



भारत सरकार
GOVERNMENT OF INDIA
मत्स्यपालन विभाग
Department of Fisheries



FISHTech Report



“To Explore Technologies in Fisheries and Aquaculture Sector”



20
26
JULY



MANAGE Fisheries Innovation and Startup Hub (MANAGE - FISHub)

(A National Fisheries Incubation Centre Supported by the Ministry of Fisheries, Animal Husbandry and Dairying, Govt. of India)

National Institute of Agricultural Extension Management (MANAGE)

(An Autonomous Organization of Ministry of Agriculture and Farmers Welfare, Govt. of India)

Rajendranagar, Hyderabad – 500 030, Telangana, India

<https://www.manage.gov.in/managefishub/>

MANAGE-FISHub

MANAGE – Fisheries Innovation and Startup Hub (MANAGE-FISHub) is a national-level incubation and innovation hub hosted at the National Institute of Agricultural Extension Management (MANAGE). It was established at MANAGE in 2025 with the support of the Department of Fisheries (DoF), Ministry of Fisheries, Animal Husbandry and Dairying (MoFAHD), Government of India, to transform the fisheries and aquaculture sector through innovative technology, entrepreneurship, and ecosystem development.

Vision

The Vision of MANAGE-FISHub is to foster sustainable innovation and entrepreneurship in the fisheries and aquaculture sector by nurturing startups, accelerating technology adoption, and promoting inclusive growth across the value chain.

Collaboration Partner

ICAR–Central Marine Fisheries Research Institute (ICAR–CMFRI)

The ICAR–Central Marine Fisheries Research Institute (ICAR–CMFRI) played a central role by collaborating with MANAGE-FISHub for the FISHTech Webinar Series.

Established on 3 February 1947, the ICAR–Central Marine Fisheries Research Institute (ICAR–CMFRI), headquartered in Kochi, Kerala, is one of the world's leading tropical marine fisheries research institutes under the Indian Council of Agricultural Research (ICAR). Renowned for its excellence in marine fisheries, mariculture, biotechnology, and coastal ecosystem research, ICAR-CMFRI develops innovative technologies, scientific knowledge, and skilled human resources to promote the sustainable growth and resilience of India's marine fisheries and aquaculture sector.

FISHTech Webinar

FISHTech Webinar series is a flagship online knowledge-sharing initiative of MANAGE–FISHub, designed to showcase innovative technologies developed by fisheries research institutions, ICAR institutes, State Fisheries Universities, and other academic and R&D organizations across India. The series aims to bridge the gap between technology developers and end users by creating a structured national platform for technology dissemination.

Objective of the Webinar

- To disseminate knowledge on emerging fisheries technology developed by fisheries institutes.
- To facilitate technology awareness among budding aquapreneurs, innovators, rural youth, students and fisheries professionals.
- To showcase commercialization pathways and startup opportunities linked with institution-developed fisheries technology
- To strengthen capacity building through expert-led sessions.
- To facilitate interaction among scientists, startups, aspiring aquapreneurs and students, thereby fostering collaborative learning and innovation ecosystems.

Program Schedule

The MANAGE-FISHub Webinar Series was organized as a structured 15-day intensive program, with each day dedicated to covered cutting-edge technologies and emerging trends within the fisheries sector.

INAUGURAL SESSION

Setting the context for the topics

TECHNICAL PRESENTATION

Detailed lecture by a subject matter expert from ICAR-CMFRI

Q & A SESSION

Interactive Forum for participants queries

Promotional Activities

The outreach focused on both institutional and public digital platforms

Regular updates and speaker profiles shared across social media handles

Short coming soon posters were used to redirect the participants

A key collaborating partner, **CMFRI** promoted the series through their internal WhatsApp Group

Information brochures and daily session links were shared through all WhatsApp groups



Formal invitation and program posters were sent to various fisheries colleges, KVKs and participants of MANAGE-FISHub Program

Personalized emails were sent to the MANAGE-FISHub participants

Regularly reminder Email were sent to registered participants 12 hours and one hour before each live session

