

विद्ययां तन्त्राद्ययां अनुवादान

DEPARTMENT OF SCIENCE AND TECHNOLOGY
NITTE UNIVERSITY TECHNOLOGY ENABLING CENTRE



DST NU-TEC Chronicle | October 2022 to January 2023

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Interactive session with food Industries-World food Day

World Food Day 2022 was organized by the Nitte University Technology Enabling Center (NUTEC) at Paneer campus with an interactive discussion session with food industry representatives and other stakeholders on 18 October, 2022. World Food Day marks the foundation of Food and Agriculture Organisation of United nations and the theme of 2022 World Food Day was “Leave no one behind” in the march towards better food production, better nutrition, better environment and better life. The event was organized in partnership with Kanara Chamber of Commerce and Industry (KCCI), Confederation of Indian Industry (CII), FSSAI, MSME Development and Facilitation Office (DFO), South Regional Office of International Federation of Inventor’s Association (IFIA) and partner institutions. The discussion was around four major themes (a) Technological needs of food industries (b) Food processing machineries (c) food safety and quality (d) regulation and compliance.

18 Oct 2022



Prof Dr Iddya Karunasagar, Advisor (Research & Patents) gave a brief overview of the objectives and activities of the TEC. He gave a gist of analytical services that centre offers and the industry-academia collaborations of TEC. He also presented various technology developed as well as technology in pipeline at the centre to the industrialists present at the meeting. He shared details of various schemes that can help in funding entrepreneurs and start-ups like BIRAC, BIG, SIBRI and other hackathons that are frequently conducted and how TEC can contribute to support individuals from ideation to proposal development & patents.



C A Ananthesh Prabhu, Vice President, KCCI appreciated the efforts of TEC and was amazed that the technologies they try and buy from different industries are available next door. During the discussion he highlighted certain points that both TEC and other industrialist from food sector present can focus on which included: Requirement of food testing labs, developing eco-friendly options as an alternate to plastics wherein he also appreciated the technology developed at TEC in the form of edible cups, disposal of plastic waste and promotion of organic food.



Dr Devaraj, Deputy Director at Ministry of MSME, Govt of India explained that MSME has emerged as a dynamic and vibrant sector which is contributing highly to industrial production, export and employment generation. He also spoke on patent facilitation centers, patent cost & bar coding reimbursement schemes, & various other schemes for the benefit of micro, small & medium enterprises. He stressed the industry representation/participation is mandatory to evaluate the success of any schemes set up by the government.



Mr Jeevan Saldanha, Chairman, Confederation of Indian Industry (CII), Mangaluru, gave a reality check on the indigenization of the products in India. He pointed out that midsize industries suffer as they are unable to compete and sustain long enough in the marketplace. He explained the need in the amendment of government schemes to avail the maximum benefit, requirement of food testing lab and promotion of Repurpose Used Cooking Oil initiative (RUCO) by FSSAI.



Mr Ahmed Mudassar, Director, KCCI discussed on challenges associated with commercialization. He stressed that we should closely observe technology that is available and has an established market and make them indigenously to support local products and business. He also highlighted that it's important for technologies to be patented and having centers like TEC, the process of filing patents can become easier.



Dr Venkatesh, faculty, Canara Engineering College, shared the issues the academic people face during the development of technology. Though they have ideas, procurement of raw materials and manpower is a major challenge. Even after the development of proof of concept, the major challenges the academia face are the mass production of products and getting them to market.



Dr Divya Suresh, representing FSSAI expressed that developing technology that focuses on producing healthy food or food practices is the need of the hour. She said that FSSAI is easily approachable and any young entrepreneurs or industrialist requiring any help or clarification with respect to central licensing of propriety foods can seek help from FSSAI. She also congratulated Nitte for opting into 'eat right' which is an FSSAI initiative to ensure safe, healthy and sustainable food for all Indians and also said that other institutes can also apply for the same.



Mr Vishwas Uchila Shishir Rao, Section Infin-8, gave an overview of smart strategy involving a set of different players like industries, academic institutes, startups, and MSMES to grow to the level of metropolitan cities like Bangalore. He stressed strategic planning and teamwork is required for the technological advancement of Mangalore city.



