



Panel Discussion on

Future Proofing Small Scale Fisheries (SSF): Innovations in Fishing to Enhance Contribution of SSF to Food Security

16 February 2023

Anchor Hall, The Gateway Hotel, Kochi

SSF subsector is facing a number of issues of growing magnitude, including overfishing, climate change impacts, and a sluggish and scattered input and output market structure. In order to retain fishers in the small scale fisheries subsector and to sustain their contribution to the overall fishery, there is an urgent need to ensure enhanced organizational focus towards innovations with regard to craft and gear modifications; handling and post-harvest; safety of fishers and access to advanced communication and information technologies, with specific focus to the SSF.

The event would provide a platform to the delegates to interact with over 120 international delegates and pave way for multi-institutional collaborations among the participants from different countries – in line with the very spirit of the objectives of the side-event.



About the Organizers

Bay of Bengal Programme Inter-Governmental Organisation (BOBP-IGO)

The BOBP-IGO is a regional fisheries advisory body with Bangladesh, India, Maldives and Sri Lanka as its contracting parties. It is mandated to enhance cooperation amongst its member countries and other countries (especially, Indonesia, Malaysia, Myanmar and Thailand) for sustainable fisheries management in the Bay of Bengal region. The BOBP-IGO Secretariat is located at Chennai. The Department of Fisheries, Government of India is the nodal agency from India and the hosting agency.

ICAR - Central Institute of Fisheries Technology (ICAR-CIFT)

The ICAR - Central Institute of Fisheries Technology (ICAR-CIFT) set up in 1957 is the only national centre in the country where research in all disciplines relating to fishing and fish processing is undertaken. ICAR-CIFT offers its premier technical expertise and advice for entrepreneurship development in the form of developing food safety standards for the fishing and fish processing industries.

International Collective in Support of Fishworkers (ICSF)

The International Collective in Support of Fishworkers (ICSF) is an international non-governmental organization that works towards the establishment of equitable, gender-just, self-reliant and sustainable fisheries, particularly in the small-scale, artisanal sector. ICSF is committed to influencing national, regional and international decision-making processes in fisheries so that the importance of small-scale fisheries, fish workers and fishing communities

International Pole and Line Foundation (IPNLF)

The International Pole and Line Foundation was founded as a UK-based charity on the 23rd IPNLF, 2012, born out of the need for representation of pole-and-line fishers in the Maldives. Our activities vary from practical projects enabling small-scale fishers to implement best practices at sea, to ensure that the rights and needs of one-by-one fishers are considered in international fisheries management decision-making.

Sri Lanka Forum for Small Scale Fisheries (SLSSF)

Sri Lanka Forum for Small Scale Fisheries (or SLFSSF) was formed in 2018 to address the major issues preventing the attainment of a sustainable small-scale fisheries sub-sector. This forum is a partnership or a Unity, of academics, researchers, state officers, community organisations and Civil Society organisations.



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Event Report



Bay of Bengal Programme Inter-Governmental Organisation

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Preparation of Report

This report on “Panel Discussion on Future Proofing Small Scale Fisheries (SSF): Innovations in Fishing to Enhance Contribution of SSF to Food Security” is jointly prepared by BOBP-IGO, ICAR-CIFT, ICSF, IPNLF and SLSSF.

The Panel Discussion was conducted alongside the 23rd Working Group Meeting of the International Council for the Exploration of the Sea (ICES) - Food and Agricultural Organization (FAO) on Fishing Technology and Fish Behaviour (ICES-FAO WGFTFB-23).

The designations employed and the presentation of material in this document do not imply the expression of any opinion whatsoever on the part of BOBP-IGO concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

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Executive Summary

A panel discussion on **Future-proofing Small-Scale Fisheries (SSF): Innovations in Fishing to Enhance Contribution of SSF to Food security** was organized on 16th February 2023 in Kochi, India, at the side-lines of the International Symposium on “Innovations in Fishing Technologies for Sustainable and Resilient Fisheries”. The objectives of the Panel Discussion were to identify the challenges faced by the Small-scale fisheries (SSF) sector, share knowledge on new innovations, and promote strategies to ensure sustainable development of the sector through the application of innovative technologies.

