Policy Brief

India

Marine Fisheries Insurance

Issues and Strategies for India

Bay of Bengal Programme

Inter-Governmental Organisation

91, Saint Mary's Road, Abhiramapuram, Chennai - 600 018, Tamil Nadu, India

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The marine fisheries sector of India has travelled a long road since independence. From a subsistence activity it has transformed into a business activity revitalizing coastal economy and contributing to the national development. However, what lies in the future of the sector is uncertain. The uncertainty stems from rapid changes in the climate that in turn is changing the socio-ecological system, which the fisheries has traditionally operated in.

There is no single solution to the emerging problems but a range of actions are needed. One of the much needed action is to ensure that fishing operations remain financially sound. Insurance is a tested measure employed by people and businesses to deal with risk and uncertainty and cut down expected loss from an adverse event.

While insurance remains an enigma to the fisheries sector, there is a renewed thrust on its integration in fisheries policy to deal with the escalation of risks in the sector. However, it's easier said than done.

The big question is what can be done to popularise adoption of insurance in the sector. This policy brief presents the views of a wide range of stakeholders on insurance and offers an insurance toolbox for the government to consider.

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Preferred Citation

BOBP, 2022. Marine Fisheries Insurance: Issues and Strategies for India– A Policy Brief. Bay of Bengal Programme Inter-Governmental Organisation, Chennai. 24 p.

Funding

World Bank Trust Fund (Contract No 7204358); May-Sep, 2022

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Acknowledgements

We thankfully acknowledge the support received from the Department of Fisheries, Government of India in preparation of the policy brief. We especially like to thank the Department of Fisheries, Government of Tamil Nadu; Tamil Nadu Dr. J. Jayalalithaa Fisheries University; Fishers and their associations from India for their support to the study.

Layout & Design

BOBP Design Factory

Preparation of the document

This policy brief is prepared with the support received from the World Bank Trust Fund by the Bay of Bengal Programme Inter-Governmental Organisation (BOBP-IGO) in response to the evolving climate risks and other risks in the marine fisheries sector and the need for building resilience in India

Contents

Key Messages

- The marine fisheries in India generates a revenue of about USD 7-8 billion a year. It is playing an important role in the national economy as a source of food and livelihood. Therefore, ensuring that risks are mitigated to the best possible extent is of paramount importance.
- The sector employs about 1 million fishers and about 4 million people directly depend on it. The nature of fisheries is largely artisanal and small-scale. Addressing income risks of the fishers will contribute to the SDG 14 Sub goal: "securing sustainable small-scale fisheries".
- Fishers face conventional operational risks and elevated weather risks. The risk implications vary in terms of scale, timing, location and impacts. Therefore, to address different types of risk, an insurance-mix is required.
- For wide-ranging, macro-level weather risks, parametric insurance is emerging as an ideal solution. Parametric insurance is also ideal when verification of claim is difficult since this insurance is based on third-part information.
- It can complement conventional loss & damage insurance for covering risks of personal nature such as business disruptions due to technical failure. Further, to address the various issues of conventional insurance (high transaction cost, high premium, unsuitable design, etc.), and targeting different sub-sectors: artisanal and mechanized fisheries sector **micro insurance** and **mutual insurance** may be considered.
- There is lack of understanding on the possibility of using insurance to mitigate fisheries business risks. Therefore, insurance education for all especially the marginal section of fishers should be considered in partnership with NGOs and other suitable agencies.
- There is also a need to prepare a national policy statement delineating appropriate financial risk mitigation measures and the role of different actors such as the Government and the Insurance companies to build confidence among the stakeholders.

1. Introduction

This policy brief presents the key findings from a study carried out by the BOBP-IGO with funding from the World Bank. The overall objective of the study was to evaluate the existing mechanisms of risk transfer and risk mitigation with reference to climate change in the fisheries sector.

The marine fisheries sector of India is a vibrant primary sector activity. It generates a revenue of about USD 7 - 8 billion annually at current prices and provides employment to about 0.93 million people, while also addressing the nutritional need of the country. India has a long coastline of 8,118 km covering 9 maritime States and 4 Union Territories (UT). The marine fishing fleet comprises 65 876 traditional craft, 1 36 920 motorized traditional craft and 67 254 mechanized boats totalling 2 70 050 fishing craft as of 2020 (GOI, 2020).

There is growing evidence that climate change is intensifying extreme weather events and fostering changes in productivity, biodiversity, species distribution, and habitat in the oceans. Marine capture fisheries is an inherently risky activity. The risk profile is worsened further with climate change. Therefore, the traditional risk finance instruments of the fishers, such as personal loan, conditional loan, sale of assets, investing in fishing capacity are unlikely to pay in the long-term. There is strong evidence now that the spread and magnitude of the climate problem is likely to be such that non-institutional financers in fisheries sector, such as relatives, moneylenders would also be facing substantial risks.

Fisheries Contributes to Indian Economy more than Bollywood and Cricket Combined!

Marine fisheries usually does not make it to the news headlines, unless it is a bad news. The importance of the sector for the national economy is not well appreciated by the people outside this sector.

Fisheries is often portrayed negatively as an activity that is responsible for overfishing, trans-border crimes, slavery, and lead-laden fish, etc. Even in countries or region where consumption of fish is popular, fishers remain forgotten. One reason for the anonymity of the sector is possibly tyranny of distance.

Sector	Value (USD)
Marine fisheries	7892.75M
Advt in Google & Facebook	2901.63M
Cricket (BCCI)	1811.13M
Bollywood	1737.5M

In terms of revenue, the contribution of fisheries to the national economy is higher than the more well-known businesses, viz., Bollywood, cricket and advertisement revenue of Google and Facebook in India.

Fisheries also employs more people and helps greater number of families in sustaining their livelihoods.

And not to mention, the products from fisheries are arguably, the most nutritious!

