrated this year by conducting in house seminars.

1. International Conference on Class Groups of Number Fields and Related Topics-2022



2. National workshop and conference, Interactions in Several Complex Variables.



3. National Mathematical day observance



NATPAC is in charge of the State's most important and prominent infrastructure projects, such as:

- Feasibility Study for Alternatives to Forest Routes for the Proposed Hill Highway Alignment at Selected Districts
- Preparation of DPR for Integrated Development of Coastal Highway with Cycle Track in Thiruvananthapuram, Kollam & Alappuzha Districts
- Preparation of Detailed Project Report for the Development of Inland Waterways between Kovalam and Kollam
- Road Safety Improvement works of Kerala under World Bank assisted Challenge fund
- Technical Review and Support Services for Preparation of Project Execution Documents of KIIFB funded road projects
- Road Safety Auditing of 123 road projects under the PMGSY scheme for KSRRDA
- FDR based technical review and support services for development of PED in transport projects

Extension Activities/Programmes conducted

a. Safe Road to School (SRS) Programme

KSCSTE-NATPAC in association with the Kerala Road Safety Authority is organizing 'Safe Road to school' program which is a one-day road safety awareness training for selected students from the upper primary to the high school level for 100 selected schools across 14 districts of the State. The state level inauguration of the program was conducted on 3rd November 2022 by Hon'ble Minister for General Education Shri.V. Sivankutty at Government Central High School, Attakulangara in the presence of Hon'ble Minister for Transport Shri.Adv.Antony. The program was conducted in 59 schools till date.



b. Training Course for Drivers of Vehicles Carrying Dangerous and Hazardous Goods

Government of Kerala accorded sanction to KSCSTE-NATPAC for conducting 'Training Course for Drivers of Vehicles Carrying Dangerous and Hazardous Goods'. A certificate for the same is issued to participants on the completion of training and this certificate is valid for 3 years. The training intends to ensure employee's safety, reduce incidents and crashes, increase employee's skills, ensure environmental protection, preclude penalties and reduce operating costs. Two programmes were completed during this period.



Images of Hazardous Goods Training Programme

c. Road Safety Training for Various Target Groups

Road safety awareness/training programmes are being conducted regularly by NATPAC for user community including school teachers, ambulance drivers, hazardous drivers, driving school instructors, etc. Competitions are also conducted in this area for students and the general public to enhance road safety awareness among different sections of the Society.

d. Exhibitions

- Participated in the KSCSTE Techfest - 2022 at CUSAT from 26th - 28th October 2022.
- Conducted Road Safety exhibition as part of Safe Road to School Inauguration, at Government Central High School, Attakulangara on 3rd November 2022.
- Conducted Road Safety exhibition as part of Sasthrapooram-2022, at LSNGHSS Ottappalam from 26th December 2022 to 1st January 2023.
- Conducted Road Safety exhibition in connection with 61st Kerala School Kalolsavam, Kozhikode from 3rd - 7th January 2023.



STIC

- In connection with NAAC accreditation to CU-SAT, the peer review team visited STIC and were shown the facilities and were quite keen to know the activities.
- KSCSTE conducted the District Level Children's Science Congress at STIC
- Lab visits of Higher Secondary school teachers in connection with refresher course in Biology organized by the Directorate of General Education in association with Collegiate Education, Govt. of Kerala. 35 participants.
- Dr. J. Jagannath Bhat attended the Steering Committee meeting of SAIF Scheme conducted by DST, at IIT Delhi

IRTC

- Title of the Programme/project: "Skill Based Training on Organic Waste Management and its Use in Agriculture" funded by Kerala Biotechnology Commission (KBC), KSCSTE under Biotechnology Innovations for Rural Development (BIRD) for a period of one year. Initial visits to Pullundasseri watershed, Discussions and Awareness Program has been accomplished.



- Evaluation of strategies and action steps of District Panchayats during Covid 19 on secondary education in Kerala.



- Green energy, waste management, global warming mitigation and zero carbon foot print Integrated solution are the need of unceasing development. Bi-ohythane generation using the hybrid system with the combination of microbial electrolytic cell (MEC). Hydrogen enriched biogas can lead to the simple and effective use of technology even at the primary consumption level, which is more convenient and effective for local communities too. The hybrid system is compatible and can be utilized as decentralized unit for energy production even from household waste/wastewater.

