

IIZ WINTER SCHOOL MONTCLAIR ,NYANGA

**Facilitated by : B.MANZVERA
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Topic : Catastrophe Risk Management : Zimbabwe is prone to natural disasters such as floods and droughts. How insurance companies can help to manage the financial impact of these events.

Theme : Disruption and opportunity Equipping the Zimbabwean insurance industry for the future:



AIM OF THE WORKSHOP

- The aim of this workshop is to introduce & empower participants with nature of catastrophes in the world
- To contextualize the discussion to Africa and Zimbabwean perspective .
- Enhance awareness of the catastrophe exposure risk landscape in Africa and Zimbabwe
- Introduce some of the strategies to manage catastrophe risk landscape





What is a catastrophe ?

- A “catastrophe” is an unexpected event that causes great suffering or damage.
- A catastrophe causes massive damage to property , lives , and environment .
- It can be localized but if more often than not widespread and fundamental in nature . Can be natural or man made .
- “A dire situation in which those who are supposed to offer help are also looking for help”

Boas 2024

Catastrophe impact on development

Holistic view



SOCIAL

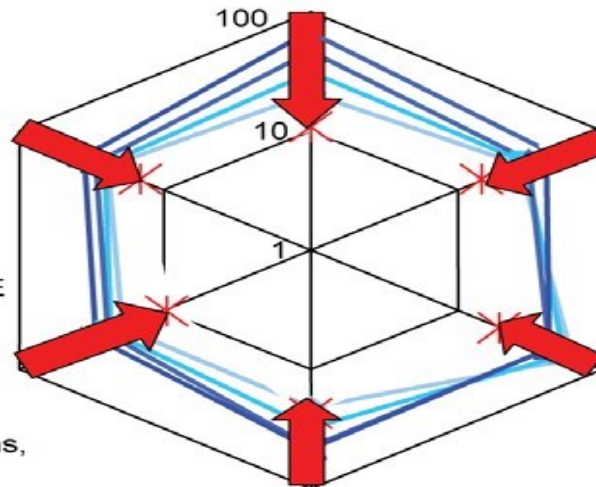
- Social capital and social networks (solidarity and equity)
- Family ties, gender perspective and extended family networks and links
- Violence, security and rights

PHYSICAL INFRASTRUCTURE

- Quality and resilience of human built environment (settlements and rural/urban planning)
- Transport and communications, energy and other basic lifelines
- Productive infrastructure
- Other built infrastructure (public services, government buildings)

HUMAN

- Health
- Education
- Livelihoods
- Housing and shelter
- Cultural identity



NATURE / ENVIRONMENT

- Clean water, waste disposal and sanitation
- Clean air
- Biodiversity and integrity of ecosystems
- Climate variability and change

POLITICAL

- Governance
- Transparency
- Participation, inclusion and political rights
- Access to information

FINANCIAL

- Access to credit
- Land tenure, legal rights
- Compensatory mechanisms and funds
- Insurance and financial protection



Financial Impact of Catastrophes

A Global perspective



- A distinction between Economic losses and Insurance losses should be made
- In developed world , economic losses are almost equal to insurance losses because of high insurance penetration rates, insurance awareness and litigiousness.
- Developing world however , economic losses may be high but insurance losses remain low due to low insurance penetration rate and economic development ,
- Cyclone Idai case – Huge gap between economic and insurance losses – This is a challenge to the insurance industry to drive penetration