The Panel discussion included six thematic presentations on the SSF sector in the context of the Bay of Bengal (BOB) region, covering the importance of SSF from economic and social perspectives and also shedding light on the problem of defining the SSF. Issues of fishing craft modification and engine optimization, onboard fish handling, and post-harvest practices were also discussed. Presenters from Sri Lanka and Maldives shared insights into sustaining the SSF by providing social protection, interactive governance, and improving cold chain management and market lineages. Further, the need for focused research to address the sustainability issues of small-scale fisheries in the inland sector was highlighted.

Salient recommendations from the event:

The Panel made the following recommendations for future-proofing the SSF sector:

- Define SSF at regional, sub-regional, or national levels;
- Identify and reward responsible métiers and allocate fishing opportunities;
- Disincentivise harmful fishing practices and provide legal and policy protection to non-trawl métiers;
- Modernize the sector with effective use of technology so as to make it attractive for the youth to consider this sector as a potential career option.
- Use interactive governance to address challenges and create a sustainable and equitable fishing industry;
- Modify fishery policies by incorporating Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (VGSSF) and strengthening fisheries co-operatives;
- Provide social protection to make SSF sustainable; Address data gaps that impede development of insurance products.
- Introduce training on post-harvest processing for women to enhance their participation; and
- Provide incentives to imbibe sustainable fishing practices and encourage the use of FRP boats.



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1 The Context

The Food and Agriculture Organization of the United Nations (FAO) describes that “artisanal, and small-scale fisheries are traditional fisheries involving fishing households (as opposed to commercial companies), using a relatively small amounts of capital and energy, relatively small fishing vessels (if any), making short fishing trips close to shore, and mainly for local consumption”

Artisanal fisheries can be subsistence or commercial fisheries. There is a growing understanding of the social and economic importance of the SSF sector. It accounts for over half of global seafood catches and is crucial for maintaining global food security and supporting livelihoods. They are also significant for the sustenance of society and culture in many parts of the world. Especially, in the context of the Bay of Bengal region, the role of the SSF need not be overemphasized as it is very much obvious. A large part of the rural economy of the Bay depends on fisheries as the employer of some sort one way or another. The local economy centres around the fisheries and their supply chain to create much-needed employment and ensure nutritional security.

Moreover, the SSF sector is also known for its significant share of participation of women, in both upstream activities such as net mending, fish handling, etc., and downstream activities such as post-harvest processing and marketing. However, the SSF subsector in the Bay of Bengal is facing many issues of growing magnitudes. Some are overfishing, climate change impacts, and a sluggish and scattered input and output market structure. Competitive pressures and conflicts with other fishing subsectors and non-fishing sectors are also increasing while being inadequately represented in resource governance.

Until recently, the issues related to post-harvest methods, such as onboard freezing, sorting, etc., were not considered to be relevant to small-size fishing vessels, as the resources were available nearshore and the trip duration was short. However, in the present circumstances, as small fishing vessels are (required) to venture further into the sea, these issues are getting due prominence.

Finally, access to the financial market (credit, insurance, etc) for the SSF sector is hindered by the very nature of craft and gear, making it difficult to assess production risks and value. There is also a need to understand how innovations in the SSF sector can address such concerns and their appropriateness so that a strategy can be developed to ensure market access for the SSF sector.

The broad objectives of the event are:

- Identifying existing socio-economic and environmental challenges for the development of sustainable SSF;
- Sharing knowledge on new innovations in the SSF sector and establishing knowledge-sharing platforms; and
- Developing and promoting strategies towards the application of innovative technologies for securing a sustainable SSF sector.





2 Opening Session

The opening session of the meeting began with a welcome address from Dr. P. Krishnan, Director, BOBP-IGO, who welcomed the delegates and set the context for the discussion that was to follow. **Dr. Krishnan** emphasized the importance of SSF and its contribution to the total fisheries production and the livelihood of the population (80-90% of the fisher population) depending on it. He highlighted the critical issues of SSF, that needed to be addressed.

