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Disaster Risk Financing Strategy & Solutions

Potential options in Indian Scenario

Alok Kumar | FICCI Workshop, Delhi | Aug 11, 2010

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Agenda

- Overall disaster risk financing strategy
- Potential options for India
  - Residential property: NatCat pool solution
  - Government's exposure: parametric solution
- Success stories from abroad
- Key messages

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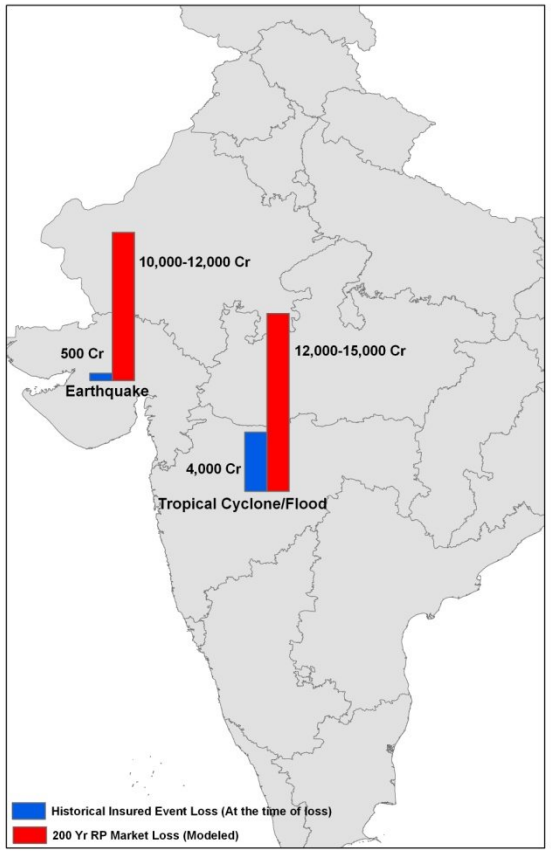
Need for effective disaster financing in India?

- >10lakhs houses in the country damaged annually to natural disasters.
- Currently cost of these disasters are borne by individuals or government.
- Insurance coverage in recent historical events varied between 2-8%.
- Swiss Re's estimate of insured loss potential on current portfolio is between 10'000 – 15'000 cr.
- Economic loss could be anywhere between 12-50 times the above number.

Insurance Nat Cat Loss Potential in India



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Overall disaster financing strategy

Residential Properties

Industrial properties

Government's exposure (state budget)

Ex-ante risk financing

(Re-)insurance market

(Re-)insurance Industry

Parametric Covers, Cat Fund, Cat Bond

- smaller gap between economic and insured losses
- reduced financial burden for the government after an event
- less volatility for the state budget and more planning certainty

