Report of the National Workshop on Small-scale Fisheries, Cyclone Ockhi and Disaster Risk Management
29 to 30 May, 2018
Hotel Apollo Dimora,
Thiruvananthapuram, Kerala, India
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PREFACE

A National Workshop on Small-scale Fisheries, Cyclone Ockhi and Disaster Risk Management was held on 28 to 29 May, 2018 at Thiruvananthapuram. The workshop was organised by the International Collective in Support of Fishworkers (ICSF) Trust with the support of the Food and Agriculture Organization of the United Nations (FAO).

The workshop was attended by a large number of distinguished participants, including fishworker organisations, government officials, academics, non-governmental organisations, civil society organisations and the disaster affected community. Representatives from FAO and the Bay of Bengal Programme Inter-Governmental Organisation (BOBP-IGO) also attended the programme.

On 29 November 2017, a deep depression, detected in the Indian Ocean southwest of Sri Lanka, rapidly intensified into a cyclonic storm off the coast of Tamil Nadu and Kerala and the Union Territory of Lakshadweep Islands. Cyclone Ockhi, as it was named, took the life of a number of fishers, injured many and destroyed fishing vessels and gear.

The United Nations Sendai Framework for Disaster Risk Reduction 2015-2030, which India has adopted, aims to achieve a substantial reduction in the loss of lives due to disasters, through the coordinated efforts of national and international agencies, including the central and state governments, civil society and the larger community to build resilience to natural and man-made hazards, including cyclones. The approach of Disaster Risk Management (DRM), central to the Sendai Framework, combines mitigation, prevention and preparedness, with response and recovery across institutions of government, private sector and civil society.

India’s own Disaster Management Act, 2005 was a response to the unprecedented damage caused by the 2004 Indian Ocean tsunami and the gaps it revealed in the country’s preparedness for dealing with natural disasters. Although national and state disaster management authorities were set up and plans formulated, their success has been mixed in the face of recurring cyclones along India’s Bay of Bengal coast.

Towards developing new approaches to disaster preparedness, the 2013 FAO Guidelines for the Fisheries and Aquaculture Sector on Damage and Needs Assessments in Emergencies discuss the need for assessing disaster impact and for developing effective disaster response in an emergency situation. The 2014 Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication (the SSF Guidelines) discuss applying the “relief-development continuum” concept to emergency response and disaster
preparedness, and the “building back better” concept to relief, rehabilitation, reconstruction and recovery, especially to reduce vulnerabilities to potential future threats.

ICSF Trust, with financial assistance from the FAO, undertook a study of the impacts of Cyclone Ockhi with the following objectives:

- To assess the impacts of the Cyclone Ockhi and the emergency at the institutional and community level;
- To review central and state policies and plans to cope with cyclones to determine how loss of lives and livelihoods of the fishing communities can be minimized, in line with the SSF Guidelines;
- To evaluate, within the framework of a human rights-based approach, the state’s presence in the fisheries sector and its preparedness to respond to cyclones; and
- To suggest solutions to challenges in addressing particular disasters and the possible linkages between various institutions and the fishing community, especially in relation to disaster preparedness and fisheries management.

The study assessed the response to Cyclone Ockhi, both at the institutional and community level, reviewed DM and DRM strategies adopted by concerned actors and examined if the loss of lives could have been minimized by a more coordinated institutional response. In keeping with the internationally recognized DRM approach, the study reviewed the various mitigation and relief plans in place at the central, state and district level and their effectiveness. Considering that so many fatalities occurred at sea, the study looked into fisheries management issues of relevance to cyclone preparedness.

The workshop, inter alia, was organised to share the findings of the study and communicate the lessons learnt with the community, government agencies at all levels and other stakeholders, and to take feedback.
### ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AIR</td>
<td>All India Radio</td>
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<tr>
<td>AIS</td>
<td>Automatic Identification System</td>
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<td>BOBP-IGO</td>
<td>Bay of Bengal Programme – Inter Governmental Organisation</td>
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<td>BSNL</td>
<td>Bharat Sanchar Nigam Limited</td>
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<td>CDRRP</td>
<td>Coastal Disaster Risk Reduction Project</td>
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<td>CG</td>
<td>Indian Coast Guard</td>
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<td>CIFT</td>
<td>Central Institute of Fisheries Technology</td>
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<td>CMFRI</td>
<td>Central Marine Fisheries Resources Institute</td>
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<td>CRA</td>
<td>Commissioner of Revenue Administration</td>
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<td>CRS</td>
<td>Community Radio Station</td>
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<td>DADF</td>
<td>Department of Agriculture, Dairying and Fisheries</td>
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<td>DAT</td>
<td>Distress Alert Transmitter</td>
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<td>DM</td>
<td>Disaster Management</td>
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<td>DRM</td>
<td>Disaster Risk Management</td>
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<td>DRR</td>
<td>Disaster Risk Reduction</td>
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<td>EGC</td>
<td>Enhanced Group Call</td>
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<td>EEZ</td>
<td>Exclusive Economic Zone</td>
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<td>EU</td>
<td>European Union</td>
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<td>EWS</td>
<td>Early Warning System</td>
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<td>FAO</td>
<td>Food and Agriculture Organization of the United Nations</td>
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<td>FFA</td>
<td>Fire Fighting Appliance</td>
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<td>FIMSUL</td>
<td>Fisheries Management for Sustainable Livelihoods</td>
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<td>FLC</td>
<td>Fish Landing Centre</td>
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<tr>
<td>GoI</td>
<td>Government of India</td>
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<td>GoK</td>
<td>Government of Kerala</td>
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<td>GoTN</td>
<td>Government of Tamil Nadu</td>
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<td>GPS</td>
<td>Global Positioning System</td>
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<td>HF</td>
<td>High Frequency</td>
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<td>HFA</td>
<td>Hyogo Framework for Action</td>
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<td>ICAR</td>
<td>Indian Council for Agricultural Research</td>
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<td>ICSF</td>
<td>International Collective in Support of Fishworkers</td>
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<td>IMD</td>
<td>Indian Meteorological Department</td>
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<td>INCOIS</td>
<td>Indian National Centre for Ocean Information Services</td>
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<td>ISRO</td>
<td>Indian Space Research Organisation</td>
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<td>Abbreviation</td>
<td>Description</td>
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<tr>
<td>IUU</td>
<td>Illegal, Unreported and Unregulated fishing</td>
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<td>LSA</td>
<td>Life Saving Appliance</td>
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<td>MCS</td>
<td>Monitoring Control and Surveillance</td>
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<td>MF</td>
<td>Medium Frequency</td>
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<td>MFRA</td>
<td>Marine Fishing Regulation Act</td>
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<td>MMD</td>
<td>Mercantile Marine Department</td>
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<td>NavIC</td>
<td>Navigation with Indian Constellation</td>
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<td>NAVTEX</td>
<td>Navigational Telex</td>
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<td>NCRMP</td>
<td>National Cyclone Risk Mitigation Project</td>
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<td>NDMA</td>
<td>National Disaster Management Agency</td>
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<td>NFF</td>
<td>National Fishworkers’ Forum</td>
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<td>NGO</td>
<td>Non-Governmental Organisation</td>
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<td>nmi</td>
<td>Nautical Miles</td>
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<td>OBM</td>
<td>Out-board Motor</td>
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<td>PFD</td>
<td>Personal Floatation Device</td>
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<td>PFZ</td>
<td>Potential Fishing Zone</td>
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<td>SAR</td>
<td>Search and Rescue</td>
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<td>SDG</td>
<td>Sustainable Development Goals</td>
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<td>SDMA</td>
<td>State Disaster Management Agency</td>
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<td>SEWA</td>
<td>Self Employed Women’s Association</td>
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<td>SIFFS</td>
<td>South Indian Federation of Fishermen Societies</td>
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<td>SNEHA</td>
<td>Social Need Education and Human Awareness</td>
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<tr>
<td>SOP</td>
<td>Standard Operating Procedure</td>
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<td>SSF Guidelines</td>
<td>FAO Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication</td>
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<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
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<td>UNFCCC</td>
<td>United Nations Framework Convention on Climate Change</td>
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<td>UNTRS</td>
<td>United Nations Team for Recovery Support</td>
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<td>UNISDR</td>
<td>United Nations International Strategy for Disaster Reduction</td>
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<tr>
<td>VHF</td>
<td>Very High Frequency</td>
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<tr>
<td>VMS</td>
<td>Vessel Monitoring System</td>
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<td>WPC</td>
<td>Wireless Planning and Coordination Wing</td>
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Session 1: Inaugural Session

Dr. John Kurien, Managing Trustee, International Collective in Support of Fishworkers (ICSF) Trust, chaired the session, which began with a minute’s silence to pay homage to lives lost during Cyclone Ockhi.

Welcome Address

Ms. Nalini Nayak, Trustee, ICSF Trust, welcomed the participants, saying that the workshop was organised to avert disasters of this magnitude in the future, despite the advent of climate change and its effects on cyclonic activity. She thanked the Food and Agriculture Organization of the United Nations (FAO) for supporting the workshop and then introduced the speakers of the session. She noted that the workshop participants include not only government officials and fishworker organisations, but also members of the disaster affected community interviewed for ICSF Trust's study.

Overview of the Workshop

Mr. Sebastian Mathew, Executive Trustee, ICSF Trust, contextualizing the disaster and the workshop, said that Cyclone Ockhi was a sudden-onset disaster that wreaked havoc at sea and almost all the victims were either short- or long-haul fishers on board vessels from Kanniyakumari and Thiruvananthapuram districts. They mostly operated in clusters but were scattered by Cyclone Ockhi. Many of the affected mechanised vessels were registered in Tamil Nadu, operated from Cochin harbour, Kerala, and fished off the territorial waters in the Arabian Sea and landed catches in any fishing port on the western seaboard. Mr. Mathew said that Cyclone Ockhi had brought in its wake unprecedented destruction of life and livelihoods, in addition to social, health and psychological consequences.
In the context of the cyclone, he said that the workshop recognizes the importance of disaster risk management, as defined by the United Nations International Strategy for Disaster Reduction (UNISDR), focusing on the organisation, planning and application of measures preparing for, responding to and recovering from a sudden-onset disaster. The workshop would explore how to ensure that early warning leads to early action and in turn leads to preparedness at all levels for a quick and effective response.

Further, Mr. Mathew said that in the post-disaster scenario, the workshop would look at the role of the Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication (the SSF Guidelines) in disaster risk management. The workshop would examine concepts like “relief-development continuum” and “build back better” to strengthen resilience of small-scale fishing communities, including women and vulnerable and marginalised groups. Towards improving disaster and fisheries governance, the workshop would apply a human rights-based approach as advanced by the SSF Guidelines to look at the need for developing new and effective measures at the local, state and national levels in a coherent manner.

**Opening Remarks**

**Mr. P.H. Kurian, Additional Chief Secretary, Revenue and Disaster Management, Government of Kerala,** referred to Cyclone Ockhi as unprecedented and its impact different from traditional cyclone-related impacts such as falling trees and electricity poles. He said that there was coordination within the government through real-time communication, using various WhatsApp groups. Mr. Kurian spoke about the plans to introduce the Indian Regional Navigation Satellite System or Navigation Indian Constellation (NavIC) and ongoing efforts to make it a two-way communication system. The government of Kerala is also looking at the use of shortwave radio as an inexpensive way to communicate to those far out at sea. He said that adequate relief finance was available and that INR 20 lakh (INR 2 million) had been paid as solatium to the families of the dead and missing. Referring to the importance of a “relief-development continuum” in disaster risk management, Mr. Kurian said that in this year’s budget, INR 2000 crore (INR 20 billion) has been allocated for all-round development of coastal areas and there is a component for fishermen as well, the details of which were being worked out by the Department of Fisheries.

**Mr. C.M. Muralidharan, Consultant, FAO,** read out the message from **Mr. Shyam Khadka, FAO representative in India.** The FAO is committed to the Sendai Framework for Disaster Risk Reduction 2015–2030 and the Paris Climate Accord within the United Nations Framework Convention on Climate Change (UNFCCC). At FAO, disaster risk reduction and management is a corporate priority expressed in FAO’s overarching Strategic Objective to “increase the resilience of livelihoods to threats and crises.” FAO’s SSF Guidelines advocate for developing and implementing coherent and integrated national strategies for safety at sea, with the active participation of small-scale fishers themselves and through regional coordination. The SSF Guidelines also promote disaster risk management within the concepts of “relief-development continuum” and “building back better”.

As an intervention after the 1996 East Godavari cyclone in Andhra Pradesh state, the FAO project on training in sea safety helped give clear directions on community based disaster preparedness. After the 2004 Indian Ocean Tsunami, FAO was part of the joint UN initiative—the
United Nations Team for Recovery Support (UNTRS)—and also implemented a World Bank-supported project, Fisheries Management for Sustainable Livelihoods (FIMSUL). Both interventions helped set a direction for long term sustainable fisheries development on the lines of the “relief-development continuum” and "building back better" concepts. FAO has also been collaborating with the Bay of Bengal Programme Inter-Governmental Organisation (BOBP-IGO) on various sea safety projects. The current support to ICSF for the study was to help draw lessons from Ockhi as FAO recognizes the need to prepare for future disasters and to fill gaps in policy or it implementation, which can have a direct effect on the lives and livelihoods of fishers on the coast and at sea. The lessons learnt will hopefully help develop clear strategies for the future, based on the collective knowledge and experience of the various stakeholders present at the workshop.

**Dr. Yugraj Singh Yadava, Director, BOBP-IGO,** said that BOBP has been highlighting the safety needs and the working conditions of fishers since the 1980s. He was concerned that while a number of activities were demonstrated to fishermen, many did not last very long. Hence, a process that could ensure the long term safety of fishermen at sea is essential. Dr. Yadava said that it was unfortunate that the focus on working conditions and safety remained low from all stakeholders, including the government and fishers; and that we are good at post-mortems but what is needed is an ante-mortem. Pointing out that fishing, even in good times, is one of the most dangerous occupations in the world, he said that the concept of safety and risk reduction needs to be holistic and practised continuously. Referring to the Chittagong Resolution that was accepted by BOBP member countries in 2008, he said that the development of a national plan on monitoring, control and surveillance (MCS) had hardly been realized in India. He concluded, calling for an effective MCS system, saying that community platforms of fishers such as cooperatives should prioritize safety issues and help implement policies at the ground level.