MANAGE-FISHTech Webinar Meet Our Speakers



Dr. B. Santhosh
Principal Scientist & Head
ICAR-CMFRI
Regional Centre, Vizhinjam



Dr. M. K. Anil
Principal Scientist
ICAR-CMFRI
Regional Centre, Vizhinjam



Dr. Ritesh Ranjan
Principal Scientist
ICAR-CMFRI
Regional Centre, Visakhapatnam



Dr. Shoji Joseph
Principal Scientist
ICAR-CMFRI
Kochi, Kerala



Dr. Suresh Babu P. P.
Principal Scientist
ICAR-CMFRI
Kochi, Kerala



Dr. Sekar Megarajan
Senior Scientist
ICAR-CMFRI
Regional Centre, Visakhapatnam



Dr. Anikuttan K. K.
Senior Scientist
ICAR-CMFRI
Regional Centre, Mandapam



Dr. Johnson B.
Senior Scientist
ICAR-CMFRI
Regional Centre, Mandapam



Dr. Anuraj A.
Senior Scientist
ICAR-CMFRI
Kochi, Kerala



Dr. Sanal Ebenezeer
Senior Scientist
ICAR-CMFRI
Kochi, Kerala



Mr. Ambarish P. Gop
Scientist
ICAR-CMFRI
Regional Centre, Vizhinjam

REGISTER NOW

20 July-7 August 2026

11:00 am to 12:00 nn IST

Platform: WebEx

MANAGE-FISHTech Webinar

Join the Webinar on
Mass Production of Marine Copepods
"To Explore Technologies in Fisheries and Aquaculture Sector"

22 July 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

Speaker



Dr. B. Santhosh
Principal Scientist & Head
ICAR-CMFRI
Regional Centre, Vizhinjam

MANAGE-FISHTech Webinar

Join the Webinar on
Hatchery Production of Cultchless Spat of Crassostrea madrasensis
through Hormone-induced Settlement
"To Explore Technologies in Fisheries and Aquaculture Sector"

24 July 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

Speaker



Dr. M. K. Anil
Principal Scientist
ICAR-CMFRI
Regional Centre, Vizhinjam

MANAGE-FISHTech Webinar

Join the Webinar on
Biovalorisation of Organic Wastes into High-value Aquafeed
Ingredients and Organic Compost using Black Soldier Fly Larvae
(Hermetia illucens)
"To Explore Technologies in Fisheries and Aquaculture Sector"

20 July 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

Speaker



Dr. Sanal Ebenezeer
Senior Scientist
ICAR-CMFRI
Kochi, Kerala

MANAGE-FISHTech Webinar

Join the Webinar on
Coastal Pond & Sea Cage Farming of Indian Pompano
"To Explore Technologies in Fisheries and Aquaculture Sector"

27 July 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

Speaker



Dr. Sekar Megarajan
Senior Scientist
ICAR-CMFRI
Regional Centre, Visakhapatnam

MANAGE-FISHTech Webinar

Join the Webinar on
Technology for Seed Production of Vermiculated Spinefoot (Siganus
vermiculatus)
"To Explore Technologies in Fisheries and Aquaculture Sector"

31 July 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

Speaker



Dr. Anuraj A.
Senior Scientist
ICAR-CMFRI
Kochi, Kerala

MANAGE-FISHTech Webinar

Join the Webinar on
Microalgae culture Technology
"To Explore Technologies in Fisheries and Aquaculture Sector"

03 August 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

Speaker



Dr. Shoji Joseph
Principal Scientist
ICAR-CMFRI
Kochi, Kerala

MANAGE-FISHTech Webinar

Join the Webinar on
Breeding and Seed Production of Giant Trevally (Caranx ignobilis)
"To Explore Technologies in Fisheries and Aquaculture Sector"

21 July 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

Speaker



Mr. Ambarish P. Gop
Scientist
ICAR-CMFRI
Regional Centre, Vizhinjam

MANAGE-FISHTech Webinar

Join the Webinar on
Production of Designer Clownfishes through Captive Breeding
"To Explore Technologies in Fisheries and Aquaculture Sector"

