Insurance and Climate Change

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KEY AREAS AFFECTED BY CLIMATE CHANGE IN INDIA

Natural Disasters (NATCAT)

Health Care

Agricultural Sector & Food

CLIMATE CHANGE & NATURAL CALAMITIES

NATURAL CALAMITIES DUE TO CLIMATE CHANGE

Average Temperature has increased by 0.7% degree C between 1901-2018.

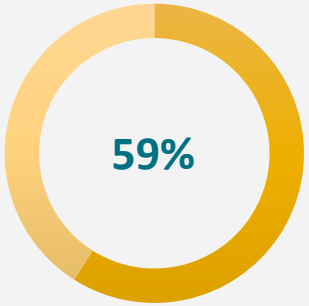
Frequency of cyclone has increased (3 in 2017 to 8 in 2019) and has impacted the lives in both eastern (Bay of Bengal) and western coast (Arabian Sea)

Between 1970 to 2019, weather, climate and water hazards accounted for 50% of all disasters, 45% of all reported deaths and 74% of all reported economic losses

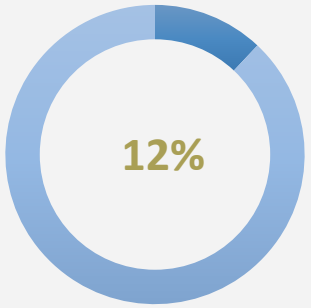
Urbanization is reducing the venues of water discharge exacerbating the impact of heavy rains e.g., Mumbai 2005.

- ✓ India's geography makes it extra vulnerable to extreme climate events. The geography of India is such that it is surrounded by the warm tropical waters of the Indian Ocean on all three sides and the melting Himalayas on the north.
- ✓ The Indian Ocean is warming at a higher rate, as compared to other oceans
- ✓ There has been a trend of rising losses & we expect the trend to continue due to rapid development in areas exposed to severe weather conditions, ongoing urbanization, growth in concentration of assets in exposed areas and long-term climate change projections.

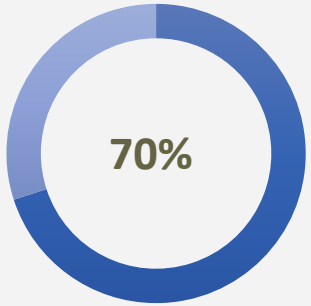
DISASTER RISK IN INDIA



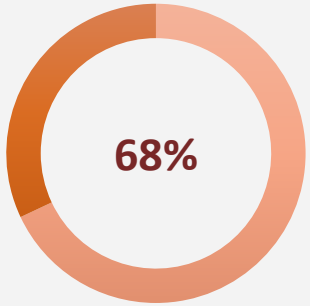
Of Geographical area is Earthquake prone



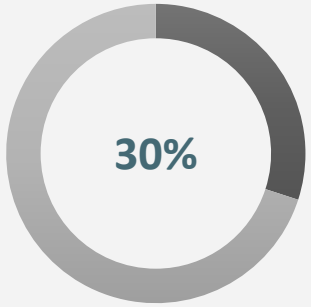
Of Geographical area is Flood prone



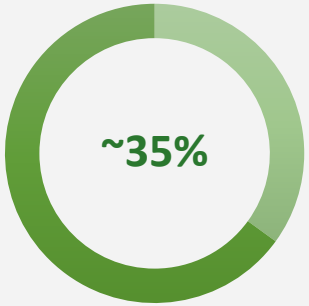
Of Cultivable land exposed to drought



Of Agricultural land is Drought prone



Of the world's landslides occur in the Himalayas



Of Forest area is prone to forest fires

- India ranked 7th in Global Climate Risk index of 2021.
- According to the world bank, Direct losses from natural disasters have been estimated to amount up to 2% of India's GDP.

INCREASED FREQUENCY & LARGE PROTECTION GAP

Total Incidents since 1900: 765

Incidents During 2001-2021: 354

Total economic loss since 1900: $187 billion (INR 13 lakh crore)

Insurance Protection Gap: >90%

ECONOMIC VS INSURED LOSSES : DEVASTATING IMPACT!

