

# CROP REINSURANCE IN INDIA

An Insight

19 SEPTEMBER 2014

**2<sup>nd</sup> Workshop on Crop Insurance**

**Nymphaea Batra**

The background features a close-up photograph of rice panicles, showing the golden-brown grains and green husks. This image is overlaid with several semi-transparent green geometric shapes, including triangles and polygons, which create a modern, abstract design. The overall color palette is dominated by various shades of green and yellow.

# Agenda

Understanding the Risks

Why Crop Reinsurance?

The Structures

Your Career @ Crop Reinsurance

# Understanding the Risks

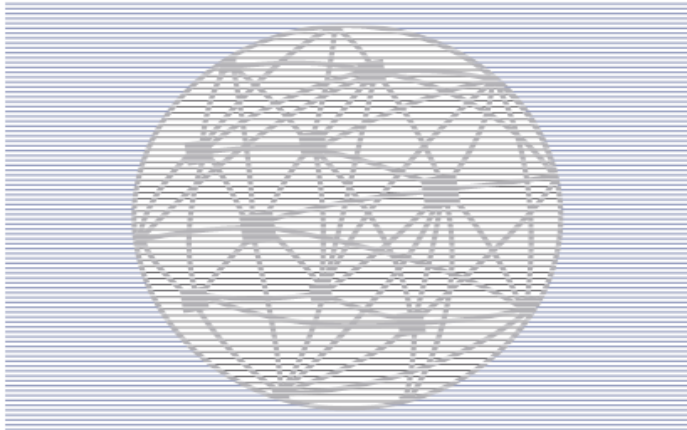


# Understanding the Risks



Insight Report

## Global Risks 2014 Ninth Edition



### Content

- Focus on next 10 years
- 700 experts surveyed globally
- 31 global risks categorised
- High-level discussion of top risks, their connections and the most concerning groupings
- Partners:

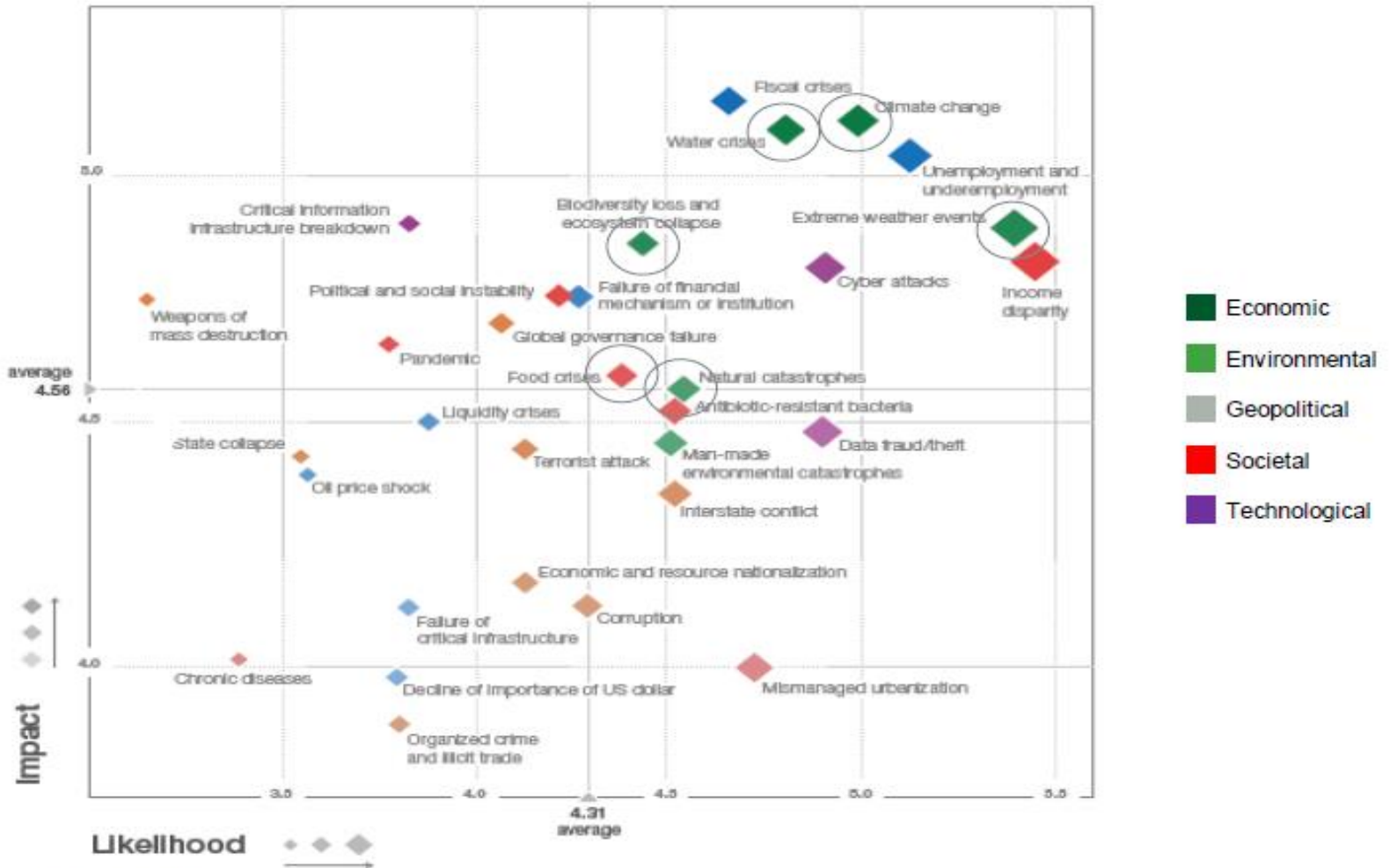


Enable policymakers, business and community leaders to debate on the risks of consequence to ensure resilience in the economy