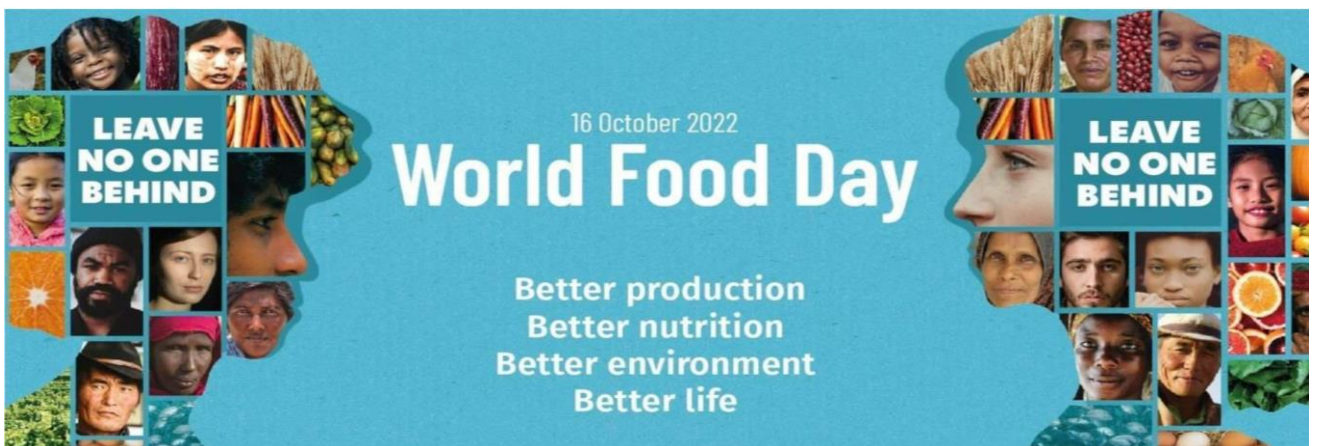
Ms Preethi Nayak, entrepreneur Joos Botal' (manufacturer of cold pressed fresh fruit juice), explained her journey becoming a startup. She briefed on challenges faced during the development of the product, and pilot scale processing to make it market ready.



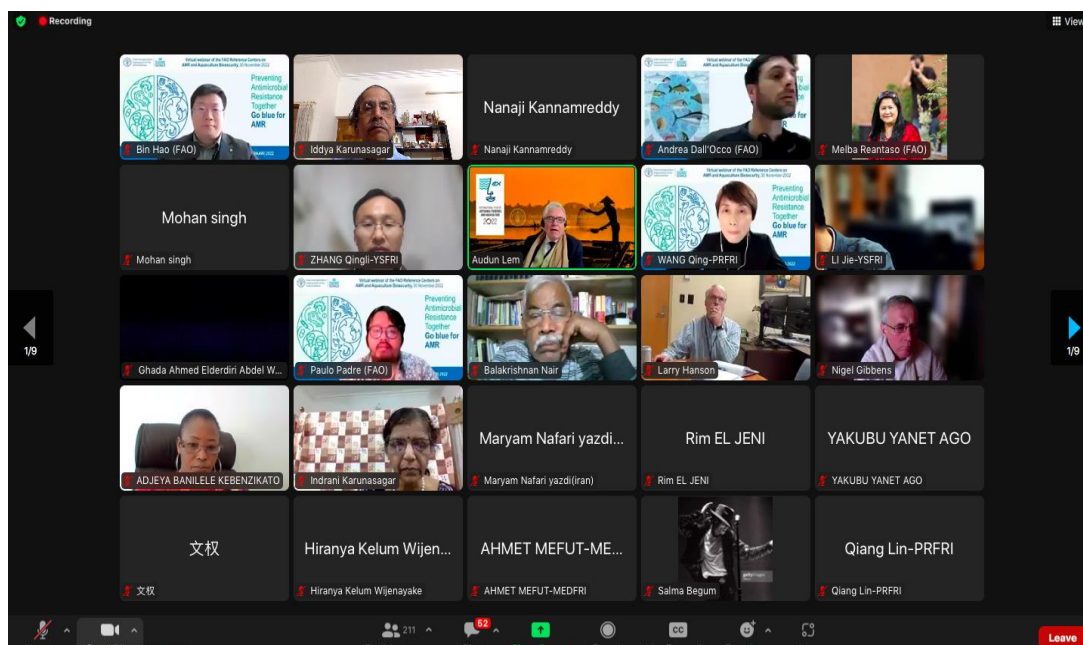
Dr Sudhir faculty, St Joseph Engineering College gave an overview of various projects addressing the food safety issues in their college. He also mentioned that moving up the ladder to update the TRL is a major challenge for academia, and hence falling short of reaching the industrial requirement.



