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ASSESSING FISHER'S PERCEPTION ON DISASTER MANAGEMENT ACROSS COASTAL KERALA

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ABSTRACT

In the wake of cyclone Ockhi that struck Kanyakumari district in Tamil Nadu and parts of Kerala on November 29th, 2017, disaster management has again caught the attention of fishermen and policymakers. Disaster Management in fisheries essentially deals with management of resources and information as far as a disastrous event is concerned and also how effectively and seamlessly one coordinates these resources. Data related to the perception of fishermen regarding current disaster management in place and the information services provided were collected from the stakeholders representing fishermen across the state of Kerala and was analysed using statistical tools such as percentage analysis and Garrett ranking for deriving conclusions out of the survey data.

Among the 52 per cent of the respondents who reported to have encountered huge losses due to natural disasters, 53 per cent encountered at least one disaster in the last decade followed by 28 per cent encountering at least two. Sixty seven per cent respondents estimated that the average loss per household would be in the range of Rs.50000-100000. The respondents (55 %) opined that they are not satisfied with the support / welfare measures provided by the government and mentioned the delay in disbursement of funds and its diversion, delay in sea wall construction as the main constraints. Only 16%, 14% and 12 % of the respondents received information related to Tsunami Alert system, Ocean sate forecast and cyclone & PFZ, respectively. The respondents mentioned information not reaching fishers, complexity or difficulty in understanding the information provided, language issues, delay in receipt and insufficient information as the main constraints faced by fishermen in relation to information dissemination. Error free and accurate weather forecasting, digital display across major landing centers for information dissemination, engaging LSG in information sharing, providing gadgets with governmental support and efficient usage of mobile for information sharing are the main suggestions put forward by the respondents for ensuring better disaster management.

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Introduction

The state of Kerala situated in the south west part of peninsular India with a coastal length of 590 Km has tremendous potential resources, both marine and inland, teeming with fish. Fisheries form an important sector with around 10.18 lakh fishermen dependent on it for their livelihood. With a total landing of 5.85 lakh tonnes, Kerala contributes 15 % of the total marine fish landings in India and is the third highest producer. Fisheries being an integral part of their day today life, any aspect affecting it can have unprecedented repercussions on fishermen's livelihood (CMFRI Annual Report, 2016- 17).

Disasters are a common occurrence in the coastal states of India affecting the normal fishing activities that form the life and livelihood of the coastal communities. Supercyclone that occurred in Odisha during 1999 affected 12 coastal districts with a population of 1.26 crores in 14,000 villages and 28 urban areas. The tsunami of December 26, 2004 affected Nagapattinam, Cuddalore, Kanyakumari, Chennai, Kanchipuram, Villupuram, Tuticorin and Tirunelveli districts in Tamil Nadu with some parts of country resulted in killing of over 11,942 people. In the wake of cyclone Ockhi that struck Kanyakumari district in Tamil Nadu and parts of Kerala on November 29th, 2017, disaster management has again caught the attention of fishermen and policymakers (Amod *et al.,* 2018; Vinod and Shirish, 2017).

About 70 % of the average annual marine fish production of India is landed along the west coast. One of the striking features of west coast fishery is its seasonality. Southwest monsoon period (June - August) is a lean season for fishing and allied activities whereas, post monsoon season (September - January) is generally more productive and more than 60% of the total catch along the west coast is landed during this period. This seasonal nature of the fishery affects the living condition of fisherfolk. In the absence of any alternate employment opportunity during the lean monsoon period, the artisanal fishermen have to depend on money lenders or fish traders to tide over this, which ultimately keeps them under continuous indebtedness and consequently under poverty. Disasters that occur on top of all these problems can push them further to the edge leaving them without any access to basic amenities such as food, shelter, clothes etc (CMFRI Annual Report, 2016-17; Sehara *et al.,* 1992).