# The Global Risk Landscape

Potential impact & likelihood of 31 global risks over the next 10 years

## Global Risks Landscape 2014



Source: World Economic Forum, Global Risks 2014

# The fifteen Global Risks of Highest Concern

Dominated by economic and environment risks

Number	Global Risk	Type
1	Fiscal crises	Economic
2	Unemployment and underemployment	Economic
3	Water crises	Environmental
4	Income disparity	Societal
5	Climate change	Environmental
6	Extreme weather events	Environmental
7	Global governance failure	Geopolitical
8	Food crises	Societal
9	Failure of financial mechanism or institution	Economic
10	Political and social instability	Societal
11	Cyber attacks	Technological
12	Interstate conflict	Geopolitical
13	Terrorist attack	Geopolitical
14	State collapse	Geopolitical
15	Natural catastrophe	Environmental

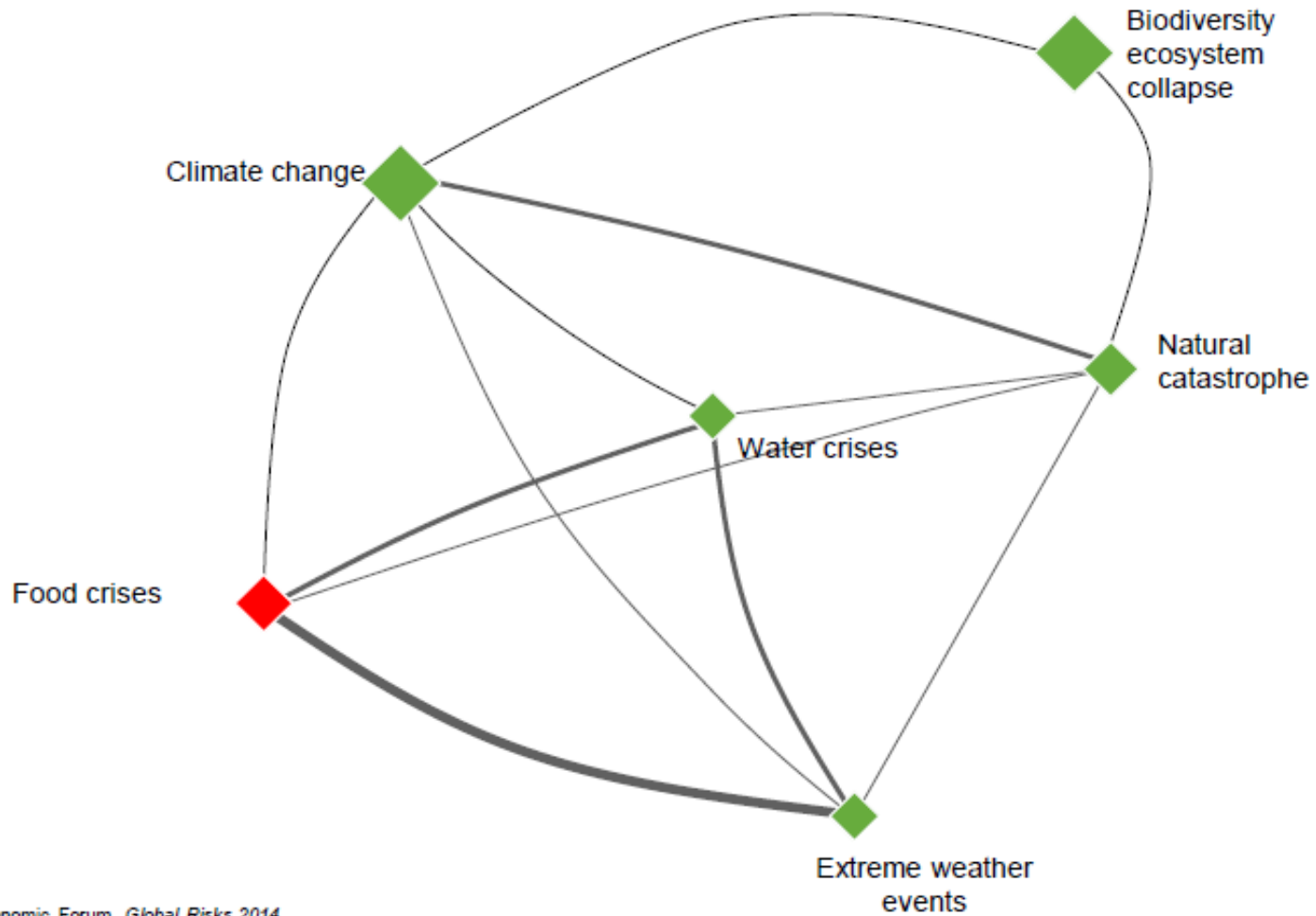
Respondents were asked to provide the five risks of highest concern globally