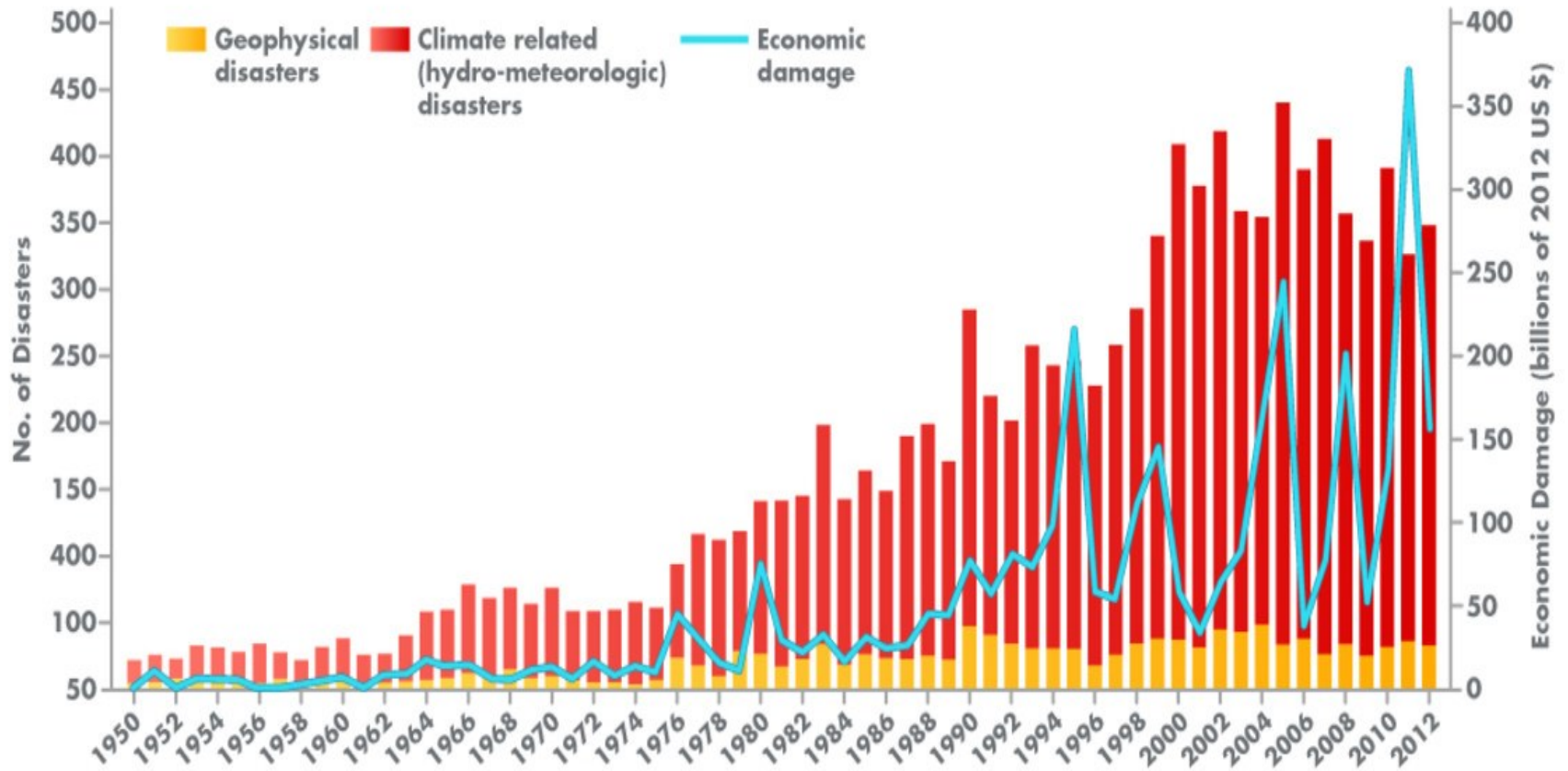
Financial Impact of Catastrophes

A Global perspective

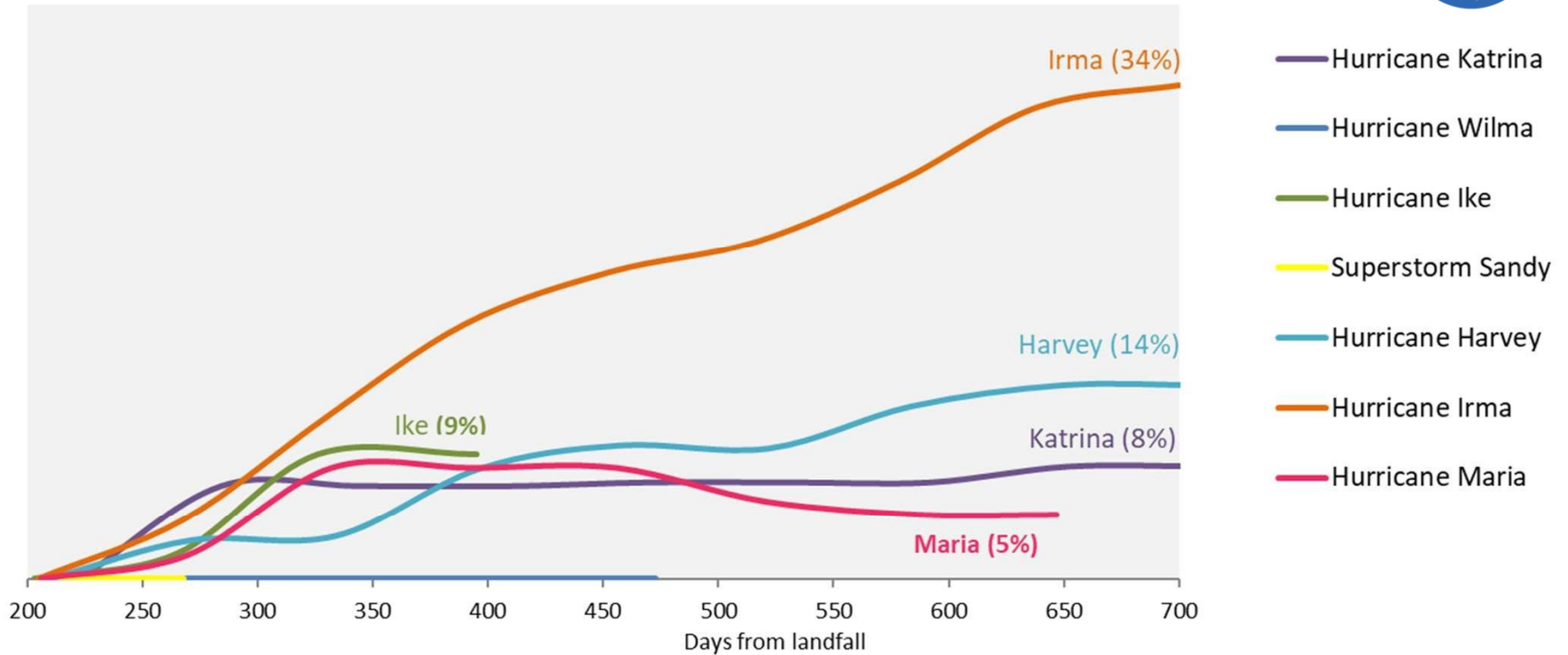


- The impact of disaster depends on a number of things
- Magnitude and length time of operation see “Hours clause in insurance contracts”
- Geographical place affected , is it developed or not
- Level of risk disaster management in place
- Disaster response mechanisms very important
- Population density