Following the welcome address, **Mr. Jon Lansley**, Fishery Industry Officer, Food and Agriculture Organization (FAO), delivered a keynote address and emphasized the FAO's commitment to sustaining SSF. His talk focussed on the critical challenges in SSF developments like:

- Sustaining production in coastal waters;
- Addressing multi-sectoral conflicts;
- Focussing on climate change adaptation and ecosystem resilience;
- Controlling trade barriers;
- Removing gender imbalance; and
- Promoting value chain management.

Further, he insisted the innovations in the SSF sector should consider building on existing traditional and local cost-effective technologies, culturally appropriate technology transfers, technologies appropriate to women in SSF, flexible technologies considering climate change, and useful traditional knowledge.

Dr. Daniel Stepputitis, Chair, ICES-FAO WGFTFB & Scientist, Thuenen Institute, Germany explained about the small-scale fisheries of Germany and also about the perception of small-scale fisheries. He described the bycatch issues with Gill nets, the major gear used by the SSF sector in Germany. Due to this bycatch issue, the majority of the common population is against the fishermen and the government also bans fishing in the region for most of the time in a year. Hence, future-proofing SSF should be sustainable considering ecological, economic, and social dimensions.



3 Technical Session

3.1. Global Innovations in SSF Sector – Lessons for the Bay of Bengal Region



Mr. Sebastian Mathew serves as Executive director at International Collective in Support of Fishworkers (ICSF), an international NGO that works for sustainable fisheries, particularly in the small-scale, artisanal sector. He has been engaging with international processes for nearly three decades at the United Nations (UN) and the Food and Agriculture Organization (FAO) towards recognizing the social dimension of sustainable SSF.

The International Collective in Support of Fishworkers (ICSF) is an international non-governmental organization that works towards the establishment of equitable, gender-just, self-reliant, and sustainable fisheries, particularly in the small-scale, artisanal sector. South Asian region is the centre of small-scale fisheries in the world in terms of the number of fisher population and fish production. Several organizations such as FAO and BOBP-IGO worked together to promote and nurture the SSF in the region. BOBP is the first organization to work exclusively on small-scale fisheries from its inception days.

The period 2008-13 was very significant which resulted in Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication. The SSF Guidelines are aimed at all actors striving to secure sustainable small-scale fisheries, end hunger and poverty and strengthen human rights. The Committee on Fisheries (CoFI), 2021 recognizes the critical role of SSF and calls SSF an agent for “transformative change for sustainable use on living aquatic resources”.

Although the negotiated instrument Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication (the SSF Guidelines) observes that there is no single agreed definition of small-scale fisheries, it encourages such a definition at the regional, subregional, or national level (FAO 2015). When it comes to technological innovations for sustainable and resilient fisheries, it is pertinent to take note of the relations between different gear groups adopting a métier-based approach, and allocating fishing opportunities to those métiers that are capable of maximizing environmental and social goals—let us call them responsible métiers—and to disincentivise those métiers that lead to inequitable and environmentally destructive outcomes. Following some of the best practices (e.g., OECD countries), vessels below 12 m in length may be considered small-scale fishing vessels. The organizers are encouraged to look into this definition to adopt it as the standard definition for small-scale fisheries in the South and Southeast Asian region. Collection and timely publication of data on marine fish catch originating from vessels for all countries in the region would generate SSF fleet data that are comparable to the OECD database.

From the perspective of conserving marine and coastal biodiversity including seaweeds, seagrass beds, mangroves, and coral reefs, responsible métiers may be identified, in particular non-trawl métiers, and extended greater legal and policy protection through the declaration of designated fishing zones. These areas could easily come under the systems of protected areas or other effective area-based conservation measures. To work on the development aspects of the SSF there should be a clear definition of SSF.

3.2. Fishing Craft Modification and Engine Optimisation: CIFT's Initiatives towards Future Proofing SSF



Dr. M. V. Baiju is a naval architect by training and currently working as a Senior Scientist, ICAR- Central Institute of Fisheries Technology (CIFT). He has made contributions to craft and gear studies, bycatch reduction, and energy efficiency. He is currently working on the design development of standard deep-sea fishing vessels and gear systems for commercial operation and Green Fishing Systems for tropical Seas.