23 July 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

Speaker



Dr. Anikuttan K. K.
Senior Scientist
ICAR-CMFRI
Regional Centre, Mandapam

MANAGE-FISHTech Webinar

Join the Webinar on
Standardized Protocol for Breeding and Seed Production of Black
Seabream (Acanthopagrus berda)
"To Explore Technologies in Fisheries and Aquaculture Sector"

28 July 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

Speaker



Dr. Suresh Babu P. P.
Principal Scientist
ICAR-CMFRI
Kochi, Kerala

MANAGE-FISHTech Webinar

Join the Webinar on
Nursery Rearing of Indian Pompano (Trachinotus mookalee) in
Recirculating Aquaculture System (RAS)
"To Explore Technologies in Fisheries and Aquaculture Sector"

04 August 2026
11:00 AM to 12:00 NN IST
Platform: WebEx

Speaker



Dr. Ritesh Ranjan
Principal Scientist
ICAR-CMFRI
Regional Centre, Visakhapatnam

Tube-Net Based Seaweed Farming on HDPE Floating Rafts for Rough Coastal Waters



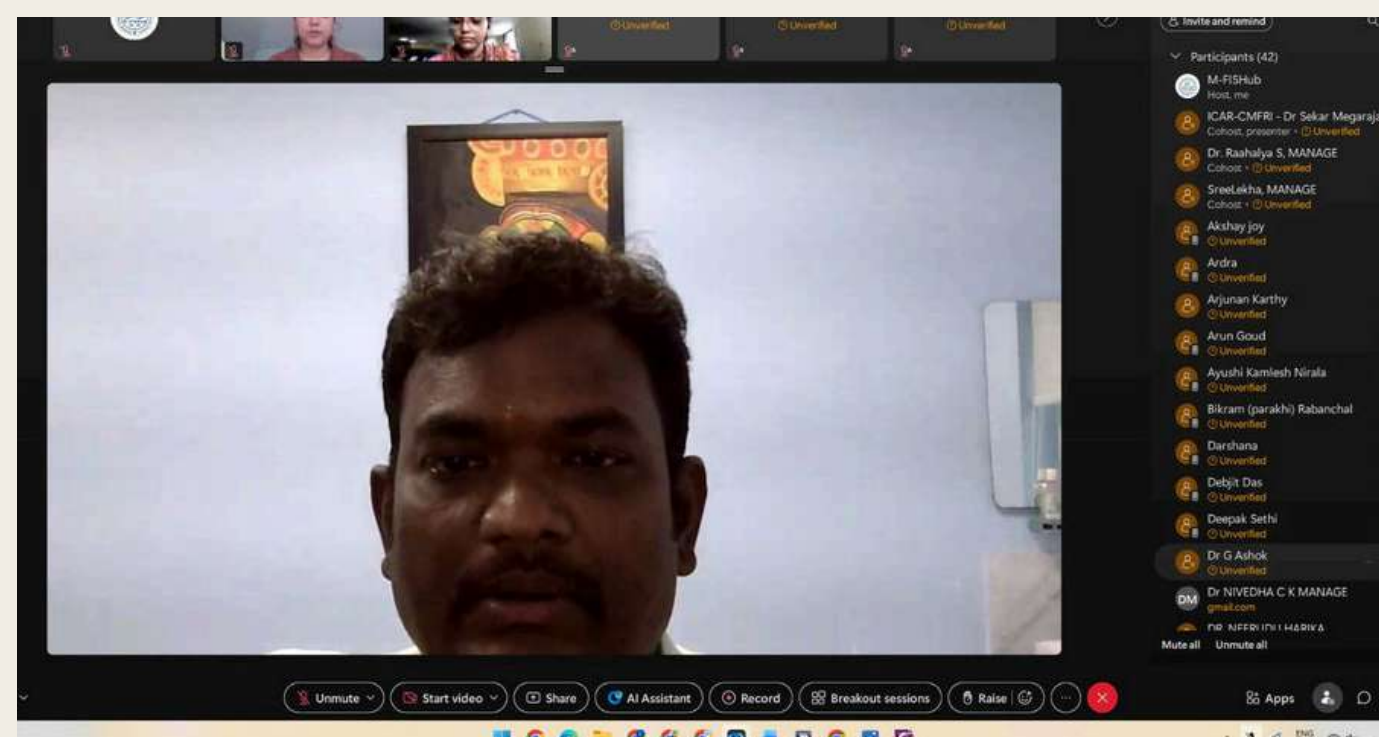
Dr. Sekar Megarajan
Senior Scientist
ICAR-CMFRI
Regional Centre, Visakhapatnam
sekarrajaqua@gmail.com