■ KfW Soil Project - Climate proofing of completed watershed

This is a climate adaptation project implemented at eight watersheds the coming in the different agro-climatic units of Palakkad district. This project was started in 2020 and founded by NABARD. The different components of the project are: (1) soil and water conservation; (2) Soil Health im-

provement and productivity enhancements measures; (3) Sustainable NRM, CCA farming practices and food security; (4) Measures to mitigate climate change risks; (5) Training and knowledge transfer and (6) Knowledge management implementation of all the components of the projects completed by 31st December 2022.

SIGNIFICANT INNOVATION/INVENTION

KFRI

- Dr. Suma Arun Dev/ Genome-wide SSR database for DNA testing in timber theft cases
- Dr. Suma Arun Dev/DNA barcode database to identify adulteration in raw drugs and traded timbers
- Dr. Suma Arun Dev/Single step PCR assay for the detection of sandal spike phytoplasma
- Dr. Suma Arun Dev/Diagnostic SNP markers for seedling sexing in dioecious *Coscinium fenestratum*



Launching of Samata Bio-composter Coir pith Briquettes

JNTBGRI

- Two orchid hybrids registered with The Royal Horticultural Society.

IRTC

- Launching of Samata Bio-composter Coir pith Briquettes by Shri. M. B. Rajesh, Minister for Local Self-Governments, Rural Development and Excise, Kerala on December 12, 2022.
- Authorities and team members from K-DISC and IRTC briefed the significance and better shelf-

life properties of the coir pith-inoculum briquettes.

- The microbial fertilizer Vesicular Arbuscular Mycorrhiza (VAM) was produced on a large scale by the Self Help Groups of farmers. The technical support and quality control for this endeavor was provided by IRTC environment laboratory.

VAM Unit at Pazhaniyarpalayam Watershed

FACILITIES/INFRASTRUCTURE CREATED

KFRI

- OmicsBox (Blast2Go) Computational System (10th Gen or higher. Intel i7, 32GB RAM, 2TB Storage, Unix OS, (without screen, keyboard, mouse), 1 user, 1 year OmicsBox subscription, 6M CloudBlast units -KFRI Plan Grants
- Gas Chromatograph - Mass spectrometer (GC-MS) with auto sampler and headspace analysis ; - KSCSTE;

Application of the facility/infrastructure : Application of GC-MS include determination of chloro-phenols in water and soil, polycyclic aromatic hydrocarbons (PAH), unleaded gasoline, dioxins, dibenzofurans (Fig.7), organo-chlorine pesticides, herbicides, phenols and halogenated pesticides.

JNTBGRI

- Established a Bamboo Craft Centre, 10×5m Concrete Hall, at the Bambustum of JNTBGRI, for training and preparation of Bamboo Products and Crafts which was funded by the National/ Kerala State Bamboo Mission.
- A Mist House with manual gravitational misting facility and metal benches for hardening saplings has been set with financial support from the National/ Kerala State Bamboo Mission.
- Completed renovation of the poly house near DBT Building with the financial support of MoEFFC.
- HPLC installation in progress, Plan Project, Nat-



Reflexology Pathway in Palmetum



Laid-back in granite for visitors, Main Garden

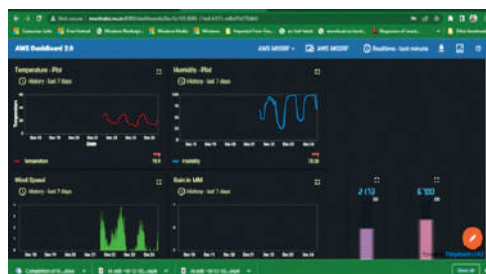
ural product analysis.

- Reflexology pathway with rubble stone and setting up of granite seating for visitors, as part of the landscape beautification in Palmetum and realization of the new stone beds (round) in the Cycad garden has been finalized using Plan fund.

- Establishment of conservatories for Orchids and cacti are nearing completion
- Established a conservatory for balsams
- Street lights fixed at along the walk ways and various locations of the campus
- Public addressing system installed at new Seminar Hall of MBGIPS
- New cushioned chairs with writing pads placed at old seminar hall of MBGIPS

Facilities/Infrastructure Created

- Development of a Smart classroom for the community initiated. Two community groups identified for rainshelter establishment.
- Daily weather data is being collected through the weather stations at 3 Agro Ecological Units in Wayanad and at the centre.
- RET Conservatory



- Purchased ArcGIS Software, Video Display Sign Board and Biometric attendance system.