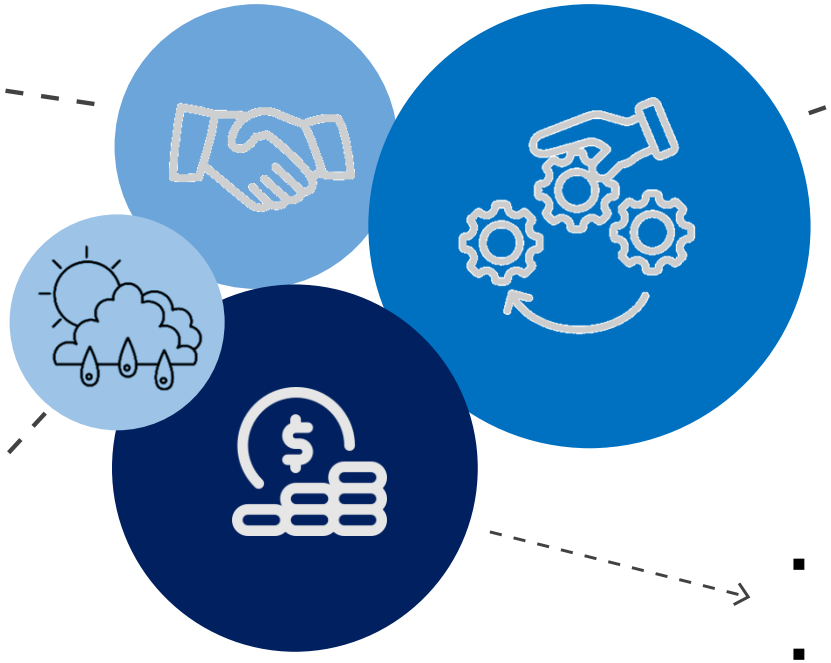
Year	Types of Disaster	Region	Economic losses	Insured Losses	Protection Gap
2005	Flood	Maharashtra/Mumbai	INR 15,000 Cr.	INR 2,200 Cr.	85%
2006	Flood	Gujarat/ Surat	INR 5,000 Cr.	INR 500 Cr.	90%
2014	Cyclone - HudHud	AP/ Odisha/ Chhattisgarh/ Madhya Pradesh/ Uttar Pradesh	INR 50,000 Cr.	INR 2,000 Cr.	96%
2014	Flood	Jammu & Kashmir	INR 40,000 Cr.	INR 2,500 Cr.	94%
2015	Flood	Tamil Nadu/Chennai	INR 20,000 Cr.	INR 3,000 Cr.	85%
2016	Cyclone	Tamil Nadu/ Aandhra Pradesh/ Pudduchery/Vardah	INR 7,000 Cr.	INR 700 Cr.	90%
2018	Flood	Kerala	INR 25,000 Cr.	INR 2,000 Cr.	92%
2019	India Flood	NA	INR 70,000 Cr.	INR 2,000 Cr.	97%
2019	Cyclone-Fani	Odisha / West Bengal / Aandhra Pradesh	INR 10,000 Cr.	INR 650 Cr.	94%
2020	Cyclone-Amphan	West Bengal / Odisha / Bangladesh	INR 60,000 Cr.	INR 1,500 Cr.	98%
2021	Cyclone-Tauktae	West Coast / Kerala / Lakshwadeep / Maharashtra / Goa / Karnataka	INR 15,000 Cr.	INR 1,500 Cr.	90%
2021	Cyclone-Yaas	West Bengal / Odisha	INR 20,000 Cr.	INR 700 Cr.	97%

The protection gap truly puts on hold the economic surge of India

(Source: Munich Re, Nat Cat Service)

ADDRESSING THE PROTECTION GAP!

Forge strong public private partnership (PPP)



Focus on parametric insurance solutions which guarantee quick payout.

State Level Intervention

- Provisions can be made to allow states to implement risk transfer in accordance with their respective exposures
- States to utilize up to 5% of the annual SDRF allocations to purchase insurance for public assets and emergency funding

Hybrid Risk Pool Model

- Layer 1: Losses to be financed by Risk pool account
- Layer 2: Losses can be protected with Reinsurance support
- Layer 3 : CAT Bonds, in lieu of reinsurance, as an alternative risk financing mechanism for mitigating specific large natural catastrophic risk .