Therefore, pragmatic risk management solutions are required to adapt to the changing situation. It is in this context there is a growing recognition of insurance as a risk management measure. The insurance sector is also rising up to the occasion with innovations. One such innovation is introduction of parametric insurance.

Conventional insurance deals with loss and damage (L&D) from named perils. For example, in case of a householder policy, theft is a named peril. Therefore, if subscribing householder notices theft in his house and submit a verified claim to the insurance company, his loss will be mitigated as per the policy terms. On the other hand, parametric (or index based) solutions are a type of insurance that covers the probability of a predefined event happening instead of indemnifying actual loss incurred. It is an agreement to make a payment upon the occurrence of a triggering event, and as such is detached of an underlying physical asset or piece of infrastructure.

Therefore, coupled with innovations in Fintech and ICT happening in India, there is new lease of life for insuring the marine fisheries sector despite its abysmal track record.

2. Methodology

This Policy Brief is a result of an exploratory and participatory study conducted by the BOBP-IGO in the South Asia region in 2022. The baseline information was collected through a detailed review and analysis of international policies, government policies and scientific literature on insurance and climate change. A draft strategy was developed based on the baseline information and critical areas were identified.

In the next step a participatory approach was adopted and discussions were held with fishers, fisher associations and insurance companies to understand their perspective and evaluate the draft strategy. The focus group discussions were complemented by a questionnaire survey carried out in selected coastal states in India *viz.,* Odisha, Tamil Nadu, Maharashtra, Kerala, Karnataka and Gujarat. The final recommendations were arrived at by taking note of the views of the stakeholders and global experience in dealing with risks in fisheries sector.

3. Typology of Risks and Risk Finance Mechanism in Fisheries

Dimension	Internal/operational risks	Climate risks
Production	Catch is stochastic. Acquired knowledge of the fishers supported by technology is used to meet the risk.	Climate change likely to obsolete traditional knowledge increasing the production risk.
	Loss of fishing days due to conservation and management measures (CMM). CMM, however, improves stock health and contributes to production. Income support (saving-cum-relief) is provided to cover the lean period.	Loss of fishing days due to bad weather days. Since bad weather days are localized in nature, they do not generate benefits like CMM.
Life/ Health	Collision, man overboard, injury from outboard motors, etc.	Cyclone, lightning, flood
Asset risk	Engine failure, gear loss, hull damage,	Damage due to cyclone
Other business risks	Non-functional/ poor infrastructure, etc.	Damages to infrastructure facilities.

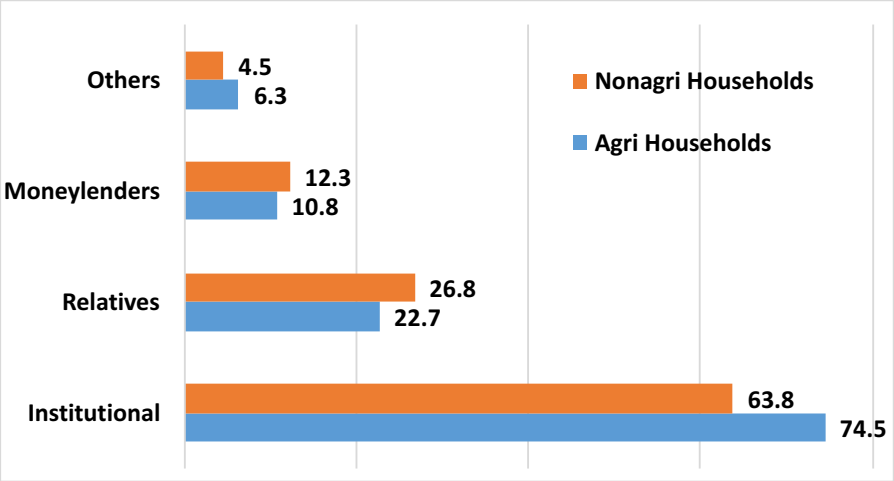

Figure 1: Distribution of loans according to sources for Households (%) (Sum may be > 100 as households take loan from multiple sources)

Funding from friends and relative are provided on cooperation. The interest charged is either zero or negligible. Therefore, it is most preferred and first source of credit. However, large sum of credit cannot be obtained from them. For large sum, fishers approach commercial banks or the moneylenders.

According to the NABARD All India Rural Financial Inclusion Survey (NAFIS) 2016 -17, the average loan per household from non-institutional sources is Rs 63,645 whereas average loan from a financial institution is Rs 28,207. In terms of distribution of households as per the source of the credit, about 30 percent of the households meet their credit need from informal sources, in which friends and relatives play an important role. They supply about 23 percent of the credit need of the sector. Non-Agricultural Households (NAH) also follow the same practice, having larger dependence on friends and relatives (Figure 1).

(Source: NAFIS 2016-17)

4. Emerging Climate Risks

The earth will face different climate scenarios from moderately bad to extremely bad in the comings days depending on the Greenhouse Gas emission level. To measure the possible changes, the Intergovernmental Panel on Climate Change (IPCC) has developed Representative Concentration Pathways (RCPs) models. This model-based analysis for India (Krishnan *et al.*, 2021) showed that the surface air temperature would increase by 2.0 and 2.4°C under RCP 4.5; and by 2.7 and 4.4°C under RCP 8.5 during 2040-2069 and 2070-2099, respectively (Figure 2).

