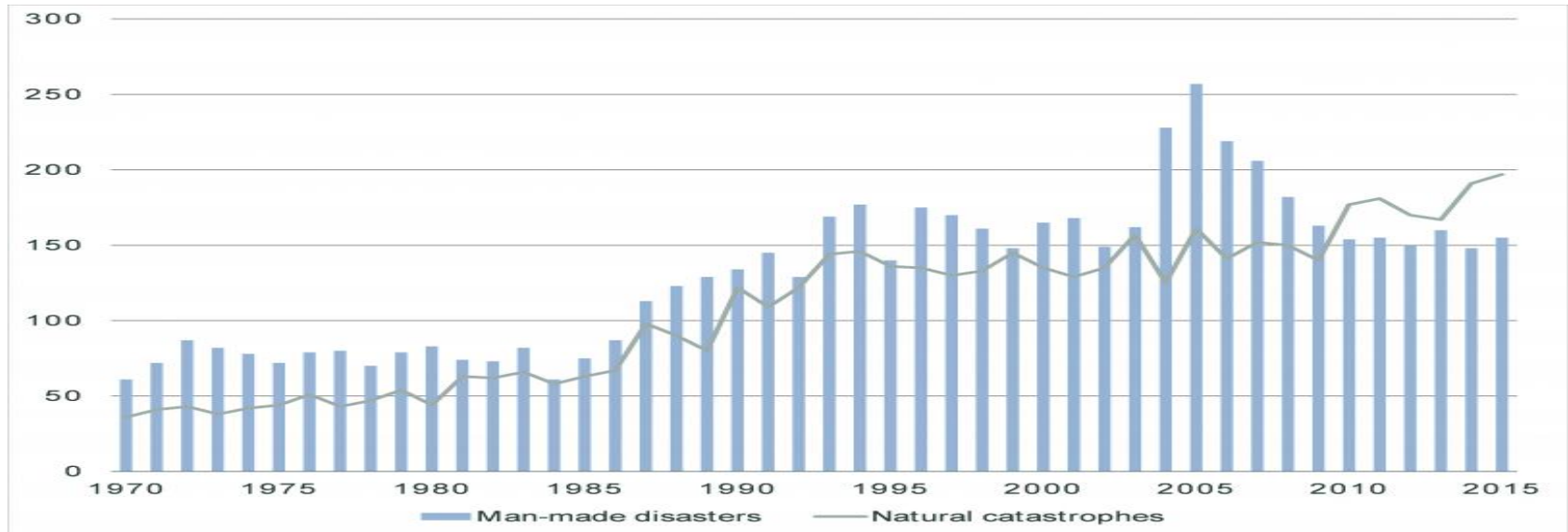

Disaster Risk Financing – An Insurer's perspective

Dhyanesh Bhatt
27th October, 2016

An increasing trend in the number of natural catastrophes being observed globally



- Year 2015 witnessed 353 catastrophes across the world vis-a-vis 339 events in 2014
- Of these catastrophic events, 198 were natural catastrophes
- Impact of all these events
 - ~ 26,000 lives lost
 - Estimated economic loss of USD 92 bn in 2015; 0.12% of the GDP