Natural disasters trend



US Trends on Catastrophes



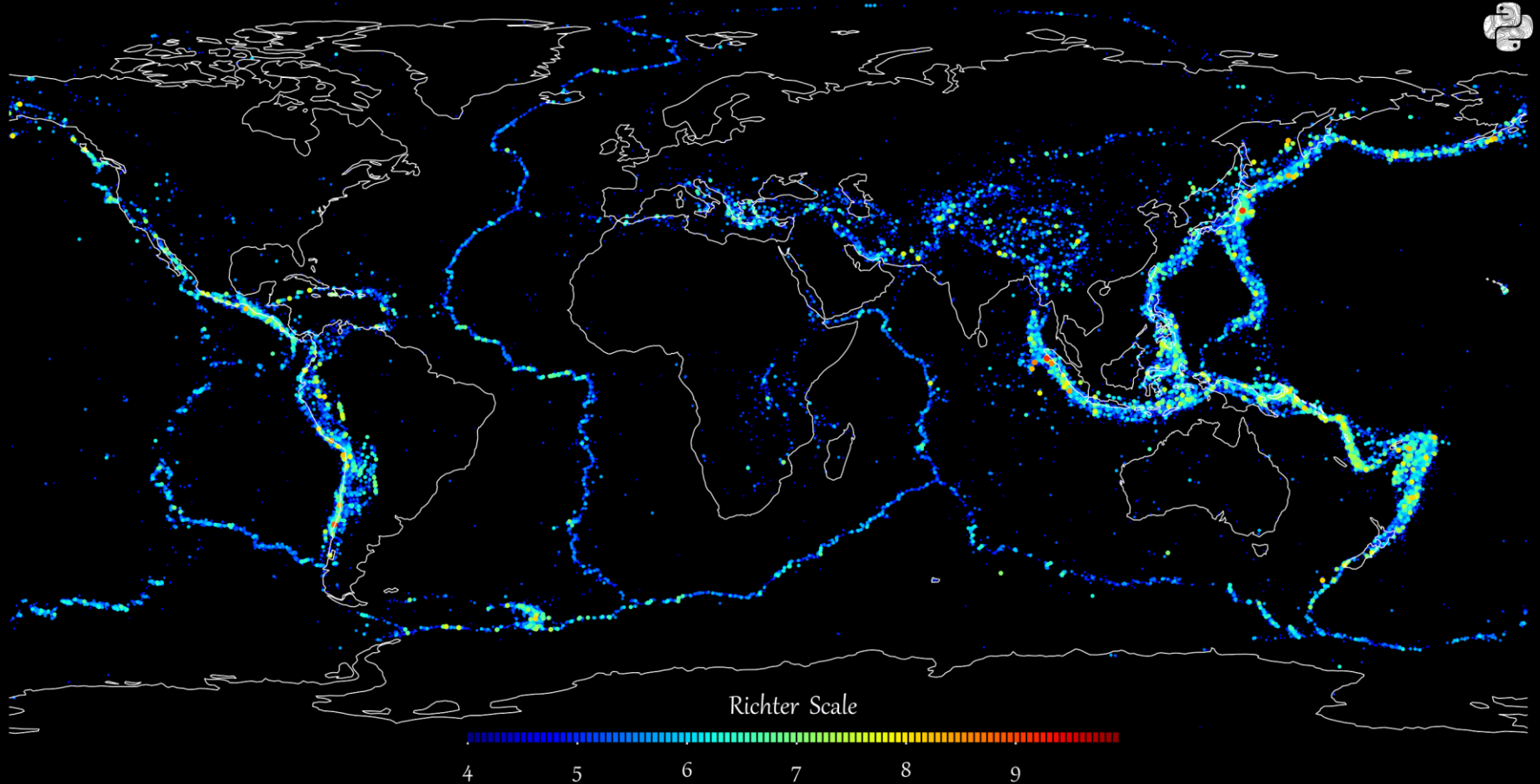
This graphic uses data from Property Claim Services (PCS) to show the development of claims (in percentage terms) for a selection of U.S. hurricanes since 2000, starting at 200 days post-landfall and leading up to 720 days. All incurred ultimate cost in the U.S. of more than USD 10 billion.