The session by Dr. Sekar Megarajan focused on the need for developing seaweed farming technologies suitable for exposed and rough coastal waters, where conventional farming systems are largely unsuitable.

The speaker began by highlighting the importance and commercial potential of seaweed. Seaweeds are nutrient-rich marine plants containing vitamins, minerals, amino acids and other essential nutrients, with applications in human nutrition, animal nutrition, healthcare, pharmaceuticals, agriculture, cosmetics, food industries and biotechnology. He also discussed important seaweed-derived products such as agar, carrageenan and alginate, emphasizing the growing demand and the scope for expanding seaweed production in India. The speaker explained that although India possesses a large coastline and several areas suitable for seaweed farming, commercial cultivation remains concentrated mainly in shallow and protected waters. Existing methods are not well suited to exposed areas with high wave action and greater water depths. This limitation motivated the development of the HDPE floating raft integrated with a tube-net system, particularly for rough coastal and nearshore waters.

A major highlight of the session was the explanation of the HDPE floating raft system. The raft is constructed using high-density polyethylene (HDPE) pipes in a square structure of approximately 3 × 3 m. Tube nets are attached to the raft to protect the seaweed during the early growth stage from damage caused by turbulence and strong wave action. The tube-net system is prepared using readily available net material and ropes, making it relatively simple and reusable. A strong mooring system with suitable anchors and chains is used to stabilize the raft in deeper waters.

Dr. Megarajan explained that the technology was evaluated under rough coastal conditions and higher water depths, unlike conventional systems generally used in shallow waters. The HDPE structure provides greater durability and flexibility under dynamic sea conditions.