Ms Shifani Uchil, representative of Blueline foods (manufacturer, & exporter of seafood products), spoke on trade issues and the need for implementing traceability of fish waste.



NITTE UNIVERSITY DESIGNATED AS FAO REFERENCE CENTER ON ANTIMICROBIAL RESISTANCE



Virtual launch of FAO Reference Centers for antimicrobial resistance and aquaculture biosecurity

The Food and Agriculture Organization (FAO) of United Nations has designated Nitte University as “FAO Reference Center for antimicrobial resistance and aquaculture biosecurity”. This was conveyed to the Vice Chancellor, Dr. Satheesh Kumar Bhandary by the Deputy Director General of FAO, Ms Maria Helena Semedo by a letter dated 25 Oct, 2022. Nitte is one of the four such centers recognized globally, the other three being Mississippi State University, USA, Yellow Sea Fisheries Institute of the Chinese Academy of Sciences, Qingdao, Pearl River Fisheries Research Institute, Guangzhou, China. As FAO Reference Center, Nitte University will collaborate with FAO in four core areas (a) support awareness raising about antimicrobial resistance among the stakeholders in ‘ONE HEALTH’ context involving human, animal, plant health and environment (b) support developing capacity for surveillance of antimicrobial resistance, antimicrobial use and residues of antimicrobial agents (c) strengthening governance related to antimicrobial use and antimicrobial resistance by providing scientific advice to Regional Associations of Southeast Asian Nations (ASEAN), South Asian Association for Regional Cooperation (SAARC) and Secretariat of the Pacific Community (SPC) (d) promote prudent and responsible use of antimicrobials.

A virtual launch of these Reference Centers took place on zoom platform on November 30, 2022. Dr. Audun Lem, Deputy Director, Aquaculture and Fisheries Division declared the launch open. Dr. Melba Reantaso, Team Leader, Food Safety, Nutrition and Health outlined the main objectives and mandates of the FAO Reference Centers. The meeting was attended by over 200 fisheries and aquaculture professionals all over the globe. Dr. Indrani Karunasagar explained the workplan of Nitte FAO Reference Center and Dr. Iddya Karunasagar introduced the newly adopted Codex Guidelines for risk analysis of antimicrobial resistance

The designation of Nitte as FAO Reference Center comes as a recognition of the expertise in Nitte University and past collaboration with FAO. Previously Nitte had hosted FAO International Workshop on Understanding antimicrobial resistance in aquaculture and Dr. Iddya Karunasagar, Advisor, Nitte University and former FAO Senior Officer has been participating in capacity building activities related to antimicrobial use, antimicrobial resistance, surveillance and guidelines from Codex Alimentarius Commission on risk analysis related to antimicrobial resistance in food in several countries including Bangladesh, Cambodia, Indonesia, Malaysia and Vietnam. With the formal designation of Nitte University as a FAO Reference Center, more international activities in the area in collaboration with FAO towards reducing antimicrobial use, minimizing antimicrobial resistance and achieving One Health goals are being planned.

Nitte (DU) signs MoU with Sri Devaraj URS Academy of Higher Education & Research (DU) as academic partner of DST TEC

10 Oct 2022

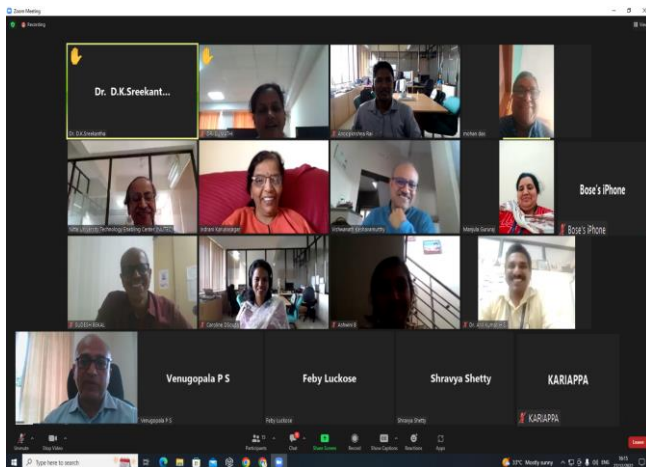


An MoU was signed on 10 Oct 2022 between Sri Devaraj URS Academy of Higher Education & Research (DU) & Technology Enabling Centre, Nitte (DU). The purpose of MoU is to foster translational research in multidisciplinary areas and provide a conducive environment for researchers, practitioners, industrialists to develop network and seek solution on real time basis. The collaboration is also expected to assess and evaluate maturity of the identified technology along with their market potential and focus on technology transfer to meet societal need. The areas of cooperation include manpower training, support and advise to developing projects for funding, conducting collaborative research, organising webinars, exchanging technical information and knowledge development.