Impact of catastrophes

- On the rise in terms of Frequency
- Severity /impact
- Complexity mainly due to Globalization
- World wide catastrophes are increasing
- The most expensive natural disaster is the 2011 Tōhoku earthquake and tsunami, costing an estimated \$360 billion followed by weather related losses in the Americas
- Africa is vulnerable to weather related catastrophes and less seismic activity

Catastrophe “Hotspots” Seismic Activity map



Earthquakes @PythonMaps

This map shows all earthquakes with a magnitude greater than 4.5, around the world between 1956 and 2022. Data Source - <https://www.usgs.gov/programs/earthquake-hazards/earthquakes>

Picture on Dubai Floods 2024



Hurricane approaching



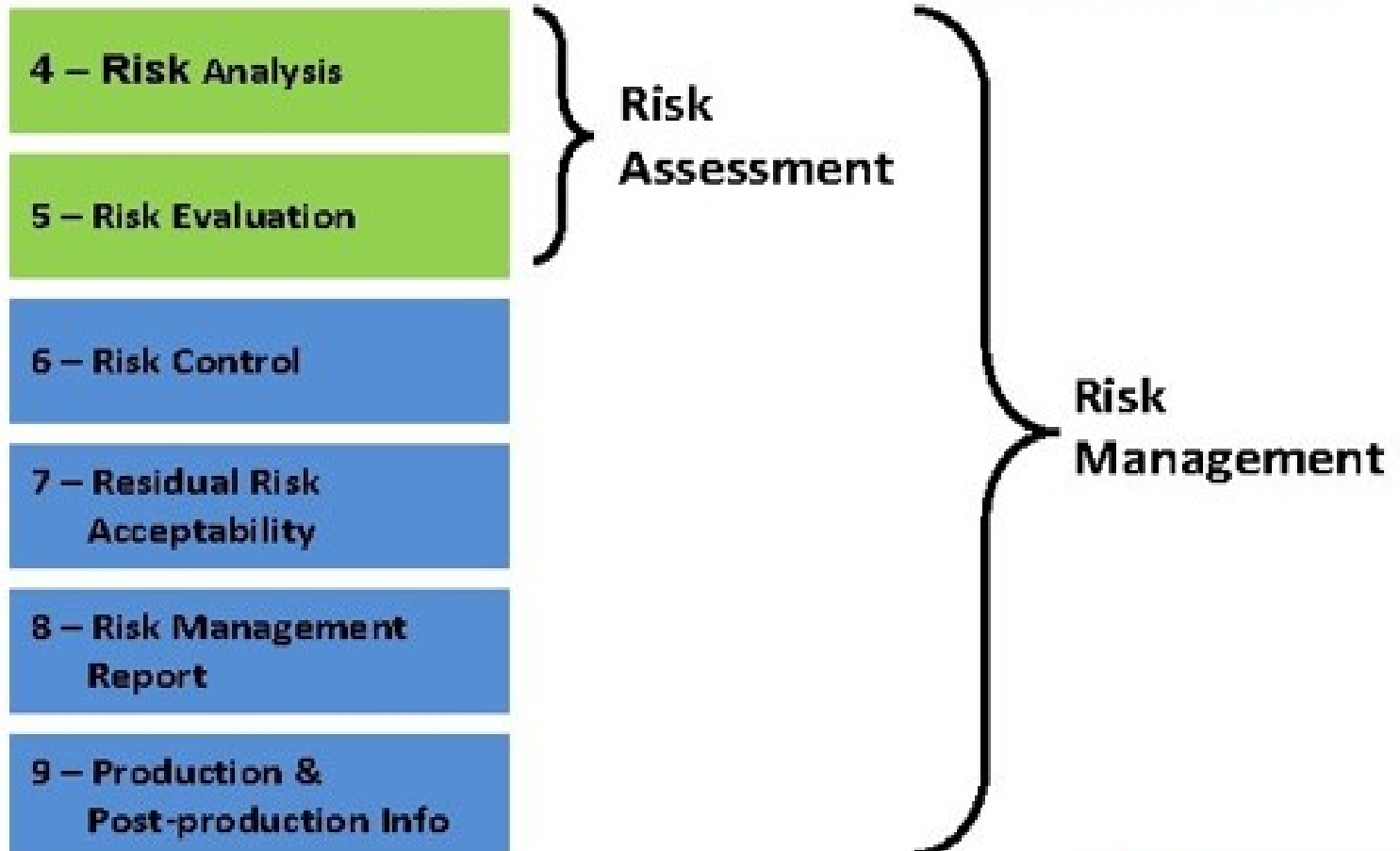
Risk Management Process

The risk management process involves the following steps

1. Identifying risks: Systematically identifying potential threats or uncertainties that can affect an organization/individual .
2. Assessing risks: Analyzing the likelihood and impact of identified risks.
3. Mitigating risks: Developing strategies to minimize harm and maximize opportunities.
4. Monitoring effectiveness: Continuously evaluating the effectiveness of risk management measures.