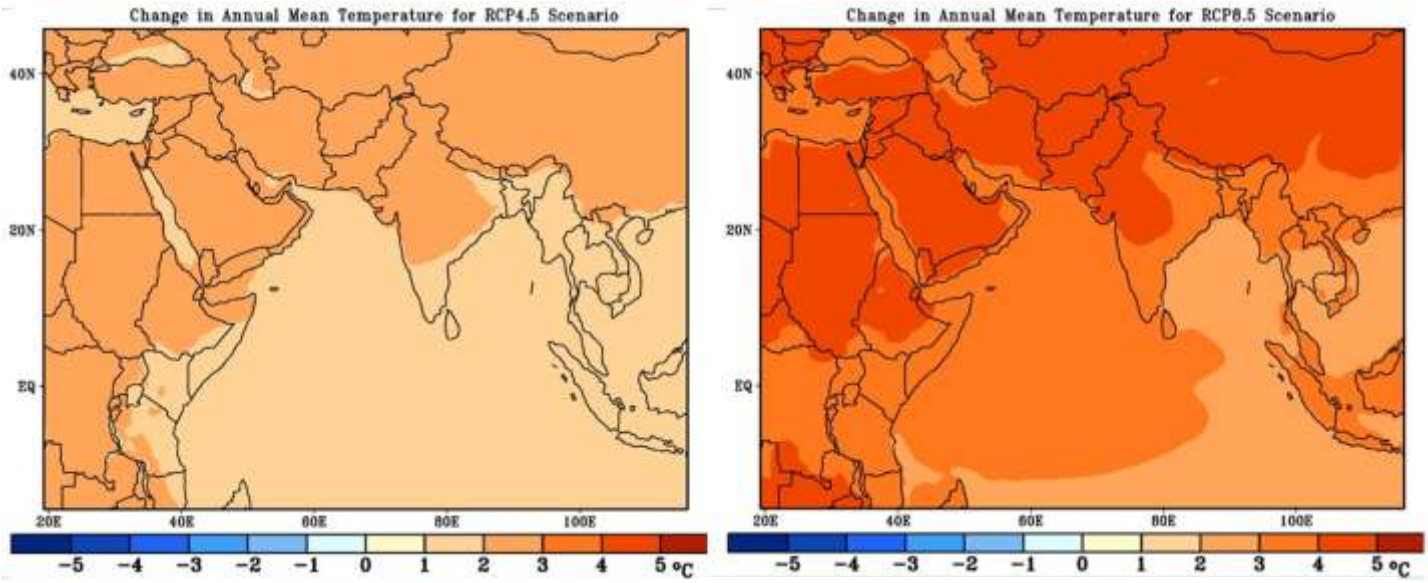

Figure 2: Climate Scenarios for South Asia

Source: Centre for Climate Change Research (CCCR), Indian Institute of Tropical Meteorology

Other projections that will have direct impact on marine fisheries in the region are as follows:

- **Sea surface temperature (SST)** of the tropical Indian Ocean has risen by 1° C on average during 1951–2015, markedly higher than the global average SST warming of 0.7° C, over the same period. The projected increase in SST is likely to change fish distribution further in the Indian seas, with the possibility of negatively changing population abundance.
- **Changes** in precipitation is likely to influence fish breeding. Resulting from the increased variability of monsoon precipitation and increased water vapour demand in a warmer atmosphere, climate model projections indicate a high likelihood of increase in the frequency of drought intensity (>2 events per decade) in arid and semi-arid zones. The area under drought conditions will increase in India by the end of the twenty-first century under RC P8.5 scenarios.
- **Sea-level rise** in the North Indian Ocean (NIO) occurred at a rate of 1.06–1.75 mm per year during 1874–2004. It has accelerated to 3.3 mm per year in the last two and a half decades (1993–2017). Therefore, many low-lying areas along the coast are likely to be inundated in the future. Advance of sea is already visible in many areas of Kerala as per news reports.
- **Ocean acidification** projections are still in nascent level for the India seas. However, it may lead to decrease in survival, calcification, growth, development and abundance of various categories of marine organisms, such as shellfishes.

4.1 Intensifying cyclonic activities in the Bay of Bengal Region

The Bay of Bengal (BOB), the largest bay in the world with an area of 1 million square miles, accounts for 0.6 per cent of the global ocean area. During 1990-2021, 190 cyclonic disturbances were recorded in the BOB region (Average 6-7 cyclonic disturbances per year, Figure 3). About 110 tropical disturbances remained as depression/deep-depression (58% of the total), 25 per cent of tropical disturbances converted into severe cyclonic storms and 17 per cent turned into cyclonic storms. Given the probabilities, the BOB region has a 25 per cent chance of witnessing a severe cyclone of all the cyclonic disturbances forming in the BOB. Moreover, when we consider the entire severe cyclone formed in the last 31 years, for every two years there is a chance to receive three severe/very severe cyclones. The tropical storms largely landfall in Indian coastal states Odisha-West Bengal Coast in October, Andhra Pradesh in November, and Tamil Nadu coast in December.

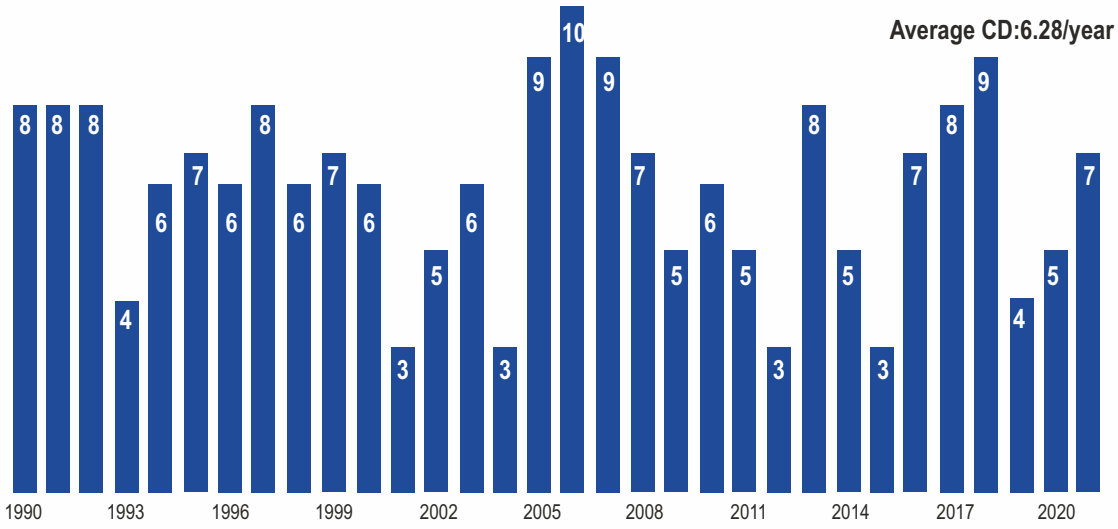

Figure 3: Cyclonic disturbance in BOB during 1990-2021

Source: Authors, calculations based on IMD-Web Cyclone eAtlas database (2022)

