

Vulnerability & Adaptation: Methods, technologies & tools Risk Sharing Through Insurance

K C Mishra
Director
National Insurance Academy

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Climate Change Insurance

1. Removal of the cause ???
2. Reduction of severity of cause ??
3. Mitigation of consequence
4. Reduction of severity of the consequence
5. Creating internal-external-social funding interface.
6. Insurance & Risk Sharing

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There are three kinds of losses possible due to a climate hazards:

- Direct loss: These are the physical losses that can be easily quantified. These losses relate to property loss, infrastructure loss and asset destruction.
- Indirect loss: These are the losses that are caused due to a disruption in trade and commerce which affects the future profitability of an entity is hampered.
- Secondary loss: secondary losses, being intangible in nature, are difficult to quantify. Such losses are very critical to developing nations, like India. When a climatic disaster of a large magnitude hits India, funds are diverted from other development funds to meet the immediate requirement.

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The Yokohama Message: Management of Hazards (1994)

- Those affected most are the poor and the socially disadvantaged in developing countries as they are the least equipped to cope with the situation.
- Hazard Prevention, mitigation and preparedness are better than hazard response.
- Hazard response alone yields temporary relief at a very high cost.
- Prevention contributes to lasting improvement in safety.

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Indian response to Yokohoma message 1994

- Need to identify vulnerable areas with reference to natural hazards such as earthquakes, cyclones, floods, climate changes etc., having a potential of damaging housing stock and related infrastructure.
- Preparation of a Vulnerability Atlas showing areas vulnerable to natural hazards and determination of risk levels of households.
- Formulation of a strategy for setting up Techno-legal regimes for enforcing disaster resistant construction and planning practices in natural hazard prone human settlements.

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Characteristic features of risk sharing

- The management of natural risks involves assessment of exposure, control of accumulation and adequate provisioning and protection in the eventuality of occurrence.
- The key elements of risk management are: prevention, mitigation, preparedness, response and relief, rehabilitation.
- The various stake-holders in the process of risk mitigation are: policy makers, decision makers, administration, professionals, professional institutions, R and D institutions, financial institutions, insurance sector, community, NGOs and common man.

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Underwriting

The insurance industry has at its disposal comprehensive worldwide loss experience which it can use not only in calculating premiums commensurate with the risk and in classifying hazard areas, known as rating zones, but also in tracing relationships between event frequency and loss intensity and estimating loss potentials from realistic disaster scenarios.

(Underwriting is a skilled job; India has to surface a breed of underwriters. This is also true of climatic insurance, which is a step in vulnerability preparedness. This should begin from the regulator)

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Adequate Insurance Protection at Affordable Rates

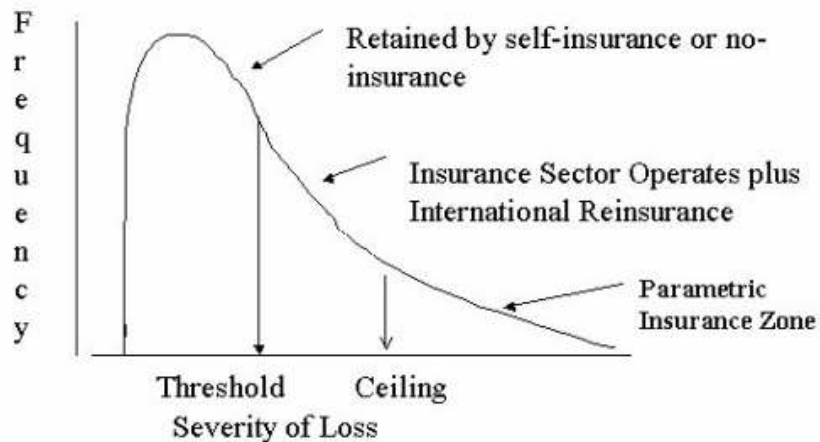
- Any proposal must ensure that adequate insurance be available at affordable rates to all consumers, especially in high-risk areas.
- Low and moderate- income homeowners should be protected from loss of insurance coverage.
- Deductibles, co-insurance and surcharges may all be ways to ensure that insurance is available but should not be used to render coverage levels meaningless.
- Balancing for coverage of **mass covariance** of risk.

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Layering Strategy



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Strong Mitigation Measures to Reduce the Costs of risks

- Any proposal must have as its focus mitigation and must provide for effective measures to reduce losses.
- All stakeholders must be included in mitigation efforts – central, state and local governments, businesses and consumers, and, most importantly, the insurance industry.
- The proposal should promote building and relocation efforts away from high-risk areas.
- The proposal must include measures to assist homeowners, especially low-income, in implementing damage-reduction measures.