Global Examples of Disaster Risk Financing

- Southeast Asian Disaster Risk Insurance Facility (SEADRIF)
- Caribbean Catastrophe Risk Insurance Facility (CCRIF) African Risk Capacity (ARC)

CLIMATE CHANGE IMPACTING HEALTH CARE

IMPACT ON HEALTH OF CITIZENS

Climate change affects the social and environmental determinants of health – clean air, safe drinking water, sufficient food and secure shelter

Injury and mortality from extreme weather events

Water-borne diseases

Malnutrition and food borne diseases

Heat related illness

Zoonoses

Non-communicable diseases (NCDs)

Respiratory Illness

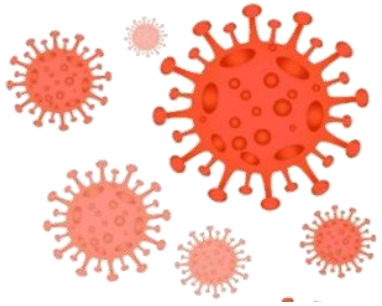
Vector Borne Diseases

Mental & Psychological Health

Climate change impacts health both directly and indirectly, and is strongly mediated by environmental, social and public health determinants

Between 2030 and 2050, climate change is expected to cause approximately 2.5 Lakhs additional deaths per year, from malnutrition, malaria, diarrhoea and heat stress (Global estimate)

SOLUTION FOR HEALTH INSURANCE



Preparedness for pandemic and epidemic covers:

- **Indian Pandemic Risk Pool** to address losses and provide relief
- Public Private Partnership (PPP) backed by government support as backstop
- Internal capacity by premium collection, external capacity building by Govt. backstop and pandemic bonds

Designing a low cost comprehensive Health insurance product for the missing middle (40 cr Individuals or >8 crore family)

Advance OPD covers:

- OPD cover with or without basic health plan.
- Wider Coverage for flu and vaccines for kids / adult

CLIMATE CRISIS AFFECTING AGRICULTURE & FOOD!

SIGNIFICANCE OF INDIA'S AGRI SECTOR

- The **agriculture** sector in India is both **economically** and **politically important**.

- The industry accounts for around **14% of the country's $2.7 trillion economy and 42% of total employment**.

- Further, about one-third of India's manufacturing output — which makes up around **18% of the country's gross domestic product** — is **linked to turning agricultural products into food**.

- Therefore, too much rainfall or too little or a **weather vagaries**, can damage crops, impact production and **pose financial distress** to the biggest community in the India.

CHANGING CLIMATE DYNAMICS, PERILS AND ITS IMPACT

As per the Food and Agriculture Organization (FAO), in India, around 36 million hectares agricultural area was affected due to hydro-meteorological calamities, including heavy rain and floods since 2016

Changing **Weather pattern**

- Delay in monsoon arrival and exit both (Heavy rains in the month of October – November)
- Sudden increase in temperature (from the month of March)
- Significant **increase in the Hailstorms events in many parts of the country**

Cyclonic events

2019	2020	2021
8 cyclones	**5 cyclones**	**5 cyclones**
(Pabuk, Fani, Vayu, Hikka, Kyarr, Bulbul, Maha, Matmo)	(Amphan, Nisarga, Burevi, Gati, Nivar)	(Tauktae, Yaas, Gulab, Shaheen, Jawad)

Major Perils affecting Agriculture productivity

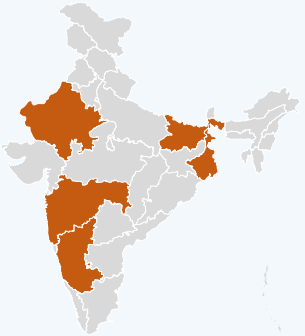
- Frost / Cold wave
- Heat wave
- Heavy rain
- Snowfall
- Dry spell
- Strong Winds
- Hail | Cyclone
- Landslide
- Cloudburst
- Natural fire by Lightening
- Pest and Diseases