4.2 Increasing number of cyclones in the Arabian Sea

In the Arabian Sea also there is an increase in the number and intensity of the cyclonic events. Comparison of last two decades (2000-10; 2011-21) shows that the number of cyclonic disturbances has increased by 47 per cent in the region. There is also an increase in average number of cyclonic events per year in the Arabian Sea (Figure 4).

There is also an increase in intensity, as can be seen from the increasing number of the severe cyclonic storms (SCS) in the region. In addition, presently, there is a higher chance that a depression or a cyclonic storm (CS) will convert to SCS in the Arabian Sea, as compared to 2000-10. Further, as compared to 1990-99, total number of cyclonic events in the Arabian Sea has increased by 70 per cent. That is, the severity of extreme weather events is increasing steadily.

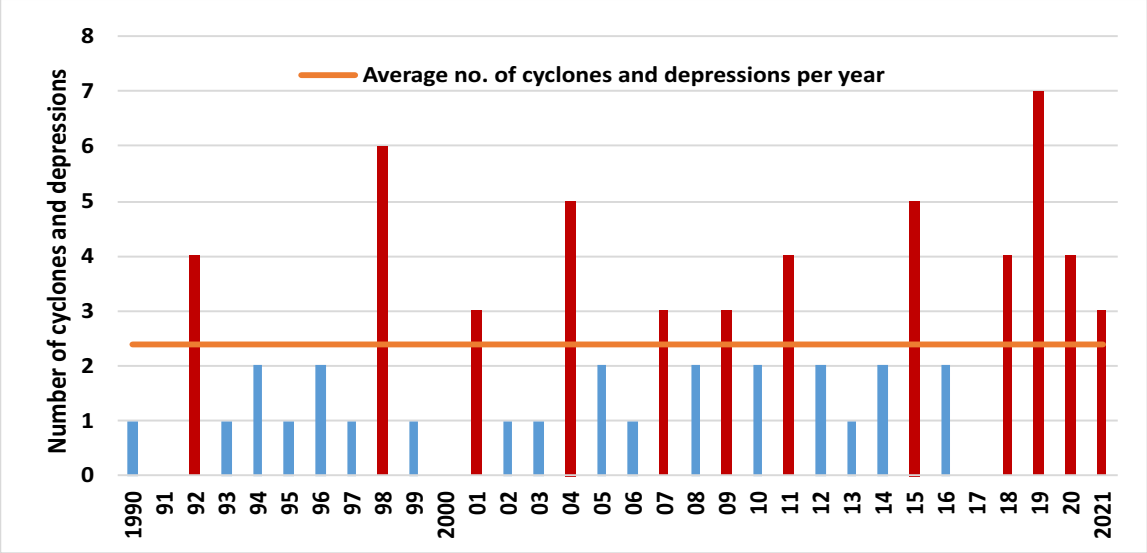

Figure 4. Cyclonic disturbance in the Arabian Sea during 1990-2021. Red bar indicates years when number of disturbances was more than the average

4.3 Invisible disaster: Lightning strike

The frequency and intensity of lightning strikes in India are expected to increase by 10-25 per cent and 15-50 per cent by the end of this century. Coastal areas may be at the highest risk (Chakraborty et al., 2021]. A study carried out in the USA reported that an increase of one degree Celsius would increase the frequency of lightning strikes by 12 per cent (Romps et al., 2014).

As per the data available from the National Crime Record Bureau (NCRB), lightning was responsible for 40 per cent of death from forces of nature in 2021. In general, number of deaths, due to forces of nature, is higher in the coastal states than that of inland states in India, the NRCB data shows.

Lightning is more likely to hit the land than sea and that it is rare for strikes to occur in high-sea areas. Waters just off coasts are more often affected. Therefore, the artisanal and marginal fishers are more at the risk of lightning strike. While there is no authentic document available on it, a quick scanning of newspaper reports shows frequent deaths of fishers due to lightning (Table 1).

Table 1. Fisher's death due to lightning strike

Date	Place	Event	Type of vessel
31-Oct-21	Kerala	A fisher (32 years) died while fishing at about 16 km away from Thumba coast at 10.30 PM.	FRP Boat carrying 4 persons
12-May-21	Kerala	A fisher (17 years) died while fishing at about 5 km off the Anchuthengu coast around 9 PM.	FRP boat carrying 5 persons
22-Oct-21	Tamil Nadu	A fisher (17 years) died while fishing off the Tuticorin coast at 7 AM.	Small Boat
11-Oct-21	Tamil Nadu	Onė fisher (34 years) died while fishing in sea off the Tuticorin shore around 7.30 AM.	Small boat carrying 2 persons
06-Aug-19	West Bengal	Two fishermen died and three other sustained critical burn while fishing 7 nautical miles off the East Midnapore coast.	FRP boat carrying 5 persons

A comprehensive tool for nowcast (up to 1 hour) and 24-hour forecast from high-resolution model has been developed by scientists from IITM, IMD, and NCMRWF. This novel prediction technology has been put to use during the 2019 pre-monsoon season successfully.
https://srf.tropmet.res.in/srf/ts_prediction_system/index.php