- Economic
- Environmental
- Geopolitical
- Societal
- Technological

Source: World Economic Forum, Global Risks 2014



# Interconnectivity of Risks in Agriculture



Source: World Economic Forum, *Global Risks 2014*

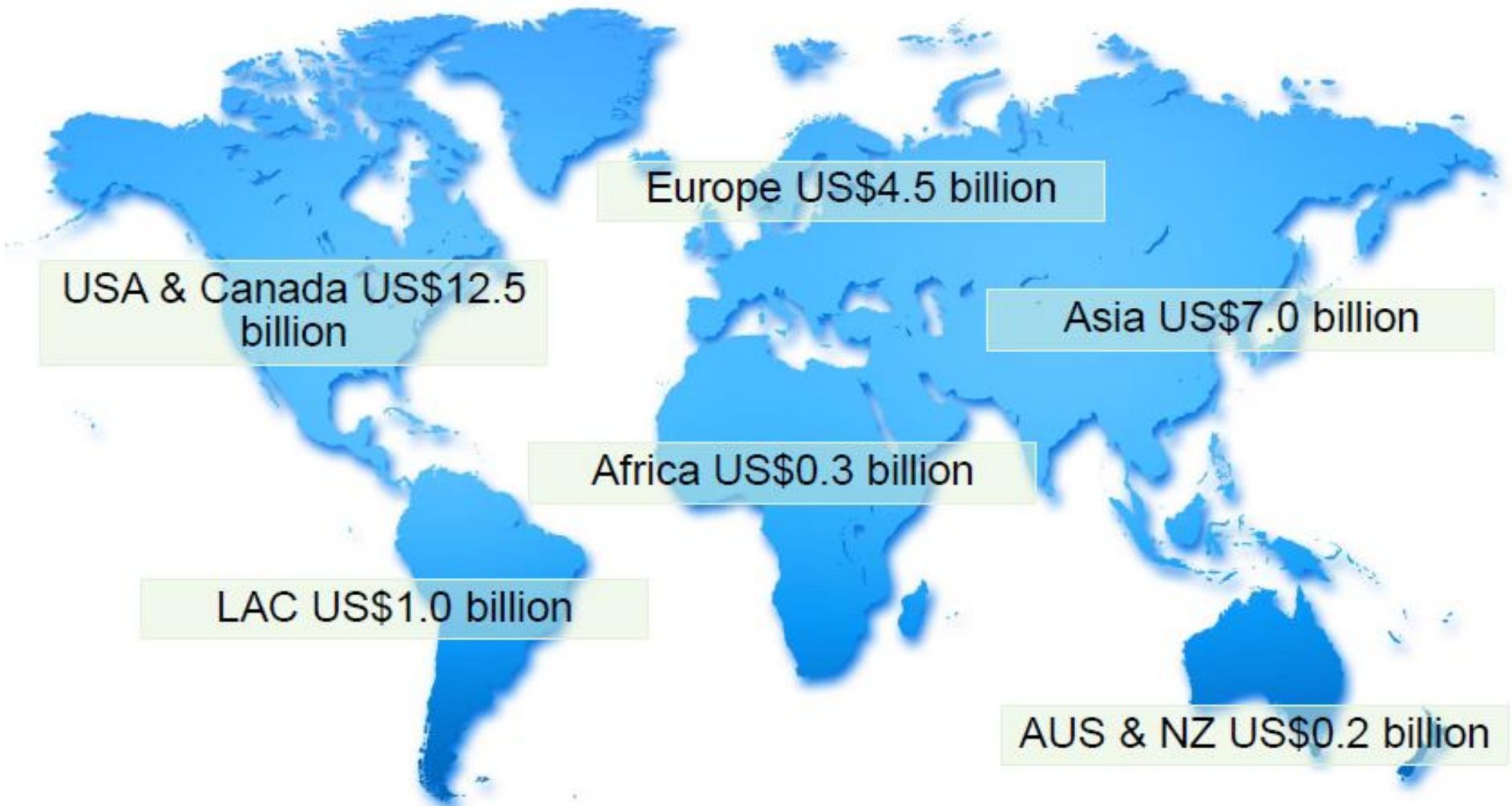
# Why Crop Reinsurance?