Impact on Agriculture/Farmer

- Less productivity
- **Financial loss and liabilities**
- Less production
- Unemployment
- Higher cost of cultivation
- Farmer suicides

Over **5 million ha of crop lost** due to rain in 2021

Karnataka worst-hit, followed by Rajasthan, West Bengal, Bihar and Maharashtra



Out of **INR 23,186 Cr** allocated to SDRF, **INR 17,747 Cr** released

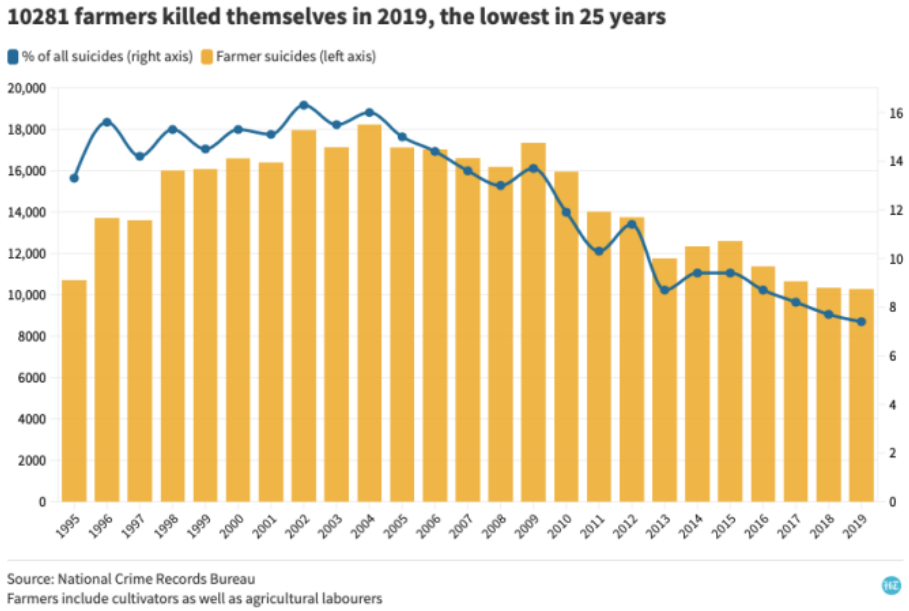
Additionally, **Rs. 7342 Cr** was released from NDRF

CROP INSURANCE

Insurers also play a critical role in food and agriculture ecosystems, alleviating exposures to crop failures and livestock losses, thus bolstering India's progress towards achieving SDG 1 (no poverty) and SDG 2 (zero hunger).

PMFBY and its Impact

Reduction in Farmer's Suicidal Rate



- PMFBY as mass Crop insurance program is in implementation since 2016 across India.
- 20 Active states currently participate in PMFBY .
- Approximately 25% of total cultivated area is insured under PMFBY.
- **Financial support** through PMFBY **helped debt ridden farmers.**
- PMFBY have also **increased job opportunities** in the rural areas.
- PMFBY have also helped **technology adoption** across the rural community to increase farm productivity.
- Lowest farmer suicides seen in the last 25 years post introduction of PMFBY

Pradhan Mantri - Kisan Aarogya Bima: Every farmer should be enrolled under Agri Insurance clubbed with a health plan for farmers

Increase in Adoption of PMFBY

STRENGTHENING FOOD AND AGRICULTURE SYSTEMS

ISSUE	HOW CAN INSURANCE MAKE AN IMPACT
Better storage and reduced food wastage: • A study by the National Academy of Agricultural Sciences (NAAS) concluded that storage is the major cause of post-harvest losses for all kinds of food in India. • Because of a critical lack of cold storage capacity, between 30–40% of all fruit and vegetables and 5–6% of all grains go to waste and the scarcity of facilities has a profound bearing on the cost of storage for farmers as well.	Insurers can expand the boundaries of insurability by introducing novel solutions like Weather-based parametric insurance solutions can cater to agricultural warehouses by protecting them from utilization risk arising as a result of natural calamities and extreme climate as well.

INSURING INDIA TO A GREEN FUTURE!