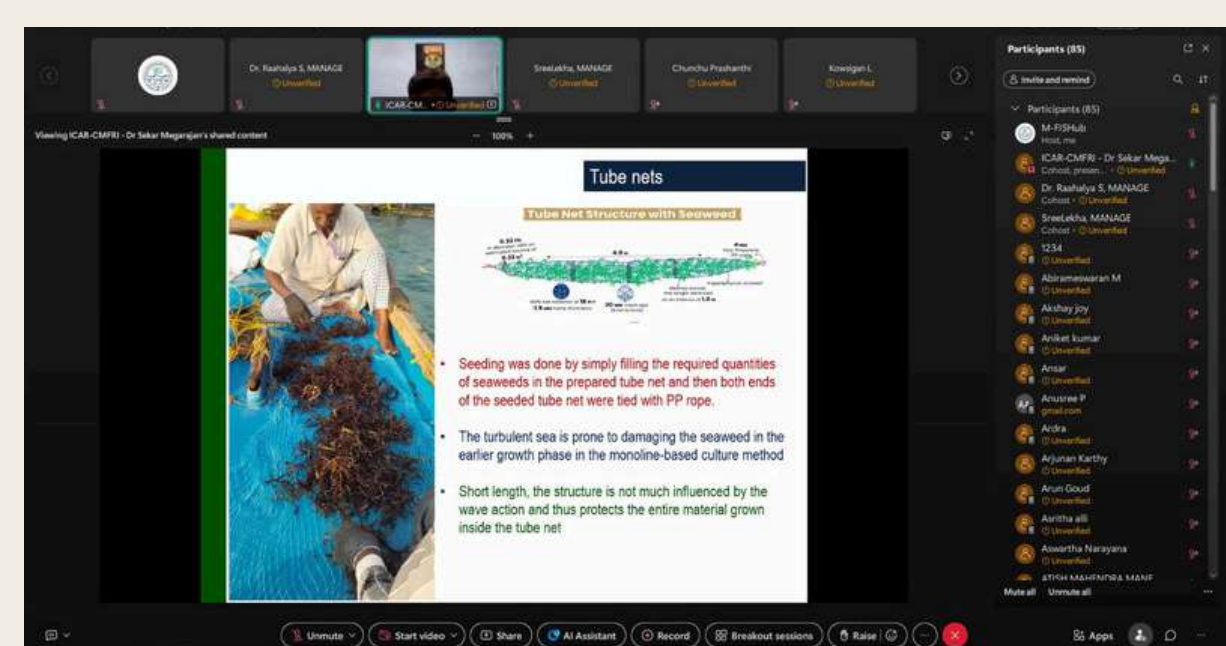
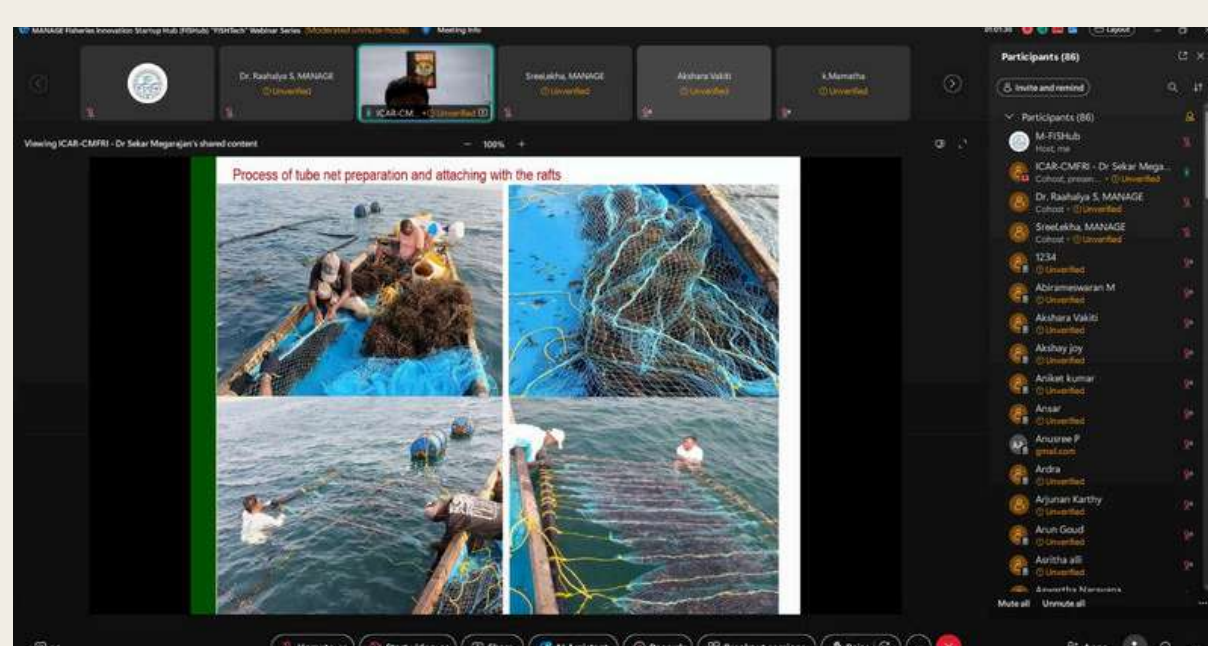