- Automatic Weather Station (AWS) was installed at various watershed areas for continuous monitoring of Weather parameter. It is also intended to link this facility to the climate insurance company so that the beneficiaries get agriculture insurance in the basis of variances in local climate parameters.

and crop germplasm (cowpea, tubers, wild edibles, etc.) maintained at the centre.

Cowpea germplasm at the Centre



RET Conservation

TECHNOLOGIES ESTABLISHED/DEMONSTRATED:

- Drip and wick irrigation system demonstrated at Olive Public School, Perambra by Dr Surendran U and team, Land and Water Management Research Group.

- Recharging of bore wells with water harvested from rooftop and from overload flow. Different type of filtering units demonstrated for this purpose. The water level improvement through the process will be studied with the support of the Ground Water Department.

- Community Conservation plots at tribal hamlets for conservation of traditional germplasm of various tubers (14 varieties of 5 crops), leafy greens and other vegetables. Conservation plot at farmer's field to conserve and demonstrate 10 traditional rice varieties of Wayanad namely Adukkal, Veliyan, Thondi, Chennelu, Choma-

la, Chenthadi, Jeerakashala, Gandhakashala, Mulkankaima, Kalladiyaran.



RESEARCH/ACADEMIC PROGRAMMES

22 External funded projects are under progress

- Water for Change-Integrative and fit for purpose water sensitive design framework for fast growing livable cities funded by DST
- Geophysical study of Post monsoon Pre-monsoon ERTT freshwater lens dynamics of islands of the Lakshadweep archipelago, Southwest India funded by DST
- Integrated Wetland Inventory, Assessment and Monitoring System (WIAMS) of Three Ramsar Sites of Kerala

- Scoping study to assess the hydrological services provisioned by the forest ecosystems of Kerala funded by Kerala Forest Department.
- Effects of flooding on Social and Psychological Wellbeing of Individuals
- Integrated study on the reclamation of fallow lands in Kozhikode district for paddy cultivation
- Feasibility study for extending conservation activities on micro watershed basis to other constituencies

Academic

- PhD:10 (ongoing) ■ PDF:1 (Ongoing)
- MSc Dissertation: 5

- Participatory NTFP yielding medicinal plants resource enhancement: Capacity building through protocols for propagation, enrichment planting and management practices of ten high demanding medicinal plants of Western Ghats, Kerala/ Dr. PA Jose, Rs. 21.98 lakhs, National Medicinal Plants Board, Govt. of India
- Wildlife-friendly and organic certification for cash crop plantations of KFDC, Dr. P.

- Balakrishnan/Rs.2.820 lakhs/ KFRI Plan Grants
- Scientific support to an interpretation Centre on Shola Grassland ecosystem at KFDC, Munnar/ Dr.K.A.Sreejith/ Rs.2.200 lakhs/ KFRI Plan Grants
- Ongoing Ph.D. programmes: 46 No's (FRIDU, CUSAT & UoC)
- Completed attachments (Masters/Internships): 15/09
- Ongoing attachments (Masters/Internships): 04/14

- Project for the Conservation of Endemic and Critically Endangered *Buchanania barberi* in India funded by The Mohamed Bin Zayed Species Conservation Fund, Abu Dhabi, United Arab Emirates is in progress.
- Species distribution modelling and bioprospecting of wild germplasm of *Salacia* species (high value antidiabetic plants) across the Western Ghats funded by the National Medicinal Plants Board in progress.
- Habitat distribution modelling and reinforcement of two threatened trees in the Kerala region of the Western Ghats for the improvement of their conservation status funded by MoEFCC, Govt. of India is progressing.
- Micropropagation and cultivation of native orchids and hybrids for on-farm conservation and income generation in Kerala through cluster formation, DBT, Govt. India is in progress.
- Identification of lead molecules with multi-target activity against snake venom, tuberculosis, SARS-CoV-2 and dengue virus is progressing.
- Studies of Urdamycins as possible antibiofilm agent against selected human pathogens (*Streptococcus pyogenes* and *Staphylococcus aureus*)

as part of the Inventory and documentation of microbial diversity of Western Ghats of Kerala is progressing.