“The concept of safety and risk reduction needs to be a holistic one—total safety. However, what we do is usually pick and choose measures as we suffer from event to event. Cyclone Ockhi is another reminder that fishermen should ask for, participate in and practice total safety.”

——Dr. Yograj Singh Yadava, Director, BOBP-IGO

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[Image of people at a workshop]

C.M. Muralidharan, Yugraj Singh Yadava, P.H. Kurian, John Kurien, Anthony Adimai, Nalini Nayak and Sebastian Mathew at the inaugural session of the workshop
Mr. Anthony Adimai, Chairman, South Indian Federation of Fishermen Societies (SIFFS), pointed out that fishers leave for their fishing grounds at different times of the day. In the case of Cyclone Ockhi, by the time the warning was received, many fishers were already out at sea. Hence, it was necessary to ensure that information reaches the fishers at the right time. Fishers should also be told the reason why they are barred from going to fish when cyclone warnings are issued. He also pointed out that SIFFS had created a small disaster management fund, from which they had been providing some support for those affected by Ockhi and other disasters.

Dr. John Kurien, Managing Trustee, ICSF Trust, concluding the session, noted that unusual weather episodes were going to become the norm in the future. Everyone in the audience were, in some way or another, connected to the Ockhi disaster—as those directly affected, or part of the rescue operations, government, media, academics and so on. The focus at this workshop was not only to make an analysis of the disaster, but to also consider ways in which future risks can be reduced.

“In Aceh, Indonesia, after the 2004 tsunami, one thing I learnt is that in the recovery process it is very important to reflect on what has happened. All those affected and those unaffected have to come together, respect each other’s positions and knowledge, and work together to build back better.”

—Dr. John Kurien, Trustee, ICSF Trust

Participants at the workshop
Session 2: ICSF Study Presentation

The session was chaired by Mr. C.M. Muralidharan, Consultant, FAO.

Mr. Manas Roshan, Consultant, ICSF Trust, presented the study, Cyclone Ockhi: Disaster Risk Management and Sea Safety in the Indian Marine Fisheries Sector. The objectives of the study were to assess disaster response and preparedness at national, regional and local levels; to review early warning systems and their efficacy; to evaluate, with a human rights-based approach, central and state policies and plans to cope with disasters and minimize loss of lives and fishery-based livelihoods; and to suggest national strategies to ensure safety at sea and disaster preparedness in line with the SSF Guidelines.

Interviews were conducted in four of the worst affected villages in Kerala and Tamil Nadu. Most of the dead and missing fishermen from Kerala worked on small-scale vallams or motorised country craft, while those from Tamil Nadu were long-haul fishers (30-40 day trips) working on mechanised vessels. Disaggregated village- and craft-wise data was crucial to identify specific vulnerabilities, which require differential interventions for safety and dissemination of warnings. A timeline of events between 28 November and 6 December, 2017 was presented to identify key issues of early warnings, fishers’ positions and disaster response by various agencies.

The role of meteorological and disaster management agencies, at the national and state level, was studied to examine both the gaps in cyclone management protocols and the opportunities for better coordination. The study looked into effective actions by Tamil Nadu agencies (such as the rapid relay of depression stage warnings to coastal communities using community organisations like churches), which could be applied in Kerala and other West coast states.

It was pointed out that the absence of an effective vessel monitoring system had led to aunderestimation of the cyclone’s threat to mechanised deep-sea vessels between the western seaboard and Lakshadweep Islands. Mr. Roshan analyzed the state disaster management plans of Kerala and Tamil Nadu, to point out that an almost exclusive focus on landfall of cyclones had led to gaps in determining threats at sea. Previous cyclone risk mitigation projects were also studied to point out the need for greater attention to sea safety and capacity building of the community, over coastal infrastructure development.

The study underlined the importance of disaster management institutions at the state and district level; and the lack of trained officials on the ground. The responsibilities of Fisheries Departments to create a contingency plan for accidents at sea; to devise a mass messaging system; and oversee how harbour warnings reach fishermen was highlighted. State Marine Fishing Regulation Acts (MFRA) and their safety requirements were studied, while pointing out how boat inspections are manipulated.

The Sendai framework for Disaster Risk Reduction 2015-2030, which India has adopted, aims to significantly reduce the loss of lives due to disasters through coordination and collaboration at all levels. The SSF Guidelines offer a roadmap for addressing both disaster risk management and sea safety, stressing on the need to integrate safety at sea into the management of fisheries. This includes MCS measures by Fisheries Departments. (Data on vessels and fishers at sea during Cyclone Ockhi would have been crucial to rescue operations, but was not available.) The SSF Guidelines recommend open and democratic access to disaster information and emergency location systems for fishermen.

Manas Roshan presenting the study on Cyclone Ockhi at the workshop
The study examined Sri Lanka’s implementation of MCS programme, as part of its policies to control illegal, unreported and unregulated (IUU) fishing. The country has integrated communications solutions and tssea safety into its management measures.

The study also addressed the issue of rehabilitation of fishers and families affected by the disaster. Kerala and the Tamil Nadu governments have disbursed compensation packages to the families of dead and missing fishermen. But residual vulnerabilities remain, especially the psychological trauma of survivors and the livelihood concerns of women who have lost their husbands.

The development-led approach to disaster mitigation and risk management aims at reducing vulnerability to future threats, said Mr. Roshan. Based on the findings of the study, a number of recommendations were made. It is necessary to use multiple channels and technologies to communicate warnings and ensure that there is close coordination and collaboration between the IMD and disaster managers, between departments and between states. By combining old technology like community radio and Very High Frequency (VHF) radio with new ones like satellite phones, appropriate user-friendly technology options must be derived, with the participation of the fishing community. Fishermen’s local knowledge must be used to identify locations where fishermen are likely to be fishing. Through community participation, there is a need to strengthen district and village level disaster risk management through periodic training programmes. This was to ensure an overall culture of safety. Disaster risk management must be integrated into fisheries management by expanding the regulatory role of Fisheries Departments. An updated database on fishing vessels, which includes information on harbours and landing centres, vessel movement and crew lists must be maintained. Data on migrant workers is a must as they are especially vulnerable during disasters and their numbers are on the rise. It is also necessary to monitor working conditions, contractual terms and the training of fishers. Finally, it is essential that governments apply a human-rights based approach to disaster risk management, respecting the rights and dignity of traditional fishers, women and migrants.

The presentation was followed by a discussion, which largely dealt with the communication requirements of fishers. One comment noted that while the report was a good post-mortem, it was also necessary to look forward and plan for the future. It was pointed out that post-1999, the number of casualties on land due to cyclones had come down, but the safety of fishers at sea and the dissemination of warnings remains a challenge. It was also mentioned that expensive and cumbersome equipment was not preferred by fishers.

Manas Roshan and C.M. Muralidharan during the presentation of the ICSF study
Session 3: Panel Discussion 1

Cyclone Ockhi: Fishers and coastal community perspective

Mr. V. Vivekanandan, Trustee, ICSF Trust, chaired the session and introduced the panelists, who were fishermen and fisherwomen from the Ockhi affected villages. Mr. Vivekanandan said the session would give voice to the experiences of the community and the challenges they now face in recovering from the disaster.

Mr. Sahayam, a vallam fisherman from Vizhinjam, Kerala, said that he and three other fishers had set out in one craft at 3 am on 30 November. They primarily used hooks and lines to fish and carried an extra outboard motor (OBM) and Global Positioning System (GPS) device on their craft. There was initially no problem but when they reached their fishing zone 15 nautical miles (nmi) from shore, they encountered the storm. The waves were the biggest he had ever seen. Two of the fishermen fell into the sea and drowned immediately. Mr. Sahayam and another fisher tied themselves to their overturned boat with rope and survived for two days before being rescued by a Navy vessel. He said that the Vizhinjam fishers had not received any warning. If they had been warned, they would not have set out that morning. They were treated in a hospital for five days and received a compensation of INR 20,000 but their losses due to the cyclone amounted to INR 600,000—for the craft, gear and the GPS. [Fishers were compensated for the loss of craft and gear in the weeks following the workshop.]

Mr. Raju, a vallam fisherman from Poonthura, Kerala, said that he had gone fishing with other fishers on two craft with three persons in each, to do hook-and-line fishing. The craft had a wireless set worth INR 12,000, used for communication with other vessels. They left on the night of 29 November and as they reached about 30 nmi from shore, the weather turned rough, and the current pulled them deeper into the sea. But they were somehow able to return to shore the next morning. Mr. Raju showed the audience a Distress Alert Transmitter (DAT) he had been given by the Department of Fisheries, Kerala, but said that he did not know how to use it.

Mr. Dickson, a mechanised boat owner from Eraviputhenthurai, Tamil Nadu, narrated his experience of going on a Search and Rescue (SAR) mission on a Coast Guard vessel from Thoothukudi. He used a map with the coordinates of fishing zones plotted and described the route of the Coast Guard vessel, which set out only on 5 December. Mr. Dickson clearly communicated the possible locations of his fellow fishers but didn't get a chance to interact with the officers overnight; in the morning he learned that they had reached a different location and was told that the vessel was not authorized to go to the areas he had suggested. Local fishers then launched their own rescue operation and found several capsized boats but it was too late to save the crew. He said that during SAR, the Coast Guard and the Navy should use fishers' knowledge and be more flexible with their protocols at the time of an emergency.

“Ockhi is a tale of two states and two fleets. The mechanised fleet is the least understood, whose fishing is based on dare devilry and inherited skills. It is necessary to understand which fleet goes where and that fishermen prize voice communication. This needs to be promoted with appropriate technologies.”

—Mr. V. Vivekanandan, Trustee, ICSF Trust

Mr. Robinson, a fisher from Vallavilai, Tamil Nadu, working on a mechanised vessel, departed from Thengapattinam harbour, Kanniyakumari, on 27 November along with 10 other crew members. They encountered the cyclone on the night of 30 November and the next day, their boat broke in half and capsized. They tied water cans together to make a raft and stay afloat. There was no food, so they ate the raw rice flour they had salvaged from the boat. While waiting for some sign of rescue vessels, three men from the group died during the storm. Eight of them finally drifted to the
rocks of Kalpeni (Lakshadweep Islands) along with one dead body. They recuperated in a hospital there for three days and were then dropped back home. They have been asking for some help from the government, even petitioning the district collector, because they don’t have the confidence to return to the sea.

Ms. Mercy Anthony, a fish vendor from Adimalathura, Kerala, lost her husband in Cyclone Ockhi. A total of 13 people died from Adimalathura; ten of them were from her family. Her husband's body was recovered and the government announced a solatium of INR 20 lakh (INR 2 million). Of this, a small portion is for the parents and the rest for the wife and the children, which is deposited into a bank account. She receives INR 13,800 as interest and has to use this to pay off loans and provide for her family. To claim the money, the ageing parents have to go from the village to the treasury in person. Those whose kin's bodies were never found faced even greater challenges with the bureaucracy. She hoped that her presence at the workshop would bring about some change in the lives of the families affected by the tragedy.

Ms. Saju Jeena from Vallavilai, Tamil Nadu, lost her husband, along with his two brothers and their recently acquired mechanised fishing vessel, in the cyclone. She said that the reality of their plight was that the compensation paid by the government did not cover their debts and expenses in the absence of any earnings from fishing. She was hopeful because the local church and parish priests are training her and other women in tailoring and embroidery, helped by grants from charities. She hoped that the government could take forward such vocational training for women through its own programmes.

Mr. Lawrence, a vallam fisherman from Poonthura, Kerala was the last person rescued in Kerala, after drifting at sea for three days. He had received some medical assistance from the government and a little support from the local church. He said that he had attempted to go fishing again but had to abandon it because of the injuries he had sustained and the memories of the storm. (He suffers from chronic back pains and has lost hearing in one ear.)

A discussion followed, where the issue of life-jackets and safety equipment was taken up: quality of the jackets distributed by the government; why fishermen did not use them; and their unavailability in the market. A suggestion was made to design vallams with a store for safety equipment. The discussion was followed by the screening of a film on a floatation device designed by BOBP-IGO in the aftermath of the 1996 Andhra Pradesh cyclone. The float was useful for a group of fishers and the design was open source. It was pointed out that safety equipment requires certification by appropriate agencies before distribution.
Session 4: Panel Discussion 2

Disaster preparedness at sea: Ensuring effective early warning systems and better prediction of cyclones

The session was chaired by Mr. Satish Babu, Member, Global Humanitarian Activities Committee, Institute of Electrical and Electronic Engineers (IEEE). Mr. Satish said that this session would address issues of technology and its effective use for early warnings, prediction and dissemination of alerts. While various technologies are available, the decision would largely be based on the needs of fishermen, who have demonstrated that they will spend money on equipment and train themselves to use them if the implements help catch more fish and better their livelihoods.

Dr. P. Pravin, Assistant Director General (Marine Fisheries), Indian Council of Agricultural Research, expressed concern over the lack of awareness about safety among fishermen and their unwillingness to carry the minimum required lifesaving appliances on their boats. He spoke about how boat owners move the same batch of safety equipment from boat to boat during inspections. Over the years, boat sizes and the size of the holds for fish and diesel have become larger, but fishers always claim there is no space for essential life jackets. All gear and equipment on board has the sole purpose of catching more fish. Unlike in the past, small vessels were now going deeper into the sea and communication is becoming more difficult. Dr. Pravin said that a lot of mobile apps were now available which gave information on both fish availability and sea conditions. Training in the use of these apps and safety equipment was essential. The motto, ‘Safety first, profit next’ should be firmly inculcated among fishermen.