Risk Management process

Risk Management is a **Process**



Risk Matrix



Catastrophe Risk Management African Perspective



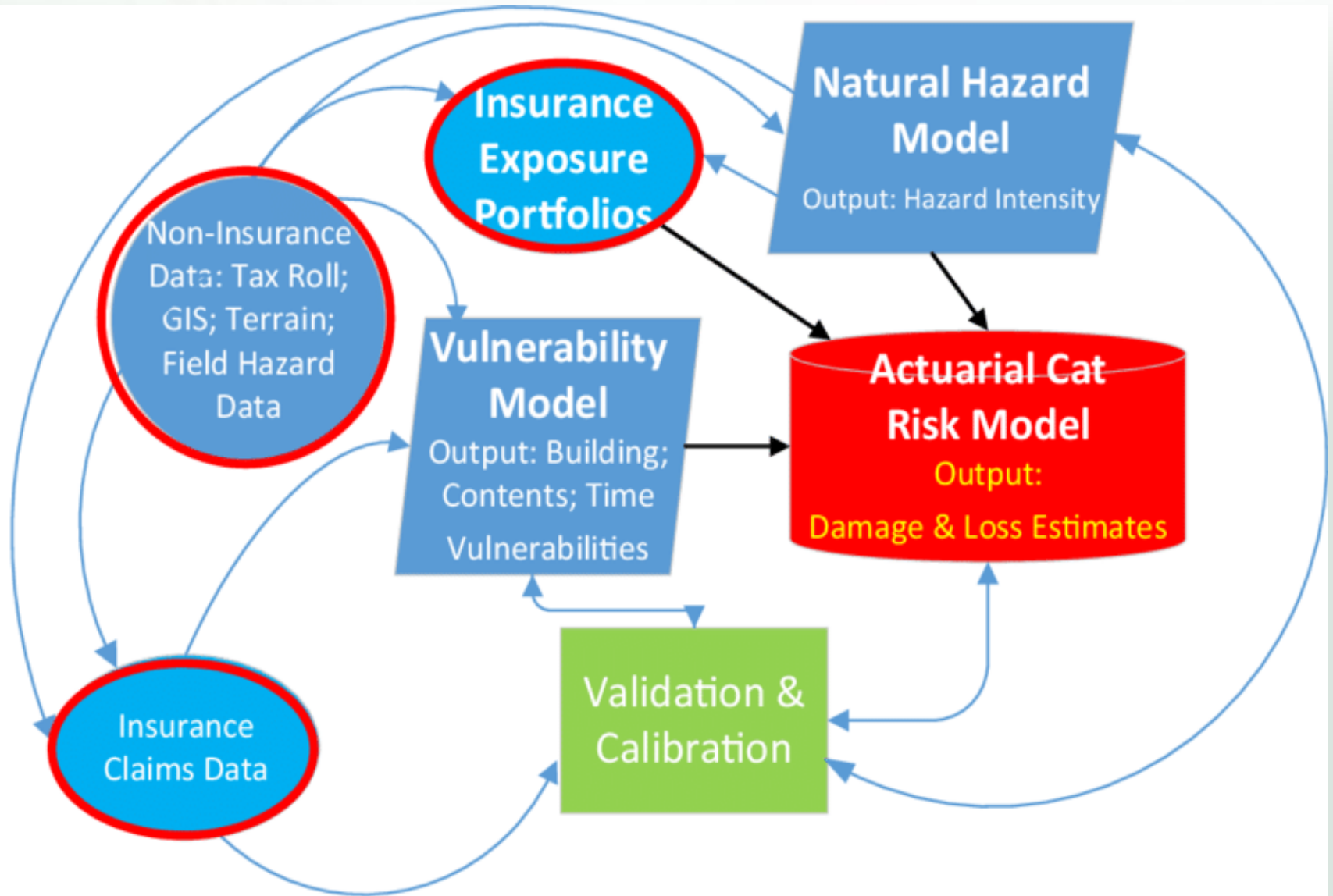
- Africa is exposed to weather related disasters , and very little exposure to seismic activity
- Problems in Africa include :
- Lack of data
- Insufficient monitoring systems
- Inadequate disaster preparedness
- Low penetration of insurance , which means losses lie where they fall , unless and non governmental organizations intervenes

What is Catastrophe Modelling



- Modelling is trying to depict loss scenarios in advance using data
- Portraying real life example in a system for better decision making
- A model is just an attempt to put together theoretical illustration of real life situation