The majority of the policy decisions in India were based upon the classification of fisheries as commercial and Traditional. Fishing in India is normally classified as single and multi-day fishing, wherein multi-day fishing boats are more sophisticated.

Fibreglass boats can be used as the best alternative to wooden boats, which are commonly used. They have a better life and are easy to maintain compared to wooden boats.



FRP boats in Inland waters of Kerala

The life span of Wood/Plywood boats with FRP coating is very short and disposal after their life span poses a serious threat to the environment. Fishing trials of boats that are fully made of FRP are being conducted and soon they are to be introduced in Kerala after the successful demonstration.



New Imported FRP boats in Kerala

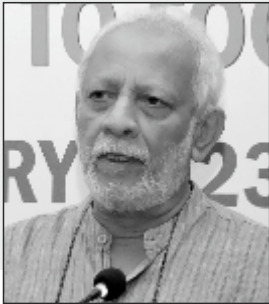
In Andaman and Nicobar Islands, wooden boats usually operate gillnets and hooks & lines. Over the last 10 years, CIFT redesigned the boats and now boat building yards are constructing these boats. Further, other structural designs were also changed in the multi-day boats of Andamans to withstand wave and wind forces.

In Lakshadweep, Wooden boats are commonly used for fishing by operating poles and lines. FRP Long liner cum Pole and liner designed by ICAR-CIFT is lighter in weight compared to wooden boats and can avoid damage to coral reefs. It also has a water-tight bulkhead for maintaining stability during damage.

Also, the 22.5m Longliner cum Gillnetter vessel is constructed under Blue Revolution and PMMSY schemes. The RSW tanks are introduced to keep the fish quality at a higher level. The hull has been developed using Computational Fluid Dynamics analysis and model testing for fuel efficiency. 16 boats are already in operation and another 33 are getting constructed. The stability has been tested and certified by the IRS (Indian Registry of Shipping).

ICAR-CIFT supervised the design and construction of three Marine Ambulances of 22.5 LoA at Cochin Shipyard. ICAR-CIFT also designed solar boats with 3.6m and 8m LoA for inland fishing. Further, a new variant of extra green diesel is also being tested for lowering GHG emissions.

3.3. Sustaining Small-scale Fisheries: Experiences from Sri Lanka



Dr. Amarasinghe pioneered the study of Fisheries Economics in Sri Lanka and contributed to transforming Ruhana University becoming the research hub on the SSF sector in the region. Dr. Amarasinghe led the first National Fisheries Policy development process in 2004. He also initiated the establishment of the Sri Lanka Forum for Small-Scale Fisheries (SLFSSF), the largest fisheries forum in Sri Lanka.

During the immediate post-war period, the Government of Sri Lanka focussed mainly on the Motorisation of traditional Crafts, the introduction of boats with outboard motors, offshore craft with in-board engines, and the nylon net and new fishing techniques. In Sri Lanka, 87% of the fisheries are done by small-scale fishermen.

Growth in the number of active fishers in the marine coastal fisheries sector ultimately resulted in increased fishing pressure and reduced CPUE. Steps taken in Sri Lanka to Manage SSF:

- Fishery policy has been modified by incorporating SSF guidelines and is in the process of submission to the cabinet of Sri Lanka. Strengthening fisheries cooperatives – which help SSF fishers to access craft, gear and engines at subsidized rates and credit for multiplicity of purposes offering group guarantees as collateral.
- Elevation of the status of Fisheries Cooperatives to Fisheries Banks.
- FARA 1996 & amendments to protect against the use of environmentally-unfriendly fishing techniques.
- Introduction of social protection measures, including pension and insurance schemes.
- Training on post-harvest processing for women.

Future of SSF:

- **Life above water:** Need a clear understanding of human systems.
- **Social protection:** To make SSF sustainable, existing social protection measures like pension / insurance need to be strengthened.
- **Blue justice:** prevent blue injustices that adversely affects the livelihoods of SSF
- **Interactive Governance:** Interactive governance is to be promoted involving the justice principle where those like small-scale fisheries people with important things at stake, can aspire to participate in the Blue Economy/Growth, and deliberate on what justice should mean in the setting where they exist and operate.