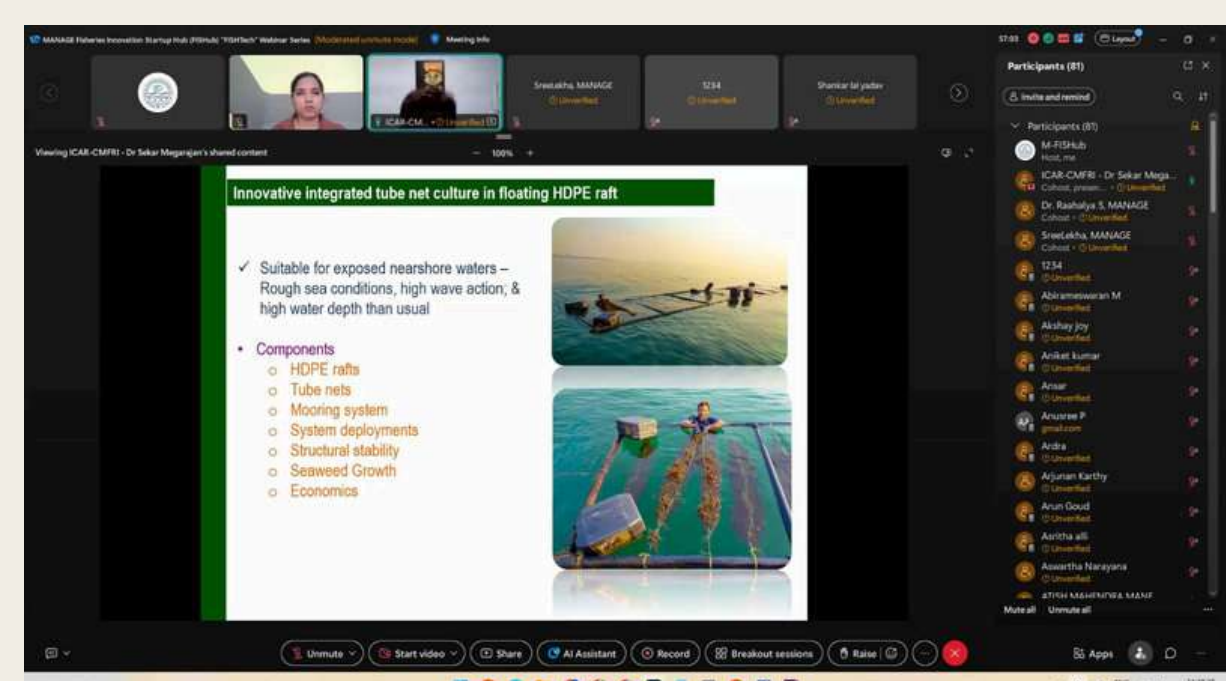
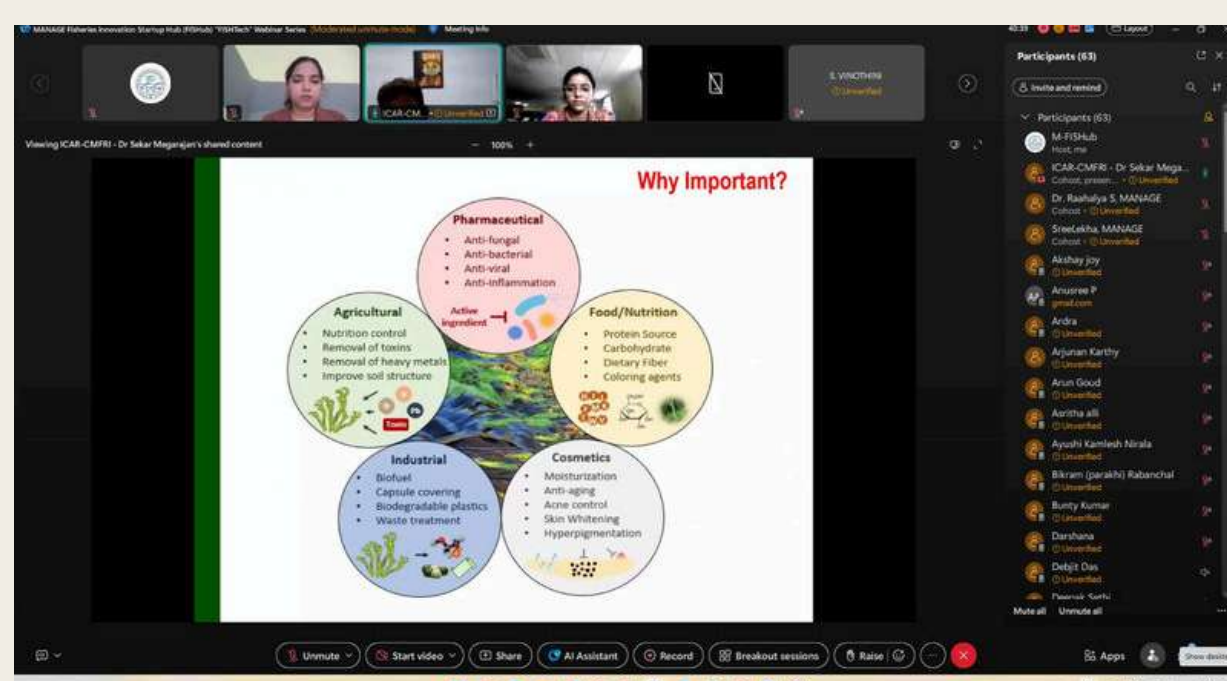