Cat Model Example



The role of insurance in Catastrophe Risk Management

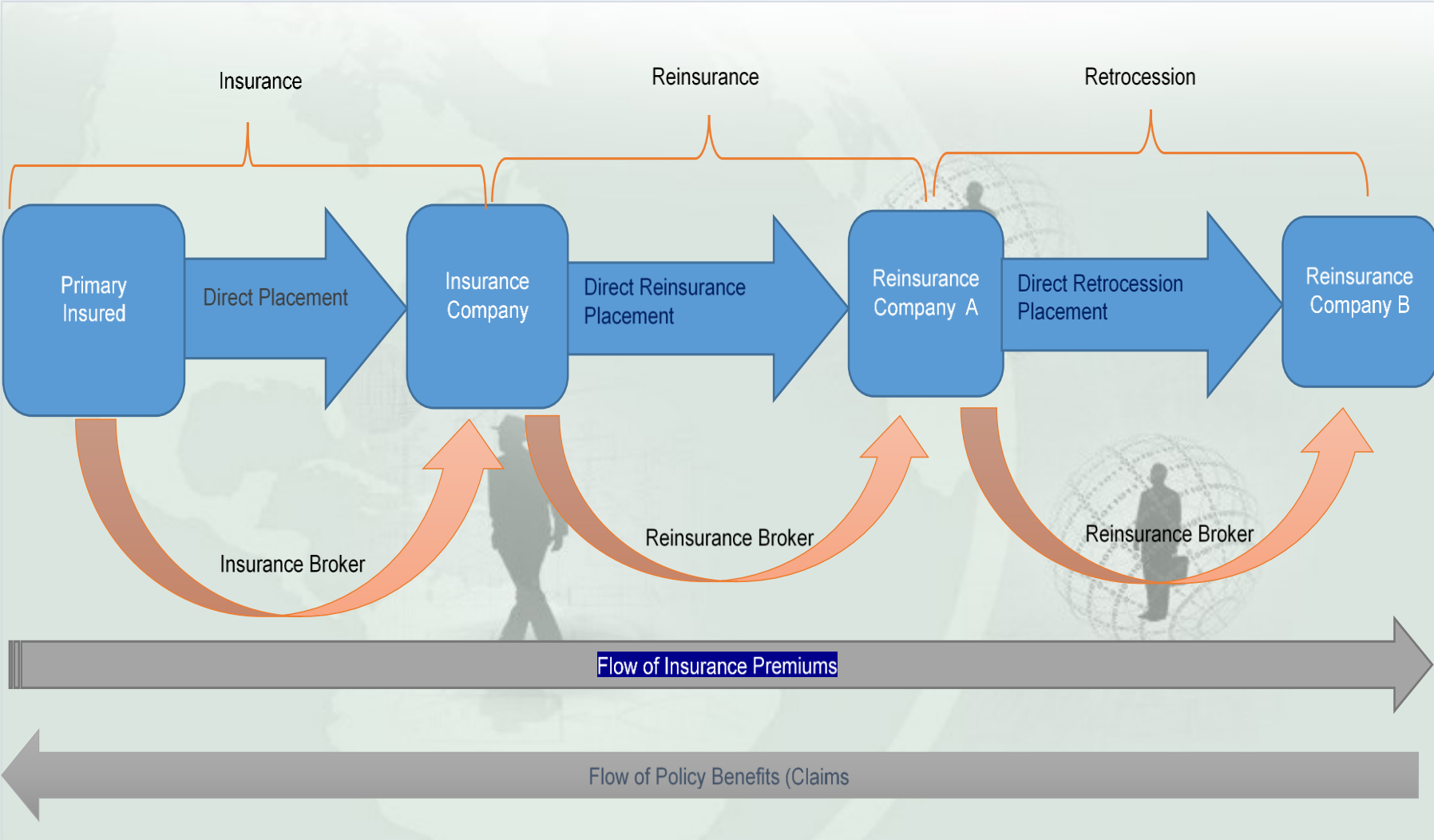


- Catastrophe modeling (also known as cat modeling) is the process of using computer-assisted calculations to estimate the losses that could be sustained due to a catastrophic event such as a hurricane or earthquake.
- Cat modeling is especially applicable to analyzing risks in the insurance industry and is at the confluence of actuarial science, engineering, meteorology, and seismology.

Catastrophe Risk Management African Perspective



1. Known Known Catastrophes e.g. Flood Events , Hail , Severe Droughts etc. Heatwave : This can be modelled , insured
2. Known Unknown Catastrophes - Large earthquake , Tsunami , Sinkholes , some of these can be modelled and insured with banking of Reinsurers
3. Unknown Unknown Catastrophes - Disease strains , Meteorite, basically uninsurable



Insurance Risk Management model

CRESTA ZONES

- It refers to Catastrophe Risk Evaluation and Standardizing Target Accumulations, which is part of an international geographic zoning system for managing natural hazard risk.

CRESTA ZONES MAPPING



1. **Standardization:** CRESTA provides a standardized system for defining geographic zones, which helps insurers and reinsurers consistently assess and compare risks across different regions.
2. **Risk Assessment:** By using CRESTA zones, companies can more accurately evaluate the potential impact of natural hazards like earthquakes, floods, and storms. This leads to better risk management and pricing of insurance products.

CRESTA ZONES MAPPING



3. Global Applicability: The CRESTA system is used internationally, allowing for a consistent approach to risk assessment and management across different countries and regions.