*Source: Swiss Re report, Sigma

2015 catastrophes – The Asian Context

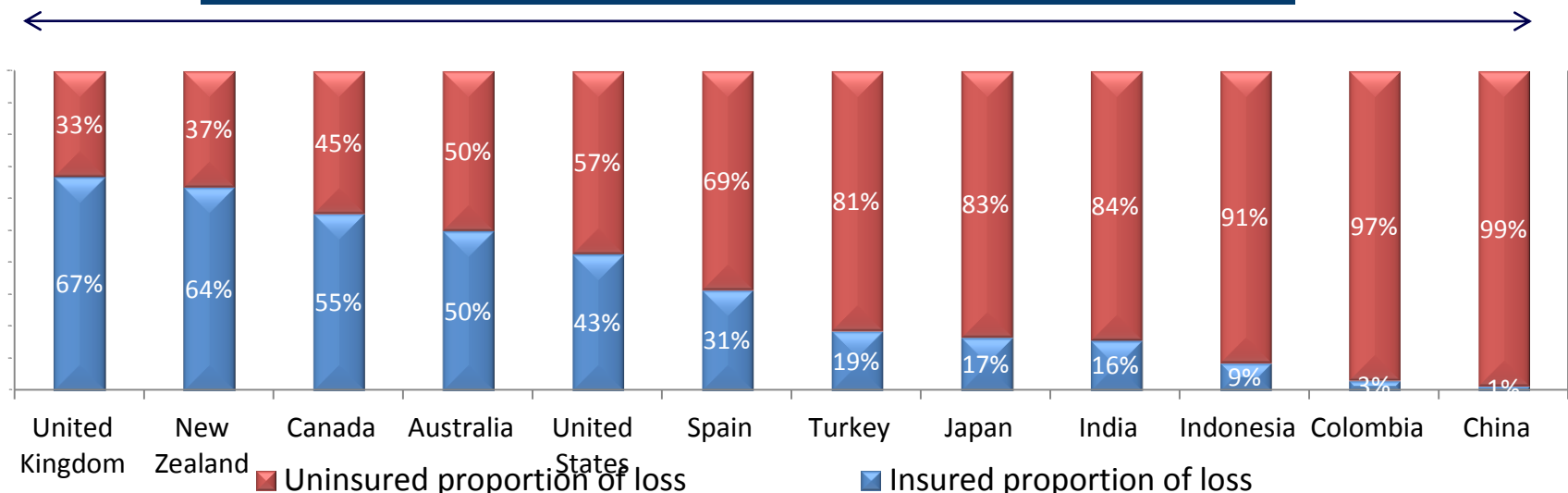
- In the year 2015 ~ 19000 lives were lost and estimated losses of 32 bn USD were borne due to natural and man-made catastrophes
- Different types of natural catastrophes observed
 - Nepal Earthquake
 - Tamilnadu Floods
 - Maharashtra Drought



Frequency and severity of catastrophes – increasing trend

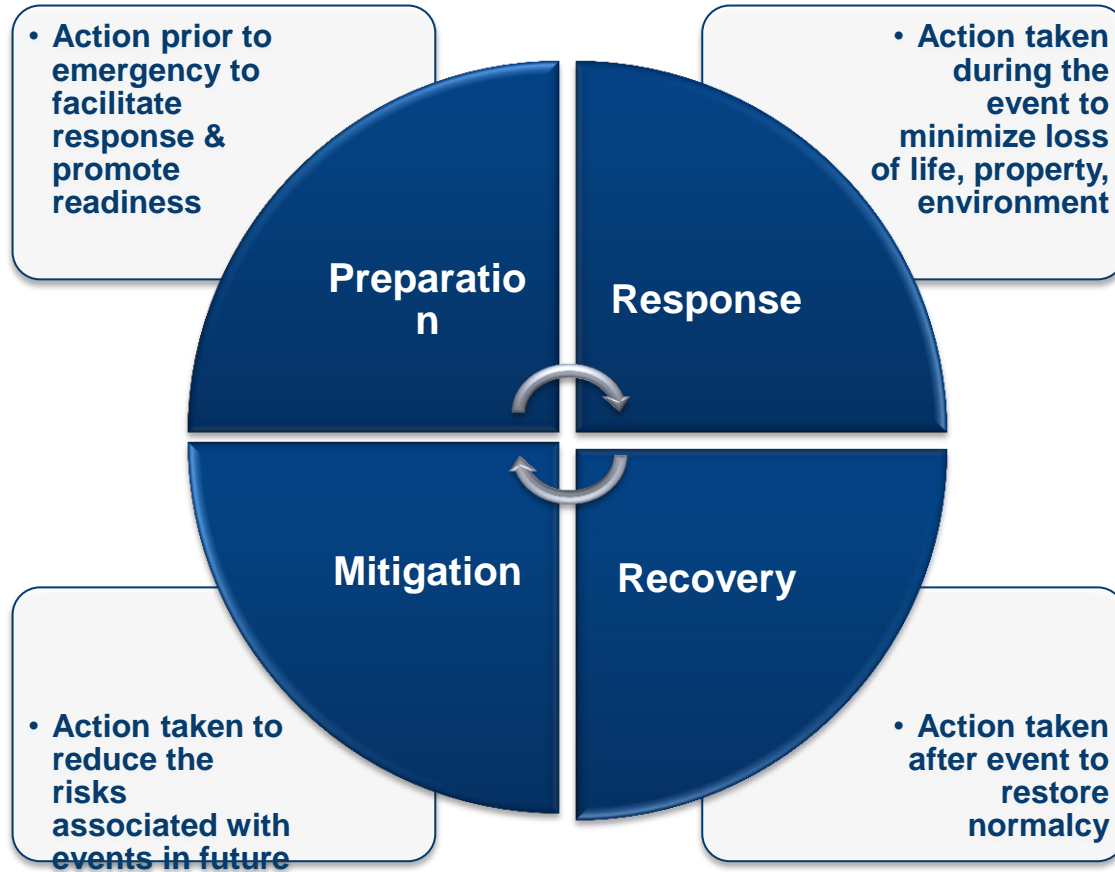
Significant part of the losses are uninsured