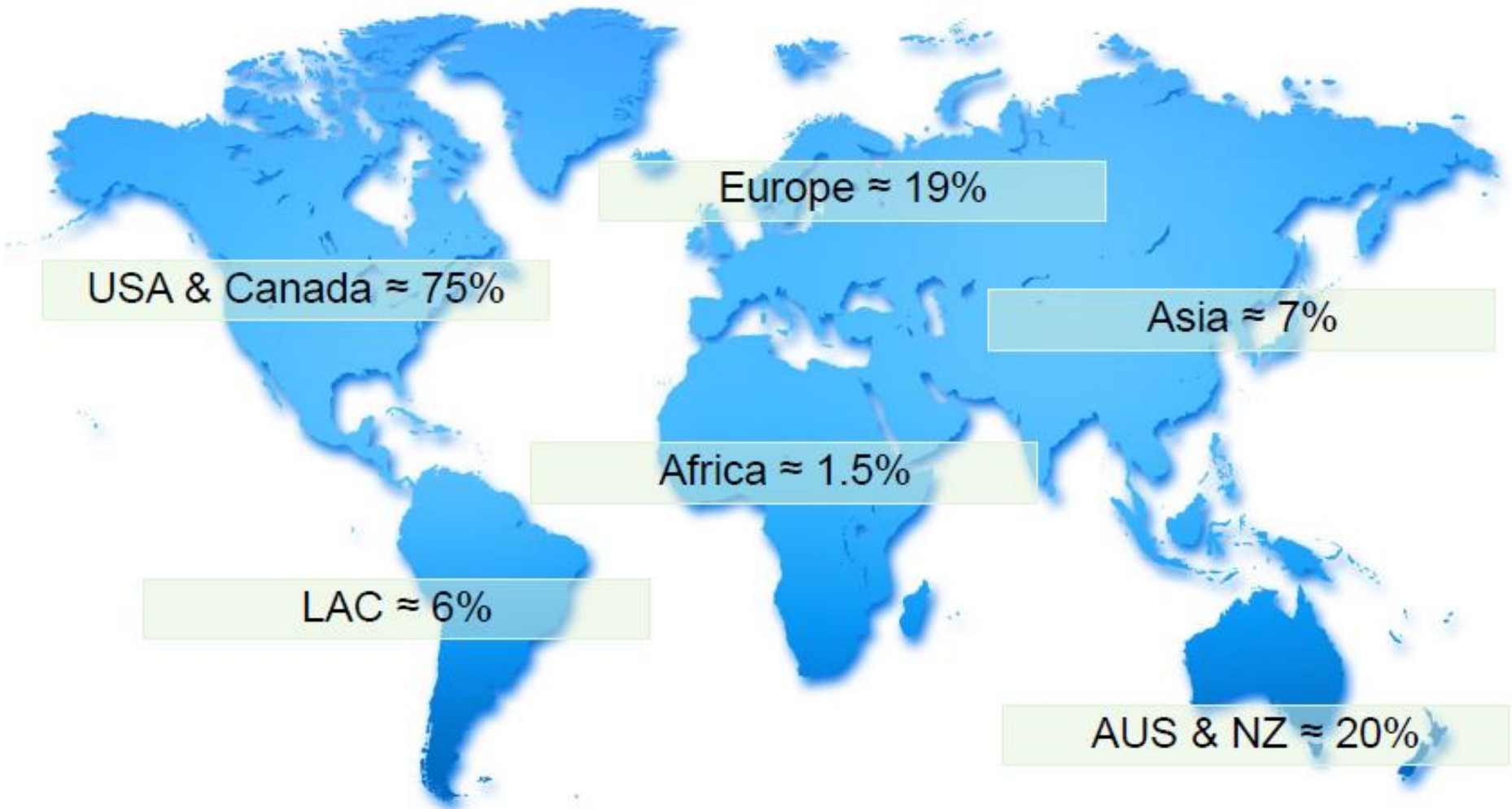
# Why Crop Reinsurance

Global distribution of agriculture Insurance premium (estimates only)



# Why Crop Reinsurance

Penetration of agriculture insurance (estimates only)



# Why Crop Reinsurance

## Insurance, hence Reinsurance as solution

- Agriculture Insurance as emerged as one of the **credible solution** to manage the “Risks”
- Insurance is the need for farmers however Reinsurance is the **need for Crop Insurers** due to:
  - ✓ Need for **alternate to shareholder’s capital** to meet the massive demand
    - Generally, cost of Reinsurance as Capital is lower than the cost of shareholders’ capital for insurer*
  - ✓ Balance Sheet **Protection** from extreme volatilities inherent in Crop Insurance

# Why Crop Reinsurance

## Contribution of Reinsurers

	<b>Role of Reinsurers</b>	<b>Benefit to Society</b>
<b>Risk Transfer</b>	Diversify risks on a global basis	Make insurance more broadly available and less expensive
<b>Investment</b>	Invest premium income according to expected pay-out	Provide long term capital to the economy on a continuous basis
<b>Information</b>	Pricing of risks	Set incentives for risk-adequate behaviour

Reinsurers absorb shocks, provide capital for the real economy and support risk prevention

# Why Crop Reinsurance

## Value Adds

### Underwriting

- risk and portfolio assessment
- pricing
- policy terms and conditions
- risk selection
- RI structure design
- treaty, facultative and structured solutions

### Expertise

- crop, livestock, forestry, aquaculture, greenhouse, bloodstock
- development of new products and markets
- cross fertilisation among markets
- training for underwriters
- guidelines on risk management and claims assessment
- studies and publications