- Systematic documentation and Bio-prospecting of ethnomedically important medicinal plants on tribal/traditional knowledge through molecular pharmacological approach in progress.
- Systematic Documentation of Traditional Knowledge related to Plants used for Food, AYUSH and Indigenous Medicine funded by the Ministry of AYUSH, Govt. of India is progressing.
- Livelihood Enhancement of Tribal of Njaraneely Ward of Peringammala Grama Panchayat, Thiruvananthapuram, Kerala through plant resource enrichment, buy-back and Herbal products development" funded by DST, Govt. of India is in progress.
- Search for potential biologically active constituents from the Indian pitcher plant, *Nepenthes khasiana*, Science and Engineering Research Board, Government of India.
- Ph.D. Programmes: 50
- Ph.D. awarded: 3
- Academic programmes:**
- a) 17 internships and Graduate and PG projects were undertaken during the period.

Research

Number Theory, Complex analysis, Functional Analysis

- INSPIRE Research grant, Dr. Akhilesh P.
- NBHM SRF, Arun Kumar
- CSIR JRF, Meenu

- Spatio-Temporal variation of Aerosol Optical Depth over South - Indian Peninsula and Surroundings.
- Development of Unit Urban Heat Island Method: A novel technique to extract heat island magnitudes in complex urban agglomerations.

Academic

- Four interns have been trained at the Institute

- In the current financial year (2022-23) the Centre is undertaking 20 Research Projects.
- The plan programs are mostly R&D projects addressing the traffic and transportation issues of the State. The externally funded projects carried out by the Centre are need based studies entrusted to NATPAC by Government agencies like Public Works Department, Transport Department, Tourism, Water Resources, Town Planning Department and other organisations like Kochi Metro Rail Corporation, National Highways Authority of India (NHAI), Roads and Bridges Development Corporation, Kerala (RBDCK), Technopark, Kerala Rapid Transit Corporation Limited (KRTL), Infrastructures Kerala Limited (INKEL), Inland Water Ways Authority of India (IWAI), etc.

- Research Developing Strategies and Action Steps for Improving the Performance of District Panchayats on Secondary Education in Kerala
- A project to analyze the developing strategies and action steps for improving the performance of District Panchayats on secondary education



- Traffic noise level mapping of Kottayam town.
- Development of Isopleth maps for Kerala.
- Development of a rainfall dataset for Kerala with high spatial resolution.



in Kerala funded by UNICEF for a period of 2021-2022.

- Evaluation of the Implementation of MGNREGS in Kalpetta Block of Wayanad District.
- A project for the evaluation of the implementation of MGNREGS in Kalpetta Block of Wayanad District funded by MGNREGS for a period of May 2022 to December 2022.
- Research work on "Faecal Sludge Management using Anaerobic Inoculum - Isolation and Molecular Characterization of Anaerobes" under Plan Grant

MSSRF

- Participatory yield enhancement trial in paddy for the second year continued along with maintenance of traditional rice germplasm conservation plot at farmer's field. Biometric data collection initiated before harvesting the crop.
- One field trial to study the effect of biochar on soil health in coffee plantation and cowpea being continued at the centre. Biometric data including yield, number of berries, canopy, etc. initiated.
- PRA conducted in various Panchayaths of



Wayanad to understand the effects of climate change in agriculture over the years and the adaptation & mitigation practices followed.

- Key informant interviews and discussions continued to study the dynamics of NTFPs utilization and challenges faced by the Kattunaika community of Wayanad. Secondary data collection and interviews also initiated from NTFP collection societies.
- Forest visits were carried out across Wayanad for collection of various wild species including orchids (8), aquatic plants (18), wild pepper (3) and wild edible tubers (6)
- 32 Interns from various disciplines mainly Biotechnology, Agriculture, Social Work, Environment Science, etc. continuing internship at the centre
- 2 SBI fellow continuing their fellowship at the centre in the area of community development



CONFERENCE /SYMPOSIA

23rd Research Council Meeting:

23rd Meeting of the Research Council (RC) of CWRDM held on 14th - 15th October 2022 at CWRDM. Dr. Manoj P Samuel, Executive Director welcomed the RC members and scientist to the RC Meeting. Dr. M S Mohan Kumar, Former Professor, Indian Institute of Science, Bengaluru. RC chairman given the introductory remarks, views of each RC members on scope and challenges in water resources research followed by the evaluation of on-going plan projects as well as the presentation of new



proposal for plan fund. The two day RC meeting was concluded with appreciation to ongoing research and remarks to improve the research activities of CWRDM to fly in an international level.