Dr Pradeep Kumar Gouda, Vice chancellor SDUAHER and Dr Raghuveer, Pro Chancellor SDUAHER took part in the TEC EAG meeting

Academia –Industry collaborative discussions



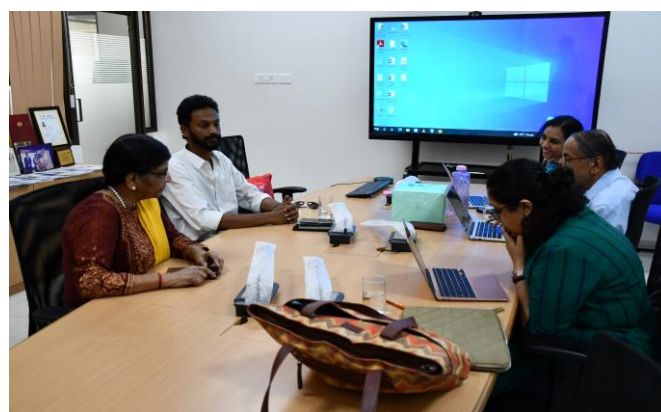
A collaborative virtual meeting was held on 27 Dec 2022 with Kodagu Coffee Planters Association members and faculty working on Artificial Intelligence at NMAMIT to develop a project in response to DBT call on 'Artificial intelligence (AI) applications in agriculture & plant science'. Faculty from NMAMIT (Eng) included Dr Sudesh Bekal, Dr D.K. Sreekantha Dr Sumathi Dr Anli Kumar, Dr Ashwini B, Dr Venugopala P S Dr Manjula Gururaj. Coffee producers association was represented by, Mr Mohan Das, Rtd Joint Director, Coffee Board, Mr Roshan Somayyya, TATA Coffee Pvt Ltd Vishwanath Keshavamurthy, Mr Bose Mandanna, Ex Vice Chairman, Coffee Board Members of Kodagu Coffee Planters Association explained the various problems associated with the coffee plantation. Most important problems seem to be impact of climate change, white stem borer pest menace, human animal conflict, long draught. Kodagu Planters Association members also gave inputs of the areas where Engineers could work to solve the problems. The possible areas with AI application to address the issues were summarised which included predicting movement of animals around plantations to avoid conflict, pest identification, coffee bean sorting based on physical and sensory attributes, biological control of pests, climate prediction and use of nano fertilizers.



Discussion held on 11 Jan 2023 with Dr Nikhil Shetty, Plastic Surgeon, KSHEMA and Mr Saiprasad, Pacify Medical Technologies Pvt Ltd regarding the clinical validation of skin spray gun device for skin graft.



Ms Nadia Singh Bahl and Ms Carol Singh, founders of Antidote industry Delhi visited TEC on 30 Nov 2022 to finalize the almond milk product technology carried out by NUCSER faculty, Dr Mamatha & Dr Feby.



Discussion with Dr Anusha, Dr Rajeevalochana, Madras Medical Mission & Mr Vikram Director, Biokart India Pvt Ltd on 25 Jan 2023 regarding whole genome sequencing services for clinical applications.



Discussion on 28 Oct 2022 for developing an Industry-Academia project with Dr Avadhesh Jha, University of Plymouth and Dr Kumarvel, GLR Industry.



Discussion on 08 Oct 2022 with Mr Vishwas Rao, Section Infin-8 regarding various grants to enable startup.



Online meeting with Tezpur University, Amrita University and Panjab University on 02 Nov 2022 to discuss on Industry-Academia collaboration



Meeting on 04 Jan 2023 with developers of Migraelief. Dr Lekha Pandit & Dr Lobo, Dept Neurology, KSHEMA provided inputs for improving the study protocol as per Ethical Committee norms.



Dixith V Director, edible cup startup Interacted with TEC on improvisation and R & D assistance for their product. This ecofriendly startup is launched under the brand name *Enchi Crunchi*. The cups are made of rice flour, corn flour, maida, ragi flour and vegetable oil with added flavors. The product is aimed at replacing plastic containers and has received a favourable response. The team is planning to collaborate with food technology faculty on similar product developed at NUCSER.