Country-wise % of insured and uninsured losses



- The ten year average for overall economic loss due to natural and man made disasters is 192 bn vis-à-vis insured loss average of USD 66 bn
- In 2015, while total economic loss amounted to USD 92 bn , the corresponding insured loss was ~ USD 37 bn

Disaster risk management cycle envisages continuous engagement



- Need for financing across all 4 legs of the disaster risk management cycle
- Disaster risk financing classified into two broad categories
 - Ex Post DRF
 - Ex Ante DRF

Combination of ex post and ex ante disaster financing is generally observed

Ex post disaster financing

- Slow buildup of financial resources and limited accessibility of funds immediately post disaster occurrence
- Elements
 - Donor (relief/reconstruction)
 - Budget reallocation
 - Domestic debt
 - External debt
 - Tax increase

Ex ante disaster financing

- Financial instruments are secured before the disaster, thus faster disbursement of funds post facto is possible
- Elements
 - Budget contingencies
 - Reserve fund
 - Contingent debt facility
 - Parametric insurance
 - CAT bonds
 - Traditional insurance

Government plays a key role in deciding the disaster risk financing mechanism

Contingent Debt Facility – Costa Rica

Background

- 80% GDP and 78% population in high risk areas
- Efficient disaster response system,
- strengthening institutional and legal frame work,
- Mainstreaming catastrophe risk mgmt. in NDP

Objective

- Access to funds immediately after a catastrophic event
- Mitigate impact of catastrophe on the continuity of other ongoing development programmes

Structure

- Contingent Financing – Catastrophe Deferred Drawdown Option
- Immediate liquidity upto 500 mn USD / 0.25% of GDP (< of the 2)
- Funds disbursed - emergency is declared by state administration

Outcome

- January 2009, 6.2 Richter EQ , 20 miles north of San Jose
- USD 24 mn drawn from CAT DDO facility – infrastructure repair

Parametric insurance – Malawi

Background

- Landlocked South African country
- 38% GDP depends on agriculture , erratic rainfall
- High vulnerability to drought – 2005: 400 mn USD spent

Objective

- Mitigate impact of drought on economy and federal budgets
- Access funds quickly in case of severe and catastrophic drought

Structure

- Weather based contract – option on a rainfall index that links rainfall and maize production
- Lack of rainfall beyond particular threshold triggers pay-outs

Outcome

- Facility was run through 2008 -09 and subsequently renewed for 2 years

India context - Weather Based Crop Insurance Scheme (WBCIS)

Catastrophe Bonds- Caribbean Catastrophe Risk Insurance Facility (CCRIF)

Background

- High exposure to diff natural disasters for Caribbean islands
- Initial experience with parametric insurance covers through international reinsurers

Objective

- Diversify sources of risk capital
- Optimize the cost of risk financing for catastrophe risk coverage

Structure

- 3 year CAT Bond - principal of USD 30 mn - Hurricane and EQ
- If natural disaster strikes, CCRIF gets funds otherwise returns paid to investors of CAT bonds

Outcome

- First time that CCRIF utilized the CAT bond for risk transfer
- Multi – year access to insurance at fixed price

Yet to be allowed in the Indian market as a risk financing mechanism

Traditional insurance - India

Operational risk covers

- Indemnity based covers for natural catastrophes available for property damage & Business Interruption
- Cover for home as well as vehicles is also all risk

Project risk covers

- Indemnity based covers for natural catastrophes available for damage to & delay in projects including contractor's equipment