STOCKHOLM 50+ Conference:

State level Seminar on 'Climate Change and Kerala' was organised on 29-30 October 2022 by Kerala Sas-thra Sahithya Parishath at Kozhikode with the support of CWRDM and Department of Environmental Sciences, Calicut University. Shri Saseendran, Hon'ble Minister for Forest



Shri Saseendran, Hon'ble Minister for Forest and Wildlife addressing the participants during the inaugural session

CWRDM

and Wildlife inaugurated the Seminar, Dr Beena Philip, Mayor, Kozhikode and Shri Thottathil Ravindran MLA attended. Shri C P Narayanan, former MP (Rajyasabha)

and Dr Manoj P Samuel, Executive Director, CWRDM delivered memorial lectures. Technical sessions and discussions followed.

Dr.C.Unnikrishnan Warriar Memorial Annual Lecture series

The fifth Dr.C.Unnikrishnan Warriar Memorial Annual Lecture on "Frontiers of Hydrology Research: National and International Significance" was held on 12th December, 2022 at CWRDM. The lecture is being conducted to commemorate the contributions of Dr. Warriar, Principal Scientist and former Head of Isotope Hydrology Division. Dr. R D Deshpande, Professor and Chairman, Geosciences Division, PRL, Ahmedabad is delivered the lecture on the topic Frontier Research in Hydrology: National and International Significance



Glimpses during Unnikrishna Warriar Memorial Lecture. Dr. R. D. Deshpande delivering the lecture and Dr. Manoj P Samuel, Dr. U Surendran, Dr. Resmi T.R. on the stage

TRAINING PROGRAMMES/WORKSHOPS/INTERNSHIPS

KSCSTE HQ

- An online interactive meeting with Centre for Cellular and Molecular Platforms (C-CAMP), Bangalore, BIIC M G University, was held on December 05, 2022 to discuss about the possible collaborations with Kerala Biotechnology Commission for industry linked programmes.

Workshop on Research Proposal Writing

- KSCSTE organized Workshop on Research Proposal Writing on 22nd and 23rd December 2022 at Kerala Forest Research Institute (KSCSTE-KFRI), Thrissur. The one day stand-alone workshops were aimed to hone the research proposal writing skills of aspiring faculty from University departments and scientists from R& D centers in Kerala. The workshop comprised of technical sessions on funding of research, evaluation of research grants, writing, defending and implementation of a research grant. The sessions were led by Dr. Rajiv K Tayal, Former Scientist-G/ Advisor, DST, Govt. of India and Prof. D.R. Prasada Raju, Former Scientist-G, DST, Govt. of India. The group activities led by the resource persons refined the thought process of the participants towards the preparation of a competitive re-

search proposal keeping in mind the sponsor priorities and the review process.

KSCSTE -IPRICK has provided internship to 3 Women Scientists under the KIRAN IPR Scheme of DST, Govt. of India, in the field of IPR, for a period of 11 months, since February, 2022. The candidates have successfully completed their internship on 19th December, 2022



CWRDM

High-End Workshop (KARYASHALA)

- KSCSTE-Centre for Water Resources Development and Management (CWRDM) with the support of Science and Engineering Board (SERB) under the ABHYAAS scheme of Accelerate Vigyan, Department of Science and Technology (DST), Govt. of India has conducted two High-End Workshop (KARYASHALA) 2 at KSCSTE-CWRDM Headquarters, Kozhikode, Kerala.
- a) "Space-based solution for Disaster Risk Reduction" during November 14-26, 2022 To disseminate the scientific knowledge of 'Geospatial technologies' towards understanding the risk associated with various 'Disasters' like Floods, Landslides, Drought, Earthquake, Tsunami, sea-level rise and coastal erosion and also in effective planning for



Group photo showing the participants of the High-End Workshop entitled "Space-based solution for Disaster Risk reduction" held during November 14-26, 2022 at KSCSTE-CWRDM.