5. Quantifying Risks

5.1 Production risks

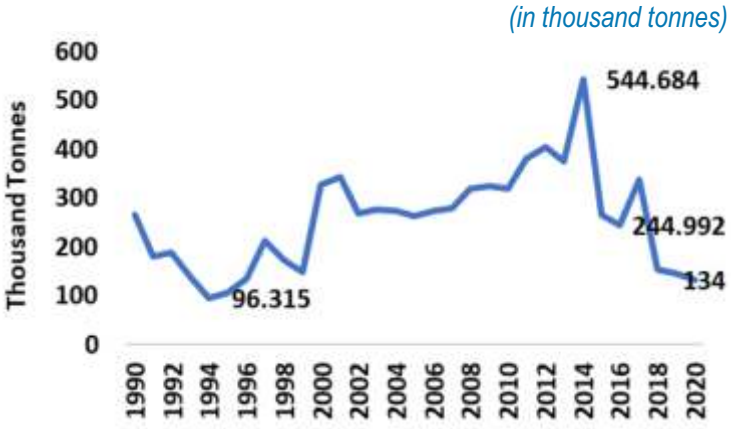

Figure 5. IOS catch along the Kerala Coast 1990-2020

Source; Compiled from CMFRI catch statistics

The fishers are facing production risk, life and health risk and asset risks during fishing. Production risk is stemming from unexpected fall in catch largely due to weather events and loss of fishing days due to bad weather. The recent example of catch failure is 98 per cent drop in Indian Oil Sardine (IOS) catch along the Kerala coast in 2021 (Fig. 5). At the national level, IOS catch dropped sharply from a peak of 545 thousand tonnes in 2014 to 134 thousand tonnes in 2020. In Kerala, only 3297 tonnes of IOS was landed against an average of 0.17million tonnes. Given that IOS is one of the largest fisheries of India and the mainstay of Kerala, such sharp declines severely affected the earnings of the fishers. The drop was a cumulative effect of El Nino Southern Oscillation (ESNO) and constant fishing pressure, subsequent analysis by CMFRI reported.

In terms of loss of fishing days, depending on the development and intensity of a cyclonic storm, fishers are losing 10-15 days per year. Considering that about 5 per cent of the coastline is affected each year due to cyclonic disturbances, this loss is roughly equivalent to USD 19.75 million or about INR 158 crore.

In Odisha, arguably, the most cyclone-prone state in India, the marine fisheries production usually declined during the cyclone years. Further, the growth trajectory that can be observed during 2000-10, seems to have halted. This is possibly due to the loss of fishing days due to cyclone and could also possibly due to damage to fishing assets and infrastructure which might have further impacted fisheries production (Fig. 6). In general, decline in production have serious financial implications for the local economy, especially the rural economy. Therefore, these conjectures could be further investigated and impact of cyclone beyond the immediate damage should be measured.

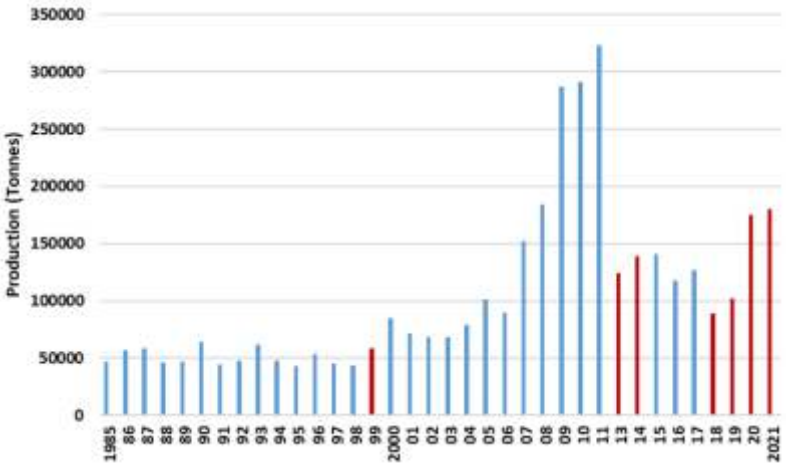

Figure 6: Impact of cyclones (red bars) on marine fisheries production of Odisha

Source; Compiled from CMFRI catch statistics

5.2 Life risks

Human Life Value (HLV) is estimated as the present value of all future income that one could expect to earn for his/her family. It is defined as the total income an individual is expected to earn until retirement. It indicates the economic loss a family would suffer in case of the early demise of the earning member. Based on following assumptions, the HLV has been estimated and presented in Table 2.

- On an average, fishers receive 40 per cent of the gross revenue, which is shared equally amongst the crew.
- The price and catch remains constant throughout the year.
- Median age of a fisher is 40 years and he remain active still 60 years of age:

Table 2: Value of fisher's life in India for 20 years of active fishing based on catch share

Total annual value of catch (Million USD)	Labour share (Million USD)	Number of active fishers (Million)	Annual per capita income (USD)	Total income in 20 years (USD)
7 892.75	3 157.10	0.93	3 405.42	68 108.40

Globally death rate while fishing is estimated at 80 per 100 000 people. The life risk of fishers is likely to increase further due to various reasons including the followings:

- *Increasing intensity of extreme weather events and rough sea conditions while fishing.*
- *Fishing while there is a depression.*
- *Sea level rise and stronger sea waves.*
- *Inclusion of migrant workers in the crew who have little experience of the sea.*
- *Increasing number of lightning strikes.*
- *Operational issue, poor boat design, etc.*
- *Migration of fish to deeper water which is causing fishers spend more time at sea to locate fish. The risk exposure is also increasing accordingly.*