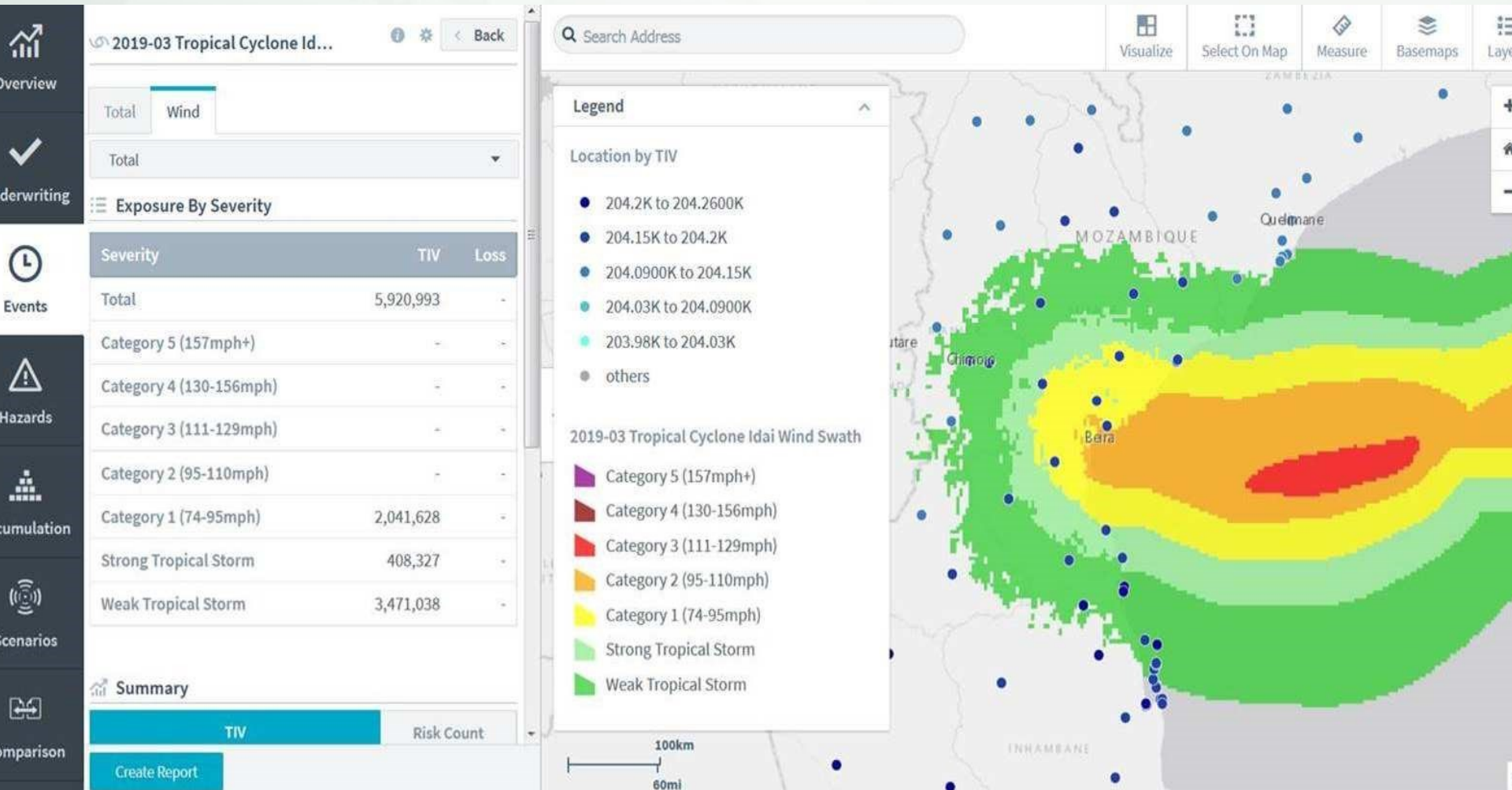
4. These benefits help the insurance industry better manage and mitigate the financial impacts of natural disasters, ultimately leading to more resilient communities and economies.

Some of the drawbacks



- Limited African data in Cresta zones
- Need an African platform to accurately model risk
- Does not / cannot model man made catastrophes
- Lack of data for African predictive monitoring system , weather related , seismic activity

Cyclone Idai Modelling



How insurance companies can manage catastrophes



1. Private public partnership

- Insurers can partner with government / nongovernmental organization to manage coverage of catastrophes such as drought , floods
- The challenges on this approach is having to balance commercial objectives of insures and social objectives of governments

2. Creation of Insurance Underwriting Pools



- An insurance pool is a collective pool of assets from multiple insurance companies.
- It is a gathering of insurance companies for a specific risk exposure, usually when a financial risk is too high for a single company to take on and can only be addressed through shared resources.
- Insurance pools are used as a way of providing high risk insurance exposures such as catastrophes.

African success stories of Catastrophe pools

ARC makes US\$32m climate insurance payouts to assist people impacted by drought in Zimbabwe

⚡ 5th July 2024 - Author: Jack Willard

The Government of the Republic of Zimbabwe has received an insurance payout of US\$16.8 million following its participation in the African Risk Capacity (ARC) Group disaster financing mechanism.

For those who are not aware, the mechanism is designed to help African Union (AU) Member States plan, prepare and better respond to extreme weather events.

At the same time, through the Replica programme, which is an initiative that allows humanitarian actors to purchase insurance policies on behalf of a country, Replica partners, the United Nations World Food Programme (WFP) and Start Network received payouts of US\$6.1 million and USD\$8.9 million, respectively.

It's important to highlight, that these payouts come whilst the country is currently facing severe food insecurity following a prolonged dry spell largely triggered by the prevailing El Niño conditions in the region.