Disaster Risk Reduction.



Dr. N. Tej Lohit Reddy addressing the Karyashala participants in the valedictory session

- b) "Integrated Watershed Management: Development and Emerging Trends" during 10 to 22 October, 2022. The twelve days Workshop on "Integrated Watershed Management: Development and Emerging Trends" was organized by the Training and Outreach Research Group (TORG) of CWRDM. Dr. V. Geethalakshmi, Honorable Vice-Chancellor of TNAU inaugurated the function and Guest of Honor by Dr. Sathian KK, Former Dean of KCAET. The valedictory session was concluded by the talk of Chief Guest, Dr. N. Tej Lohit Reddy, Hon'ble District Collector, Kozhikode.). Er Ambili GK, Head, Training and Outreach Research Group, CWRDM welcomed the gathering Dr. Manoj P Samuel, Executive Director, CWRDM gave the presidential address and emphasized the significance of the program. The vote of thanks was delivered by Dr. M Thenmozhi, Scientist-B, TORG.



Observance of World Soil Day -2022

- Land and Water Management Research Group Organized World Soil Day celebration on theme Soils: Where Food Begins, Speaker: Dr. P. Raja, ICAR-Indian Institute of Soil and Water Conservation, Ooty, Topic Natural Resource Management for Healthy Environment under Climate Change on 5th December 2022.
- Orientation Program of the newly recruited Junior Scientists of KSCSTE
- Orientation Program and visit of the newly recruited Junior Scientists of KSCSTE held at CWRDM headquarters, Kozhikode on 19th November 2022. The valedictory function was held at CWRDM where the Prof Sabu Thomas, Vice Chancellor of MG University Kottayam was chief guest of the program, Dr. K.P Sudheer presided the function, Dr. S. Pradeep Kumar, Member Secretary, KSCSTE and Dr. Manoj. P. Samuel were present during the valedictory session.

KFRI

- Centre for Analytical Instrumentation - Kerala (CAIK) organised Internship Training Programme in Analytical Instrumentation, dated Oct - Dec 2022,
- Imparted hands-on training on plant propagation methods to the Lower and Upper

Primary school students under the Mazhavillu - K-DISC programme of KFRI (Fig.10)

- BTSG KFRI along with the College of Agriculture, Padannakkad organized a one-day workshop for the farmers of Kasaragod on Bamboo Cultivation on 11/11/2022.

JNTBGRI

- Participated in the 19th edition of Kerala Bamboo Fest from 27th November to 4th December, 2022 at Kaloor Jawaharlal Nehru International Stadium, Kochi.
- A four-day National Workshop on Taxonomy, Identification and Conservation of Mushrooms was organized at KSCSTE - Jawaharlal Nehru Tropical Botanic Garden & Research Institute from 18-21 October, 2022 in association with Kerala State Biodiversity Board.
- Eight UG students from National College; Thiruvananthapuram completed their one month internship programme.
- In connection with the 'Open House and Science Orientation Programme for School students' from 23.05.2022 to 26.05.2022, a total number of 207 students visited and attended the awareness classes regarding the seed bank activities conducted in the Seed Bank.
- Completed one month dissertation work of MSc. Plant Biology and Plant Biotechnology student from Presidency College, Chennai on 'Systematic validation of Meiogyne species through fruit and seed studies'.
- Provided one week training on "In silico drug discovery" to Reshmi R.P., Ph.D. Scholar, Malankara Catholic college, Mariagiri, Tamil Nadu.
- Provided two weeks internship training to 13



Field study as part of the training on Mushroom Taxonomy

B.Sc. Botany students from A.J. College, Thonnakkal, Thiruvananthapuram.

NATPAC

- 23 M.Tech and 10 B.Tech students from various institutes such as NITs, Govt. Colleges, and other institutions have been carrying out their final year projects at NATPAC. 62 postgraduate and undergraduate students are carrying out their internships during this period.
- NATPAC has been partnering with Kerala Technological University (KTU) on the Industry Projects Single Window Facilitation scheme of APJAKTU

STIC

- Three internship Programmes conducted for analytical instruments.