### Claims volatility

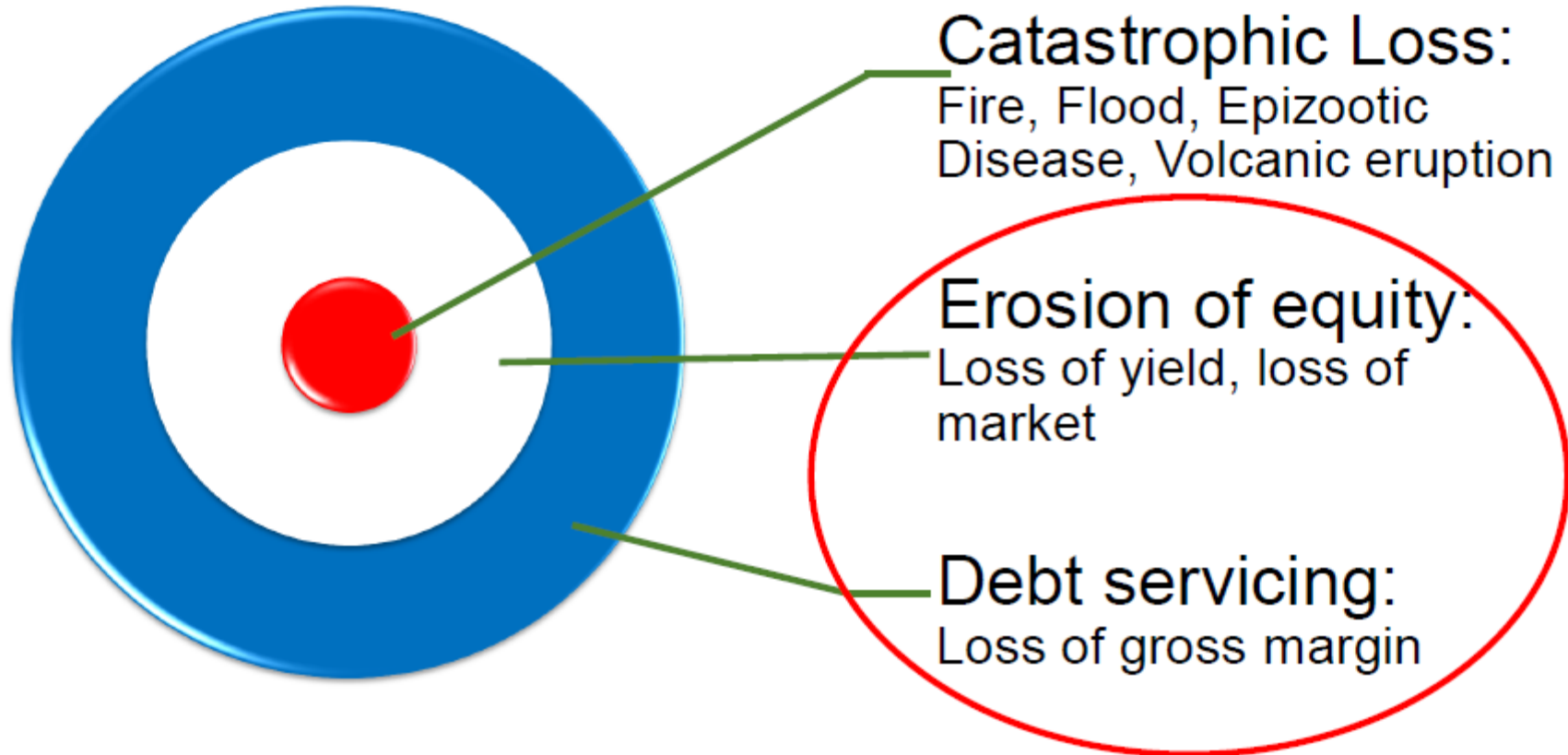
- protect against adverse Nat Cat losses
- stable earnings / underwriting results
- protect capital base