Agricultural insurance

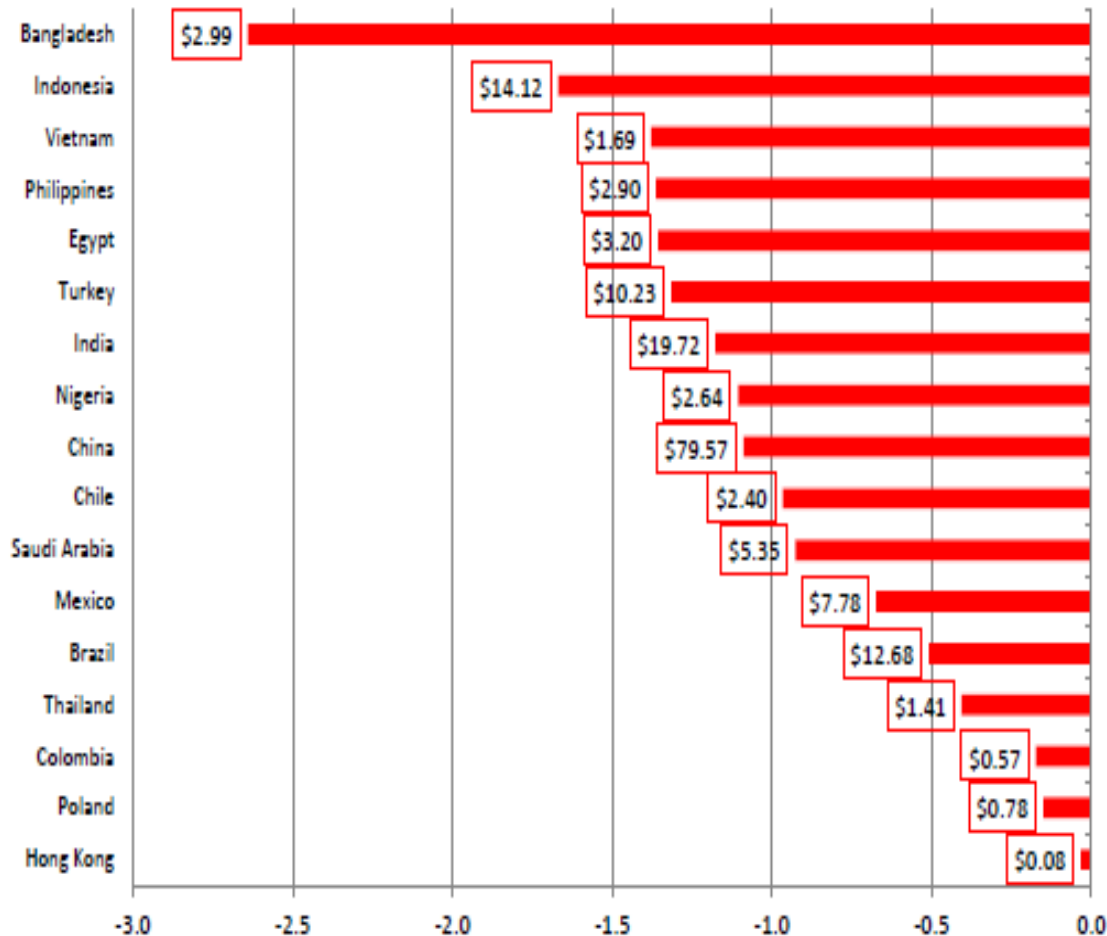
- Loss of yield beyond threshold values is covered under Pradhan Mantri Fasal Bima Yojana
- Coverage for localized perils also – hail, inundation etc

Life Insurance & Accident insurance

- Benefit based coverage provided under Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) & Pradhan Mantri Suraksha Bima Yojana (PMSBY)

But is this enough ?

Lloyd's report pegs absolute global underinsurance at USD 168 bn (2011)



Source: "EM-DAT", World Bank, Sigma, CEBR analysis

Compares Insurance penetration (as % of GDP) with expected loss as % of GDP

- Bangladesh is the most significantly under insured economy
- China contributes 47% to absolute underinsurance value (~ 79.57 bn)
- India context
 - Insurance penetration of (1.2%)
 - Underinsurance of 19.72 bn USD

Possible solutions for Natural Catastrophe covers: India context

Parametric Index trigger

- Based on calculated or measured parameter and liability distribution
- Use of scientific triggers
- Can be structured for a single/multi perils
- Typical parameters: ground motion, wind speed, rainfall etc.