Disaster Management in fisheries essentially deals with management of resources and information as far as a disastrous event is concerned and also how effectively and seamlessly one coordinates these resources. The disaster management measures now in place to meet such unforeseen situations needs much revision against the backdrop of successive disasters and the failure of these measures to reduce the impact of the disasters. Presently the National Disaster Management Act, 2005 provides for three tier mechanism for Disaster Management that includes National Disaster Management Authority, State Disaster Management Authority and District Disaster Management Authority. Usage of newly developed technologies, involvement of fishermen community in proper dissemination of information and adaptation and mitigation policies for disaster management necessitates legislation of new acts.

ICAR- Central Marine Fisheries Research Institute, Kochi organized a special stakeholder's workshop on disaster management in connection with the International Symposium –SAFARI 2 on 17th January 2018. The main focus of the

programme was the open interaction session of stakeholders with special emphasis given to cyclone Ockhi and related developments. The session helped in coming out with credible conclusions regarding the existing loopholes in disaster management and the way forward. SAFARI 2 provided a platform initiating a consultation process to engage fishermen, the direct stakeholders, to the forefront of disaster preparedness and management.

Materials and Methods

Data related to the perception of fishermen regarding current disaster management in place and the information services provided were collected from the stakeholders representing fishermen across the state of Kerala. The stakeholders who attended the workshop included fishermen, boat owners and fishermen union members from Kozhikode, Ernakulam, Alappuzha, Kollam and Trivandrum. The data collected was analysed using statistical tools such as percentage analysis and Garrett ranking for deriving conclusions out of the survey data.
Special stakeholder's workshop on disaster

Management

The stakeholder's workshop assumed great importance in the wake of waves of grief and anger that struck the government in the aftermath of cyclone Ockhi. Fishermen, who are primarily affected due to these disasters in the coastal areas and sea, should be involved in the discussions and policy making process. In this regard a perception survey was conducted among the 75 participants representing the fisheries sector regarding the efficiency and effectiveness of disaster management and information services received by them. The survey schedule elicited information on the general profile of the respondents, losses incurred due to disaster, fishers perception on disaster management follow-ups, information services made available and their utility, sources of information dissemination and suggestions for ensuring better disaster management.

Based on their inputs, the following results were obtained and are discussed below under the following heads

Results and Discussions

(I) Fisher profile :

Average age of the respondents was found to be 50 indicating that majority of them belonged to the middle age category. Around 45 per cent of the respondents have a fishing experience of 30-40 years followed by 42 per cent with less than 30 years of experience and 13 per cent with greater than 45 years of experience (Figure 1).

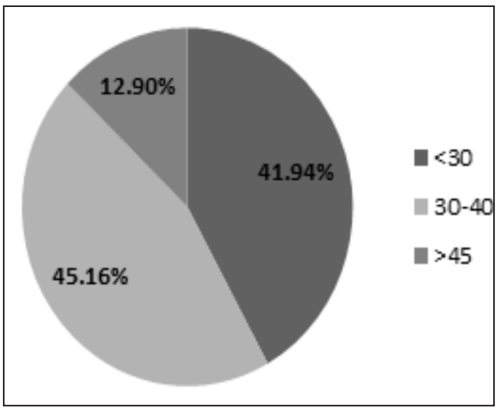

Figure1. Experience in fishing

Religious orientation of majority (47%) of the respondents was found to be Hinduism followed by 40 per cent Christians and 13 percent Muslims. Thirty nine per cent of the respondents have completed high school followed by upper primary (23%) and higher Secondary (18 per cent). Figure 2 gives the details of literacy level of the respondents.

