

Parametric Insurance - Mitigating Climate Risk

May 5, 2022

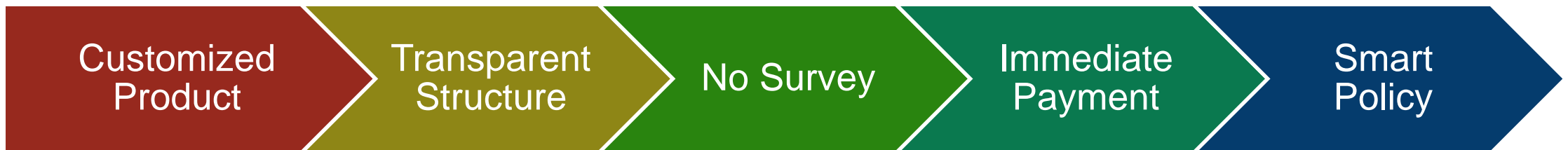
Agenda

- Parametric Insurance
- Weather Parameters affecting Marine Fisheries
- Research References on Major Weather Parameters
- Historical losses due to extreme Weather Events



Parametric Product- Weather Insurance

- **Covers-** Losses due to unfavourable extreme weather parameters (eg: Rainfall, Temperature, Wind speed).
- **Benefit Product-** payment is made in accordance with pre agreed formula.
- **Sum Insured-** The insured amount is as per the cost of cultivation per unit of area.
- **Period of Coverage-** It can be flexible – depending on the need of the customer
- **Trigger-** Triggers are based on thresholds defined by weather parameters.- e.g- Rainfall quantum in mm, rain days, dry days
- **Weather data-** Weather data are collected from weather station and satellite-based data.
- **Claim-** Payments are made immediately on trigger of event.



Major challenges in Weather Insurance

Basis Risk

- Weather trigger may not result in losses to all the Insured in a geographical unit.
- Losses vary from Insured to Insured depending on risk practices undertaken

Weather Data

- Historical weather data for 15-20 years for all location is not available
- The same data source to be used for pricing and settlement, hence source has to be consistent.
- Gridded data solves the challenge

Educating stakeholders

- Consequence of Basis risk needs to be communicated to the customer at the underwriting stage

Weather Parameters affecting Marine Fisheries



Flood / Excess Rainfall

- Drop in water temperature, PH level, salinity, alkalinity
- Pathogen bacteria replaces beneficial bacteria
- Bottom condition deteriorate because the sludge is stirred up
- Mortality occurs due to change in water quality, stress and pathogen
- Feed consumption of shrimp drops



Cyclone

- Loss of juveniles and brood fishes
- Spread of diseases
- Loss of capital assets/ infrastructure
- [Cyclone Cover for Fisherman for loss of income](#)



Temperature

- Variation in water temperature patterns has influence on shrimp growth and survival
- Example- Rohu fish is suitably grown in water temperature range from 20-26 °C
- **Disease condition:** Temperature plays a vital role in disease spread

Research References

Research References

- Central Institute of Brackish water Aquaculture (CIBA),2012

As per survey conducted by CIBA (2018-19) in west Godavari district of AP on 120 aquaculture farmers, the following are the ranking of risk parameters

Parameters	Observation(Y/N)	% Farmer said yes	Ranking
Seasonal variation	108/12	90%	1
Cyclone	98/22	82%	2
High Temperature	91/29	76%	3
Irregular Rainfall	84/36	70%	4

Historical losses due to extreme weather



Excess Rainfall / Flood- AP

In 2020, AP suffered heavy losses in ~5819 Hectares of ponds due to Excess rain
Overall **5%** cut in production in 2019 in AP (Godavari Basin), Gujarat, and Maharashtra.



Excess Rainfall -Taiwan

Losses ranging from **10-30%** in southwest Taiwan during 2019 due to continuous heavy rain impacting water quality and in turn illness and death.



Temperature for Disease

As per Survey in Year 2018-19 in AP, Shrimp growers suffered heavy production losses due to WSSV & EHP Disease



Sudden Fluctuation of Temperature

In West Godavari district of AP, during 2014 there was wide spread losses due to intense heat wave and sudden fluctuation in temperature.



Thank you

Cyclone Cover For Fisher Man

- **Coverage-** Loss of income if there is cyclonic condition fisherman does not go inside sea to catch fish.
- **Benefit Product-** if the cyclone hit the sea/ ocean in the areas selected by fisherman, the claim can be given.
- **Risk Location-** The risk area in sea/ ocean to be mentioned in term sheet
- **Sum Insured-** Rs 5000 to Rs 10,000 (Loss of income for 5 to 10 days)
- **Claim-** As and when cyclone hits, claim shall be settled in 15 days period.

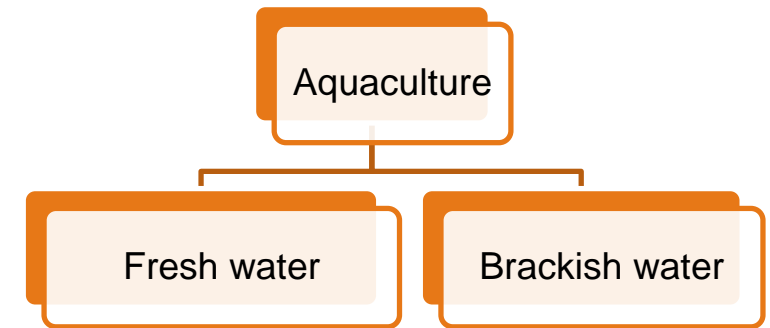


[BACK](#)

Aquaculture

Brief of Industry

- Fresh water aquaculture are majorly fish and few specific species of prawn.
- Brackish water aquaculture in India are majorly prawns.- prawn varieties in India are- L. Vannamei, P. Monodon (Tiger prawn)
- India 3rd largest Producer of inland fish which is 14 Million MT (in 2020). Major states are- AP, WB, Guj, Kerala
- India produced 7.47 lakh MT of brackish water shrimp in 2020 and exports around 5 lakh MT of shrimp.
- Major states of shrimp production- AP, TN, Odisha, Gujarat.
- India- Highest exporter of shrimp in world to major countries like- US, Vietnam, Japan



State wise shrimp production