Enabling Translational Research Projects through collaborations with academia



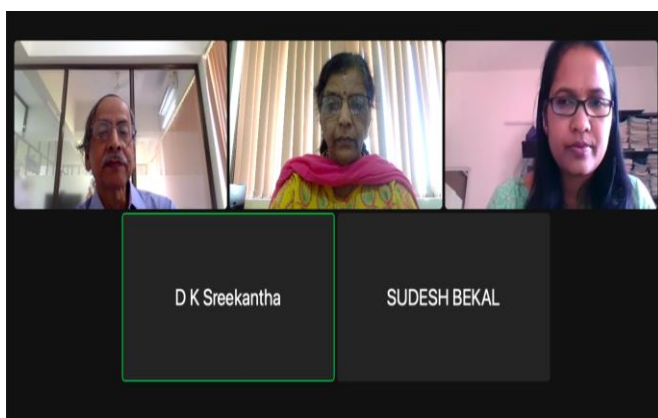
Meeting held on 08 Oct 2022 with faculty of Canara Engineering College to discuss setting up of an incubator, drafting the innovation and startup policy.



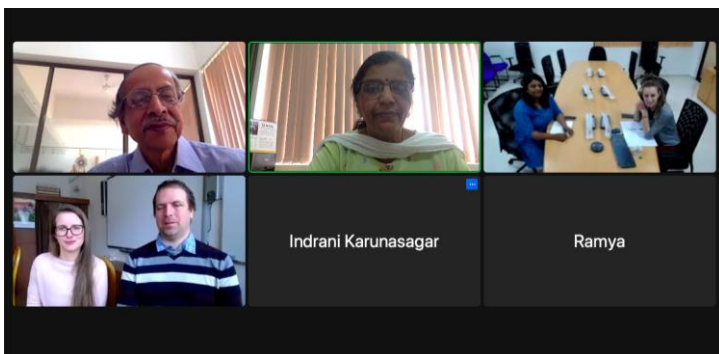
Dr Zahiruddin Quazi Syed, Research Director, Datta Meghe Institute of Higher Education and Research (Deemed to be University) visited TEC on 4 Nov 2022 to discuss possible research collaborations.



Dr Raju George, CEO, Madras Medical Mission, Dr Anil Purty, Dean, Pondicherry Institute of Medical Sciences, Dr Anusha Head of Microbiology & Infection control, MMM, visited TEC on 29 Nov 2022



Project enabling meeting was held on 28 Jan 2023 between Prof S Desai & faculty NMAMIT with Dr Bhagyavathi, Mandya Institute of Medical Sciences for 'Smart health care' e-project development.



Indo Czech collaborative meeting on 23 Jan 2022 with Dr Vladimir Scholtz and Dr Eva Vankova, University of Chemistry & Technology, Prague to discuss the ongoing project work being carried out by the visiting researcher, Ms Anna Machkova at NUCSER.

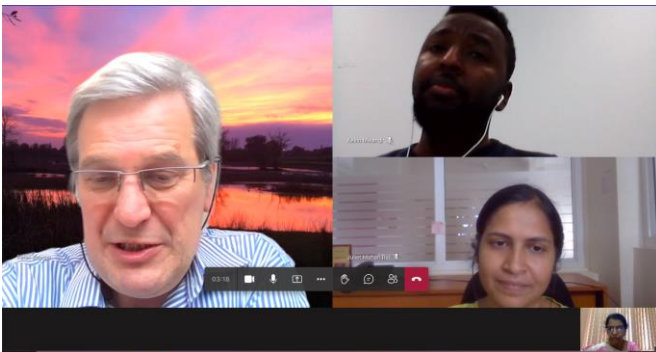
Facilitation of research collaboration between Sahlgrenska Medical Academy, University of Gothenburg, Sweden and Nitte University, in public health