Ex-post financing

Debt financing

Budget reallocation

Donor assistance

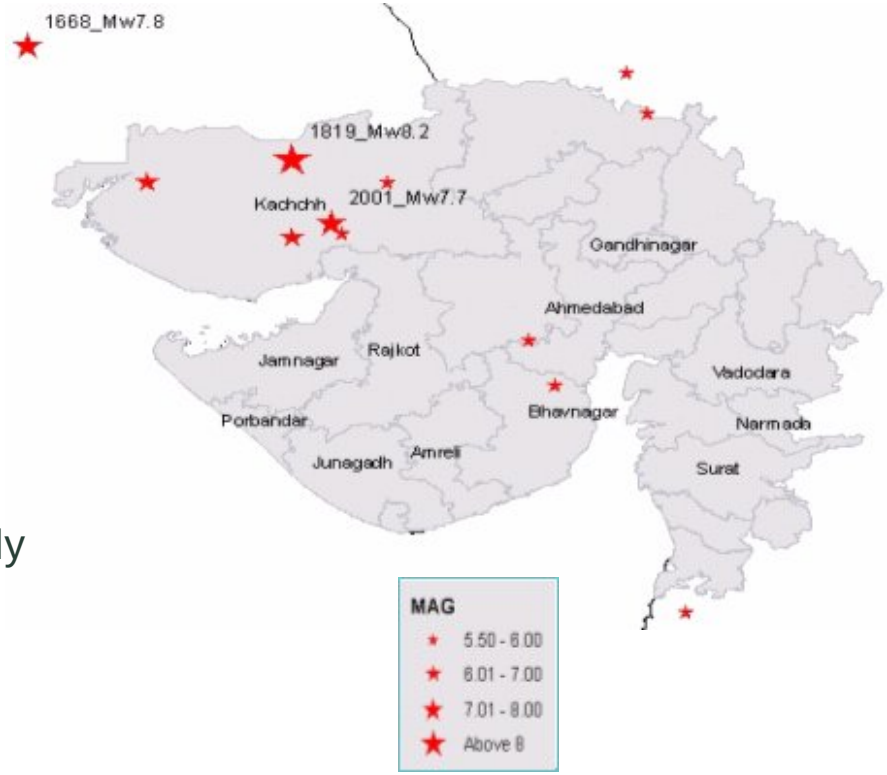
Tax increases

Others

Including ex-ante instruments in the overall disaster risk financing mix helps to lower its financial exposure to natural catastrophe risk and reduces the potential burden for the state budget in case of a major event. Using ex-ante risk transfer instruments reduces the volatility of the state budget, lowers the need for the government to raise funds after an event and provides more budget planning certainty.

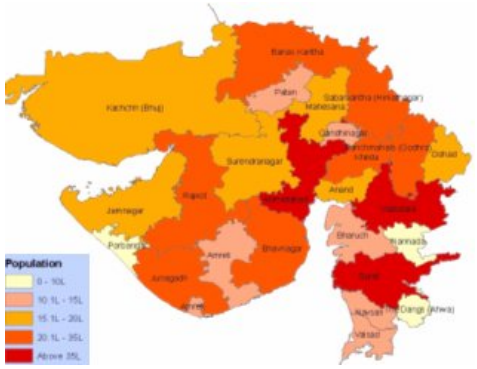
Bhuj earthquake in January 2001: Impact on population & economy

- Mw 7.7 event in Bhuj area
- Impact on population:
  - nearly 20'000 fatalities & 160'000 injuries
  - 750 fatalities in Ahmadabad, a town 300km east of epicentre
- Impact on property:
  - 7904 villages in 21 districts of Gujarat impacted
  - 370'000 completely & 931'000 partially destroyed houses and huts
- Economic losses of USD 4.5bn vs insured loss of USD 100mn (base year 2001)

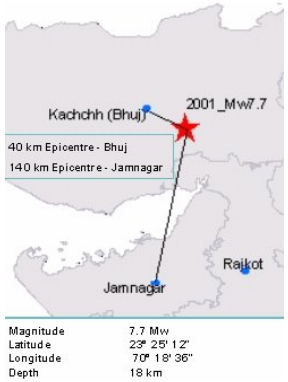


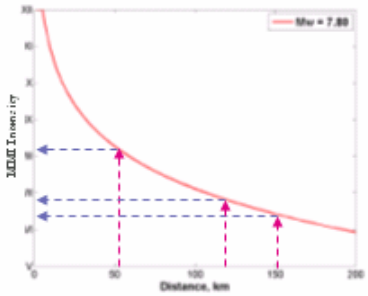
Sources: USGS, World bank report: Financing Rapid Onset Natural Disaster Losses in India, Sigma 2002, Humar et.al.

