AMBASSADE DE FRANCE EN INDE
Liberté Égalité Fraternité

विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF SCIENCE & TECHNOLOGY
सत्यमेव जयते

AMRITA VISHWA VIDYAPEETHAM
श्रद्धावान् लभते ज्ञानम्

CEFIPRA-FUNDED JOINT INDO-FRENCH WORKSHOP

Making Smart Irrigation Affordable for Small Farmers via Machine Learning

1. **Workshop Date:** March 15-17 (Fri-Sun), 2024
2. **Workshop Venue:** Amrita sak Vidyapeetham, Coimbatore, Tamil Nadu, Bharata
3. **Workshop Background:** Irrigation and nutrient management are key components of agricultural production that have a strong impact on organoleptic properties of the plants' commercially useful yields and resistance to herbivorous insects. It also impacts agroecological food webs that determine the quality of natural pest control ecosystem services. The adoption of high-density breeds has raised earnings of small farmers. It has however also lowered the water table and thereby raised irrigation costs for non-rainfed farms and rendered crops more vulnerable to water stress. The links between water, nutrient and ecology nexus, at the field level are not well understood in many agricultural systems.
4. **Workshop Goal:** The aim of this workshop is to bring together researchers from the academia and the industry, extension agents, and farmers in the fields of irrigation, ecology, sensors, IoT, and artificial intelligence in order to exchange ideas and develop concrete proposals for academia-industry-farmer partnerships in research projects that will lead to technologies relevant to real-world smallholder farms.
5. **Planned Outcomes:** The presentations and discussions will be distilled into
   a. Proposal sketches for joint scientific work between participants from our two countries
   b. A policy white paper on 'Making Advanced Computational Tools useful towards Addressing Water-related Challenges for Smallholder Farmers without Sustained Subsidies'

Mar 15, 2024 (Fri)

0830-0930 Registration & High Tea

0955-1000 Lamp Lighting

1000-1130 Inaugural Addresses

Director, *IFCPAR/CEFIPRA*

Attaché, *Scientific & Academic Cooperation, Embassy of France, New Delhi*

Head & Scientist, *International Cooperation* (*Bilateral*), *DST*

Head, *CropLife India*

Head, TN Consortium of Farmer Producer Company Ltd

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1	*Food Web Modelling and Water Management for Organic Agriculture* **Dr. Julien, Jean, Patrick, MALARD,** Chargé de Recherche, IRD-G-EAU IRSTEA, Montpellier, France	1145-1205
2	*Scope of Smart Irrigation via Machine Learning for Tea Plantation in India* **Mr. Indranil Chakraborty,** CEO, TekBerry, Kolkata, Bharata	1205-1225
3	*Integrated Plant Disease Management using IoT-enabled Sensors* **Dr. Vinay Shrinivas Palaparthy,** Assistant Professor, Dhirubhai Ambani Institute of Information and Communication Technology, Gujarat, Bharata	1225-1245
	1300-1400 Lunch	
4	*Challenges in irrigation faced by small holder banana farmers of Central Kerala* **Dr. Chitra Parayil,** Professor, Kerala Agricultural University, Kerala, Bharata	1420-1440
5	*Technology Gaps in Highly Marginalized Vegetable Farmer Communities* **Mr. Santanu Dutta,** Team Lead, CINI Cell (a Tata Trust Initiative), Orissa, Bharata	1440-1500
6	*Sensing, Logics, Implementation & Use Cases for a Precision Irrigation System* **Dr. Maysam Zoor,** Technical Program Manager, Demand Side Instruments, Caen, France	1500-1530
7	*Deep Learning and Geospatial Techniques in Agriculture Management* **Dr. D Nagesh Kumar,** Professor, IISc, Karnataka, Bharata	1530-1550
8	**Working Tea** *Challenges in Adopting Irrigation Technologies for Farmers* **Mr. Vishwanathan,** Farmopreneur, Tamil Nadu, Bharata	1550-1620
9	*Socioeconomic and Technological Challenges in Emerging Markets for Insuring Smallholder Farmers* **Ms. Wendy Smith,** Agriculture & Public-Private Partnerships Lead, Axa, France	1620-1650
10	*IoT & Edge Computing Systems for Smart Agriculture: Use Cases & Challenges* **Dr. Anish Sathyan,** Scientist E, C-DAC Thiruvananthapuram, Kerala, Bharata	1650-1710
11	*Influence of Smart Irrigation Strategies on Soil Nematode Communities* **Dr. Kavitha PG,** Assistant Professor, TNAU, Tamil Nadu, Bharata	1710-1730
12	*Designing Resilient Solutions: Embracing Diversity of Smallholder Agri Systems* **Dr. Roopam Shukla,** Assistant Professor, IIT Roorkee, Uttarakhand, Bharata	1730-1750