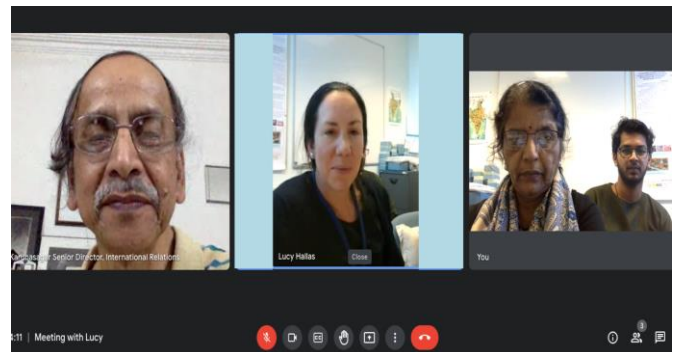
Exchange of MoU



DST TEC facilitated the research collaboration and student exchange programme in public health domain between Nitte University and Sahlgrenska Medical Academy, University of Gothenburg, Sweden. Ms Evelina Nystrom, International Coordinator, Sahlgrenska Academy International Office, Dr Monica Hunsberger & Dr Lovestag Solveig, Faculty, Public Health visited Nitte University in this regard. Prof Dr Audrey, Public Health Dentistry, ABSMIDS and Mr Mackwin D'mello, Public Health Department, KSHEMA coordinated their visit to rural health centres at Nitte and Sasihithlu. An official exchange of MoU took place on 11 Nov 2022 between the VC, Nitte DU & Ms Evelina Nystrom, International Coordinator, Sahlgrenska Academy.



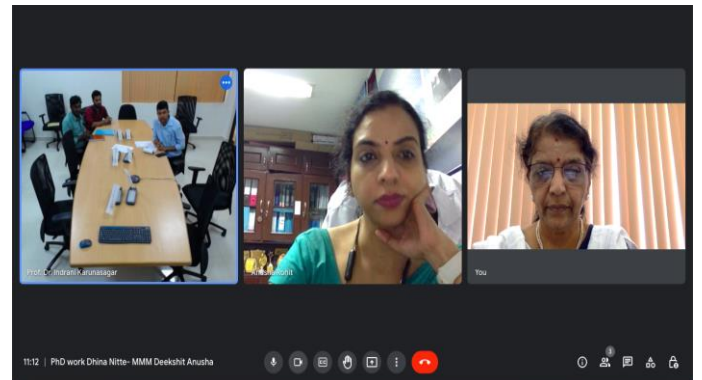
Discussion with Dr Peter Bossier, University of Ghent and Dr Juliet, NUCSER on student exchange programme.



Discussion on 20 Oct 2022 on developing a project on marine resources with Dr Lucy, University of Plymouth.



DST NUTEC facilitated project of Dr Arvind Singh, Physical laboratory, Ahmedabad, recipient of DST Swarna Jayanthi Fellowship. The project focuses on improving the ocean alkalinity. In this regard four research scholars from the National Physical laboratory, Ahmedabad carried out a part of the project in NUCSER during the period 14 to 29 November 2022 . Dr Singh visited TEC on 21 Nov 2022 to discuss experiments related to climate change on mesocosm.



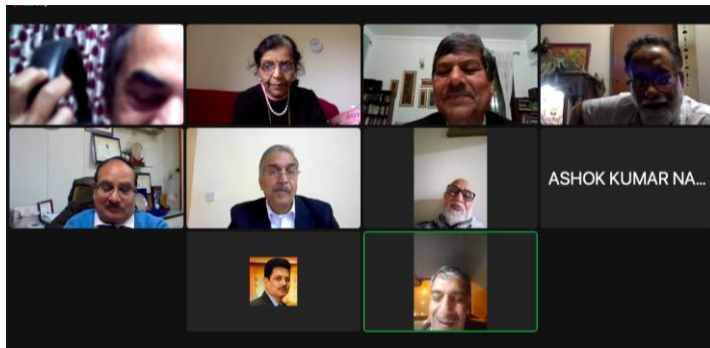
Discussion of a project on mechanism & prevalence of colistin and carbapenem resistance in Gram negative clinical isolates from tertiary care hospitals with Dr Anusha, Madras Medical Mission Chennai on 09 November 2022



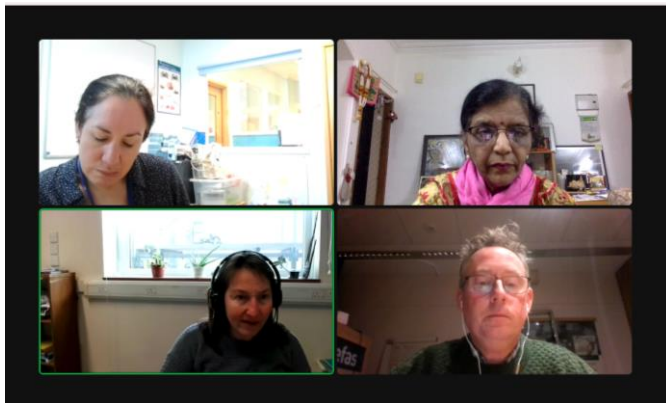
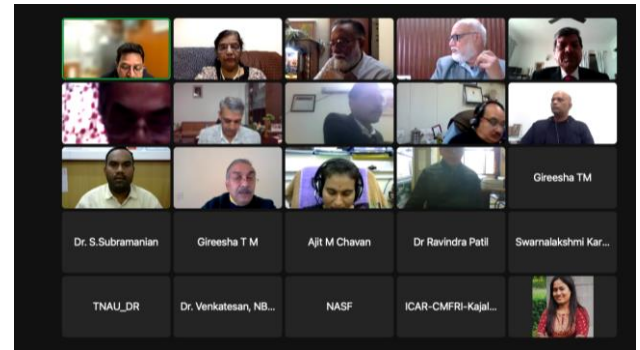
Executive meeting on 28 Jan 2023 to select Indian Virological Society (IVS) awardees.