Benefits of insurance pools in managing Cat Exposures



- Pool allow for spread of risks
- Pools remove duplications , more efficiency
- Very effective in managing exposures such as drought , floods etc as coverage becomes standardized
- Easy platform for Private public partnerships, via pool managers
- Insurance becomes affordable

comprehensive disaster/Catastrophe risk management

Disaster risk management framework – Source: The Sendai Report, World Bank Group



Insurance – Key contributions

- Comprehensive risk assessment & data collection
- Sophisticated actuarial & risk modelling techniques
- Financial incentives for safer practices
- Advocating for stronger safety regulations
- Bundling products with risk advice
- Investing in preparedness initiatives
- Targeting their investments to disaster risk reduction
- Providing liquidity for reconstruction
- Stabilising economies with rapid payouts
- Spreading risk widely
- Financially supporting & advocating for improved building standards & practices

Benefits of insurance pools in managing Cat Exposures Continued



- Access to reinsurance markets with bargaining power
- Pooling of resources
- Spread of risks
- Attracting attention of governments and multilateral institutions such as IMF , AFDB, World Bank etc .
- Enhancement of technical expertise

Benefits of insurance pools in managing Cat Exposures



- Zim market needs to consider pools against weather related covers say around Tobacco industry value chain for example .
- Through pools , catastrophes not ordinarily covered , will be covered thus closing thus driving insurance penetration rates.

African Insurance Pool Examples

Insurance pool	Date of creation	Country
Insurance pool for oil and gas risks	2018	Senegal
Energy and Allied Insurance Pool of Nigeria	2015	Nigeria
African Risk Capacity (ARC) - Pool for natural catastrophe risks	2014	South Africa
Health microinsurance pool (PMAS)	2013	Senegal
Ghana Agricultural Insurance Pool (GAIP)	2011	Ghana
Co-insurance pool for public passenger transportation	2009	Cameroon
Co-insurance pool for public passenger	2007	Côte d'Ivoire

3. Leverage on Reinsurance Market to cover Cat Exposures



- Reinsurance coverage enables insurers to venture into new coverage they would not be comfortable to assume alone
- Reinsurance provide expertise , balance sheet /capital , protection against catastrophes among other benefits

Reinsurance , a tool for catastrophe management Continued



- CRESTA zones , cat modelling and risk management coverage in Reinsurance transactions because of the international nature of the business
- Cat cover is a specific market within the reinsurance and insurers and reinsurers buy this in their reinsurance and retrocession treaties

Reinsurance , a tool for catastrophe management Continued



- Because reinsurance is international in nature Reinsurance companies can geographically diversify exposures .
- In the event of a loss , reinsurers will reduce financial impact of reinsurance
- Catastrophic cover is available in the treaty reinsurance market and should always be a feature of reinsurance programme to manage accumulations

Introduction to Cat Covers , Reinsurance



In underwriting cat covers the following are key considerations :

- Definition of what constitute and event , Hours clause common is “72-hour clause”.
- 2 risk warranties , each and every loss occurrence
- Horizontal and vertical coverage
- Vertical - monetary amounts
- Horizontal -number of reinstatements
- Event limits

A accumulation, original reinsurance

Introduction to Cat Covers , Reinsurance



- Determination of exact proximate cause
- Determination of Excesses /Deductibles and Franchise
- Natural catastrophes should have their separate , higher deductible than any other peril
- *“Nothing as fulfilling to an underwriter as a loss that falls within a deductible”*

4. Upside of Catastrophes Exposures



- Drive awareness of the need for insurance coverage
- Propels research and monitoring systems , predictive analytics
- Emergence of new classes of business and innovation , eg ILS such as Catastrophe Bonds

ABOUT P&C REINSURANCE BOTSWANA



- A ZBFH company transacting reinsurance business.
- Was set up in Botswana , in Gaborone
- Underwrite reinsurance business in Africa supporting insurers and reinsurance brokers in all the trading markets
- Underwrite traditional and specialty lines like cyber security , PVT , Oil and Gas



Insurance a key player for Africa in Catastrophe risk Management

Concluding remarks

The critical role of insurance

The insurance sector, as the risk expert, is a key contributor to improving disaster resilience in Africa, but has yet to fully realise its potential for transformative risk mitigation and transfer efforts

Harnessing innovation and technology

Urgent need for innovation and advanced technology to enable accurate risk assessment, tailored solutions and broader distribution to address significant protection gaps

Effective risk management

Effective strategy requires data sharing, uniform and empowering regulations, promoting the value of insurance, targeted research and dissemination of best practices

Proactive collaboration

Essential coordination between insurance sector and key stakeholders (governments, regulators, international organisations) to respond to major catastrophes and reduce overall vulnerability

Conclusion

- Catastrophes are on the increase in severity , frequency and type
- We need to innovate , cooperate amongst ourselves and stay ahead of the game. No company can do it alone when it comes to catastrophe risk management , its an industry efforts.
- Its always “Opportunity mixed with difficulty” , lets focus on the opportunities and manage the difficulties .



Parting words , Conclusion



- Our theme is – Disruption and opportunity
- Change is the only constant , we have embrace and sharpen our skills
- Expertise and specialization is the key
- Success and failure is not as a result of external happenings , but how we respond determines our success
- “Same wind blows on all of us , what makes a difference is the set of the sails” Jim Rohn

QUESTIONS





Thank You