Proper deployment, mooring, periodic inspection, removal of fouling organisms, checking of ropes and maintenance of the raft were emphasized as essential for maintaining structural stability and preventing system failure.

The session also highlighted the growth performance and economic potential of the technology. The seaweed demonstrated an average daily growth rate of approximately 4-4.5%, with a culture cycle of around 45 days under the demonstrated conditions. The speaker discussed the potential production and income from a larger raft-based farming unit, indicating the scope for generating livelihood opportunities through seaweed farming in suitable coastal areas.

Dr. Megarajan further discussed the commercialization and dissemination of the technology, including its potential for community-based farming and participation of coastal communities and fisher groups. He highlighted the importance of government support, credit, insurance, market linkages, quality planting material, value addition and policy support for expanding seaweed cultivation.

The session concluded with a discussion on the challenges and future strategies for seaweed farming. Key challenges include the relatively high investment and operational costs of HDPE raft systems, dependence on boats for deployment and maintenance, limited awareness among coastal communities, low returns compared with some competing aquaculture activities, inadequate market linkages and the need for quality seed material. The speaker emphasized that value addition, improved market development, genetic improvement of suitable seaweed varieties, insurance and institutional support can strengthen the sector.





Q & A Session

Q1. Has the seaweed cultivated in Andhra Pradesh been profiled for its suitability for human consumption?

Ans: The speaker explained that detailed profiling for edible use has not yet been carried out. However, a firm from Hyderabad had approached the institute with an interest in using seaweed as an edible ingredient. Five different seaweed species, including green and red seaweeds, were provided to the firm for testing different combinations and assessing their suitability and consumer acceptance. Based on the feedback, suitable species may be further explored for edible applications.

Q2. Has CMFRI developed tissue culture technology for seaweeds?

Ans: The speaker stated that work on tissue culture of seaweeds has been initiated, with related work also being undertaken by other institutions. However, the technology has not yet been commercially established.

Q3. Has CMFRI developed technology for cultivating seaweed under controlled conditions in hatcheries?

Ans: The speaker explained that seaweed cultivation has been attempted in tanks, including FRP tanks. However, he emphasized that the technology should ultimately provide economic returns. Cultivating seaweed in small tanks or ponds may not always be economically viable because of the investment required. Since large marine areas are naturally available and underutilized, the focus is on developing technologies that can effectively utilize these available areas for commercial seaweed farming.

Q4. Are all seaweeds edible for human consumption?

Ans: The speaker clarified that not all seaweed species are intended for human consumption. He had presented specific edible seaweed species during the webinar and indicated that only selected species have potential for food applications.