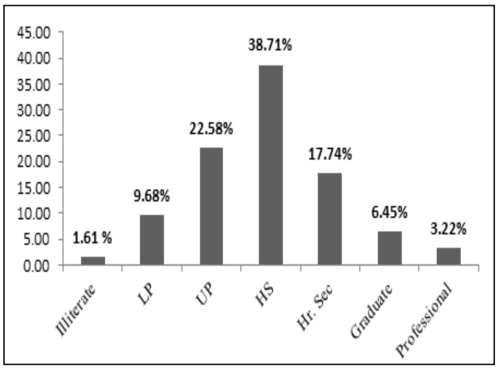

Figure 2. Literacy level

(ii) Estimation of losses:

The respondents reported to have incurred losses to their life, property and livelihood with 52 per cent of the respondents reporting that they have encountered huge losses due to natural disasters. Among them 53 per cent encountered at least one disaster in the last decade followed by 28 per cent encountering at least two. The disasters encountered by them other than the latest disaster Ockhi were reported as tsunami (56%), sea storm (25%), landslide (12.5%) and cyclone (6.25%). More than half of the respondents mentioned December as the particular month of the year in which they most probably encounter the disasters followed by April, July and August (12.5% each). Substantial amount (45%) of losses incurred by the respondents due to the disasters was revealed as property loss followed by employment loss (27%), displacement from dwelling (24%) and loss of human life (3.4%). Forty five per cent respondents mentioned loss of property as one of the main consequence of disaster and 66.7 per cent of them estimated that the average loss per household would be in the range of Rs. 50000-100000. Total estimated loss due to the disaster (other than mortality) in rupees is given in Figure 3.

(iii) Fishers perception on disaster management follow ups:

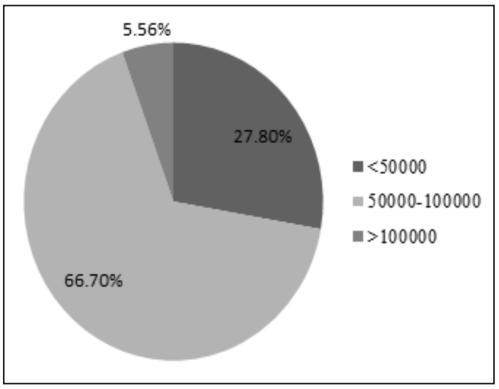

Figure3. Total estimated loss due to the disaster (other than mortality) in Rs.

The respondents (55 %) opined that they are not satisfied with the support / welfare measures provided by the government. They mentioned the delay in disbursement of funds and its diversion, delay in sea wall construction as the main constraints. Inadequacy of amount disbursed as part of the relief package, complexities in the receipt of support and delay in loss estimation were mentioned as the major problems related to disaster management. Many of the stakeholders opined that loss estimation at the central and state level should be integrated in a way that the confusion pertaining to the method of loss estimation should not exist. Table 1 gives details about the mentioned problems related to the disaster management.

(iv) Information services available across the state:

Sixty eight per cent of respondents believe that government has adequate information related to disaster occurrence. But only 16%, 14% and 12 % of the respondents received information related to Tsunami Alert system, Ocean sate forecast and cyclone and PFZ respectively. This clearly indicates the information dissemination-reception gap in diffusion of information services by various

Table 1.Problems related to the disaster management

Problems related to the disaster management	Score	Rank
Amount inadequate	83.5	1
Delay in disbursal	74.0	2
Complexities in the receipt of support	68.9	3
Loss estimation unscientific	62.5	4
Delay in estimation	59.2	5
Political interest	59.2	6
Favoritism in allocating welfare	51.5	7
Others if any	48.5	8

agencies/institutions responsible for providing these services efficiently and effectively.

Due to the cross cutting nature of activities that constitute disaster management and linkages required which involve coordination between the Union, State and local governments on the one hand and a host of government departments and agencies on the other; setting up of a broadly uniform institutional framework at all levels is of paramount importance. Currently available information services are given in Figure 4.