Modeled loss trigger

- Based on calculated losses of a defined risk model and for a defined portfolio of risk
- Requires significant amount of data modelling

Nat Cat Models

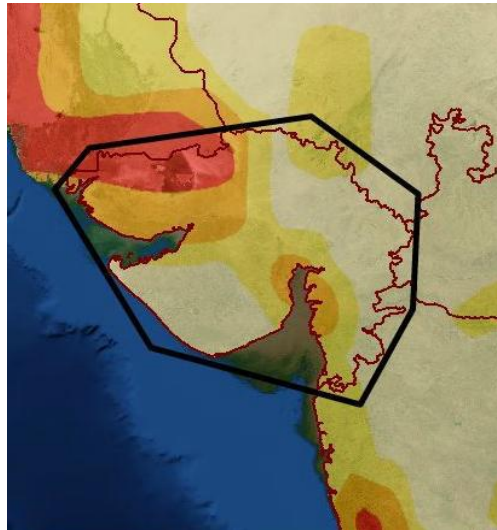
Market (Industry) Loss trigger

- Based on market wide insured loss of an event (as reported by an Industry body for eg. GIC)
- Does not factor in uninsured losses

Indemnity Trigger

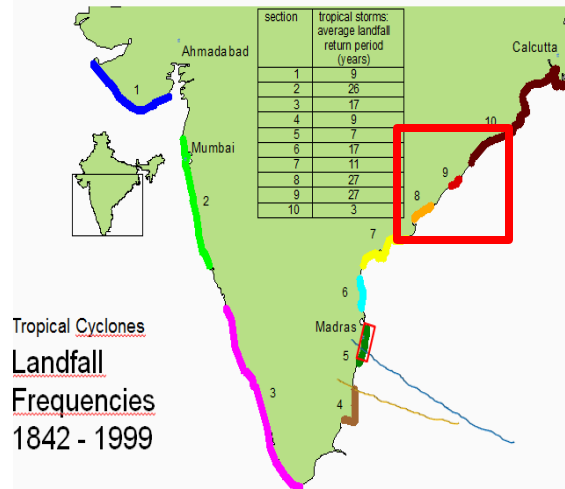
- Based on real event losses (insurance product like Cat XL)
- Very high loss co-relation
- Requires detailed loss assessment

Sample cases of possible triggers under parametric index based product



Trigger

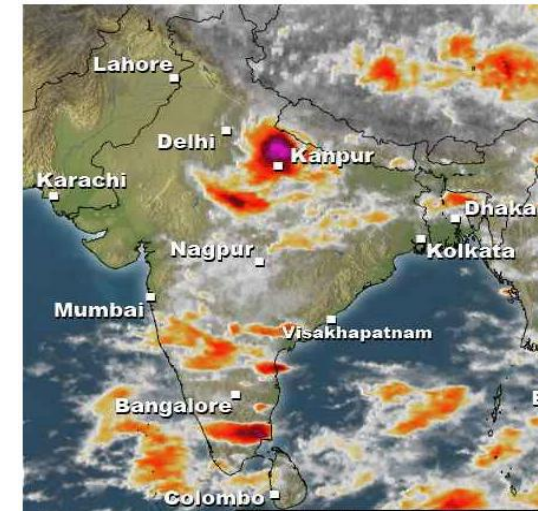
Earthquake > X in
the defined area
denoted by the box



Tropical Cyclones
Landfall
Frequencies
1842 - 1999

Trigger

Wind speed > Y in
the area defined
by the box





Trigger

Rainfall volume > Z
in pre-defined area
eg. District

Customization of peril as well as the triggers can be carried out

Two examples of disaster risk insurance covers

	Sovereign risk protection	Household/ private sector protection
Policyholder	Public agencies or institutions	Private households or companies
Funded by	Part of the govt. budget	Private policy holder
Govt. role	Resource allocation in case of natural disaster	Provides regulation to enable markets
Insured property	Public property; bridging liquidity gaps in budget	Private property
Example	FONDEN 	TCIP 