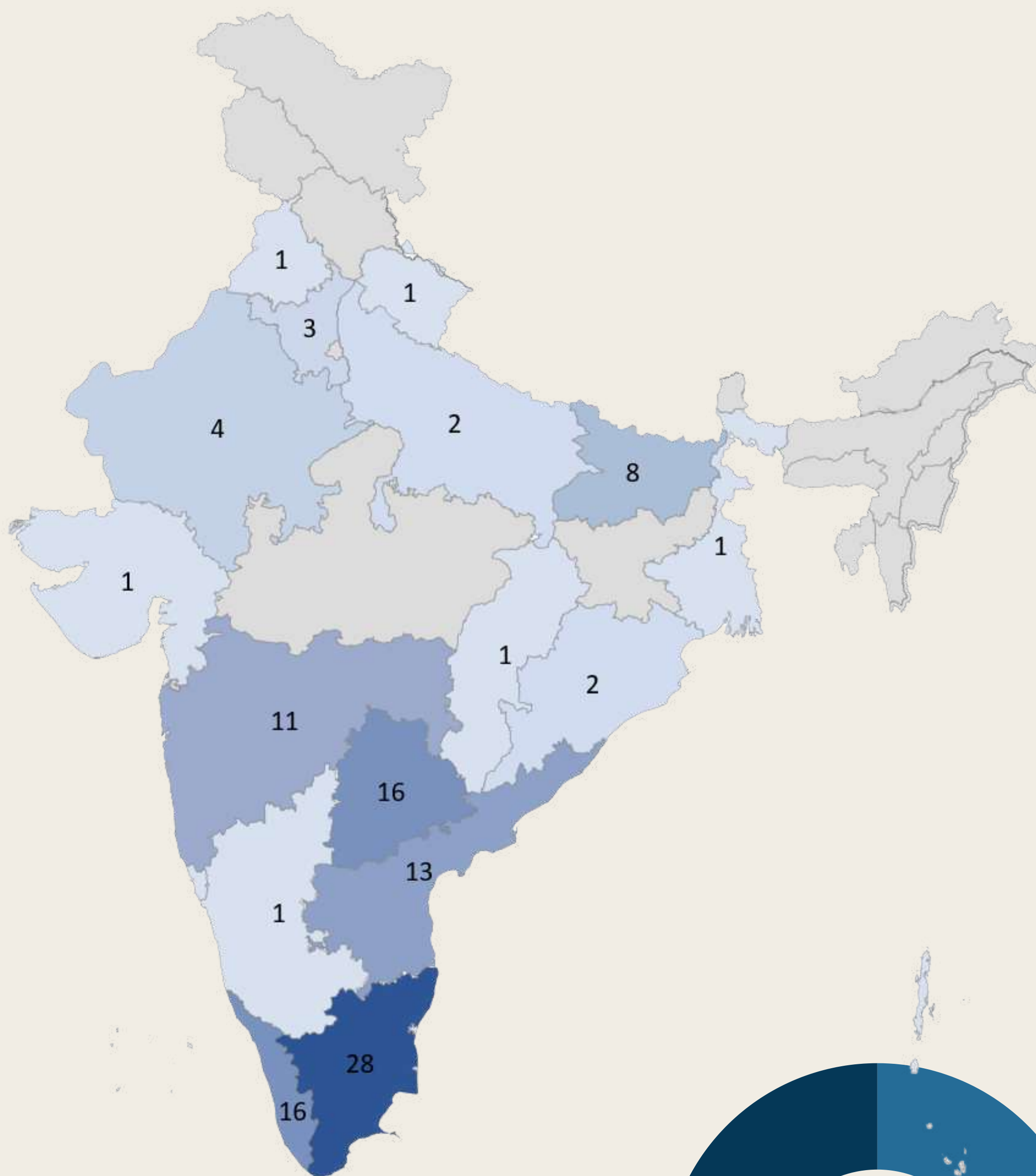
Q5. Can seaweed be cultured using artificial seawater? Is there any difference in growth compared with natural seawater?

Ans: The speaker stated that seaweed can be cultured using artificial seawater, but this approach is mainly suitable for experimental or laboratory purposes. For commercial-scale farming, the use of artificial seawater is not advisable, primarily because of the requirement and cost associated with preparing the medium. Therefore, natural seawater is more appropriate for commercial cultivation.

Q6. Why is brown seaweed extract commonly used in commercial applications?

Ans: The speaker explained that brown seaweeds are commercially cultured and widely utilized, which has contributed to their greater use in commercial seaweed-based products. However, he also indicated that other seaweed groups may have potential for different applications and can be explored further.

Participants Overview



Male
43.8%

Female
56.3%

Total Registrations-532
 Attended Participants - 112
 (Male -49 ; Female-63)

YouTube Video Link: https://www.youtube.com/watch?v=SwrAbl4wk6M&list=PL4G41x3BKM6lUBmHoLiRlGoB_5Efxiaep&index=3&t=160s