Seminar on 15 Dec 2022 on presentation of activities by FAO reference centres.



Expert committee meeting held during 3-4 Jan 2023 of the strategic area “ Biotechnology genomics and allele mining in plants animals and fisheries” to monitor ongoing projects and award new projects.



Selection Committee meeting on 31 Jan 2023 of the research scholar for ARIES PhD project ‘Food safety for all developing invertebrate models for phytoplankton toxicity in shellfish’ by the PI Dr Lucy Turner coinvestigators Dr Indrani Karunasagar, Dr Andrew Turner, Dr Rowina Stern & Dr John Spicer.



Initiation meeting on 31 Jan 2023 with the Director of PG Studies KSHEMA Dr V K Shashindran to coordinate clinical research with basic sciences.



Symposium on finding a Solution to the yellow leaf disease affecting the arecanut plantations and remedial measures for leaf spot disease was held on 04 Nov 2022 which involved renowned scientists and stakeholders in the field. The event was organised by the Central Arecanut and Cocoa Marketing and Processing Co-operative Limited (CAMPCO) to tackle the rampant spread of yellow leaf disease across the farms of Sullia, Kodagu, Shivamogga, Chikamagalur, parts of Kerala, Puttur and Belthangady regions of Dakshina Kannada District. In this regard Dr Indrani karunasagar was invited to provide scientific advice on management of these diseases in areca plantation.



Dr Iddya Karunasagar was invited as International expert for a validation workshop on official control protocol & strategic framework for the development of fisheries & aquaculture value chain development in Cambodia, organized by the United Nations Industrial Development Organization on 21 Nov 2022 in Phnom Penh, Cambodia. Dr. Iddya Karunasagar also provided training on Hazard Analysis Critical Control Point (HACCP) for Cambodian Government officials and industry representatives on Nov 23-25, 2022 at Siem Reap, Cambodia.

Preventing Antimicrobial Resistance Together Go blue for AMR

Virtual webinar of the FAO Reference Centers on AMR and Aquaculture Biosecurity
30 November 2022 | 13.00pm-15.30pm CET

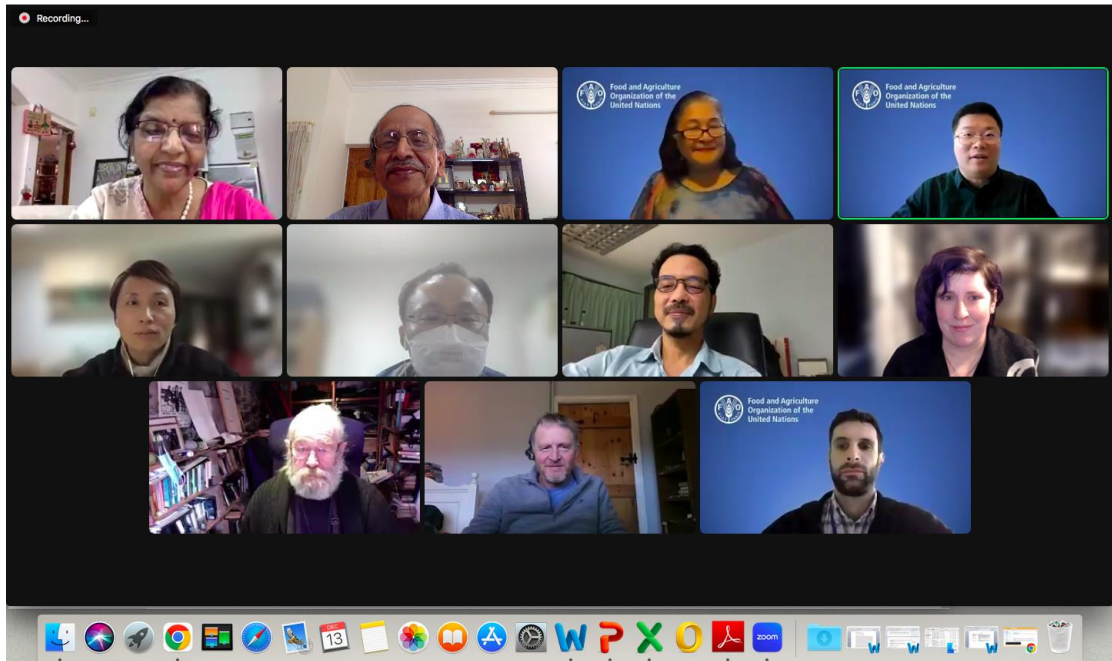
13:00-13:15	Opening Virtual launch of the FAO Reference Centers on AMR and Aquaculture Biosecurity
13:15-13:30	Structure and Capacity at the Mississippi State University Global Center for Aquatic Health and Food Security
13:30-13:45	Yellow Sea Fisheries Research Institute of the Chinese Academy of Fishery Sciences and its related work as Reference Center
13:45-14:00	AMR-related activities at the Nitte University
14:00-14:15	Pearl River Fisheries Research Institute of the Chinese Academy of Fishery Science and its work on AMR and aquaculture biosecurity
14:25-14:40	Examples of global, national, and regional AMR and biosecurity activities at Mississippi State University
14:40-14:55	AMR surveillance and alternative strategies of antibiotic use in freshwater fish
14:55-15:10	Developing risk profile of antimicrobial resistance in zoonotic pathogens in aquaculture
15:10-15:25	Vaccine vs Antibiotics, from a fish disease epidemiology perspective