5.3 Asset risks

Apart from normal operational risks, fishing assets face elevated risks during bad weather. Such risks include damage/ loss of gear; damage/ loss of boat; damage to the hull; damage to engine, etc. Usual marine insurance policies are based on hull insurance and cover total damage only. Hence, the boat owner does not receive any compensation in case of damage to gear. However, from boat owner's perspective, the likelihood of damage to fishing gear is more than that to the vessels. Therefore, the fishers are aggrieved that the existing insurance products do not meet their needs. Table 3, shows the extent of investment in the gill-netters in India. Approximately, about USD 618.46 million (Rs. 5000 crores) is invested in gillnet fishery in the country. It generates a gross profits of about USD 266.16 million (Rs. 2129 crores) and creates employment for over 52 thousand people directly. However, nearly the whole fleet is uninsured pointing out the large gap in marine fisheries asset insurance in India. Similarly, Table 4 shows the gap in life insurance for an active fisher of median years of age. Without an adequate insurance instrument, ex-gratia measures available in the country covers only about 16 percent of his insurance need, which at the maximum (death due to a natural calamity) can reached only upto 28 percent (GAIS+SDRF) of the insurance need. In case where the victim is the sole earner, such gap can push his family towards poverty.

Table 3: Investments risks in gillnetters in India (in USD)

Item	Average investment in a gillnetter (USD)	Total number of craft	Total investment (Million USD)
Vessel (hull)	46 944	6502	305.23
Main engine(s)	19 917		129.50
Equipment on deck (e.g. cranes, beams)	0		0.00
Equipment below deck (e.g.cold storage, ice making, freezers)	NA		
Fishing gear with a lifespan of 3 years or more	22 674		147.43
Electronic devices (navigation, fish finding and communication)	3 250		21.13
Other items	2 333		15.17
Total investment in USD	**95 118**		**618.46**
Average profit	40 935		266.16
Approx. number of crew	8		52 016
Crew share in total revenue	14 941		97.15

Source: Narayanakumar & Shinoj (2020) in van Anrooy et. al. (2020).

Illustrative Example: Life Insurance Coverage Gap in India

40 years old fishers having dependent children, spouse, and parents. Expected to retire at 60 years of age.

Heads	Value (Rs.)	Notes
Estimated annual household income	2,72,400.00	Single source of income
Current life insurance coverage	-	
Estimated monthly household consumption expenditure	74,244.00	National Financial Inclusion Survey or NAFIS 2016-17
Estimated annual net income	1,98,156.00	The disposable income will be less as families have to pay for education, health, debt, rent, etc
Insurance required (HPV method)	32,11,000.00	https://lifeinsurance.adityabirlacapital.com/tools-and- planners/human-life-value-calculator
Approximate premium per year (Term insurance)	15,108.00	https://www.policybazaar.com/life-insurance/term-insurance-calculator/
Death benefits		
With insurance	32,11,000.00	
Without insurance		
Accidental death (GAIS)	5,00,000.00	Under the Pradhan Mantri Matsya Sampada Yojana (PMMSY) scheme
Accidental death (Disasters)	4,00,000.00	Under the State Disaster Response Fund
Premium as % of net income	**5.55**	**This will increase as % of disposable income. Coupled with the seasonality of income, there could be stress on the family to pay.**
Ex-gratia as % of insurance need (GAIS)	**15.57**	**While ex-gratia payments are providing relief to the fisher families in case of accidental death, they may not be adequate to cover for financial distress of the family.**
Ex-gratia as % of insurance need (SDRF)	**12.46**	

6. Taking Insurance to People: Findings from Stakeholder Consultations and Surveys

A. **Loss of fishing days:** 75 per cent of the respondents reported that their fishing vessels or gear were damaged during the last five years. Depending on the seriousness of damage, fishing was stopped for 10 – 15 days in 80 percent case.

B. **Meeting the cost of damage:** 90 per cent of the fishers pay for the damages themselves. While 15 percent reported that, they had to sell their assets to cover for damages.

C. **Willingness for insurance:** Despite the above fact, 74 percent of fishers responded that they do not want to insure their boats. However, if they continue to invest in the sector in the future, they are more willing to consider insurance in the future.

D. **Causes of user dissatisfaction:** Nearly all respondents opined that insurance is costly. Moreover, it is seen, as "bad investment", as the money spent on insurance premium does not have any use unless there is a bad event. In many places, fishers expressed that the insurance agency is appropriating their money. Long drawn claim settlement process, which reportedly takes more than 6 months, was also a key factor for user dissatisfaction.

E. **Mismatch in Demand and Supply:** Insurance products available in the market do not match the need of the fishers and hence are unpopular and perceived as costly. For example, the gear has higher chance of loss and damage. However, there are no separate insurance products to cover gear insurance in India. It is also likely that given the high risk of damage of fishing gear and difficulties in verifying the claim, premium rate will be too high, if such an insurance product is introduced. Therefore, in such instances,

a community-based micro-insurance model would serve better. Owing to its local base, its cost of implementation and risk of spurious claims will be less and hence. The premium will also be relatively lesser.

F. **Compensation for the loss of days:** There is no "business insurance policy" to pay for loss of days due to repair of vessels and other technical reasons. As mentioned above, fishers' lose 10-15 fishing days in a year, due to bad weather, resulting in financial loss of about INR 158 crores. Unlike during the fishing ban period, when nobody is fishing, loss of fishing days cannot be expected to be compensated by increased catch post-lost days, as fish is likely to move to some other waters and get caught by others fishers.

G. **Moral persuasion by the government to insure boats:** During last few years, some state governments are linking support from governmental schemes with boat insurance. That is, to avail government support the boat should be insured. Consequently, there is an increase in the number of insured boats. However, during group discussion, it was found that the fishers are undervaluing their boats to reduce insurance premium.

H. **Setting up of FPOs to manage insurable risks:** Representatives of some fisher organizations expressed desire to make their own insurance (mutual insurance) scheme. This group of organizations had 1558 fishing vessels, valued at USD 128 million and thus, the primary condition of an insurance programme can be met (large pool of risk). The transaction costs, in this case, would be lower and it may reduce the premium. The government may encourage setting up of Farmers Producer Organizations (FPOs), who can manage risks of their assets and may also consider providing reinsurance services to such groups.