13	*Design of End and Edge Nodes for Smart Agriculture* **Dr. Anantha Narayanan V,** Associate Professor, Amrita Vishwa Vidyapeetham, Tamil Nadu, Bharata	1750-1810
1830-1915 Swimming Pool		
1945-2200 Banquet Dinner & Traditional Dances		

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Mar 16, 2024 (Sat)		
0700-0745 Yoga & Meditation		
0800-0845 Breakfast		
14	*Irrigation Technology Transfer to Small and Marginal Farmers in India: Challenges and Potential Solutions* **Dr. KK Unni,** CEO, Consultant, CropLife India, Tamil Nadu, Bharata	0900-0920
15	*Building the Capacities of Farmers and Stakeholders on Usage of Irrigation and Seamless Technology in Agriculture* **Dr. Anandaraja N,** Professor, TNAU, Tamil Nadu, Bharata	0920-0940
16	*Potential of Nano-aerated Water Irrigation* **Dr. Aviraj Datta,** Scientist, ICRISAT, Orissa, Bharata	0940-1000
17	*Policy Issues in Implementation of Agriculture Research for Smallholder Farmers* **Dr. V Ram Kaundinya,** Agriculture Expert, ThinkAg, Telangana, Bharata	1000-1020
18	**Working Tea** *Effectiveness of Irrigation Subsidies for Smallholder Farmers* **Mr. P Elango,** Farmopreneur, Tamil Nadu, Bharata	1020-1050
19	*Use of Panjagavya in Organic Agriculture* **Dr. Elayappan Vadivel,** Consultant, TN Consortium of Farmer Producer Company Ltd, Tamil Nadu, Bharata	1050-1110
20	*High Resolution Remote-Sensing for Irrigation Scheduling: Focus on Near Future Missions* **Dr. Gilles Boulet,** IRD Senior Researcher & Centre D'Etudes Spatiales de la Biosphere, Toulouse, France	1110-1130
21	*Digital Tools for Combating Biotic and Abiotic Stresses for Smallholder Famers* **Dr. C. Sivabalan,** Entrepreneur, Centre for Research in Environment and Agriculture CREA Foundation, Tamil Nadu, Bharata	1130-1150
22	*Barriers to Adopting Water Harvesting Technologies for Organic Farming* **Mrs. Loganayagi,** Farmopreneur, Tamil Nadu, Bharata	1150-1220

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23	*Impact of Water Stresses on Yield and Disease Load of Oyster Mushrooms* **Mr. A R Subramanian,** Farmopreneur, Maga Mushrooms, Tamil Nadu, Bharata	1220-1250
24	*Soil Nutrient Management - Challenges and Options* **Dr. Ramasamy Jagadeeswaran,** Professor, TNAU, Tamil Nadu, Bharata	1250-1310
1320-1350 Working Lunch		
25	*Tools to Support Integrated Fertigation through the Phenological Cycle: an Example from Mangoes* **Mr. Frédéric, François VILLAIN,** Entrepreneur, AmarIoT, France	1400-1420
26	*Contribution of Remote Sensing Combined with Models for Crop Monitoring and Water Management* **Dr. Dominique, Marie-José COURAULT,** Research Director (DR2 - HDR INRAE), Mediterranean Environment & Modelling of Agroecosystems (EMMAH), France	1420-1440
27	Emerging Trends and Innovations in the Irrigation Agtech Space of India **Dr. Swathi Vurrakula,** Manager, Business Development & Partnerships, AgriRain Agro Industries India Pvt Ltd, Telangana, Bharata	1440-1510
28	*Strawberry Disease & Leaf Rot Classification* **Dr. Amit Agarwal,** Professor, Amrita Vishwa Vidyapeetham, Tamil Nadu, Bharata	1510-1530
1545-2100 Isha Yoga Center		
2100-2230 Dinner Outing		

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Mar 17, 2024 (Sun)	
0800-0830 Breakfast	
Parallel breakout sessions on 4-6 themes that have emerged from the first two days of the workshop. Participants will freely join in discussions that appear most promising to them with a view to develop their ideas into a joint proposal. The outcomes will be - **Sketches of scientific collaboration proposals** between participants from the two countries and, - a **white paper** on 'Making Advanced Computational Tools useful towards Addressing Water-related Challenges for Smallholder Farmers without Sustained Subsidies'	0845-1015
Summarization of Actions for Joint Proposals for Various Themes - to be summarized by team lead for the respective theme	1015-1100
1130 AM Lunch for those **Going Back** **1130 AM** Departure to **Amritapuri, Kerala, Ashram,** for those leaving on Mar 18	

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