### Capital relief

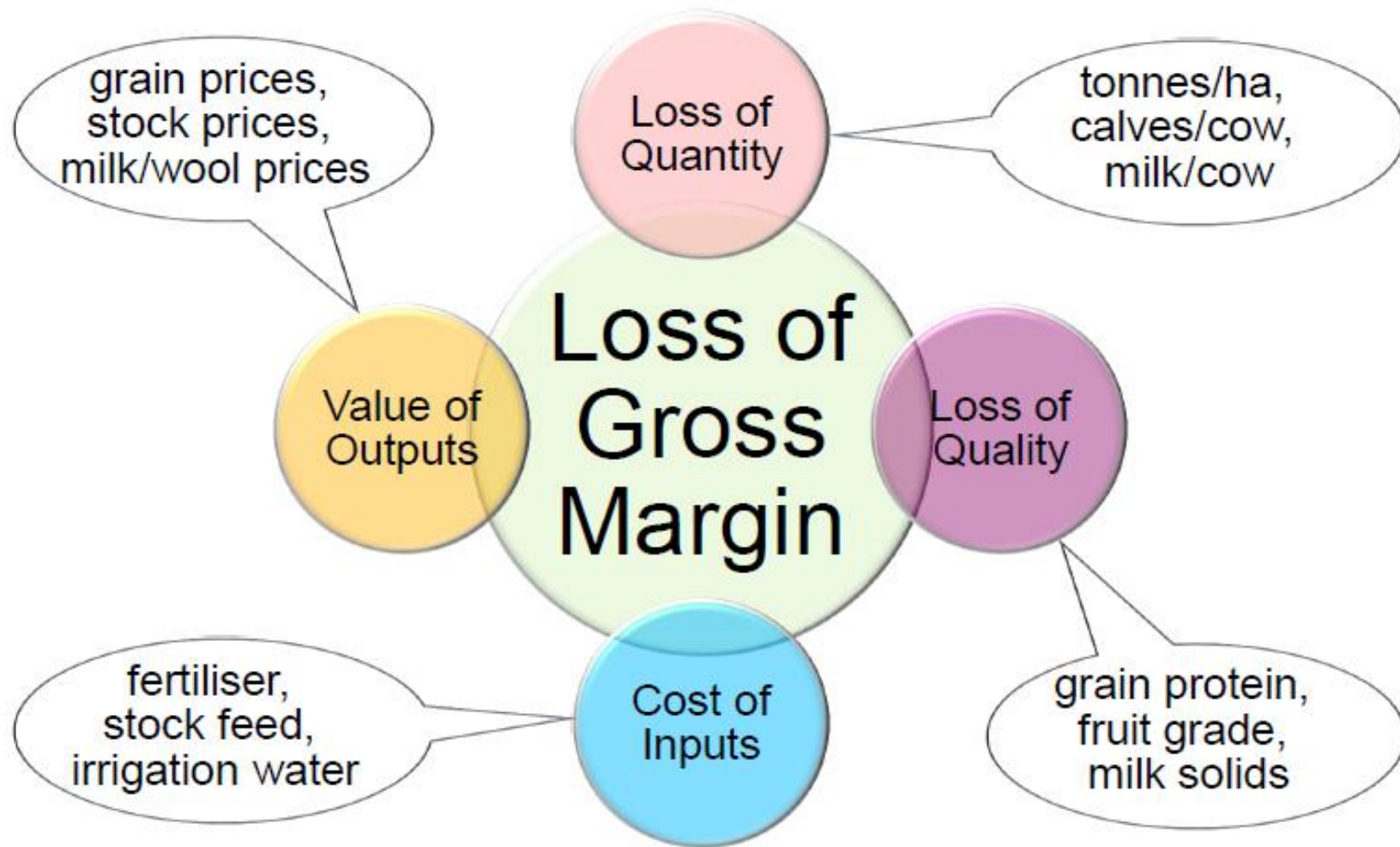
- solvency requirements: reduce required capital
- flexible financing: increase available capital
- write more business
- well diversified, capital efficient net portfolio