Government's Role in Reinsuring Damage and Loss
A Case Study from Japan

The subsidy's insurance program in Japan is a case of successfully underwriting the reinsurance.

Its key characteristics are:

- The condition for obtaining the subsidy is that all the fishers operating vessels with a gross tonnage between 1 and 100 should be part of a fishing cooperative and enter a contract with the insurance association.
- This arrangement provides an incentive to maximize the coverage of insurance and to better share risks and reduce costs.
- The government reinsures the fishing vessel insurance association by a “Stop of Loss” method.
- The government reinsurance activates when the insurance association has paid out claims, which exceed 109 percent of the net premium income of one fiscal year. The government will reimburse 85 percent of the amount of pay-out's exceeding 109 percent.
- Besides providing reinsurance and subsidizing the insurance premiums, the government provides tax exemption, approves the articles of the associations and the insurance stipulations including the insurance premium rates. The government also supervises the association and the central society or apex body.

I. **Securing the migrant workers:** The existing social insurance programme of the Government does not adequately cover migrant workers, whose number is increasing along the coast.

J. **Concerns of insurance companies:** Dispersed nature of fisheries is one of the reasons for high premium. Few number of policies, lack of interest in the market, and high risk are the causes for the low product diversity and high premium.

K. **Introducing parametric insurance in fisheries:** The insurance companies suggested introduction of parametric insurance schemes to deal with the weather-related losses and damages. While fishers are not aware of the parametric insurance products, when explained, they supported the idea and also asked for government support to implement the programme. The insurance companies desired that the Government act as the risk aggregator and buy insurance for adverse weather events, as in vogue in the agricultural sector (*Fasal Bima Yojana*).

Following risk can be covered under the parametric insurance:

- Production shock – sudden fall of production of a species significantly below average.
- Loss of fishing days due to cyclone.
- Cyclone/flood damage.
- Loss of business due to damage of infrastructure, etc.

7. Recommendations

- **Issuance of policy statement:** At this point of time, there is lack of mutual trust between the fishers and the insurance companies and both parties want the Government to play the role of mediator. Therefore, a policy statement of Government's view on insurance is of foremost importance.
- **Creating awareness among stakeholders on insurance:** Many fishers do not understand how insurance works. Therefore, there is a need to educate them so that they can take informed decision. To do this, a two-pronged approach may be taken. On one side, the fisher associations and unions can be roped in and a tri-party dialogue amongst the fishers, insurance companies and the government may be arranged. India has boat owner's association in every landing centre and educating their leaders is likely to trickle down to the other members. On the other side, the local government institutes (village councils / panchayats) shall be roped in to arrange Insurance Mela. This is especially to target the artisanal fishers who do not belong to any association. The insurance agencies should also be educated about the need of the fisheries sector and measures to build confidence should be worked out.
- **Bringing down the cost of insurance:** The Government should use proper information repository and negotiate with the insurance companies to buy a group insurance policy for all vessels such as the existing Group Accident Insurance Scheme (GAIS). For example, information on age, engine capacity, size and value of the boat, which is collected during the registration can be used to estimate the book value of fishing vessels as of now and buy insurance accordingly.
- **Developing common platform to provide insurance:** Insurance companies maintain an array of offices, staff, sales agents, network, etc. to sell insurance product. These costs are ultimately passed down to the subscriber in the form of increased premium. For example, a global study by the Mckinsey's in 2015 found that Operations and IT account for around 50 percent of a typical insurer's cost base. Therefore, provision of a common platform can bring down the cost by sharing infrastructure.

One such example is Policybazar.com. Policybazaar is an insurance aggregator and multinational financial technology company founded in 2008. Policybazaar.com has tie-ups with insurance companies that help it procure information such as price, benefit, insurance cover etc. directly from the insurers. Users can use the Policybazaar website or app to research, compare and buy insurance policies from over 40 insurance providers. This is mutually beneficial for the subscriber and insurer as insurer saves the customer acquisition cost while the consumer gets competitive quote.

- **Adopting good practices to bring down premium:** Operational risks can be further reduced by training, proper vessel maintenance, etc. For a specific harbour, the insurance companies can conduct periodic survey with Government assistance to ascertain the condition of the operating vessels. The premium can be accordingly adjusted.
- **Designing insurance mix for improved access at low cost:** The Government should consider various forms of insurance including micro-insurance, community-based insurance and market-based insurance apart from public insurance schemes. The insurance companies should design insurance products that adhere to the principles of SUAVE (Simple, Understood, Accessible, Valuable, and Efficient) (Micro-insurance Centre)
- **Extending insurance cover to migrant crew:** All-peril insurance for “unnamed crew” for all fishing vessels may be made mandatory, by linking it to licensing. This is to support the migrant crew.
- **Developing need-based vessel insurance:** All-peril fishing vessel insurance may be made mandatory for all fishing vessels by

linking it to licensing. The Government may use the data collected during the registration of fishing vessels (size, class, cost, etc) to buy an all-peril insurance cover for the fishing vessels.