In support of the celebration of the World Antibiotic Awareness Week (WAAW) 2022

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Dr Indrani Karunasagar delivered a expert lecture on Antimicrobial resistance related activities in Nitte University on 30 Nov 2022 in a virtual webinar on preventing Antimicrobial resistance together in support of the celebration of the World Antibiotic Awareness week (WAAW) 2022.

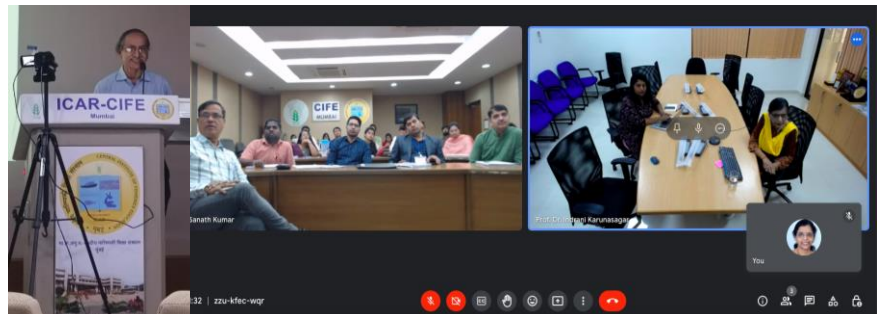
HOSTING FAO EXPERT MEETING ON ANTIMICROBIAL USE SURVEILLANCE



Nitte DST TEC hosted the FAO Expert meeting on the application of 12 point checklist developed for aquatic animal disease surveillance for antimicrobial use (AMU) surveillance in aquaculture. The meeting held on Zoom platform on Dec 13 2023 was attended by experts from Brazil, United States, Germany, Ireland, United Kingdom, Network of Aquaculture Centers in Asia Pacific (NACA), China and from FAO Headquarters, Rome. Dr. Iddya Karunasagar coordinated the meeting. The meeting outlined the modifications needed in this 12 point checklist to adapt it for AMU surveillance. During the meeting, each point in the checklist was discussed. Members highlighted complexities involved in AMR surveillance and the consensus was it would be good to develop checklist first for AMU surveillance.



Dr Iddya Karunasagar was the guest of honor at the 6th annual meet organized by Centre for Research on Infectious Diseases, Sastra (Deemed to be University) on 4-5 Nov 2022. He delivered a talk on antimicrobial resistance & aquaculture & had discussions with faculty on collaborations.



Dr Sanath Kumar & Dr BB Nayak, Central Institute of Fisheries Education, ICAR. Mumbai conducted a training program during 9 – 29 Jan 2023 on “Antimicrobial resistance in food fish: challenges & mitigation. Dr Iddya Karunasagar & Dr Indrani Karunasagar were resource persons. Dr Iddya delivered talk on 20 Jan on Antimicrobial resistance and Food safety. Dr Indrani spoke on Zoonoses & public health on 25 Jan.



Release of Calendar 2023

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