# Addressing the full spectrum of risk

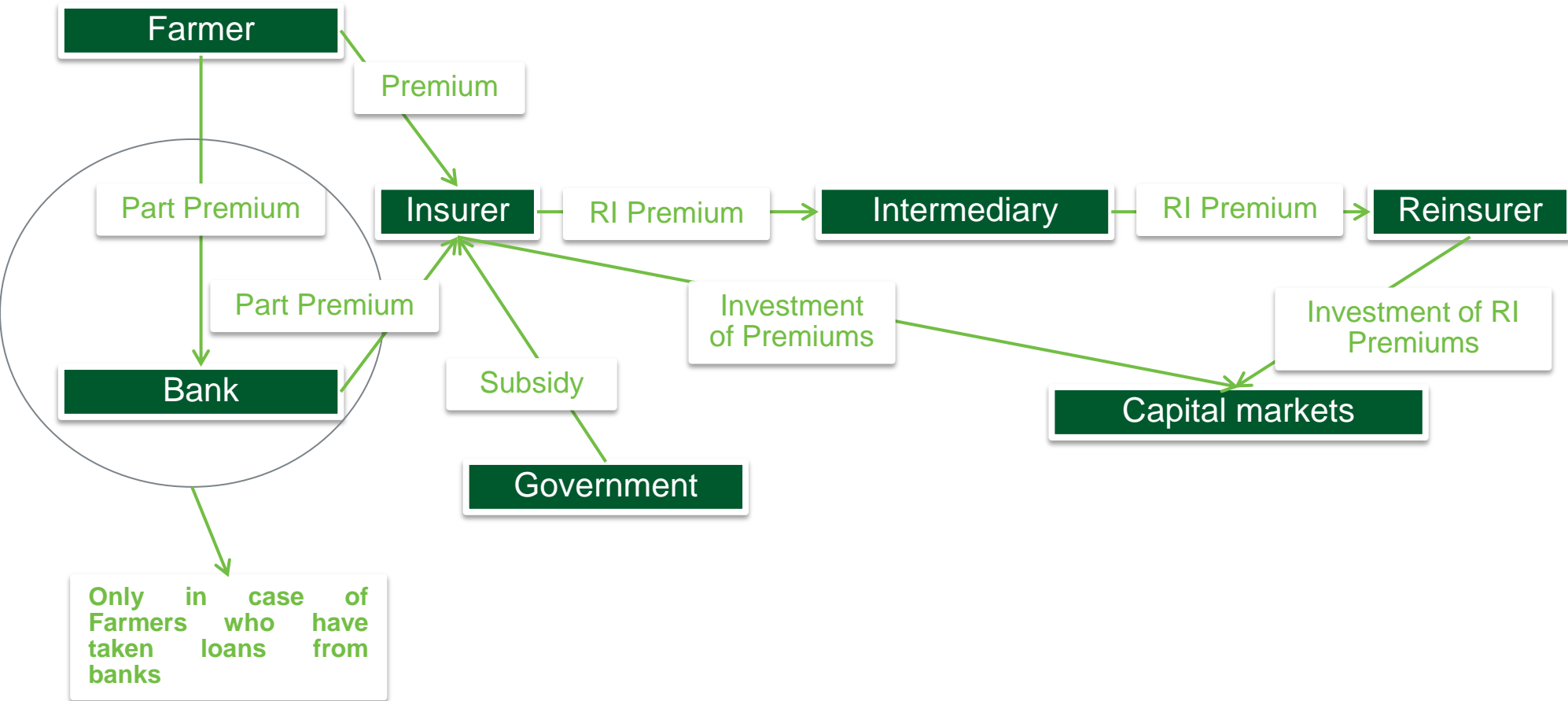


# Beyond CAT loss – Loss of Gross Margin



# Crop Re @ India

## The Premium Flow



# Crop Re @ India

## The Players

### Insurers

- Agriculture Insurance Company of India
- ICICI Lombard General Insurance
- IFFCO Tokio General Insurance
- Cholamandalam MS General Insurance
- HDFC Ergo General Insurance
- Reliance General Insurance
- Future Generali General Insurance
- TATA AIG General Insurance
- Royal Sundaram General Insurance
- Universal Sompo General Insurance
- SBI General Insurance
- Bajaj Allianz General Insurance
- L&T General Insurance

### Reinsurers

- General Insurance Company of India (GIC)
- Swiss Re
- SCOR
- Hannover Re
- Munich Re
- Lloyd's syndicates
- Allianz Re
- Partner Re
- Berkshire
- ... and many more!

# Crop Re @ India

## The Products and The Size

- Currently the size of Indian Crop Insurance market is very close to **US\$1 billion**.
- Expected growth rate is above **20% p.a. in next 5 years**
- Crop **Reinsurance** Market is also mirroring the growth.
- The broad framework is designed by the Central Government however States can choose different options in the framework.
- There are currently two major products each contributing nearly **50%** of the total premiums:
  - ❑ “WBCIS” – it is based on various parameters on weather e.g. rainfall
  - ❑ “MNAIS” – it is based on loss of yield to farmer
- Current products are under review by the Central Government and there is a possibility of **new products to be launched**.



# Crop Re @ India

## What attracts Crop Reinsurers in India

- One of the **largest market** of Crop Insurance market in the world due to compulsory insurance for loanee farmers.
- One of the **fastest growing** market in Crop Insurance and Reinsurance.
- **Natural diversification** due to large number of agro-climatic zones.
- Strong **Sponsorship** of the Government.
- Stable **Regulatory** Regime
- Very robust and established institutional framework for **agriculture research**
- Among a few countries having successful and advanced space and weather monitoring **technologies**