- **Increasing coverage of existing benefits:** The Government may consider increase the amount in the GAIS and link it with the average HLV of fisheries households in the country.
- **Exploring options of co-pay in case of asset insurance:** Difficulties in validating the claim is one of the major impediments from the point of view of the insurance companies. One possible option is to ask the insurance subscriber to co-pay. Under this principle, insurance company will not bear full cost of damage but a share of it (75-80%). The insured person will make the payment first and that would partially meet the need of validation of the claim. Such measures are used in health insurance, where similar problems in validation of claim exist.
- **Providing multiple claim options:** Given the diverse requirement of the fishers, the total sum assured can be made of multiple claims. For example, one vessel insurance policy may cover for hull, gear and electronic equipment. If the fishers make a valid claim for gear loss, a part of the sum assured will be provided and this will be adjusted from the total sum assured.
- **Developing parametric insurance programme:** Develop a Model Parametric Insurance Scheme to guide the insurance sector and implementation at pilot scale.
- Parametric or Index-based insurance can meet the business loss due to extreme weather events. One example of parametric insurance could be 'Insurance for Loss of Fishing Days due to Cyclone'. Under such insurance programme, all fishing units in the affected area would be compensated at a fixed rate, once the event is triggered (that is when there is a cyclone). Such a specially designed parametric insurance (for extreme weather events) will be helpful for the fishers to mitigate loss of income due to forgone fishing opportunity.
- Lessons can be drawn from the Fasal Bima Yojana, which imbibed parametric principals, and the Caribbean COAST Project.
- Mainstreaming catch documentation: This can be done by instituting a mechanism to collect data on the type and quantity of fish caught by the fishers. This will aid the industry in developing an insurance product that will effectively cover the days lost due to adverse weather conditions.
- **Supporting reinsurance:** The Government may consider use of tax revenue to buy re-insurance products from the market for risk coverage. For this purpose, there can be an imposition of National/ Central Cess on the Licensing Fee to generate funds, which can be used for purchase of “an all-peril” insurance policy.

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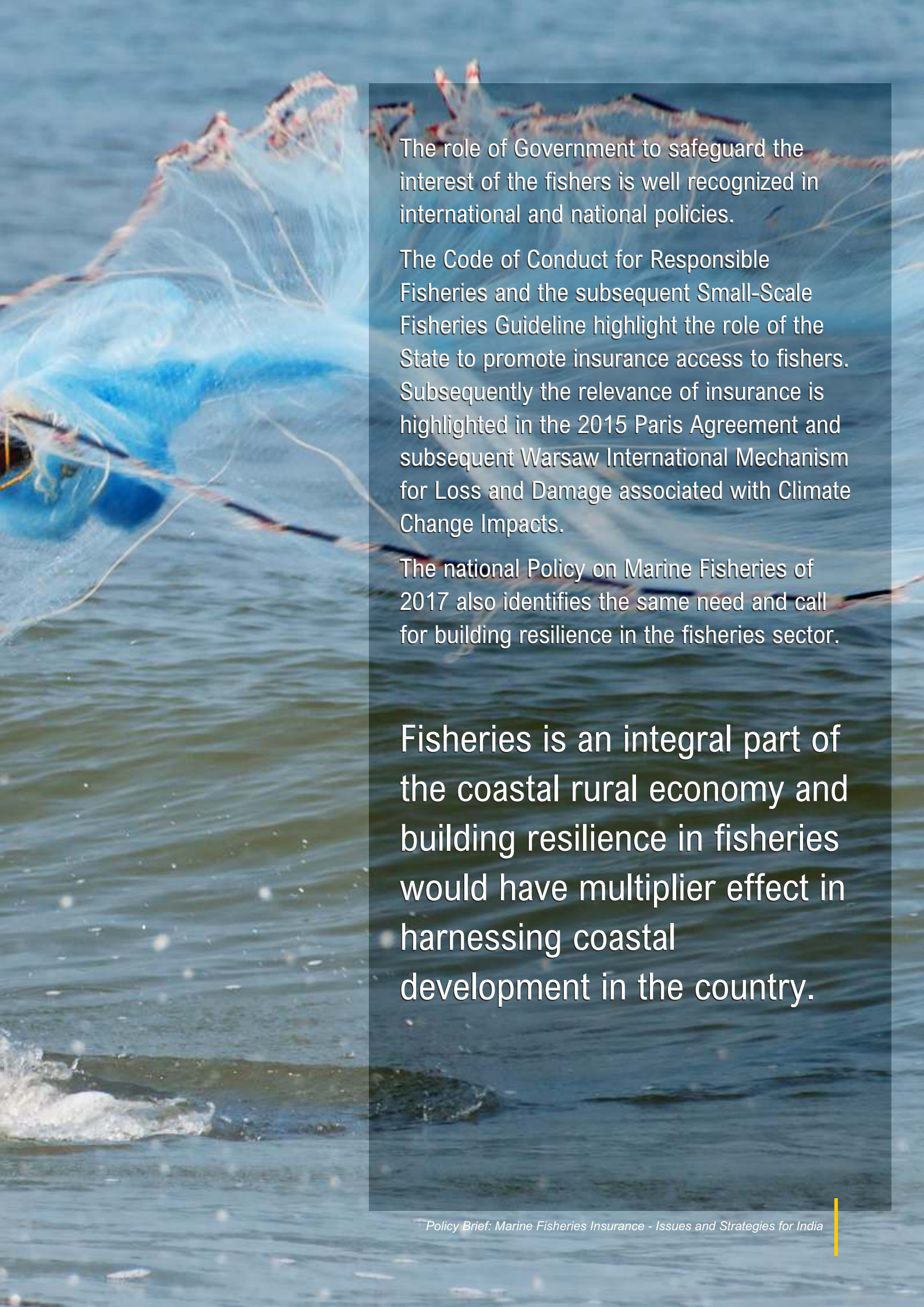

The role of Government to safeguard the interest of the fishers is well recognized in international and national policies.

The Code of Conduct for Responsible Fisheries and the subsequent Small-Scale Fisheries Guideline highlight the role of the State to promote insurance access to fishers. Subsequently the relevance of insurance is highlighted in the 2015 Paris Agreement and subsequent Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts.

The national Policy on Marine Fisheries of 2017 also identifies the same need and call for building resilience in the fisheries sector.

Fisheries is an integral part of the coastal rural economy and building resilience in fisheries would have multiplier effect in harnessing coastal development in the country.

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