Mr. Ravi Shanker Srivastav, Engineer, Wireless Planning and Coordination (WPC) Wing, Ministry of Communications, Government of India, said that internationally, there are several modes of sending navigational and meteorological warnings: Navigational Telex (NAVTEX) technology, which operates on the medium wave frequency (MF); Enhanced Group Call (EGC), a satellite based system, etc. But these might not be practical for small-scale fishers. The near-shore vessels can use VHF radio sets and deep sea fishing can use MF or HF sets, for which individuals or governments can apply for licenses with the WPC. Satellite phones are now available through BSNL but it remains to be seen if licenses will be issued to fishers. The misuse of marine radio frequencies by fishermen is a major issue, with distress channels sometimes getting jammed because of chatter between boats. Training and sensitization of fishers is essential. He said that the WPC mainly dealt with frequency management and regulation but would support all endeavors to better connect fishers.

Dr. S. Balachandran, Director, Area Cyclone Warning Centre, Indian Meteorological Department, Chennai, explained the systems and protocols for cyclone prediction and dissemination of warnings. Dr. Balachandran drew attention to the fact that data from the deep oceans was not available and this limits the analytical models used for predictions. The IMD uses data from satellites, radars and several other sources. The increase in accuracy of monsoon forecasts is because of improvements in technology.

In the case of cyclones Phailin and Hudhud, forecasters got a good lead time because they formed far away from the coast, but Ockhi intensified close to the coast. Normally storms dissipate as they travel over land but Ockhi rapidly intensified after crossing Sri Lanka. Dr. Balachandran said that as soon as it was confirmed as a depression, he called the Tamil Nadu Relief Commissioner; bulletins were also issued. He said that cyclone prediction is not an exact science and all models have limitations. He concluded saying that studies indicated an increase in the intensity of cyclones in the Arabian Sea due to climate change. Although recent cyclone prediction models showed that the number of cyclones will reduce in the Northern Indian Ocean, the inference of experts is that once formed, these systems will be very strong.
Dr. Abhilash S., Assistant Professor at the Department of Atmospheric Sciences, Cochin University of Science and Technology, explained the various pathways of cyclones on the Arabian Sea coast and the operational models used by the IMD for cyclone prediction. He said that he and his team have developed coupled models that use both atmospheric and oceanic data. The problem is that as lead time increases, so does the uncertainty of predictions, while the surety of forecasts decreases. Dr. Abhilash concluded by saying that there are four components to disaster preparedness: the risk knowledge of the community, which determines their mitigation actions; monitoring by disaster managers; prediction, which is the domain of scientists; and communication of warning, all of which need a bottom-up approach involving the community in order to succeed.

Mr. Sajan Venniyoor, Community Radio Consultant, used a chart outlining the flow of information during a disaster to show that the people who are supposed to receive the warnings are always at the bottom, an understanding of communication that needs to be inverted. Pointing out that the chain has too many links, which causes delays in relaying warnings, Mr. Venniyoor said that the quickest path was the media. Radio, although a powerful tool, is tightly controlled by the government. He explained how coastal community radio stations, which broadcast on FM, could easily broadcast as far as 35-50 nmi, which is very useful for traditional fishing craft as the costs of both transmission and the devices are very low. Mr. Venniyoor pointed out that fishermen need to hear alerts and messages in their own language and idiom, so using a single centralized broadcast was not practical.

In the discussion that followed, key learnings from East coast states, which could be adopted by West coast states like Kerala, were discussed. It was pointed out that the initiative taken by IMD’s local officials in Tamil Nadu, even before formal bulletins were prepared, revealed inconsistencies in communication channels and gaps in protocols for cyclone management. It was clarified that the government has reserved two frequencies for community radio stations in each district.
Session 5: Group Discussion

Four questions were prepared for discussion and assigned to group coordinators (Annexure 2). Participants could choose the group and coordinators they wished to join, as per their areas of expertise. The outcomes from the hour-long discussions were presented on the second day.

Group 1: Channels of communication and early warning systems needed to reduce disaster risks (Coordinator and Rapporteur: Dr. Maxmillian Martin)

Group 2: Possibilities for participative local level coordination and collaboration for disaster management and relief (Coordinator: V. Vivekanandan; Rapporteur: Dr. Ahana Lakshmi)
Taking note of the Sustainable Development Goal (SDG) target 1.5 "by 2030 build the resilience of relevant mechanisms under the jurisdiction of the State; and further recognize the relevance of coastal fishing communities that often have their own mechanisms, processes and institutional frameworks relevant for disaster preparedness that can effectively complement governance.

II. Early Warning and Prediction Authorities

Recommend the following measures to the appropriate authorities at various levels and other relevant stakeholders:

1. Strengthen the capacity of local self-governments to enhance community participation in disaster risk reduction;
2. Integrate fishers’ knowledge into search and rescue operations at sea;
3. Ensure that emergency relief and rehabilitation measures are expeditiously delivered to the needs of affected men and women in fishing and post-harvest activities, including of those directly and indirectly affected;
4. Safeguard maternal health and education for children of affected families;
5. Safeguard children’s education and livelihoods;
6. Make adequate budget provisions to support disaster risk management at all levels;
7. Build and strengthen resilience and adaptive capacity of small-scale fishing communities and fishing operations in cooperation with the relevant fisheries departments and the Coast Guard;
8. Make adequate budget provisions to support disaster risk management at all levels;
9. Develop, in consultation with fishing communities, appropriate mechanisms for disaster relief and rehabilitation in the fisheries sector and apply standardised protocols to promote coordination and cooperation at all levels;
10. Ensure that disaster management and disaster risk management measures applicable to related extreme events and other economic, social and environmental shocks and disasters.

Develop innovative new approaches (e.g. earmarking ‘dynamic cones of uncertainty’ as potential cyclone zones) for cyclone prediction, along with multichannel communication, through school curricula reforms, school clubs and through ocean literacy programmes;

To protect coastal fishing communities, and among near shore and offshore fishers; and fishing communities, and among near shore and offshore fishers;

In the context of the Convention on Biological Diversity (CBD), the United Nations Convention to Combat Desertification (UNCCD), and the United Nations Framework Convention on Climate Change (UNFCCC), parties are invited to cooperate to address the loss and damage of the 2015 Paris Agreement of the United Nations Framework Convention on Climate Change, and manmade disasters consistent with Article 7 (adaptation) and Article 8 (addressing the long-term adjustment needs of developing countries).

Develop baseline information on marine and coastal habitats (natural reefs, coral reefs, sandy beaches, etc.) to assess damages to these habitats and dependent species from natural disasters, and to the needs of affected men and women in fishing and post-harvest activities, including of those directly and indirectly affected.

Promote public awareness about natural disasters like cyclones, among other means, through school curricula reforms, school clubs and through ocean literacy programmes;

Improve accuracy of cyclone prediction and efficiency of its dissemination among coastal fishing communities, and among near shore and offshore fishers;
Session 6: Panel Discussion 3

Disaster response and relief: Institutional coordination and collaboration.

Dr. Y. S. Yadava, Director, BOBP-IGO, chaired the session and said the speakers will deliberate on the steps that need to be taken to improve institutional collaboration and coordination, the backbone of both post-event and pre-event activities.

Mr. S. Venkatesapathy, Director of Fisheries, Government of Kerala, said that even prior to the cyclone, the Fisheries Department had been trying to ensure registration of all boats. He said that about 96 percent of all mechanised boats had been registered and colour-coded, and their locations generally known. This is a challenge for traditional craft because they are large in number and depart from their villages. As part of a project, the Department had struggled to install even 300 automatic tracking devices on these vessels. The second challenge is communication, as no long range two-way communication devices are available.

The new NavIC devices developed by the Indian Space Research Organisation (ISRO) are being proposed along with more DAT devices. The last aspect the Department is working on is life-saving equipment. They are now trying to develop less cumbersome inflatable life jackets. Mr. Venkatesapathy concluded by saying that all such innovations need discussions and training at the grassroots level.

Dr. Swathi Lakshmi, Principal Scientist, Central Marine Fisheries Research Institute (CMFRI), Vizhinjam, conducted a field study on the impact of the cyclone in Poonthura and Vizhinjam villages. A sample of 34 fishermen from each village was used. According to Dr. Swathi's study, the lack of safety devices on board the craft and lack of communication systems were perceived as the main factors for deficiencies in preparedness. She emphasized the importance of traditional

“One aspect of risk reduction we are finding difficult is knowing how many fishermen have gone to sea and their locations: They need not say the exact GPS coordinates. Just the direction, the departure time and expected time of return. We need these data.”

—S. Venkatesapathy, Director of Fisheries, Government of Kerala
knowledge of fishers, many of who had observed unusual cloud and wind conditions and returned to shore before the cyclone struck. She concluded her presentation saying that counseling and career guidance for children of dead fishers was an urgent need expressed by the fisher families.

Commandant V. K. Varghese, Commanding Officer, Indian Coast Guard, Thiruvananthapuram, discussed the role of the CG in rescue operations during Cyclone Ockhi. He presented photos and videos to describe the weather conditions at the time, acknowledging that this slowed down their work. Commandant Varghese expressed concern that several fishers were reluctant to abandon their boats and gear, despite the threat to their lives, a sign that more needs to be done to secure their assets and livelihoods. Refuting reports that CG vessels were constrained by protocol, he pointed out their difficulties: limited number of SAR vessels in nearby locations; the vast area over which stranded boats were scattered; and the absence of precise location of these boats. The commandant was of the opinion that DAT devices, whose signals are monitored jointly by the CG and other agencies, was an essential tool for fishermen, along with life-saving equipment, which are crucial in the interim between accidents and the arrival of responders.

Dr. Sekhar L. Kuriakose, Head, State Emergency Operations Centre, Government of Kerala, said that Cyclone Ockhi was an important lesson for Kerala whose last cyclone was nearly 100 years ago. Describing the Kerala SDMA’s proactive efforts, both on- and offline, to strengthen coordination, Dr. Sekhar said that every district had interdepartmental teams to monitor monsoon conditions and this would now be expanded. He said that post-Ockhi, the Kerala SDMA had decided to change the cyclone warning protocol, so that even depression warnings activate the Standard Operating Procedure (SOP) for disasters. This means that fishing activity will be barred once depression warnings are issued. The SDMA will also make use of predictions from multiple reliable agencies, including the IMD. He said the challenge was to create localized prediction systems that are latitude-longitude specific, so that fishers’ livelihoods are not adversely affected by frequent warnings.

Dr. Y. S. Yadava, in his closing remarks said that the fisheries administration has an important role to play in preventing the loss of lives of fishers. Disasters are rare but routine accidents at sea account for the highest number of deaths. The precautions must start from the land, from the moment the boat leaves the harbour or landing centres.

“There is no restriction—for humanitarian action, the Coast Guard can even cross international boundaries. Whenever a cyclone or low pressure area is formed, we are completely alert. But the search area is vast; unless there is a specific distress call, we will not divert our assets to a particular area.”

Commandant V. K. Varghese, Commanding Officer, Indian Coast Guard, Thiruvananthapuram

Dr. V. K. Varghese, Yugraj Singh Yadava, and Sekhar L. Kuriakose during the third panel discussion on institutional collaboration and coordination during disaster response and relief
Session 7: Group Presentations

Group coordinators presented the key points of their discussions in a session chaired by Dr. P. Pravin, Assistant Director General (Marine Fisheries), Indian Council of Agricultural Research, New Delhi.

On the question of effective early warning systems and channels of communication needed for the reduction of disaster risks, Group 1, coordinated by Dr. Maxmillan Martin, categorized the issues according to geographical zones or positions relative to the shore; appropriate media keeping the end users in mind; and the content of fisher warnings. Besides the technology options discussed in the sessions, village loudspeakers, visual aids and port signals were suggested. The group stressed that the message should be clear; it is important that fishers be explained what the risks are; and that they be informed about the specifics of storm intensity, location, track and other details. Government agencies should simplify and authenticate their bulletins using fisher feedback. Dr. Maxmillan also suggested an IMD ‘hotline’ with 24-hour channels of communication open to fishers.

Group 2, coordinated by Mr. V. Vivekanandan, deliberated on the possibilities for participative local level coordination and collaboration for disaster management and relief. Group rapporteur, Dr. Ahana Lakshmi, stressed on the need to identify strong, locally accepted community organisations (gram panchayats, customary and religious organisations, women’s groups, self-help groups, cooperatives or boat associations) to aid both disaster and disaster risk management activities. Consultation with the community is paramount and the capacity of local organisations has to be built. In the case of SAR operations, local community-led efforts can complement the work of the CG and the Navy. People should be given the appropriate training, for both disaster situations and routine distress calls.

The use of appropriate technology and safety measures to reduce fishers’ risks at sea was discussed by Group 3, coordinated by Dr. Leela Edwin and presented by Dr. Abhilash S. The group felt that boat building yards, materials and specification need to be certified by competent agencies and then regulated so that boat owners don’t risk the lives of fishers by modifying boat designs. Mechanised vessels must have storage space for life jackets and buoys. All harbours and landing centers must develop MCS centres in line with the national plan adopted in 2010. These MCS centres should implement a token system; maintain crew lists and record boat activity; and function round the clock. The group suggested that the utility and practicability of Automatic Identification System (AIS) be studied, after consulting fishers. Other low-tech solutions like radar reflectors were also recommended, along with marine ambulances in all harbours. Since effective communication is built on long-term relationships, the group stressed on the importance of regular meetings and training sessions for all stakeholders.

Moving the focus to long-term strategies to be adopted on shore for disaster risk reduction, Group 4 discussed coastal protection measures. The group, coordinated by Mr. A.J. Vijayan and Ms. Nalini Nayak said that big harbours, sea walls and breakwaters on the Kerala coast cause...
massive changes to the coastline, transforming fish habitat and endangering the lives and livelihoods of fishing communities. Open beach areas with green buffer zones must be strictly reserved for and managed by the community. The group recommended that the youth be up-skilled and trained in coastal engineering, marine enforcement and disaster management through government-supported educational institutions. Local self-government institutions and women’s initiatives like Kudumbashree in Kerala can play an important role in including women in risk mitigation activities. In low-lying and crowded coastal areas that are at risk from sea-level rise and natural hazards, coastal communities must be rehabilitated after due consultation.