Option I: Parametric Solution for Managing Government's Exposure



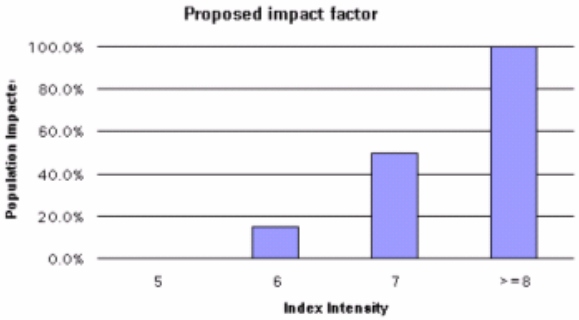
Step 1: Define a portfolio
(e.g. population per district)





$Intensity = c_1 + c_2 * magnitude - c_3 * \log(distance) - c_4 * distance$

Step 2: Calculate intensity at population centre
(standard intensity function & agreed parameters)



Step 3: Calculate population impacted
(using agreed intensity-impact factor relation)

Payout set-up			
Event Affected	Attachment Point	Exit Point	Event Payout
Population	Affected Population	Affected Population	% of Cover
18,13,374	10,00,000	30,00,000	40.67%

Payout Calculations			
Country	Cover	Event Payout	Event Payout
	INR	% of Cover	INR
India	1000,00,00,000	40.67%	**406,68,68,750**

Step 4: Determine event payout
(using agreed payout relationship)

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Options for Refinement

- Trigger can be modified for additional regions, perils
- Portfolio Resolution
  - Portfolio Weights
- Impact ratios and related Intensity Scale
  - Attenuation model
- Cover – Maximum Payout can be mutually decided
- Layer – Trigger Point and Exhausting point

Open set up allows client to design the product in a way fitting optimal to the individual requirements

Option II: NatCat Pool Solution for Reducing society's loss burden

- An effective way to address current large gap in economic losses vs insured loss by increasing insurance penetration.
- Establishes a single risk transfer solution for a whole region or country with usually low administrative expenses.
- Enforces standard wordings, conditions and tariffs, but also eliminates product diversity.
- Pools are a particularly useful way of providing cover for risks with a high degree of antiselection (e.g. flood).
- The insurance industry can contribute more to financially better manage natural perils losses. This would also be desirable from a political and economical perspective.

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Framework for Pool Solution(1)

Legal & regulatory framework	State controlled & regulated or private? Involvement of insurance industry? Pool administrator as risk carrier?
Insurance Cover	Compulsory for defined risk types and perils. e.g linked with home loan.
Insured perils	Specific peril or all.
Classes of risk	Residential to start with.
Cover limitations	Proper deductibles, loss limits.

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Framework for Pool Solution(2)

Premium rates	Risk adequate or (partly) cross subsidized across geography. Separate rate for each peril.
Modelling for natural hazards	Premium rates, hazard zonation, EMLs
Administration	Policy distribution, premium collection, loss handling, accumulation control, commission etc.
Reinsurance	Traditional; Cat Bonds; Parametric triggers; Government guarantee as last resort

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Examples of successful disaster risk transfer & financing

- Government exposure
  - Mexican Fonden: Parametric Cat Bond, Earthquake & Hurricane.
  - Caribbean Cat Risk Insurance Facility: Event intensity based; Earthquake & Hurricane.
  - State of Alabama: “Cat-in-a-box” Wind cover.

- NatCat pool solutions:
  - Turkey (TCIP): state regulated, Earthquake only, compulsory for registered buildings
  - Taiwan (TREIF): managed by Central Re, Earthquake only, voluntary
  - France (CatNat): state regulated, all perils, compulsory cover except storm
  - USA (NFIP): state controlled, Flood only, voluntary cover