Interactive Governance is to be promoted at all governance levels, with the participation of all stakeholders, who will deliberate upon their knowledge, experience and aspirations to agree on decisions that respect the rights of people, that set the right rules of the game, and that guide interactions among actors in an environmentally, socially, and economically optimal direction towards securing sustainable small scale fisheries.

Third (meta-) Order	Norms / Principles	Which justice principles are foundational for the governance system? Do they recognize or ignore the rights, needs and interests of SSF?
Second order	Institutions/rules	What institutional characteristics do the governance system have? Are rules supportive or discriminatory vis-à-vis SSF?
First order	Actions/interactions	How do Power relations affect SSF on a daily basis? Are patterns of interactions among stakeholders supportive or discriminatory vis-vis SSF?

Interactive governance framework

3.4. Innovations in On-board Fish Handling & Post Harvest Sector



Dr. George Ninan is the Director of ICAR-CIFT dedicated to fishing and fish processing. His research interest includes fish processing technology, value addition, fishery by-products, and waste utilization. He worked on the development of standard processes & protocols for innovative products from aquatic resources and shelf life modelling. He had spearheaded the Zonal Technology Management and Agribusiness Incubation Unit (NAIF).

Harvest technologies for Small Scale Fisheries:

- Off-bottom Trawl System (OBTS): This four-seam trawl design, operated along with a suberkrub otter board, is found to reduce the bottom impacts. It is an effective alternative during shrimp lean seasons when fishes are targeted.
- Bycatch Reduction Devices (BRDs): BRDs like Juvenile fish excluder cum shrimp sorting device (JFE-SSD), big-eye BRD, square meshes, and square mesh panel BRDs, are found to significantly reduce the bycatch generated in trawling systems.
- Energy efficient fishing vessels: FV Sagar Harita and FV Sagar Kripa are some of the models developed which include energy-saving features and a combination of different fishing methods for better profitability.
- Utilization of unconventional wood for fishing vessels in the small-scale sector: Wood with negative values for many indices that add up to the Greenhouse potential, is the best material for construction. The rubber wood, which can be cheaply sourced from rubber plantations is upgraded through chemical preservative treatment and the canoe made using the treated wood is further given a sheathing of FRP.

Onboard Handling technologies:

- Clean fishing deck,
- Insulated FRP Fish store, and
- Stainless steel-insulated fish store.

Post-Harvest technologies for Small Scale Fisheries:

- CIFT- Insulated fish bags: A simple intervention for hygienic handling of iced fish by traditional fishers, fish vendors, and fish consumers, keeps the fish fresh in chilled condition for 6 hours



CIFT- Insulated fish bags

- Refrigeration-enabled Mobile Fish Vending Kiosk: The main components of the kiosk are a chilled storage cum display facility, a hand-operated descaling machine, a fish dressing deck with a wash basin, a water tank, a waste collection chamber, and a working space. In this unit, a consumer can see the fishes directly through transparent glass covers and select according to their choice of purchase. Additionally, the kiosk has provisions for descaling, cutting, cleaning, and packing operations.



Mobile Fish Vending Kiosk

3.5. Modernizing SSF for Sustainability – Experiences from Maldives



Dr. Shiham Adam is a founding trustee of the International Pole and Line Foundation and is currently the Chair of IPNLF's Scientific and Technical Advisory Committee (STAC) as well as the Director for Science in Maldives. Dr. Shiham has also been leading the Marine Research Centre, the research institute of the Ministry of Fisheries and Agriculture, Maldives, since 2005, during which time he has led the Pelagic Fisheries Research Program.

Innovations for Selective & Environmentally Friendly Methods of Fishing:

Gill net is used as a major gear in the SSF. However, there is a requirement for continuous innovation of new and more efficient designs and techniques of deployment and retrieval to mitigate bycatch and improve the overall productivity of small-scale fishing operations. Countries like Sri Lanka, Vietnam, and Oman are moving towards hand lines as a market-driven incentive and also as a need for the conservation and management of targeted and dependent species.