In the discussion that followed, it was pointed out that communication devices must be multi-functional (Fishers will look forward to regular radio broadcasts that mix weather related information with entertainment, market updates and news; as opposed to DATs that have only one use). The regular broadcast on HF radio to Sri Lankan deep sea fishers was mentioned. It was agreed that empowering local organisations is a must to manage disaster situations but maintaining the community’s interest is still a challenge. Questions of costs of safety equipment, government subsidies and accident insurance in fisheries were discussed. The pros and cons of using already existing coastal infrastructure, such as schools and hospitals were discussed.
Session 8: Panel Discussion 4

Integrating sea safety into fisheries management and governance: Challenges facing the Indian fisheries sector.

The chair, Mr. V. Vivekanand, Trustee, ICSF Trust, said that sea safety measures cannot be implemented in isolation but must be integrated into fisheries management and that the panelists would discuss the roles that government, community and other stakeholders can play.

Captain Sureshkumar Nair, Nautical Engineer, Mercantile Marine Department, Government of India, Cochin, compared the shipping and fishing industries, in terms of their attitudes to risk and the capacity to implement and enforce safety norms. Fishing is conducted with a sense of adventure, disregarding safety and comforts—not only is there no space on boats to store lifejackets, even sleeping arrangements are made on unprotected decks. Harsh working conditions and irregular hours lead to a perpetual state of fatigue. Accidents typically occur in such conditions. The Captain also expressed concern about migrant workers on long-haul fishing vessels, who were not trained to fish or even swim in the sea. He expected the younger generation, which is more aware, to demand and use advanced equipment and safety training as they get inducted into fishing.

Dr. Leela Edwin, Principal Scientist and Head, Fishing Technology Division, Central Institute of Fisheries Technology (CIFT), Cochin, discussed the Institute’s contribution in the SAR efforts after the cyclone. Her team participated only in the second stage of operations on 10 December, and they took fishermen on board, who directed them to specific locations and were able to save a few lives. A survey conducted by CIFT after Ockhi found that safety equipment was nowhere in use in the cyclone affected areas; similarly, most vallams had not been certified for durability and stability. She was concerned about the low quality raw materials used to manufacture fibre vallams. CIFT suggested several changes in craft design to save lives in emergencies: chine rails along the bottom of the hulls; signal lights and radar reflectors to be visible to CG and merchant vessels; hand flares and waterproof torches, etc.

Mr. Narendra Ramachandra Patil, Chairperson, National Fishworkers’ Forum, described his experiences as a member of the National Maritime Search and Rescue Board. He said that in Maharashtra and Gujarat, the cooperative societies have all the information about boats and crew members, and are usually consulted by the government during emergencies. He called for regular
training programmes to be held by Fisheries Departments so that owners and fishers learn about the importance of safety measures. Mr. Patil also discussed the issue of rehabilitation, which should not be understood simply as a payment of compensation to victims’ families but a secure future for the disaster affected. He also called for strengthening cooperatives, following the model of states like Maharashtra and Kerala, and for their active involvement in disaster risk management.

**Mr. Xavier Joseph, Chief Executive, SIFFS,** discussed the federation’s 35-year-long experience in several aspects of fishermen’s safety: the design and marketing of reliable fishing vessels and the supply of spare parts; the development of radio beacons (or DAT) for distress messages; and a safety kit for small-scale fishing vessels. Sadly, fishermen have been slow to adopt these measures. Old surveys have shown the high rates of casualties due to routine accidents at sea. Large waves carrying men off deck and falls overboard still remain the biggest killers. Mr. Joseph underlined the role of fisher families, especially women, in supporting and inculcating a culture of safety. He concluded saying that safety should move from a voluntary to an obligatory aspect of fishing.
Session 9: Panel Discussion 5

Building back better keeping nature and people in mind

The session was chaired by Mr. D. Nandakumar, Senior Adviser, Climate Change and Environment, Intercopperation Social Development India.

Mr. C.M. Muralidharan, Consultant, FAO, drew from the experiences of three East coast disasters—1996 East Godavari cyclone, 1999 Odisha super-cyclone, and 2004 Indian Ocean tsunami—to highlight opportunities for sustainable development in the post-disaster period. In Odisha, multi-purpose cyclone shelters were more useful than single-purpose shelters in Andhra Pradesh. Post-tsunami housing reconstruction was a success story because the community was consulted on the choice of location and house type. On the other hand, donors helped fishers acquire a large number of boats after the disaster, but this led to overfishing and poor boat quality. Participatory planning is essential and so are the forward and backward linkages for both regulation and welfare. Mr. Muralidharan concluded saying that rehabilitation and reconstruction should aim at long term sustainable development, integrating fisheries livelihoods, fisheries management and disaster preparedness. There should also be a provision for continuous monitoring of results and impacts.

Dr. Y. S. Yadava, Director, BOBP-IGO, spoke about the importance of process-oriented disaster risk management, founded on a respect for rules and norms. Emphasizing the need to integrate sea safety into fisheries management, he pointed out how technology alone will not save lives. MCS regimes should have provisions that allow the community to take control wherever it is possible. He called for developing MCS processes in India.

Mr. C.P. Geevan, Director, Centre for Environment & Social Concerns, Ahmedabad, described the events in whose backdrop India's disaster management strategies were developed: 2001 Kutch earthquake, 2004 tsunami and the cyclones that battered the East coast till the 1990s. He said that building resilience into infrastructure, into institutions, and into policies are all part of the risk reduction approach. Coastal area management, looked at from a disaster management perspective, cannot be delinked from sustainable development and environmental concerns. He cautioned that intensification of economic activity on the coast will not reduce risks. The Sendai Framework recommends reducing existing risk, but also, crucially, avoiding the creation of new risks.
Mr. Peter T., General Secretary, National Fishworkers’ Forum, spoke about the gaps in including the community in disaster preparedness planning. He reemphasized the importance of radio broadcasts for fishers. Mr. Peter said that central and state government agencies should work together in the future, through better communication of cyclone warnings and coordination of SAR operations. Referring to the fishers of Marianad in Kerala, who escaped the cyclone, he said that traditional knowledge together with modern scientific knowledge would have to be integrated into fishing in the future.

Ms. Seeta Dasan, State Committee Member, Self Employed Women’s Association (SEWA), spoke about the impacts of the cyclone on women. She pointed out how the fishing villages have several young widows, because many young fishers were lost at sea. Their economic burdens are now heavier and they have to depend on private money lenders, with the risk of exploitation. SEWA is encouraging women to start working, though the community is not always supportive of married women finding employment. SEWA is also organising counseling sessions and workshops for fishers traumatized by the disaster.

Mr. P. Robert, with the NGO, Friends of Marine Life, described the work of his collective, led by a group of youth from the fishing community in Thiruvananthapuram, to study the marine seabed ecosystem using the traditional knowledge of the community. After Ockhi, the collective conducted diving sorties to dredge up ‘ghost nets’ and record video footage of plastic pollution in the oceans. They continue to share their knowledge with the public to raise awareness about marine pollution. Showing images of the impact of Ockhi on the nearshore reefs and the coastline, Mr. Robert said that studies should look into the impacts of cyclones on marine ecosystems, which directly affect fisher livelihoods. He said that in the context of Ockhi, strong measures need to be taken for the protection of the coast, including ocean literacy programmes; mapping of fragile reefs and biodiversity hotspots; and the preservation of traditional knowledge about local ecology and sustainable fishing practices.
**Statement**

A draft statement of the workshop was read out by Ms. Nalini Nayak. After discussion and feedback, the workshop statement was finalized and is produced below.

We, participants at the National Workshop on Small-scale Fisheries, Cyclone Ockhi and Disaster Risk Management, held in Thiruvananthapuram, India, on 29th and 30th May 2018;

Concerned that Cyclone Ockhi brought unprecedented fatalities to fishers, including migrant fishers, all along the entire range of their fishing operations, both in inshore and offshore waters;

Further concerned about the impact of Cyclone Ockhi on the women and children of the affected families of fishers;

Mindful that natural disasters have differential impacts and therefore need a differentiated approach at all levels;

Recognizing the need for a national perspective, legal and policy framework that integrate on-land and at-sea disaster management and disaster risk management;

Fearing that climate change impacts can enhance the intensity of cyclones in future in the Arabian Sea, in addition to the Bay of Bengal, and would have disastrous consequences for coastal communities and fishing communities;

Being aware that better disaster management and disaster risk management can contribute to mitigating new disaster risk and associated economic, environmental and social consequences;

Recognizing that the quality and success of disaster management and disaster risk management can be greatly enhanced through consultation and participation, applying a human rights-based approach within the Sendai Framework for Disaster Reduction 2015-2030, and the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty
Eradication (the SSF Guidelines);

Further recognizing that coastal fishing communities often have their own mechanisms, processes and institutions relevant for disaster preparedness that can effectively complement governance mechanisms under the jurisdiction of the State; and

Taking note of the Sustainable Development Goal (SDG) target 1.5 “[B]y 2030 build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.”

Recommend the following measures to the appropriate authorities at various levels and other relevant stakeholders:

I. Disaster management authorities

1. Reduce the number of deaths and number of people affected, including migrant fishers, and reduce the direct economic losses caused by disasters;
2. Integrate fishers’ knowledge into search and rescue operations at sea;
3. Ensure that emergency relief and rehabilitation measures are expeditiously delivered without further aggravating economic, social and psychological distress of affected families;
4. Take care that relief and rehabilitation measures in a post-disaster scenario are proportional to the needs of affected men and women in fishing and post-harvest activities, including of those directly and indirectly affected;
5. Safeguard maternal health and education for children of affected families;
6. Develop, in consultation with fishing communities, appropriate mechanisms for disaster relief and rehabilitation in the fisheries sector and apply standardised protocols to promote coordination and cooperation at all levels;
7. Build and strengthen resilience and adaptive capacity of small-scale fishing communities and reduce their vulnerability to natural disasters;
8. Make adequate budget provisions to support disaster risk management at all levels;
9. Ensure that disaster management and disaster risk management measures applicable to the fishing sector are informed by reliable information regarding fishing fleets, fishing gear and fishing operations in cooperation with the relevant fisheries departments and the Coast Guard;
10. Develop baseline information on marine and coastal habitats (natural reefs, coral reefs, sandy beaches, etc.) to assess damages to these habitats and dependent species from natural and manmade disasters consistent with Article 7 (adaptation) and Article 8 (addressing loss and damage) of the 2015 Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC);
11. Promote public awareness about natural disasters like cyclones, among other means, through school curricula reforms, school clubs and through ocean literacy programmes;
12. Strengthen the capacity of local self-governments to enhance community participation in disaster risk reduction;

II. Early Warning and Prediction Authorities

13. Improve accuracy of cyclone prediction and efficiency of its dissemination among coastal fishing communities, and among near shore and offshore fishers;
14. Develop innovative new approaches (e.g. earmarking ‘dynamic cones of uncertainty’ as potential cyclone zones) for cyclone prediction, along with multichannel communication,
to rapidly disseminate cyclone alerts to local communities (community radio, VHF, HF, satellite phones, etc.);

15. Integrate safety of fishing vessels, vessel navigation and operations as well as occupational safety of fishers into disaster risk reduction protocols to reduce the number of fishers losing their life during cyclones, including through the provision of financial incentives;

III. Fisheries Authorities

16. Recognize the role and responsibilities of the fisheries authorities in monitoring fishing activity and safeguarding sea safety and ensure them an active role, along with other agencies, in search and rescue operations as well as in relief, rehabilitation, reconstruction and recovery efforts; in this context, coastal state/union territory fisheries authorities and the fisheries department at the centre should collaborate;

17. Provide effective and appropriate communication equipment to all fishers and registered fishing vessels at sea;

18. Develop awareness of small-scale fishing communities and provide training about adoption of effective sea safety procedures including use and maintenance of communication equipment;

19. Enforce sea safety norms and integrate sea safety into fisheries management and governance of short-haul and long-haul fishing operations, consistent with the recommendations of the SSF Guidelines, employing the “relief-development continuum” and “build back better” principles and a human rights-based approach;

20. Build capacity, including through pre-sea training, to deal with fishing in rough sea conditions and working for excessive periods of time, after an assessment of the risks concerned;

IV. Fishing Communities

21. Improve the efficiency of dissemination of cyclone alerts among coastal fishing communities, and among near shore and offshore fishers, using the most cost-effective means of communication (e.g. community radio);

22. Encourage traditional and local knowledge and use of traditional protocols to predict disasters and to reduce disaster risks, and to promote community-based disaster risk management planning;

23. Strengthen the capacity of community-based organisations, including women’s organisations, to deal with disaster risk management, particularly at the local level;

24. Propose ‘green zones’ under coastal disaster preparedness programmes to reduce the vulnerability of small-scale fishing communities to sudden-onset cyclones; and

25. Integrate sea safety into community-based initiatives for fisheries development and management.

In conclusion, building resilience of coastal communities to natural disasters and climate change requires coordination at all levels and open consultation with, and participation of, all stakeholders. This includes an awareness of the responsibilities of the community in ensuring an overall culture of safety at sea and on land.