(v) Sources of information dissemination:

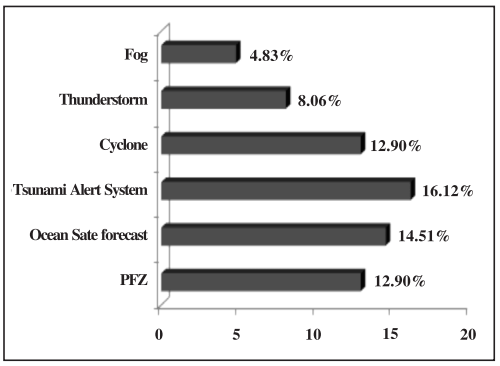

Figure 4. Currently available information services

The different source of information dissemination available with the respondents included media, fisheries station and weather forecast. Majority (63%) of the respondents mentioned media as their source of information. Out of 63 % respondents who received the information from different media, only 12 % received from radio. Only 5 % of them mentioned fisheries stations as their information source. Around 31 % respondents have no access to information dissemination. Respondents mentioned that the sources of information diffusion should be coordinated in a manner that the information reaches the fisherman well in advance. For this, Local Self Government institutions and fishermen associations should be kept in the loop.

(vi) Fishers perception on the utility of information services:

The respondents mentioned information not reaching fishers, complexity or difficulty in understanding the information provided, language issues, delay in receipt and insufficient information as the main constraints faced by fishermen in relation to information dissemination.

The information dissemination

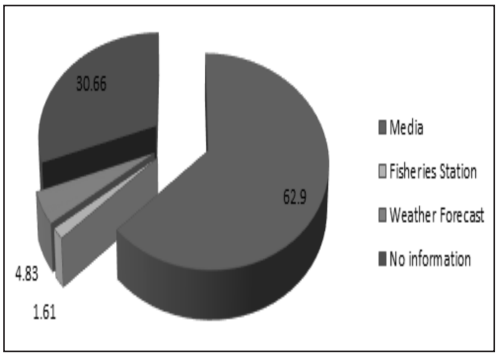

Figure 5. Sources of information

devices should be user friendly and the language used for communication should be of local origin. Communication devices and its range (up to how many nautical miles) should be studied taking into consideration the distance of fishing that our fishermen go to. The respondents expressed their interest in integration of Indigenous Technical Knowledge (ITK) with Modern Technical Knowledge (MTK) in information generation and dissemination. Various opinions about the information made available are ranked in order and given in table 2.

(vii) Suggestions for ensuring better disaster management:

Error free and accurate weather forecasting, digital display across major landing centers for information dissemination, engaging Local Self Government in information sharing, providing gadgets with governmental

Table 2. Opinion about the information made available

Opinion	Score	Rank
Doesn't reach the fishers	77.91	1
Complexity / Difficult to understand	72.64	2
Language not amenable	67.13	3
Delay in receipt	64.83	4
Insufficient data	59.91	5
Penetration to the target fishers	59.06	6
Irrelevant in terms of utility	56.42	7
Erroneous information	48.50	8

Table 3. Suggestions for ensuring better disaster management

Suggestions for ensuring better disaster management	Score	Rank
Climate predictions	78.19	1
Display across major landing centres	72.85	2
Engaging LSG in information sharing	66.52	3
Governmental support in providing gadgets	64.08	4
Information sharing through mobile	59.90	5
Involving fishers to provide indigenous knowledge	59.11	6
Token system while fishing Fishing	56.33	7
boats under Government observance	47.52	8
Imparting training to fishers	42.56	9

support and efficient usage of mobile for information sharing are the main suggestions put forward by the respondents for ensuring better disaster management. Weather warnings can be disseminated through the community via location based short message services, loudspeakers in religious places, broadcast on radio and television, Public service loudspeakers in traffic islands, markets and LED Display boards. Suggestions for ensuring better disaster management is given in table 3.

Conclusion

A crisis situation demands the intervention and assistance of experts from different departments/fields and cooperation among the stakeholders in order to ensure a quick and effective recovery. Keeping this aspect of disaster management in view, it should be ensured that a robust strategy/plan is made in relation to coastal Kerala's disaster management involving the direct stakeholders, the fishermen. Their needs and awareness levels should be considered before framing any policies for effectively confronting the future disasters. In short, the disaster response and management should be made more inclusive.

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