Onboard handling and cold chain management:

To reduce waste and maintain the value of the catch, cold chain management should be given the necessary importance. Further, necessary awareness needs to be created among fishers about the importance of proper onboard fish handling.

Further, solar-powered ice makers can be used on board and IPNLF is now working on the UNDP/OIC-funded project on the establishment of solar ice makers in Indonesia.

Improving market Linkages:

Ecolabelling by a fisher representative group (fishery association), improves the market value of the product.

Examples:

- IPNF - Sourcing Transparency Platform (STP), Abalobi in South Africa and Captain Fresh - (B2B platform leveraging technology to deliver fastest harvest-to-retail in the industry) in India.
- A new online Fisheries Information System has been launched to monitor catch logbooks, fish purchase information, fishing vessel license information and catch certificates in the Maldives tuna fishery.

Future-proofing: Focus areas

- Decent Work - freedom & Safety,
- Low entry barriers to the industry - social norms,
- Access to Markets – verification, Access to finance, insurance, and other inputs,
- Access to social services that underpin production and well-being - education, health care, and social protection, and
- Living income - distribution of price/premiums across the supply chain.

Social Protection and Fisheries Management for Sustainability

Small-scale fishing communities face increasingly high levels of socio-ecological risk, particularly in the global South. Living and working on the front lines of climate change and reliant on often declining resources, they are highly exposed to ecological hazards and vulnerable to a range of shocks and stresses arising from both natural and socioeconomic systems. Social protection can help people manage risk but provision is limited. Aligning social protection and labour programmes with fisheries management will enable and incentivise actions that enhance sustainability while building resilience.

3.6. Innovations in Inland Capture Fisheries for Sustaining the Contribution of Small-scale Fisheries



Dr. B. K. Das is the Director of ICAR-CIFRI, the first fisheries institute in India that is dedicated to inland fisheries activities. His research interests include fish health, fish migration, nutrition, etc.

Inland capture fisheries are dynamic in nature. The inland fisheries sector in India largely comes under small-scale fisheries that can be defined as an easy, individual, or household (family) venture, and that entails low levels of technology. Inland fishers are usually socio-economically backward and belong to the traditional fishers' community. Small crafts, mainly non-motorized boats, and simple gear are used to harvest the fish or other aquatic organisms and they largely work as share-workers or operate individually.

Fishing crafts in the inland waters of India mostly include wooden boats, dugout canoes, inflated tubes, rafts, catamarans, plank-built boats, fibre boats, and coracles. Further, major fishing gears include lines, traditional fishing traps, gill nets, lift nets, bag nets and dragnets.

Eco-friendly FAD: Jhupi is an eco-friendly and highly efficient indigenous fish-aggregating device used by the fisher community in Panchet reservoir, Jharkhand for catching prawn and small fish species that are available in the reservoir.

Compared to marine fisheries, far less attention has been paid over the years to the improvement of fishing technologies in inland fisheries. Lack of research support on fishing technologies is one of the main constraints in inland capture fisheries as well as stock-enhanced fisheries. This has resulted in not only sub-optimal utilization of the production potential of the inland water bodies and low income to fishers but also led to irrational fishing practices that are harmful to the long-time sustainability of the fish stocks. Hence, more research should be focussed on addressing the sustainability issues of SSF from the Inland sector.

4 Closing Session

Dr. George Ninan, Director, ICAR-CIFT, delivered a vote of thanks to the attendees, speakers, and organizers of the event. In his speech, Dr. George expressed his gratitude to all those who contributed to the success of the event. He thanked the organizers for putting together an excellent program and providing a platform for researchers, policymakers, and practitioners to share their knowledge and experiences in the field of small-scale fisheries





5

Recommendations for Future-proofing SSF

The workshop arrived at the following Recommendations for future-proofing the SSF sector:

- **Definition for Small-Scale Fisheries:** A clear definition of small-scale fisheries is needed at the regional, sub-regional, or national level. A clear definition would facilitate inter alia allocation of resources available for activities contributing to the sustainable development and future proofing of SSF. For example, fishing vessels below 12 m in length may be considered small-scale fishing vessels.
- **Incentivize Good Practices:** It is also essential to identify and reward responsible métiers and allocate fishing opportunities to these métiers to maximize environmental and social goals. At the same time, harmful fishing practices should be disincentivized. For example, non-trawl métiers should be given greater legal and policy protection through the declaration of designated fishing zones. These areas can come under the systems of protected areas or other effective area-based conservation measures (OECMs).
- **Mainstream Interactive Governance:** Interactive governance is based on a method of decision-making and management that engages various stakeholders and encourages collaboration and participation. An interactive governance mechanism for small-scale fisheries is needed to address the challenges faced by these fisheries, such as overfishing, lack of access to credit and technology, and inadequate marketing infrastructure. The goal would be to create a more sustainable and equitable fishing industry, which benefits the fishing communities, all stakeholders associated with each step of the SSF value chains and the broader society.
- **Make the Sector Attractive for the Youth:** Modernize the sector with effective use of technology so as to make it attractive for the youth to consider this sector as a potential career option.
- **Operationalize VGSSF:** Fishery policies should be modified by incorporating and operationalizing Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (VGSSF). Strengthening fisheries cooperatives and elevating the status can help in strengthening SSF.
- **Strengthening Fish Value Chains:** Projects aimed at strengthening and developing each stage of SFF value chains can promote food security by improving quality and reducing post harvest losses. In order to avoid food losses and waste along the value chain, fishers and fish workers may need new tools and training.
- **Enhance Social Security to Mitigate Climate Risks:** To make SSF sustainable, social protection like insurance should be provided. Training on post-harvest processing for women can also be introduced. A clear understanding of need and for social protection and issues in data gaps that impede development of insurance products, need to be addressed.

- **Mainstream Sustainable Fishing Practices:** Incentives should be created for embedding sustainable fishing practices by creating financial incentives through access to better markets providing a higher price for sustainably harvested fish.
- **Popularize Use of FRP Boats:** Use of the fiberglass boats as an alternative to wooden boats should be encouraged due to their better life and easy maintenance. Further, fishing trials of boats fully made of FRP can be conducted to introduce them after successful demonstrations in the region. Training courses for building and maintaining FRP fishing vessels should be developed and delivered. Diversification of traditional wooden boat builders to FRP boats should be encouraged to mitigate the risk that increased use of FRP boats may reduce employment for workers engaged in building of wooden or metal fishing vessels.
- **Diversification of target species and fish capture methods:** Projects assessing and promoting diversification of target species, and fishing methods, should be developed and implemented. Such projects may help sustain production in coastal waters, contribute to food security, and mitigate against impacts of climate change such as changes in fish distribution. These projects should include diversification to more sustainable fishing methods and assess different methodologies for accessing different species. These may include the installation of artificial reefs and anchored fish aggregation devices (aFAD) to improve access to certain species not currently readily accessible to the SSF sector. To this end assessments on the social, financial and environmental impacts/benefits of artificial reefs and aFADs, and the production of guidelines for their implementation are required.

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Panel Discussion on

Future Proofing Small Scale Fisheries (SSF): Innovations in Fishing to Enhance Contribution of SSF to Food Security