Vote of Thanks

N. Venugopalan, Programme Manager, ICSF Trust extended a vote of thanks to all the participants; the chairs and presenters in all sessions; and the translators, both for the workshop and preliminary material.
Annex 1: Workshop Programme

National Workshop on Small-scale Fisheries, Cyclone Ockhi and Disaster Risk Management
Iris Hall, Apollo Dimora Hotel, Thiruvananthapuram, Kerala, India,
29th to 30th May, 2018

Programme

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<td><strong>08:30 – 09:00</strong></td>
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</tbody>
</table>
| **09:00 – 09:40**   | **Inaugural Session**  
A minute’s silence to pay homage to fishers lost at sea during Cyclone Ockhi  
**Welcome:** Ms. Nalini Nayak, Trustee, ICSF Trust  
**Overview of the Workshop:** Mr. Sebastian Mathew, Executive Director, ICSF  
**Opening Remarks:**  
Mr. P. H. Kurian, Additional Chief Secretary, Revenue and Disaster Management, Revenue Department, Government of Kerala  
Mr. Muralidharan C. M. Consultant, Food and Agriculture Organization of the United Nations  
Dr. Yugraj Singh Yadava, Director, Bay of Bengal Programme-Inter-Governmental Organisation  
Mr. Anthony Adimai, Chairman, South Indian Federation of Fishermen Societies  
**Chair:** Dr. John Kurien, Managing Trustee, ICSF Trust |
| **09:40 – 10:15**   | Group Photo Tea-Coffee Break |
| **10:15 – 12:00**   | **Study Presentation**  
Cyclone Ockhi: Disaster Risk Reduction and Sea Safety in the Indian Marine Fisheries Sector: Mr. Manas Roshan, Consultant, ICSF Trust  
**Chair:** Mr. Muralidharan C. M. Consultant, Food and Agriculture Organization of the United Nations  
Discussion |
| **12:00 – 13:15**   | **Panel 1: Cyclone Ockhi: Fishers and coastal community perspective**  
**Chair:** Mr. V. Vivekanandan, Trustee, ICSF Trust  
Motorised vessels from Vizhinjam (Thiruvananthapuram): Mr. Sahayam  
Fishermen of multi-day vessels from Vallavilai (Kanyakumari): Mr. Dickson and Mr. Robinson  
Motorised vessels from Poonthura (Thiruvananthapuram): Mr. Raju  
Fisherwoman from Thiruvananthapuram: Ms. Mercy Antony from Adimalathura (Thiruvananthapuram)  
Fisherwoman from Kanyakumari: Ms. Saju Jeena  
Discussion |
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:15 – 14:00</td>
<td>Lunch</td>
</tr>
</tbody>
</table>
| 14:00 – 15:15 | **Screening of film:** ‘Life Float’ (8 minutes) (by Bay of Bengal Programme Inter-Governmental Organisation)  
**Panel 2: Disaster preparedness at sea: Ensuring effective early warning systems and better prediction of cyclones**  
**Chair:** Mr. Satish Babu, Member, Institute of Electrical and Electronics Engineers, Global Humanitarian Activities Committee  
Mr. P. Pravin, Assistant Director General (Marine Fisheries), Indian Council of Agricultural Research  
Dr. S. Balachandran, Director, Area Cyclone Warning Centre, Chennai, Indian Meteorological Department  
Mr. Ravi Shankar Srivastav, Engineer, Wireless Planning and Coordination Wing, Ministry of Electronics and Information Technology, Government of India  
Dr. Abhilash S., Assistant Professor, Department of Atmospheric Sciences, Cochin University of Science and Technology  
Mr. Sajan Venniyoor, Community Radio Consultant  
Discussion |
| 15:15 – 16:30 | **Panel 3: Disaster response and relief: Steps needed for improved institutional coordination and collaboration**  
**Chair:** Dr. Yugraj Singh Yadava, Director, Bay of Bengal Programme Inter-Governmental Organisation  
Mr. S. Venkatesapathy, Director of Fisheries, Government of Kerala  
Mr. V.K. Varghese, Commanding Officer, Indian Coast Guard, Thiruvananthapuram  
Dr. Sekhar L. Kuriakose, Head, State Emergency Operations Centre, Government of Kerala  
Ms. Swathi Lakshmi, Principal Scientist, Central Marine Fisheries Research Institute  
Discussion |
| 16:30 – 16:45 | Tea-Coffee Break                                                        |
| 16:45 – 17:30 | **Group Discussions**                                                   |
Panel 4: Integrating sea safety into fisheries management and governance: Challenges facing the Indian fisheries sector

Chair: Mr. V. Vivekanandan, Trustee, ICSF Trust

Dr. Leela Edwin, Principal Scientist & Head, Fishing Technology Division, Central Institute of Fisheries Technology

Mr. Narendra Ramachandra Patil, Chairperson, National Fishworkers’ Forum

Mr. Xavier Joseph, Chief Executive, South Indian Federation of Fishermen Societies

Mr. Sureshkumar Nair V.G., Nautical Engineer, Mercantile Marine Department, Government of India

Discussion

11:00-11:15 Tea-Coffee Break

Group Presentations

Chair: Dr. P. Pravin, Assistant Director General (Marine Fisheries), Indian Council of Agricultural Research

13:15-14:00 Lunch

Panel 5: Building back better keeping nature and people in mind

Chair: Mr. Nandakumar D., Senior Advisor-Change and Environment, Intercooperation Social Development

Mr. Muralidharan C. M., Consultant, Food and Agriculture Organization of the United Nations

Dr. Yugraj Singh Yadava, Director, Bay of Bengal Programme, Inter-Governmental Organisation

Mr. C.P. Geevan, Director, Centre for Environment & Social Concerns

Mr. Peter T., General Secretary, National Fishworkers’ Forum

Ms. Seeta Dasan, Member, State Committee, Self Employed Women’s Association (Union)

Mr. P. Robert, Friends of Marine Life

Discussion

16:00– 16:30 Tea-Coffee Break

Presentation of the Workshop Statement

Ms. Nalini Nayak, Trustee, ICSF Trust

Vote of Thanks

Mr. Venugopalan N., Programme Manager, ICSF Trust
Annex 2: Questions for group discussion

National Workshop on Small-scale Fisheries, Cyclone Ockhi and Disaster Risk Management

Iris Hall, Apollo Dimora Hotel, Thiruvananthapuram, Kerala, India, 29th to 30th May, 2018

Questions for group discussion

Group Discussion 1:
• What are the effective channels of communication and early warning systems needed (on shore and at sea) for better prediction of cyclones and to reduce disaster risks? (Coordinator and Rapporteur: Dr. Maxmillan Martin)

Group Discussion 2:
• What are the effective measures to be taken for participative local level coordination and collaboration for disaster management and relief? (Coordinator: Mr. V. Vivekanandan; and Rapporteur: Ms. Ahana Lakshmi)

Group Discussion 3:
• What technology and safety measures (in craft, gear, communications, etc.) should be initiated in fishing operations to reduce the risk of natural hazards at sea? (Coordinator: Dr. Leela Edwin; Rapporteur: Dr. Abhilash S.)

Group Discussion 4:
• What long term measures are needed on shore to minimize risk from future disasters? (Coordinator: Mr. A.J. Vijayan; Rapporteur: Ms. Nalini Nayak)
Annex 3: List of Participants

National Workshop on Small-scale Fisheries, Cyclone Ockhi and Disaster Risk Management

Iris Hall, Apollo Dimora Hotel, Thiruvananthapuram, Kerala, India, 29th to 30th May, 2018

List of Participants

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Recommend the following measures to the appropriate authorities at various levels and other relevant stakeholders:

1. Taking note of the Sustainable Development Goal (SDG) target 1.5: “By 2030 build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.”

II. Early Warning and Prediction Authorities

11. Promote public awareness about natural disasters like cyclones, among other means,

12. Improve accuracy of cyclone prediction and efficiency of its dissemination among coastal fishing communities, and among near shore and offshore fishers;

13. Integrate fishers’ knowledge into search and rescue operations at sea;

14. Reduce the number of deaths and number of people affected, including migrant fishers, and reduce the direct economic losses caused by disasters;

15. Ensure that emergency relief and rehabilitation measures are expeditiously delivered and fishing operations in cooperation with the relevant fisheries departments and the fishing sector are informed by reliable information regarding fishing fleets, fishing gear loss and damage) of the 2015 Paris Agreement of the United Nations Framework Convention on Climate Change.

16. Ensure that disaster management and disaster risk management measures applicable to sandy beaches, etc.) to assess damages to these habitats and dependent species from natural disasters;

17. Build and strengthen resilience and adaptive capacity of small-scale fishing communities and fishing operations in cooperation with the relevant fisheries departments and the fishing sector are informed by reliable information regarding fishing fleets, fishing gear loss and damage) of the 2015 Paris Agreement of the United Nations Framework Convention on Climate Change.

18. Safeguard maternal health and education for children of affected families;

19. Take care that relief and rehabilitation measures in a post-disaster scenario are proportional without further aggravating economic, social and psychological distress of affected families;

20. Strengthen the capacity of local self-governments to enhance community participation in disaster risk reduction; and fishing operations in cooperation with the relevant fisheries departments and the fishing sector are informed by reliable information regarding fishing fleets, fishing gear loss and damage) of the 2015 Paris Agreement of the United Nations Framework Convention on Climate Change.

21. Integrating fishers’ knowledge into search and rescue operations at sea;

22. Responsible for emergency preparedness and response activities;

23. Ensure that search and rescue operations are conducted in a manner that minimizes the risk to the environment.

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## Annex 4: Feedback from Participants

### National Workshop on Small-scale Fisheries, Cyclone Ockhi and Disaster Risk Management

Iris Hall, Apollo Dimora Hotel, Thiruvananthapuram, Kerala, India, 29th to 30th May 2018

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>1. Was the content of the workshop adequate (was it too basic/simple, was there too much information, was there unnecessary information, was more information needed (if yes, on what))?</th>
<th>2. Were the methods used adequate (panel discussion, group discussion)? Did you have enough time for discussion?</th>
<th>3. Was the material given to you useful? Have you understood the draft study on Cyclone Ockhi: Disaster Risk Reduction and Sea Safety in the Indian Marine Fisheries Sector? Do you think you will use it again?</th>
<th>4. Mention 2-3 key learnings of the workshop that you are likely to take forward in your work.</th>
<th>5. What do you suggest we can do to make the workshop more interesting and useful?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sufficient for the duration</td>
<td>Generally yes, but more time would have been good in some cases where slides have a lot of details and</td>
<td>Yes</td>
<td>The fact that most people worked hard in the aftermath of Ockhi, but still people died shows the need for coordination and better Standard Operating Procedures (SOP)</td>
<td>More group sessions would give more opportunities for the community to speak.</td>
</tr>
<tr>
<td>2</td>
<td>Adequate</td>
<td>Adequate</td>
<td>Good insight</td>
<td>1. An understanding of the various bodies working for fishermen 2. ICSF projects 3. BOBP projects</td>
<td>Involvement of the following authorities in Kerala: 1. Department of Ports 2. Coastal police 3. Marine Enforcement</td>
</tr>
<tr>
<td>3</td>
<td>It was informative, adequate and up to the point. Role of social and religious agencies could be added</td>
<td>Adequate and sufficient</td>
<td>The material was useful. I will be using it for my own research work</td>
<td>1. Safety should be the prime concern of the fishermen 2. The importance of life saving devices 3. IMD warnings should be taken seriously</td>
<td>There should be the presence and participation of more media organisations and journalists</td>
</tr>
<tr>
<td>Sl. No.</td>
<td>1. Was the content of the workshop adequate (was it too basic/simple, was there too much information, was there unnecessary information, was more information needed (if yes, on what)?</td>
<td>2. Were the methods used adequate (panel discussion, group discussion)? Did you have enough time for discussion?</td>
<td>3. Was the material given to you useful? Have you understood the draft study on Cyclone Ockhi: Disaster Risk Reduction and Sea Safety in the Indian Marine Fisheries Sector? Do you think you will use it again?</td>
<td>4. Mention 2-3 key learnings of the workshop that you are likely to take forward in your work.</td>
<td>5. What do you suggest we do to make the workshop more interesting and useful?</td>
</tr>
<tr>
<td>---------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 4       | Adequate                                                                                       | Adequate                                                                                                   | Useful                                                                                                                           | 1. Needs more stress on sea safety aspects.  
2. Give importance to communication and local networks | No suggestions. It was well organised and well conducted. Congratulations. |
| 5       | Adequate. But, perhaps the workshop could have had more information on natural disasters and weather management systems | Adequate                                                                                                   | The Cyclone Ockhi study was comprehensive but a bulleted summary of key findings and recommendations would have been useful | 1. Need for hyper-local prediction systems  
2. Public private partnership in weather analysis  
3. Role of Indigenous technical knowledge | 1. Needs better translation facilities  
2. Quick summarising notes  
3. More videos of actual on-site disaster situations |
| 6       | Adequate                                                                                       | Most panel discussions were delayed                                                                       | There is no “management” to speak of                                                                                               | It was an interesting and useful format | |
| 7       | Content was satisfactory but the presentations were many in number, resulting in shortage of time | Too many panelists, resulting in less time for discussion.                                                      | Material was useful. The study is also useful and will be used time and again                                                      | More interaction with the speakers in advance could be useful in preparing them for their presentations | |
| 8       | Adequate                                                                                       | Not enough time given for discussion                                                                         | The study was very useful                                                                                                        | Community radio  
- Geographic zonation | |
<p>| 9       | More legal aspects could have been covered                                                    | Time for discussion has to be increased                                                                      | We are planning for a consultation disaster focusing on Sendai Framework. We will definitely use the study                     | Use all strategies to support the victims (especially families of the missing people)         | |</p>
<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>1. Was the content of the workshop adequate (was it too basic/simple, was there too much information, was there unnecessary information, was more information needed (if yes, on what)?</th>
<th>2. Were the methods used adequate (panel discussion, group discussion)? Did you have enough time for discussion?</th>
<th>3. Was the material given to you useful? Have you understood the draft study on Cyclone Ockhi: Disaster Risk Reduction and Sea Safety in the Indian Marine Fisheries Sector? Do you think you will use it again?</th>
<th>4. Mention 2-3 key learnings of the workshop that you are likely to take forward in your work.</th>
<th>5. What do you suggest we can do to make the workshop more interesting and useful?</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Adequate</td>
<td>More time for discussions would have been good</td>
<td>Useful</td>
<td>1. Available communication systems in operation, 2. Lacunae in systems and what type of improvements can be carried out</td>
<td>The workshop programme should be distributed a week ahead for more effective participation</td>
</tr>
<tr>
<td>11</td>
<td>Adequate</td>
<td>Just enough time</td>
<td>The material will definitely complement any technical study taken up by CIFT</td>
<td>1. The experience of survivors. 2. New knowledge gained on communication systems</td>
<td>Group discussion topics and panel discussion topics are similar or overlapping. So points tend to be repeated</td>
</tr>
<tr>
<td>12</td>
<td>Needs more participation from the affected communities</td>
<td>Needs more time for discussion. Group discussions were fruitful</td>
<td>I shall use it for further reference.</td>
<td>Communication aspects were really useful</td>
<td>More participation from the audience would have made it more informative</td>
</tr>
<tr>
<td>13</td>
<td>More information needed on fishers’ direct experience of preparedness and response</td>
<td>Yes</td>
<td>Yes</td>
<td>1. Difficulties in coordination 2. Channels of communication</td>
<td></td>
</tr>
</tbody>
</table>
Annex 5: Concept note in Malayalam

228000 തെലുംകൊടുങ്കാലിൻറെ വിവരങ്ങളിൽ നിന്നും കണക്കാക്കപ്പെടുന്ന ജനസംഖ്യയുടെ ഭാഗമായി ദ്വീപ് വന്യജീവികളുടെ സംരക്ഷണം: കേന്ദ്ര മനുഷ്യത്തിന്റെ നേതൃത്വത്തിലുള്ള സംരക്ഷണ സ്ഥാപനങ്ങളുടെ അംഗങ്ങളായ സാബൂത്തിക സ്ഥാപനങ്ങളുടെ ആശയത്തിൽ "ആധികാരിക വിനോദസാധനങ്ങളുടെ മേൽ" (HFA) 2005-2015 പ്രവൃത്തിക്കാലം ഉള്ളതിന്റെ ഭാഗമായി. ഹൈവേവേ എന്ന ലോകസമ്മർദ്ദത്തിന്റെ കിട്ടപ്പെട്ട വിവരങ്ങൾ മനുഷ്യത്തിന്റെ പ്രക്ഷേപണത്തിന്റെ അവലോകനം മൂലം HFA ഉറവിടെയുന്നു.