Structuring Disaster Risk Financing Solutions through insurance - Way forward

Insurability of disaster risk

- High frequency & High severity events need risk mitigation; risk transfer can be for residual risk
- High Severity, Low Frequency events – insurance ideal

Asymmetry in information

- Overall impact is available; granular data - a challenge
- Detailed information typically available with various departments & needs to be collated

Clarity on use of insurance

- Can insurance be used as a disaster risk financing tool & are there any precedence for the same
- Clarity may be provided by NDMA & MHA

Sum insured estimation

- Challenges of determining the exposure currently
- Loss limit based insurance covers may be structured

Structuring Disaster Risk Financing Solutions through insurance - Way forward

Pricing & Extent of coverage

- Customization is possible as required
- Pilot projects could be the way forward to test sustainability

Continuity of coverage

- Multi – year covers can be structured in conjunction with the requirements of the programme

Speed of Claim settlement

- Can be as low as two weeks for parametric insurance covers

Mode of claims payment

- Who can insurers settle the claim to ?
- Can be settled to the government for onward distribution

Thank you

Fondo Nacional de Desastres Naturales (FONDEN)

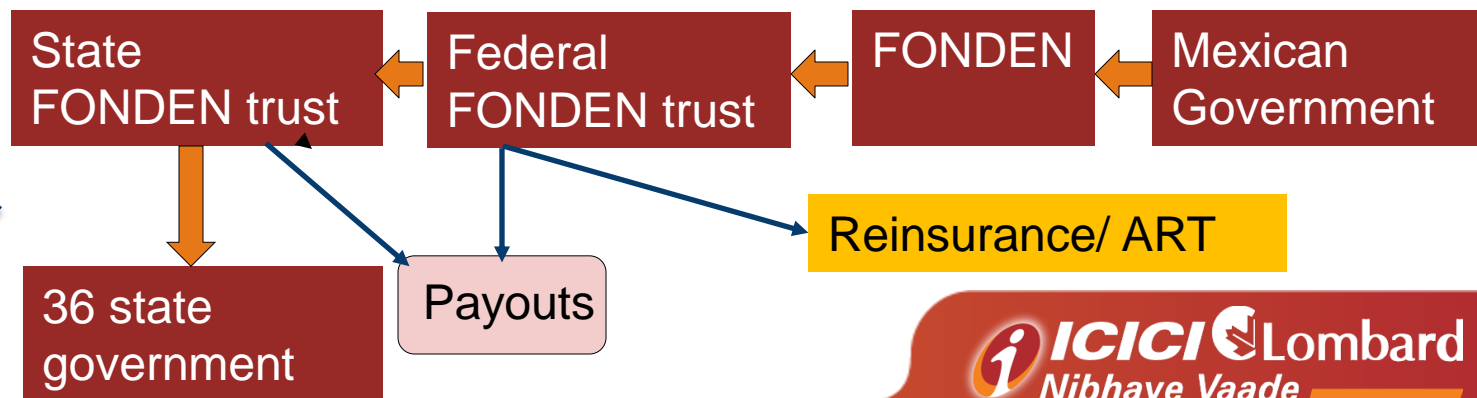
Background

- 1985 earthquake was the key driver, operationalized in 1999
- Converted into an integrate approach – funds for preventive measures against disasters provided (in early 2000)
- 2006 – first parametric catastrophe bonds were issued
- 2011-12 – Indemnity based insurance programme instituted

Objective

- Protect public infrastructure against natural disasters
- Provide immediate liquidity to the government post event
- Protect against volatility in federal and state finances
- Integrated risk management
- Focus on ex ante disaster financing and prevention

Structure



Turkish Catastrophic Insurance Pool (TCIP)

Background

- High exposure to natural events – esp earthquakes
- In case of major event, federal budget insufficient for covering all losses
- 1999 EQ caused USD 13.00 bn of economic loss
- Lack of risk awareness

Objective

- Protect the federal budget
- Provide reconstruction financing to home owners after major catastrophes
- Cover maximum possible economic losses incurred
- Risk reduction and diversification
- High governance and operational standards, minimal costs for pool
- World Bank subsidized TCIP until 2006

Structure

- No payments made by Turkish government
- Funds held by TCIP
- Govt. appoints administrators for 5 years – so far private insurers
- Insurance companies sell insurance cover to private home owners
- EQ cover is mandatory for all residential dwellings