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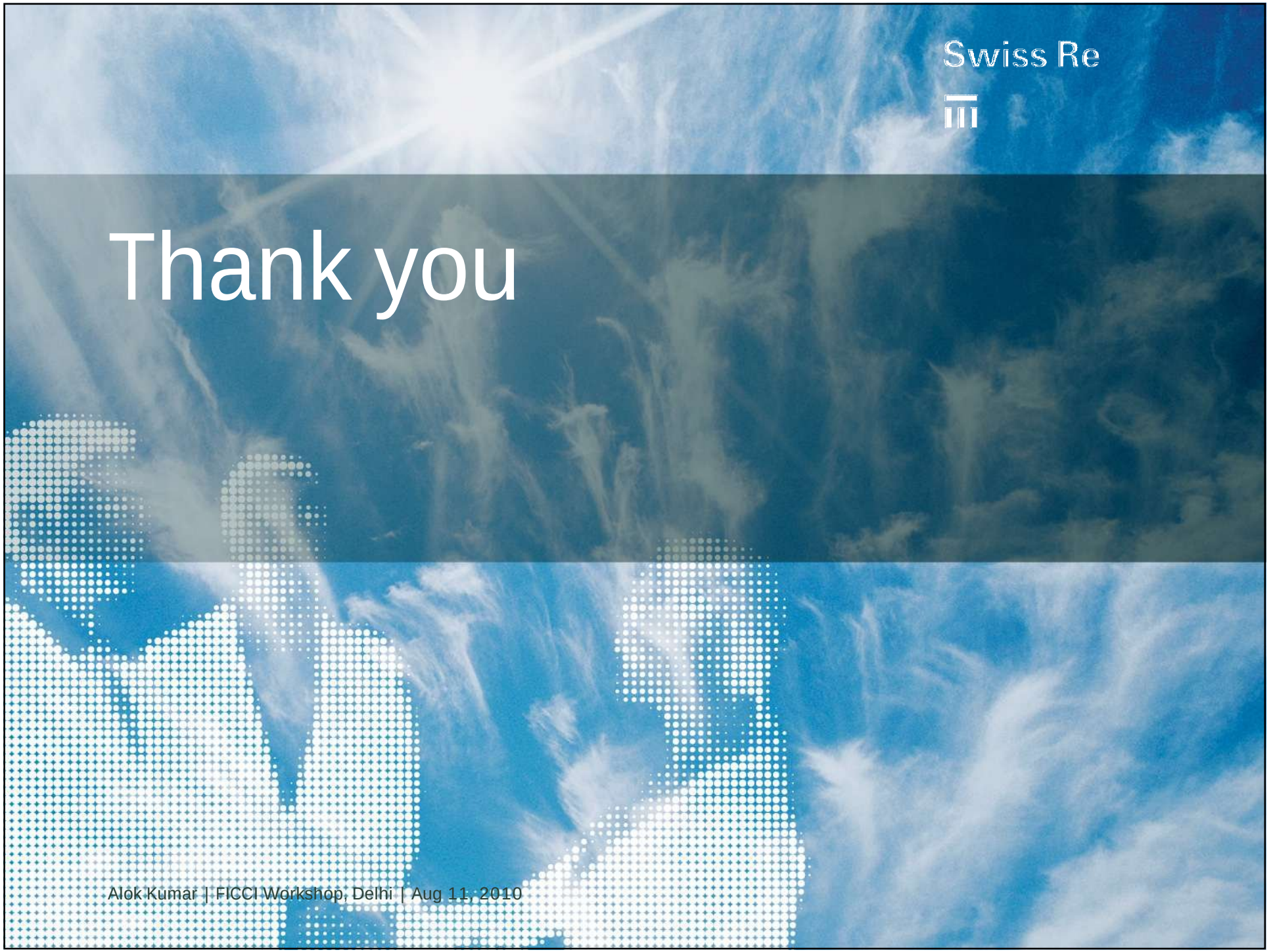
Key messages

- Damages from natural disasters are rising, in India as well as Globally, and put an increasing strain on societies.
- Low insurance penetration in India puts significant cost of disaster on individuals and government.
- Public Private Partnerships in risk management provide innovative instruments to better absorb the financial consequences of natural disasters.
- Successful examples of disaster risk financing solutions in form of parametric cover for Government or Nat Cat Pools for private properties exists and can be replicated in India.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Thank you
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