മറ്റുള്ള പ്രശ്നങ്ങളിൽ നിന്നും ലഭ്യമായ സംവിധാനമാണ് നടപടിയുള്ളത്. ഇത് ലാമ്പൂർ വൈന്യജീവികളുടെ പൊതുവേളയാത്രക്കാലത്തെ പ്രവൃത്തിക്കാലവും "HFA- വിവരങ്ങൾ ലഭ്യമാണ്" മൂത്തുവു നിൽക്കുന്ന പ്രക്ഷേപണത്തിന്റെ ഭാഗമാണ്.
Further recognizing that coastal fishing communities often have their own mechanisms, processes and institutions relevant for disaster preparedness that can effectively complement governance and institutional arrangements. The workshop recommended the following measures to the appropriate authorities at various levels and other relevant stakeholders:

1. Ensure that disaster management and disaster risk management measures applicable to coastal fishing communities and to other vulnerable communities are effectively integrated into national disaster management plans and strategies.

2. Develop innovative new approaches (e.g. earmarking ‘dynamic cones of uncertainty’ as potential cyclone zones) for cyclone prediction, along with multichannel communication, to improve the accuracy of cyclone prediction and its dissemination among coastal fishing communities.

3. Ensure that emergency relief and rehabilitation measures are expeditiously delivered to those directly and indirectly affected; that relief and rehabilitation measures in a post-disaster scenario are proportional without further aggravating economic, social and psychological distress of affected families; that relief and rehabilitation in the fisheries sector and apply standardised protocols to promote coordination and cooperation at all levels; and that relief and rehabilitation measures are expeditiously delivered to those directly and indirectly affected.

4. Integrate fishers' knowledge into search and rescue operations at sea, and develop, in consultation with fishing communities, appropriate mechanisms for disaster risk management at all levels; and that relief and rehabilitation measures in a post-disaster scenario are proportional without further aggravating economic, social and psychological distress of affected families.

5. Ensure that emergency relief and rehabilitation measures are expeditiously delivered to those directly and indirectly affected; that relief and rehabilitation measures in a post-disaster scenario are proportional without further aggravating economic, social and psychological distress of affected families; and that relief and rehabilitation measures are expeditiously delivered to those directly and indirectly affected.

6. Take care that relief and rehabilitation measures in a post-disaster scenario are proportional without further aggravating economic, social and psychological distress of affected families; and that relief and rehabilitation measures are expeditiously delivered to those directly and indirectly affected.

7. Strengthen the capacity of local self-governments to enhance community participation in disaster management through school curricula reforms, school clubs and through ocean literacy programmes.

8. Make adequate budget provisions to support disaster risk management at all levels; reduce the number of deaths and number of people affected, including migrant fishers, and those directly and indirectly affected.

9. Build and strengthen resilience and adaptive capacity of small-scale fishing communities and the fishing sector are informed by reliable information regarding fishing fleets, fishing gear and manmade disasters consistent with Article 7 (adaptation) and Article 8 (addressing and manmade disasters) of the 2015 Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC).

10. Develop, in consultation with fishing communities, appropriate mechanisms for disaster risk management; and that relief and rehabilitation measures in a post-disaster scenario are proportional without further aggravating economic, social and psychological distress of affected families.

11. Reduce the direct economic losses caused by disasters; and that relief and rehabilitation measures in a post-disaster scenario are proportional without further aggravating economic, social and psychological distress of affected families.

12. Strengthen the capacity of local self-governments to enhance community participation in disaster management.

13. Improve accuracy of cyclone prediction and efficiency of its dissemination among coastal fishing communities, and fishing operations in cooperation with the relevant fisheries departments and the Coast Guard.

14. Ensure that emergency relief and rehabilitation measures are expeditiously delivered to those directly and indirectly affected; that relief and rehabilitation measures in a post-disaster scenario are proportional without further aggravating economic, social and psychological distress of affected families; and that relief and rehabilitation measures are expeditiously delivered to those directly and indirectly affected.
ICSF National Workshop

Report

ICSF National Workshop

N. Venugopalan, Programme Manager,

icsftrust.org

Vote of Thanks

The ICSF Trust extended a vote of thanks to all the participants; and the translators, both for the workshop and preliminary material.

Meeting chaired by Ms. Aruna Roy, Director, Ministry of Agriculture and Farmers Welfare, Government of India.

Chairpersons in all sessions; and the translators, both for the workshop and preliminary material.

Chairpersons in all sessions; and the translators, both for the workshop and preliminary material.

IV. Fishing Communities

15. Integrate safety of fishing vessels, vessel navigation and operations as well as occupational health and safety of fishers into disaster risk reduction protocols to reduce the number of fishers losing their lives during cyclones, including through the provision of financial incentives;

18. Develop awareness of small-scale fishing communities and provide training about adoption of guidelines, employing the "relief-development continuum" and "build back better" principles and a human rights-based approach;

20. Strengthen the capacity of community-based organisations, including women's organisations, to deal with disaster risk management, particularly at the local level;

21. Enforce sea safety norms and integrate sea safety into fisheries management and governance of short-haul and long-haul fishing operations, consistent with the recommendations of the SSF Guidelines, employing the "relief-development continuum" and "build back better" principles and a human rights-based approach;

22. Provide effective and appropriate communication equipment to all fishers and registered agencies, in search and rescue operations as well as in relief, rehabilitation, reconstruction and among near shore and offshore fishers, using the most cost-effective means of communication (e.g. community radio);

23. Strengthen the capacity of community-based organisations, including women's organisations, to deal with disaster risk management, particularly at the local level;

5. Improve the efficiency of dissemination of cyclone alerts among coastal fishing communities, including through the provision of financial incentives; and working for excessive periods of time, after an assessment of the risks concerned;

6. Enforce sea safety norms and integrate sea safety into fisheries management and governance of short-haul and long-haul fishing operations, consistent with the recommendations of the SSF Guidelines, employing the "relief-development continuum" and "build back better" principles and a human rights-based approach;
Taking note of the Sustainable Development Goal (SDG) target 1.5 "By 2030 build the resilience mechanisms under the jurisdiction of the State; and Further recognizing that coastal fishing communities often have their own mechanisms, processes as potential cyclone zones) for cyclone prediction, along with multichannel communication,

II. Early Warning and Prediction Authorities

I. Disaster management authorities

Recommend the following measures to the appropriate authorities at various levels and other relevant stakeholders:

1. Ensure that emergency relief and rehabilitation measures are expeditiously delivered to the needs of affected men and women in fishing and post-harvest activities, including of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.

2. Make adequate budget provisions to support disaster risk management at all levels;

3. Ensure that emergency relief and rehabilitation measures are expeditiously delivered without further aggravating economic, social and psychological distress of affected families;

4. Develop innovative new approaches (e.g. earmarking 'dynamic cones of uncertainty' as potential cyclone zones) for cyclone prediction, along with multichannel communication,

5. Strengthen the capacity of local self-governments to enhance community participation in disaster risk reduction;

6. Integrate fishers' knowledge into search and rescue operations at sea;

7. Develop, in consultation with fishing communities, appropriate mechanisms for disaster coordination and cooperation at all levels;

8. Make adequate budget provisions to support disaster risk management at all levels;

9. Take care that relief and rehabilitation measures in a post-disaster scenario are proportional to the needs of affected men and women in fishing and post-harvest activities, including of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.

10. Promote public awareness about natural disasters like cyclones, among other means,

11. Improve accuracy of cyclone prediction and efficiency of its dissemination among coastal fishing communities;

12. Build and strengthen resilience and adaptive capacity of small-scale fishing communities through school curricula reforms, school clubs and through ocean literacy programmes;

13. Ensure that emergency relief and rehabilitation measures are expeditiously delivered to the needs of affected men and women in fishing and post-harvest activities, including of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.
Annex 6: Concept note in Tamil

பிற்பு இன்றையத்தாக்குத்து அறிமுகப்படுத்தும் சர்வதேச கல்வறை காரணியாக
ICSF தரமும்

தொடர்வழியாக - துணை பட்ட இந்தியாவின் பாராட்டியான அறிமுக சர்வதேச கல்வறை
பார்வு பாரம்பரிய

நவரோம்பு மாதுரை செயல்கள், இந்தோனேசியா, ஆல்சாண்டா

செப்டம்பர் 29-30, 2018

குறிப்பிட்டு ஏற்றப்படும்

புதுவை

29 மே 2007 அன்று கையாண்டாக காண்பதொரு மூன்றாண்டு இன்றையத்தாக்குத்து கல்வறைக்காரணியாக, அரசு விளையாட்டியுடைய - அரசாணி - பாராட்டியானகால அறிமுக விளையாட்டியாக காண்பதொரு ஆதரிக்காக பட்ட யோகாமை முழுநாள் விளையாட்டு பதிக்காரக்கனாசராக 2005-2015 (Hyogo Framework for Action -HFA) இறக்கவிளையாட்டுக்காக. முளையார் தொடர்வழியாக பாராட்டியான தொடர்வழி செயல்களை மாலை அமர்ந்த தில்லின் இந்தோனேசியா அமர்ந்த பதிக்காரக்கனாசராக பாராட்டியானகால பதிக்காரக்கனாசராக காண்பதொரு "என்னு புரட்சி, சுருக்குகிறிய - துணை பட்டиков் புரட்சி புரட்சிகள் கால வளர்ச்சிகள் அறிமுக சர்வதேச கால வளர்ச்சிகள் புரட்சிகள் கால வளர்ச்சிகள்") இறக்கவிளையாட்டு முழுநாள் விளையாட்டு பதிக்காரக்கனாசராக (disaster risk reduction -DRR) முளையார் தொடர்வழியாக காண்பதொரு ஆக உள்ளது. புதுவையில் விளையாட்டு பதிக்காரக்கனாசராக, துணை பட்ட இந்தோனேசியாகக் கல்வறைகாரணியாக செய்து விளையாட்டு பதிக்காரக்கனாசராக. முளையார் தொடர்வழி செயல்களை மாலை அமர்ந்த தில்லின் இந்தோனேசியா தொடர்வழியாக செய்து விளையாட்டு பதிக்காரக்கனாசராக (DRR) முளையார் தொடர்வழியாகக் கல்வறைகாரணியாக பாராட்டியான பதிக்காரக்கனாசராக, முளையார் தொடர்வழி செயல்களைத் தொடர்வழி செயல்களைத் தொடர்வழி செயல்களைத் தொடர்வழி செயல்களைத் தொடர்வழி செயல்களைத் தொடர்வழி செயல்களைத் தொடர்வழி செயல்களைத் 

2004 பிற்பு தொடர்வழியாகக் கான்று சுருக்குகிறிய பாராட்டியானகால புரட்சிகள் முளையார் தொடர்வழி செயல்களைத் தொடர்வழி செயல்களைத் 

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Taking note of the Sustainable Development Goal (SDG) target 1.5 “[B]y 2030 build the resilience mechanisms under the jurisdiction of the State; and

and institutions relevant for disaster preparedness that can effectively complement governance

Further recognizing that coastal fishing communities often have their own mechanisms, processes

Recommend the following measures to the appropriate authorities at various levels and other

relevant stakeholders:

I. Disaster management authorities

1. Make adequate budget provisions to support disaster risk management at all levels;

2. Develop, in consultation with fishing communities, appropriate mechanisms for disaster

3. Ensure that emergency relief and rehabilitation measures are expeditiously delivered

4. Safeguard maternal health and education for children of affected families;

5. Take care that relief and rehabilitation measures in a post-disaster scenario are proportional

without further aggravating economic, social and psychological distress of affected families;

6. Develop innovative new approaches (e.g. earmarking ‘dynamic cones of uncertainty’ as potential cyclone zones) for cyclone prediction, along with multichannel communication,

7. Strengthen the capacity of local self-governments to enhance community participation in

through school curricula reforms, school clubs and through ocean literacy programmes;

8. Improve accuracy of cyclone prediction and efficiency of its dissemination among coastal

fishing communities, and among near shore and offshore fishers;

9. Promote public awareness about natural disasters like cyclones, among other means,

10. Improve accuracy of cyclone prediction and efficiency of its dissemination among coastal

11. Promote public awareness about natural disasters like cyclones, among other means,

12. Improving connectivity for disaster risk reduction;

Strengthen the capacity of local self-governments to enhance community participation in

through school curricula reforms, school clubs and through ocean literacy programmes;

13. Improve accuracy of cyclone prediction and efficiency of its dissemination among coastal

The Outcome Document of the ICSF National Workshop on Poverty Eradication- SSF Guidelines)

FAO Guidelines for the Fisheries and Aquaculture Sector on Damage and Needs Assessments in Emergencies (FAO Guidelines for the Fisheries and Aquaculture Sector on Damage and Needs Assessments in Emergencies),

2005 (Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication- SSF Guidelines)

Disaster Management Act, 2005

2005 (Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication- SSF Guidelines)

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In conclusion, building resilience of coastal communities to natural disasters and climate change requires coordination at all levels and open consultation with, and participation of, all stakeholders.