16 February 2023 Anchor Hall, The Gateway Hotel, Kochi

09.00 – 09.30	Registration	
09.30 - 10.30	Opening Session	
09.30 – 09.40	Welcome & Agenda Setting	Dr. P Krishnan , <i>BOBP-IGO</i>
09.40 – 10.05	Remarks from FAO	Mr. Jon Lansley , <i>Fishery Industry Officer, FAO, Italy</i>
10.05 – 10.30	Remarks from ICES	Dr. Daniel Stepputtis , <i>Scientist, Thünen Institute, Germany</i>
10.30 – 11.00	Tea Break	
11.00 – 12.30	Technical Session	
	Co-Chairs:	
	Mr. Talangama Chaminda Namal , <i>Additional Secretary, Ministry of Fisheries and Aquatic Resources Development, Colombo, Sri Lanka</i>	
	Dr. E. Vivekanandan , <i>Principal Scientist (Rtd), ICAR-Central Marine Fisheries Research Institute, Kochi, India</i>	
11.10 – 11.22	Global Innovations in SSF Sector – Lessons for the Bay of Bengal Region	Mr. Sebastian Mathew , <i>ICSF, Chennai</i>
11.22 – 11.34	Fishing Craft Modification and Engine Optimisation: CIFT's Initiatives towards Future Proofing SSF	Dr. M.V. Bhaiju , <i>ICAR-CIFT, India</i>
11.34 – 11.46	Sustaining Small-scale Fisheries: Experiences from Sri Lanka	Dr. Oscar Amarasinghe , <i>Ocean University, Sri Lanka</i>
11.46 – 11.58	Innovations in On-board Fish Handling & Post Harvest	Dr. George Ninan , <i>ICAR-CIFT, India</i>
11.58 – 12.10	Modernizing SSF for Sustainability – Experiences from Maldives	Dr. Shiham Adam , <i>IPNLF, Maldives</i>
12.10 – 12.22	Innovations in Inland Capture Fisheries for Sustaining the Contribution of Small-scale Fisheries	Dr. B.K. Das , <i>ICAR-CIFRI, India</i>
12.22 – 12.45	Discussion (Q&A)	Participants
12.45 – 13.00	Closing Session	
12.45 – 12.55	Summary & Conclusions	Co-Chairs
12.55 – 13.00	Vote of Thanks	Dr. George Ninan , <i>ICAR-CIFT, India</i>

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Dr. P. K. Sankaranarayanan, Director of the Fish and Aquaculture Department of the UN and nationally recognized researcher...

ചന്ദ്രിക

മത്സ്യത്തൊഴിലാളികൾക്ക് ഇൻഷുറൻസ് പരിരക്ഷ വേണം: വിദഗ്ധർ

കൊച്ചി: കടലാമ്പലായുധനാശനത്തെ തുടർച്ചയായി പ്രകൃതി ദുരന്തങ്ങൾ, പുഴയിടത്ത്, മത്സ്യസമൃദ്ധി കുറയ്ക്കുന്ന സാഹചര്യങ്ങൾ മത്സ്യത്തൊഴിലാളികൾക്ക് സാമ്പത്തിക സുരക്ഷിതത്വം നൽകാനും ഇൻഷുറൻസ് പരിരക്ഷ പോലുള്ള സഹായങ്ങൾ നൽകണമെന്നും വിദഗ്ധർ അഭ്യർത്ഥിക്കുന്നു...

മത്സ്യത്തൊഴിലാളികൾക്ക് ഇൻഷുറൻസ് പരിരക്ഷ വേണമെന്ന് വിദഗ്ധർ

കൊച്ചി: കടലാമ്പലായുധനാശനത്തെ തുടർച്ചയായി പ്രകൃതി ദുരന്തങ്ങൾ, പുഴയിടത്ത്, മത്സ്യസമൃദ്ധി കുറയ്ക്കുന്ന സാഹചര്യങ്ങൾ മത്സ്യത്തൊഴിലാളികൾക്ക് സാമ്പത്തിക സുരക്ഷിതത്വം നൽകാനും ഇൻഷുറൻസ് പരിരക്ഷ പോലുള്ള സഹായങ്ങൾ നൽകണമെന്നും വിദഗ്ധർ അഭ്യർത്ഥിക്കുന്നു...

മത്സ്യത്തൊഴിലാളികൾക്ക് ഇൻഷുറൻസ് പരിരക്ഷ വേണം: വിദഗ്ധർ

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World Malayalee Voice: Blend tech with indigenous knowledge to improve fishermen's livelihood: Experts. Includes logo and contact information.

മത്സ്യത്തൊഴിലാളികൾക്ക് ഇൻഷുറൻസ് പരിരക്ഷ വേണമെന്ന് വിദഗ്ധർ

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M Mathrubhumi: സുസ്ഥിര മത്സ്യബന്ധനം: സങ്കേതനം തുടങ്ങി. Includes logo and text about sustainable fishing.



Glimpses of the event



Glimpses of the event

SSF



BOBP

Bay of Bengal Programme Inter-Governmental Organisation

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