# The Structures

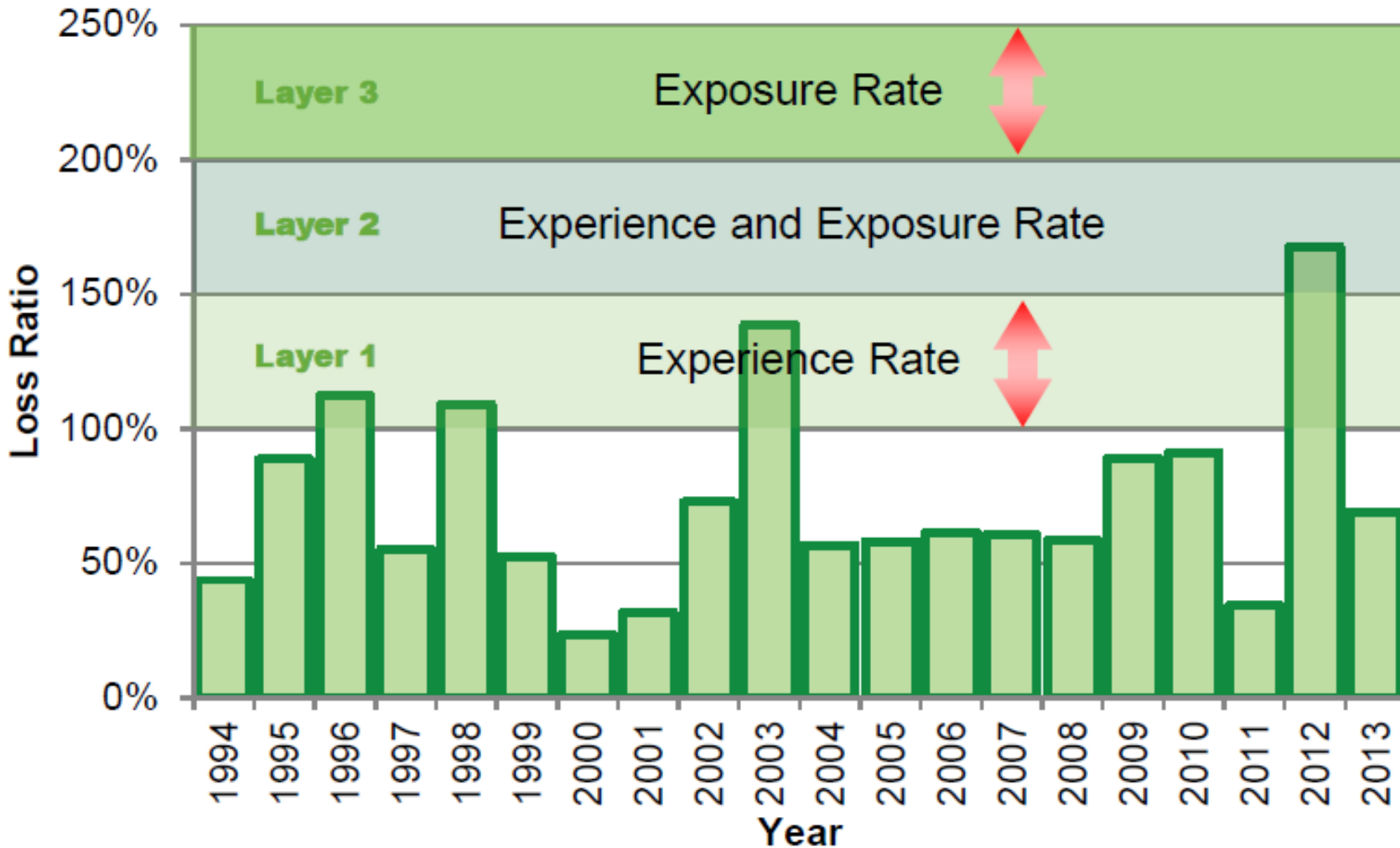


# The Structures

## Common forms of Crop Reinsurance in India

	Proportional	Stop Loss
<b>What is..?</b>	<p>Insurer and Reinsurer share the premium and claims in the <b>proportion</b> defined in the Reinsurance contract</p>	<p>Reinsurer will pay claims if the claim ratio exceeds defined % in the contract.</p> <p>In this premium and claims are NOT shared in the same proportion.</p> <p>For e.g. Insurer A has written Rs 100 premium and he wants to protect his balance sheet from loss ratio of above 110% till 200%</p> <p>Hence, he will take Stop loss Protection wherein Reinsurer will pay claims above Rs 110 with maximum of Rs 90 (Rs 200- Rs 110).</p>
<b>Why it is useful?</b>	<p>It is the simplest form of reinsurance. It provides <b>capacity</b> and <b>protection</b> to the reinsured.</p>	<p>It is only used when the only purpose is to provide <b>protection</b> to the reinsured from very high claims ratio,</p>

# Example of Pricing of Stop Loss Program





# Example of Nat Cat Risk Assessment in Crop

## Hazard

Where, how often, event intensity?

Historical and simulated weather events

Weather data  
- rainfall  
- temperature  
- ...

## Vulnerability

Damage at a given intensity?

Crop information  
- varieties  
- growth stages, period  
- production practice

Soil and land  
- topography, land use  
- irrigation  
- soil condition

Loss information by crop type by peril  
- insured loss  
- yield and area affected

## Value Distribution

Locations of risk and their value?

Location and value of risks by crop type  
- sum insureds  
- area planted  
- area harvested  
- resolution of data  
- insurance penetration

## Insurance Condition

What proportion is insured?

Original policy  
- terms and conditions  
- deductible, franchise  
- premium rate  
- government protection  
- changes over time



# The Structures

## Way Forward

- **New structures** will evolve as the complexity in the underlying product changes.
- Role of **Actuarial modelling** in designing crop reinsurance structures is increasing in India.
- Even within the **traditional forms** (Proportional, Stop Loss), **innovation** is happening.
- **Institute of Actuaries of India** can consider releasing a **guidance note** on technical aspects (e.g. evaluation of risk transfer) of Crop Reinsurance contracts in India.

# Your Career @ Crop Reinsurance



# Your Career @ Crop Reinsurance

## The Responsibilities

### Reinsurance Intermediaries

- **Develop** Reinsurance solutions for client needs
- **Convert** Actuarial theory into practice
- **Communicate** technical solutions to clients in easy to understand way
- **Strengthen** relationships with Insurers, Reinsurers
- **Leverage** market intelligence

### Reinsurers

- **Develop** Reinsurance solutions
- **Manage** Relationships with Insurers, Regulator, Government, Intermediaries
- **Perform Analytics** – Model Development, Portfolio Analysis etc.

### Insurers

- **Understand** needs of the market
- **Manage** Risks
- **Develop** Reinsurance Solutions
- **Manage** Relationships with Re-insurers, Regulator, Government, Intermediaries

# Your Career @ Crop Reinsurance

Why it is rewarding for you! – 2 Reasons

## Reason 1

### Demand > Supply

- Crop Re business is growing much faster than the availability of the talent
- Growth of Crop Re in India is not a bubble, it's sustainable due to various factors.

## Reason 2

### What you know and others don't!

- Crop Re is a very challenging area due to inherent extreme volatilities, limited data, massive volume and complex product designs.
- Actuaries in India have capabilities and know-how to deal with these challenges!

Institute of Actuaries of India can consider launching a certificate/diploma course in Crop Insurance in collaboration with Industry.

## **Disclaimer**

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