IV. Fishing Communities

16. Recognize the role and responsibilities of the fisheries authorities in monitoring fishing vessels at sea;

17. Provide effective and appropriate communication equipment to all fishers and registered organisations, to deal with disaster risk management, particularly at the local level;

18. Management planning;

19. Encourage traditional and local knowledge and use of traditional protocols to predict disasters and to reduce disaster risks, and to promote community-based disaster risk management planning;

20. Improve the efficiency of dissemination of cyclone alerts among coastal fishing communities, to rapidly disseminate cyclone alerts to local communities (community radio, VHF, HF, satellite phones, etc.);

21. Build capacity, including through pre-sea training, to deal with fishing in rough sea conditions and working for excessive periods of time, after an assessment of the risks concerned;

22. Enforce sea safety norms and integrate sea safety into fisheries management and governance effective sea safety procedures including use and maintenance of communication equipment;

23. Provide effective and appropriate communication equipment to all fishers and registered organisations, to deal with disaster risk management, particularly at the local level;

24. Recognize the role and responsibilities of the fisheries authorities in monitoring fishing vessels at sea;

25. Integrate sea safety into community-based initiatives for fisheries development and among near shore and offshore fishers, using the most cost-effective means of activity and safeguarding sea safety and ensure them an active role, along with other agencies, in search and rescue operations as well as in relief, rehabilitation, reconstruction activity.
Annex 7: Study: Executive summary in English

CYCLONE OCKHI: DISASTER RISK REDUCTION AND SEA SAFETY IN THE INDIAN MARINE FISHERIES SECTOR

The cyclone Ockhi developed in the Northern Indian Ocean southwest of Sri Lanka and rapidly intensified into a cyclonic storm, killing over 350 people from southern Tamil Nadu and Kerala between 30 November and 3 December 2017. There were also some unidentified fishers from the north-eastern states of India who were lost at sea while working on board fishing vessels. The full force of the storm was borne by fishermen at sea, unlike previous cyclones.

Supported by the Food and Agriculture Organization (FAO) of the United Nations, the International Collective in Support of Fishworkers (ICSF) undertook a study to assess disaster response and preparedness in light of cyclone Ockhi, to review cyclone warning systems and their efficacy, as well as central and state policies and plans (Tamil Nadu and Kerala) to cope with disasters and to minimize loss of human life and damage to fishery-based livelihoods in line with the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (the SSF guidelines).

The research consisted of field interviews with survivors and the families of missing fishermen from cyclone-affected coastal fishing villages in Thiruvananthapuram, Kerala; and Kanniyakumari, Tamil Nadu. The study looked at short-haul and long-haul fishing operations—the latter undertaken in the maritime zones adjacent to states along the western seaboard up to Maharashtra and Gujarat, and the archipelagic waters around Lakshadweep Islands. Secondary research and interviews with central and state governments, fishers’ associations and the scientific experts were conducted. Interviews were used to construct a timeline of events between 28 November and 6 December 2017 to identify key issues of early warnings, fishing positions, disaster response and relay time between different agencies.

The study recognizes the need to improve disaster risk management and disaster risk reduction framework to reduce the vulnerabilities of coastal fishing communities. Considering the diversity of fishing communities and fishing operations, the study recommends a multipronged approach to reducing economic and social damages including the loss of human life. While a majority of fishermen casualties in Kerala were those employed on board traditional motorised craft fishing less than 50 nautical miles from shore, almost all the fatalities in Tamil Nadu were from mechanised, deep-sea vessels undertaking fishing trips of 40-day duration within the Indian exclusive economic zone (EEZ) and the high seas.

The study observes that the disaster management plans at the central and state levels are primarily focused on risk reduction and mitigation on shore where storm surges have historically led to over 90 per cent of deaths. The study points out the need to integrate safety of fishing operations at sea into disaster preparedness protocols to reduce the number of fishers losing their life during cyclones. The role and responsibilities of the fisheries department in monitoring fishing activity and ensuring sea safety are highlighted and the study seeks a more active role, along with the revenue department, for the state fisheries department in search and rescue operations as well as in relief, rehabilitation, reconstruction and recovery efforts.

Various efforts by state governments to regulate the fishing sector and their effectiveness are analyzed in the study. The study stresses the need to address the differential impact of cyclones, in particular, on small-scale fishers and vulnerable and marginalized communities. The study reviews fisheries and sea safety legislation, rules and policy frameworks at various levels and proposes integrating disaster preparedness into fisheries management. Such integration is to be consistent with the recommendations of the SSF Guidelines, employing “relief-development continuum” and “build back better” principles and a human rights-based approach.
The study underscores the importance of developing a national legislation for the EEZ on fisheries that integrates sea safety considerations into fisheries management and governance, and seeks greater cooperation and coordination between the littoral states, and between coastal states and the central government. The United Nations Sendai Framework for Disaster Risk Reduction 2015-2030, which India has adopted in 2015 for implementation, aims to achieve a substantial reduction in the loss of lives through the coordinated efforts of national and international agencies, civil society and the community.

As an example, the study draws attention to how an effective monitoring, control and surveillance system in Sri Lanka, recently implemented as part and parcel of its fisheries management regime has, in fact, led to improved and effective disaster preparedness during cyclone Ockhi. Although the damage caused by the cyclone was limited to Kerala and Tamil Nadu, the lessons gleaned from the study point to the need for a national strategy to ensure the safety of fishermen consistent with paragraphs 6.16 and 6.17 of the SSF Guidelines.

Following are the main recommendations of the study:

1. Reconfigure the notion of the last mile in the communication of disaster warnings and to include fishermen at sea.
2. Ensure constant communication between the IMD and disaster managers so as to effectively warn the coastal communities.
3. Reduce relay time between departments by using multiple channels and technologies.
4. Develop low-cost and user friendly communication technology, keeping in mind the end users, i.e., fisher families.
5. Conduct periodic awareness and training programmes in disaster preparedness guided by community-based disaster management approach, to build a culture of safety among fishermen.
6. Widen the scope of disaster management plans to include at-sea disaster and accident risks.
7. Develop the already existing national cyclone plan to include best practices from various states, based on each state’s strengths and weaknesses in handling various disasters.
8. Improve coordination between different agencies in disaster management to reduce response times and more effectively collaborate during search and rescue and other mitigation measures.
9. Utilize the traditional knowledge of fishers in identifying likely fishing zones during search and rescue operations by the Coast Guard and Navy. Identify experienced fishers in each village to accompany rescue teams.
10. Strengthen disaster management at the district and village levels through well-manned 24-hour control rooms, community participation and training, and ensuring the availability of technology and infrastructure to reduce damage to lives and livelihoods.
11. Integrate disaster management into fisheries management through appropriate legislation and its implementation.
12. Ensure safety of fishers at sea through free flow of information between fishers and the administration. Strengthen monitoring measures and compliance to safety norms.
13. Expanding the regulatory role of the fisheries department to include monitoring, control and surveillance measures, reporting of all fishing activity, including accidents, and enforcement of norms for sea safety. This also includes maintaining robust up-to-date data on all fishing vessels and the vessels at sea and where at a point of time.
14. Use new technologies for improving sea safety measures, such as mobile applications for information sharing and dissemination of alerts (E.g. Fisher Friend Mobile Application, Mfisheries or Abalobi).
Annex 8: Executive summary in Malayalam

A.J. Vijayan translating from Malayalam to English during the first panel discussion at the workshop
In conclusion, building resilience of coastal communities to natural disasters and climate change requires coordination at all levels and open consultation with, and participation of, all stakeholders. This includes an awareness of the responsibilities of the community in ensuring an overall culture of safety at sea and on land. Improving the efficiency of dissemination of cyclone alerts among coastal fishing communities, and working for excessive periods of time, after an assessment of the risks concerned;

- Recognize the role and responsibilities of the fisheries authorities in monitoring fishing operations, consistent with the recommendations of the SSF and among near shore and offshore fishers, using the most cost-effective means of improving the efficiency of dissemination of cyclone alerts among coastal fishing communities, and working for excessive periods of time, after an assessment of the risks concerned;

- Integrate safety of fishing vessels, vessel navigation and operations as well as occupational safety of fishers into disaster risk reduction protocols to reduce the number of fishers losing their life during cyclones, including through the provision of financial incentives;

- Improve the efficiency of dissemination of cyclone alerts among coastal fishing communities, and working for excessive periods of time, after an assessment of the risks concerned;

- Strengthen the capacity of community-based organisations, including women’s organisations, to deal with disaster risk management, particularly at the local level;

- Recognize the role and responsibilities of the fisheries authorities in monitoring fishing operations, consistent with the recommendations of the SSF and among near shore and offshore fishers, using the most cost-effective means of improving the efficiency of dissemination of cyclone alerts among coastal fishing communities, and working for excessive periods of time, after an assessment of the risks concerned;

- Integrate sea safety into community-based initiatives for fisheries development and management.

- Encourage traditional and local knowledge and use of traditional protocols to predict and among near shore and offshore fishers, using the most cost-effective means of improving the efficiency of dissemination of cyclone alerts among coastal fishing communities, and working for excessive periods of time, after an assessment of the risks concerned;

- Provide effective and appropriate communication equipment to all fishers and registered fishing vessels at sea;

- Provide effective and appropriate communication equipment to all fishers and registered fishing vessels at sea;

- Recognize the role and responsibilities of the fisheries authorities in monitoring fishing operations, consistent with the recommendations of the SSF and among near shore and offshore fishers, using the most cost-effective means of improving the efficiency of dissemination of cyclone alerts among coastal fishing communities, and working for excessive periods of time, after an assessment of the risks concerned;

- Organisations, to deal with disaster risk management, particularly at the local level;

- Encourage traditional and local knowledge and use of traditional protocols to predict and among near shore and offshore fishers, using the most cost-effective means of improving the efficiency of dissemination of cyclone alerts among coastal fishing communities, and working for excessive periods of time, after an assessment of the risks concerned;

- Organisations, to deal with disaster risk management, particularly at the local level;

- Encourage traditional and local knowledge and use of traditional protocols to predict and among near shore and offshore fishers, using the most cost-effective means of improving the efficiency of dissemination of cyclone alerts among coastal fishing communities, and working for excessive periods of time, after an assessment of the risks concerned;

- Organisations, to deal with disaster risk management, particularly at the local level;

- Encourage traditional and local knowledge and use of traditional protocols to predict and among near shore and offshore fishers, using the most cost-effective means of improving the efficiency of dissemination of cyclone alerts among coastal fishing communities, and working for excessive periods of time, after an assessment of the risks concerned;

- Organisations, to deal with disaster risk management, particularly at the local level;

- Encourage traditional and local knowledge and use of traditional protocols to predict and among near shore and offshore fishers, using the most cost-effective means of improving the efficiency of dissemination of cyclone alerts among coastal fishing communities, and working for excessive periods of time, after an assessment of the risks concerned;
Taking note of the Sustainable Development Goal (SDG) target 1.5 "by 2030 build the resilience mechanisms under the jurisdiction of the State; and institutions relevant for disaster preparedness that can effectively complement governance and reduce their vulnerability to natural disasters;" the Workshop recommends the following measures to the appropriate authorities at various levels and other relevant stakeholders:

1. Ensure that disaster management and disaster risk management measures applicable to fishing and post-harvest activities, including fishing communities, and among near shore and offshore fishers; and fishing operations in cooperation with the relevant fisheries departments and the Coast Guard;

2. Strengthen the capacity of local self-governments to enhance community participation in relief and rehabilitation in the fisheries sector and apply standardised protocols to promote the needs of affected men and women in fishing and post-harvest activities, including of migrant fishers, and reduce the number of deaths and number of people affected, including migrant fishers, and among near shore and offshore fishers; and fishing operations in cooperation with the relevant fisheries departments and the Coast Guard;

3. Integrate fishers' knowledge into search and rescue operations at sea;

4. Make adequate budget provisions to support disaster risk management at all levels; and

5. Develop baseline information on marine and coastal habitats (natural reefs, coral reefs, sandy beaches, etc.) to assess damages to these habitats and dependent species from natural and manmade disasters consistent with Article 7 (adaptation) and Article 8 (addressing loss and damage) of the 2015 Paris Agreement of the United Nations Framework Convention on Climate Change; and

6. Promote public awareness about natural disasters like cyclones, among other means, to the needs of affected men and women in fishing and post-harvest activities, including of migrant fishers, and among near shore and offshore fishers; and fishing operations in cooperation with the relevant fisheries departments and the Coast Guard;

7. Develop innovative new approaches (e.g. earmarking 'dynamic cones of uncertainty' as potential cyclone zones) for cyclone prediction, along with multichannel communication;

8. Reduce the direct economic losses caused by disasters; and

9. Ensure that disaster management and disaster risk management measures applicable to coastal fishing are informed by reliable information regarding fishing fleets, fishing gear and vessels, and fishing communities, and among near shore and offshore fishers; and fishing operations in cooperation with the relevant fisheries departments and the Coast Guard;

10. Build and strengthen resilience and adaptive capacity of small-scale fishing communities and institutions relevant for disaster preparedness that can effectively complement governance and reduce their vulnerability to natural disasters; and

11. Strengthen the capacity of local self-governments to enhance community participation in relief and rehabilitation in the fisheries sector and apply standardised protocols to promote the needs of affected men and women in fishing and post-harvest activities, including of migrant fishers, and reduce the number of deaths and number of people affected, including migrant fishers, and among near shore and offshore fishers; and fishing operations in cooperation with the relevant fisheries departments and the Coast Guard;

12. Promote public awareness about natural disasters like cyclones, among other means, to the needs of affected men and women in fishing and post-harvest activities, including of migrant fishers, and among near shore and offshore fishers; and fishing operations in cooperation with the relevant fisheries departments and the Coast Guard;

13. Improve accuracy of cyclone prediction and efficiency of its dissemination among coastal fishing communities, and among near shore and offshore fishers; and fishing operations in cooperation with the relevant fisheries departments and the Coast Guard;

14. Strengthen the capacity of local self-governments to enhance community participation in relief and rehabilitation in the fisheries sector and apply standardised protocols to promote the needs of affected men and women in fishing and post-harvest activities, including of migrant fishers, and among near shore and offshore fishers; and fishing operations in cooperation with the relevant fisheries departments and the Coast Guard.
7. The emphasis must be on ensuring that community awareness and understanding are enhanced through regular meetings with the community, "early warning systems" and "community radio".