- One day programme on Solid Waste Management was conducted on 17.12.2022 for Victoria College, Palakkad under graduation students.
- Training on application of geo spatial tool in local level planning 7 batches conducted during the period. Selected officials and peoples representatives from various LSGDs are the participants.
- 4 days residential educational training for Chola Naika Tribal Community organized.
- 3 days rural awareness work experience training for final year BSc. Hons (Ag) students of Kerala Agriculture University, College of Padannakkad, Kasargod.
- One day awareness training organized for agriculture farmers of Vandur Block Malappuram on livelihood activities.
- 2 days Childrens Science Activity Camp (3 batches consist of 150 students) organized during the period.
- One day training programme on Waste Management was conducted on 15.12.2022 for Village Extension Officers (40 No's).

- Conducted two-day Umbrella making training at Panamaram and Meenangadi Chandhanchira colony wherein 37 women participated for their skill development.
- A seminar was conducted to celebrate World Food Day 2022 (October 16) and more than one hundred participants across the district attended the function. The programme also felicitated two ancestral farm families in the district- the Paramoola Kurichya Tharavadu and Madamkunnu Paniya hamlet for their efforts in conserving native crop diversity and traditional foods.



Waste management Training for VEOs

GIS Training for LSGD officials

- One-day Training Programme conducted on Mushroom Production on 28th October wherein 12 women from Puzhuthana Panchayat participated the basics of mushroom cultivation practice.

CWRDM Bagged Best Stall Award in Matsyotsavam-2022

CWRDM bagged the Best Stall Award in the Fish Fest - Matsyotsavam s State level Exhibition organised by the Department of Fisheries, GoK at Putharikandam grounds, Thiruvananthapuram from 18th November - 21st November 2022.



Shri.P. Sasidharan, Technical Officer receiving the Best stall award for CWRDM from Shri. K.N. Balagopal, Hon'ble Finance Minister of Kerala on 21 November 2022.

AWARD

Congratulations to the achievers!

ISO Certification to CWRDM

KSCSTE-Centre for Water Resources Development and Management (CWRDM) and its three subcentre's (i.e., Neyyattinkara, Kottayam and Manimalakunnu) are awarded with ISO 9001:2015 Certification.



ISO 9001:2015 is a globally recognized quality management standard developed and published by the International Organization for Standardization (ISO). The certification provides a model for organi-

Glimpses of ISO certification for Management System as per ISO 9001:2015 for CWRDM - HQ and subcentres at Neyyattinkara, Manimalakunnu and Kottayam.



Shri. Thottathil Raveendran, MLA, Kozhikode North had unraveled the CWRDM, Institutional name board with ISO certification on 20th December 2022 at CWRDM, Kozhikode.

zations of all types and sizes to use in building an effective quality management system. The standard is based on several quality management principles, including having a strong customer focus, involvement of high-level company management, an outlined process-based approach, and ongoing improvement of the aforementioned approach.



Prof. (Dr.) K.P.Sudheer



Dr. Magesh N S

Prof. (Dr.) K.P.Sudheer, Executive Vice President KSCSTE & Dr. Magesh N S, Scientist, CWRDM has been listed among the World's top 2% scientists ranking by Stanford University.

APPOINTMENTS *Welcome to the KSCSTE family!*



Dr. Manjula P.
Junior Scientist, CWRDM



Dr. Jaya Mary Jacob
Junior Scientist, HQ



Dr. Siju C. R.
Junior Scientist, HQ



Dr. Neethu
Junior Scientist, HQ

ADIEU *Wish you a happy and healthy retired life*



Dr. R. Prakashkumar,
Director, JNTBGRI



Dr. Dhruvan Tandyekkal,
Scientist, JNTBGRI



Mr. Sudheesh kumar V.,
Driver, JNTBGRI



Smt. Savithry
Office Attendant

സംസ്ഥാനം: കേരളം

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പി. നാഥൻ പിള്ളാപ്പിള്ളി •

ഒരു ജനസമൂഹം

ആവിഷ്കാരം

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அந்த வகையில்

നക്ഷത്രങ്ങൾ

മാനവ്

အသံကဲ့သို့ အသံ
လေး ဖြစ်သွား

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1. **செலாவகை** - கருவியைப் பயன்படுத்தி
 உருவாக்கப்பட்ட பொருள்.
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സ്വന്തം ലേഖകൻ

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Your valuable impressions and comments may be forwarded to :
sasthranews2022@gmail.com