8. The need for community awareness and understanding, followed by action to address their needs, involves the community in the decision-making process, and the role of community radio, VHF, HF, and satellite communication in disseminating cyclone alerts.

9. Developing resilience of coastal communities to natural disasters and climate change requires a comprehensive approach, including awareness of responsibilities, community engagement, and preparedness.

10. Integrate safety of fishing vessels, vessel navigation and operations as well as occupational health and safety into community-based initiatives for fisheries development and management.

11. Develop awareness of small-scale fishing communities and provide training about adoption of effective sea safety procedures including use and maintenance of communication equipment.

12. Propose "green zones" under coastal disaster preparedness programmes to reduce the impact of disasters and to promote community-based disaster risk communication (e.g. community radio).

13. Integrate sea safety into community-based initiatives for fisheries development and management, including pre-sea training, to deal with fishing in rough sea conditions.

14. Organisations, including Pre-Sea Training, should collaborate with the fisheries department at the centre to deal with disaster risk management, particularly at the local level.
**Annex 9: Executive summary in Tamil**

**தலைப்பு: நாடார் ஆக்கம் / அறிவுபார் அறிக்கை**

முக்கியமானது, இந்திய மக்கள் மற்றும் குடும்பங்கள் ஆராய்ச்சி அறிவுபார் நாடார் ஆக்கம் மற்றும் ஆங்கில ஆராய்ச்சி ஆக்கம் குறித்து சொல்லப்பட்டது. பொதுவாக ஆக்கம் 2017 ஆம் ஆண்டில் முன்னேறிய ஆக்கம், ஆண்டுக்கான வேளாண்மை 350 படி ஒன்றுகளைக் கொண்டு இருந்தது. ஆக்கத்தை மேம்படுத்துவதற்காக, முறுக்கியமான நாடார் ஆக்கம், வாழ்க்கை மற்றும் பணவேண்டும் போட்டியை எடுக்கும்போது, தொடர்ந்து ஆக்கத்தை மேம்படுத்தும் அளவிலான நாடார் ஆக்கம் எழுதியுள்ளது. ஆக்கத்தின் மூலச்சாரணமான போட்டியை முறுக்கியது மற்றும் பணவேண்டும் போட்டியை எடுக்கும்போது, தொடர்ந்து ஆக்கத்தை மேம்படுத்தும் அளவிலான நாடார் ஆக்கம் எழுதியுள்ளது. ஆக்கத்தின் மூலச்சாரணமான போட்டியை முறுக்கியது

நாடார் ஆக்கம் கையாளப்படும் வாழ்க்கை மற்றும் ஆதாரான ஆக்கம் (Food and Agriculture Organization of the United Nations -FAO) கனிமார்பிகள், முக்கியமானது மற்றும் ஆண்டுக்கான ஆக்கக் கையாளப்பட்டது. முக்கியமானது மற்றும் ஆண்டுக்கான ஆக்கக் கையாளப்பட்டது. நாடார் ஆக்கம் கையாளப்பட்டது மற்றும் ஆண்டுக்கான ஆக்கக் கையாளப்பட்டது. பொதுவாக ஆக்கங்களும் கையாளப்பட்டது மற்றும் ஆண்டுக்கான ஆக்கக் கையாளப்பட்டது. நாடார் ஆக்கம் கையாளப்பட்டது மற்றும் ஆண்டுக்கான ஆக்கக் கையாளப்பட்டது. பொதுவாக ஆக்கங்களும் கையாளப்பட்டது மற்றும் ஆண்டுக்கான ஆக்கக் கையாளப்பட்டது. நாடார் ஆக்கம் கையாளப்பட்டது மற்றும் ஆண்டுக்கான ஆக்கக் கையாளப்பட்டது. பொதுவாக ஆக்கங்களும் கையாளப்பட்டது மற்றும் ஆண்டுக்கான ஆக்கக் கையாளப்பட்டது.

G.M. Chandra Mohan translating from Tamil to English during the first panel discussion at the workshop
In conclusion, building resilience of coastal communities to natural disasters and climate change requires coordination at all levels and open consultation with, and participation of, all stakeholders.

17. Develop awareness of small-scale fishing communities and provide training about adoption of effective sea safety procedures including use and maintenance of communication equipment;

18. Develop awareness of small-scale fishing communities and provide training about adoption of effective sea safety procedures including use and maintenance of communication equipment;

19. Integrate safety of fishing vessels, vessel navigation and operations as well as occupational safety at sea and on land;

20. Propose 'green zones' under coastal disaster preparedness programmes to reduce the vulnerability of small-scale fishing communities to sudden-onset cyclones; and

21. Strengthen the capacity of community-based organisations, including women's organisations, to deal with disaster risk management, particularly at the local level;

22. Encourage traditional and local knowledge and use of traditional protocols to predict communication (e.g. community radio);

23. Strengthen the capacity of community-based organisations, including women's organisations, to deal with disaster risk management, particularly at the local level;

24. Propose 'green zones' under coastal disaster preparedness programmes to reduce the vulnerability of small-scale fishing communities to sudden-onset cyclones; and

25. Integrate sea safety into community-based initiatives for fisheries development and management planning.

IV. Fishing Communities

Recognize the role and responsibilities of the fisheries authorities in monitoring fishing vessels at sea;

Provide effective and appropriate communication equipment to all fishers and registered agencies, in search and rescue operations as well as in relief, rehabilitation, reconstruction and working for excessive periods of time, after an assessment of the risks concerned;

Enforce sea safety norms and integrate sea safety into fisheries management and governance by meeting the SSF Guidelines, employing the "relief-development continuum" and "build back better"

Improving the efficiency of dissemination of cyclone alerts among coastal fishing communities, including through the provision of financial incentives;

Recognize the role and responsibilities of the fisheries authorities in monitoring fishing vessels at sea;

Working for excessive periods of time, after an assessment of the risks concerned;

Enforce sea safety norms and integrate sea safety into fisheries management and governance by meeting the SSF Guidelines, employing the "relief-development continuum" and "build back better".

In conclusion, building resilience of coastal communities to natural disasters and climate change requires coordination at all levels and open consultation with, and participation of, all stakeholders.

ICSF Trust extended a vote of thanks to all the participants;
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Taking note of the Sustainable Development Goal (SDG) target 1.5 “[B]y 2030 build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.”

10. Develop innovative new approaches (e.g. earmarking ‘dynamic cones of uncertainty’ as potential cyclone zones) for cyclone prediction, along with multichannel communication, related extreme events and other economic, social and environmental shocks and disasters.

12. Improve accuracy of cyclone prediction and efficiency of its dissemination among coastal fishing communities, and among near shore and offshore fishers;

13. Integrate fishers’ knowledge into search and rescue operations at sea;

14. Reduce the number of deaths and number of people affected, including migrant fishers, and reduce the direct economic losses caused by disasters;

15. Reduce the number of deaths and number of people affected, including migrant fishers, and reduce the direct economic losses caused by disasters;

16. Safeguard maternal health and education for children of affected families;

17. Safeguard maternal health and education for children of affected families;

18. Take care that relief and rehabilitation measures in a post-disaster scenario are proportional without further aggravating economic, social and psychological distress of affected families;

19. Take care that relief and rehabilitation measures in a post-disaster scenario are proportional without further aggravating economic, social and psychological distress of affected families;

20. Strengthen the capacity of local self-governments to enhance community participation in relief and rehabilitation in the fisheries sector and apply standardised protocols to promote coordination and cooperation at all levels;

21. Strengthen the capacity of local self-governments to enhance community participation in relief and rehabilitation in the fisheries sector and apply standardised protocols to promote coordination and cooperation at all levels;

22. Develop, in consultation with fishing communities, appropriate mechanisms for disaster risk management at all levels and other relevant stakeholders;

23. Develop, in consultation with fishing communities, appropriate mechanisms for disaster risk management at all levels and other relevant stakeholders;

24. Recommend the following measures to the appropriate authorities at various levels and other relevant stakeholders:

25. Recommend the following measures to the appropriate authorities at various levels and other relevant stakeholders:

26. Make adequate budget provisions to support disaster risk management at all levels;

27. Make adequate budget provisions to support disaster risk management at all levels;

28. Integrate fishers’ knowledge into school curricula reforms, school clubs and through ocean literacy programmes;

29. Integrate fishers’ knowledge into school curricula reforms, school clubs and through ocean literacy programmes;

30. Promote ocean literacy and Relevant stakeholders (protocols) to promote ocean literacy and Relevant stakeholders (protocols).
In conclusion, building resilience of coastal communities to natural disasters and climate change is crucial. This includes an awareness of the responsibilities of the community in ensuring an overall culture of safety at sea and on land.

IV. Fishing Communities

20. Encourage traditional and local knowledge and use of traditional protocols to predict disasters and to reduce disaster risks, and to promote community-based disaster risk management planning.

21. Integrate safety of fishing vessels, vessel navigation and operations as well as occupational safety of fishers into disaster risk reduction protocols to reduce the number of fishers losing their life during cyclones, including through the provision of financial incentives;

18. Develop awareness of small-scale fishing communities and provide training about adoption of effective sea safety procedures including use and maintenance of communication equipment;

17. Provide effective and appropriate communication equipment to all fishers and registered fishing vessels at sea;

16. Enforce sea safety norms and integrate sea safety into fisheries management and governance by the fisheries department at the centre should collaborate; in this context, coastal state/union territory fisheries authorities and relevant government agencies, in search and rescue operations as well as in relief, rehabilitation, reconstruction activity and safeguarding sea safety and ensure them an active role, along with other stakeholders and working for excessive periods of time, after an assessment of the risks concerned;

15. Integrate safety of fishing vessels, vessel navigation and operations as well as occupational safety into community-based initiatives for fisheries development and management.

ICSF Trust extended a vote of thanks to all the participants; and the translators, both for the workshop and preliminary material.
II. Early Warning and Prediction Authorities

Recommend the following measures to the appropriate authorities at various levels and other related extreme events and other economic, social and environmental shocks and disasters.

1. Ensure that emergency relief and rehabilitation measures are expeditiously delivered without further aggravating economic, social and psychological distress of affected families.

2. Take care that relief and rehabilitation measures in a post-disaster scenario are proportional to the needs of affected men and women in fishing and post-harvest activities, including of those directly and indirectly affected.

3. Ensure that disaster management and disaster risk management measures applicable to the fishing sector are informed by reliable information regarding fishing fleets, fishing gear, and fishing operations in cooperation with the relevant fisheries departments and the Coast Guard.

4. Reduce the number of deaths and number of people affected, including migrant fishers, and reduce the direct economic losses caused by disasters.

5. Build and strengthen resilience and adaptive capacity of small-scale fishing communities through school curricula reforms, school clubs and through ocean literacy programmes.

6. Integrate fishers’ knowledge into search and rescue operations at sea.

7. Develop baseline information on marine and coastal habitats (natural reefs, coral reefs, etc.) for cyclone prediction, along with multichannel communication.

8. Make adequate budget provisions to support disaster risk management at all levels; ensure that emergency relief and rehabilitation measures are expeditiously delivered and that relief and rehabilitation protocols are promoted.

9. Further recognizing that coastal fishing communities often have their own mechanisms, processes and institutions relevant for disaster preparedness that can effectively complement governance.

10. Promote public awareness about natural disasters like cyclones, among other means, through school curricula reforms, school clubs and through ocean literacy programmes.

11. Fisher Friend Mobile Application, Mfisheries or Abalobi (surveillance) to help in the early warning and prediction of disasters.

12. Fisher Friend Mobile Application, Mfisheries or Abalobi (surveillance) to help in the early warning and prediction of disasters.

13. Fisher Friend Mobile Application, Mfisheries or Abalobi (surveillance) to help in the early warning and prediction of disasters.

14. Fisher Friend Mobile Application, Mfisheries or Abalobi (surveillance) to help in the early warning and prediction of disasters.

Develop innovative new approaches (e.g. earmarking ‘dynamic cones of uncertainty’ as potential cyclone zones) for cyclone prediction, along with multichannel communication.
REPORT OF THE NATIONAL WORKSHOP ON SMALL-SCALE FISHERIES, CYCLONE OCKHI AND DISASTER RISK MANAGEMENT

This publication is a report of the proceedings of the National Workshop on Small-scale Fisheries, Cyclone Ockhi and Disaster Risk Management, held from 29 to 30 May, 2018 at Thiruvananthapuram, India. The workshop brought together 68 participants from India representing the fishing community, fishworker organisations, civil society organisations, governments, multilateral organisations, and the media.

This report will be useful for fishworker organisations, researchers, policy makers, members of civil society and anyone interested in small-scale fisheries, disasters risk management and climate change, sea safety and resource management.