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Minimization of the Effects of Cross-Subsidization to Help Ensure that those in High-Risk Areas are the Primary Payers

- Cross-subsidization of risks should be limited to help ensure that those living in high-risk areas pay their fair share for their protection.
- Pricing according to risk promotes building away from high-risk areas, a key goal that should be a part of any program.
- In high risk areas, the various risks could be pooled together, e.g., draught, flood and hurricane, to help minimize rate disparities among different areas and to capitalize on the pooling of risks as much as possible.

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What is needed is a system of insurance that meets the following requirements:

1. It is affordable and accessible to all kinds of rural people, including the poor.
2. It compensates for natural risk income losses to protect consumption and debt repayment capacity.
3. It is practical to implement given the limited kinds of data available in most developing countries. **(Parametric insurance)**
4. It can be provided by the private sector with little or no government subsidies.
5. It avoids the moral hazard and adverse selection problems that have bedeviled most agricultural insurance programs.

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Area-based index insurance has a number of attractive features:

- Because buyers in a region pay the same premium and receive the same indemnity per Standard Unit Contract (SUC), it avoids all adverse selection problems. Moreover, the insured's management decisions will not be influenced by the index contract, eliminating moral hazard. A farmer with rainfall insurance, for example, possesses the same economic incentives to produce a profitable crop as the uninsured farmer.
- It could be very inexpensive to administer, since there are no individual contracts to write no on-site inspections, and no individual loss assessments. It uses only data on a single regional index, and this is based on data that is available and generally reliable. It is also easy to market; SUCs are sold rather like travelers' checks or lottery tickets, and presentation of the certificate is sufficient to claim a payment when one is due.

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A key question is whether the insurance would prove attractive to individuals.

- An index product should be more affordable than individual insurance, particularly if government does not subsidize either.
- Moreover, by offering an index contract that removes most of the systemic, correlated risk that an individual faces, he/she only faces independent risks that may more easily be insured through conventional insurance or credit markets.

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The following suggestions are made in this spirit (1)

- Property tax and insurance: Panchayats, Municipalities and Corporations can add a small levy to the property tax, which can be used to buy insurance of the property against natural risks.
- Flat owner' s cooperative societies in urban areas may recover insurance premium along with maintenance charges and arrange insurance against natural risks.
- All lending institutions, including, housing loan corporations, Corporations, Central & State Governments may obtain insurance against natural risks, compulsorily.
- All house building societies and organizations like Urban Development Authority, City Development Authority, which are involved in constructions, may insure against natural risks.

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- The insurance can be sold to anyone. Purchasers need not be farmers, nor even have to live or work in the region. The insurance should be attractive to anybody whose income is correlated with the insured event, including agricultural traders and processors, input suppliers, banks, shopkeepers, and laborers. Defining SUCs in small denominations would raise their appeal to poor people. Insurance could also be built into credit and into the purchase price of key inputs like fertilizer.
- It would be easy for the private sector to run, and might even provide an entry point for private insurers to develop other kinds of insurance products for rural people. For example, once an area-based index removes much of the co-variate risk, an insurer can wrap individual coverage around such a policy to handle independent risk (i.e., certain situations where the individual has a loss and does not receive a payment from the area-based index). (Continuation 2)

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- As long as the insurance is voluntary and unsubsidized, it will only be purchased when it is a less expensive or more effective alternative to existing risk management strategies.
- A secondary market for insurance certificates could emerge that would enable people to cash in the tradable value of a SUC at any time.
- Recent developments in micro- finance also make area-based index insurance an increasingly viable proposition for helping poor people better manage risk. The same borrowing groups established for micro- finance could be used as a conduit for selling index insurance, either to the group as whole, or to individuals who might wish to insure their loans.

..... (Continuation 3)

Why Don't Insurers Use Derivatives More?

- Unfamiliarity with derivatives
- Conservatism
- Derivative horror stories
- Regulatory resistance
- Lack of focus on financial risk management

Risk Capital: Catastrophe Bonds

Typical case - pre-funded, fully collateralized

Provides insurers with additional capital and
multiyear coverage for catastrophes

Provides investors with diversification and high
yields

Investors include:

Mutual funds	Hedge funds
Reinsurers	Life insurers
Money managers	

Quantifying the Uncertainty

- Review of premium rates and assistance in the design of risk transfer instruments
- Determination of expected survivability of insurance/reinsurance pools for given levels of exposure and capitalization
- Provision of risk funding facilities
- Design of Legal and Institutional Frameworks for Risk Management

Extreme climate phenomena & insurance

- Temperature hot extremes resulting in heat waves and draught – needs insurance for health, life, property, business interruption and agriculture
- Temperature cold extremes result in frost – needs insurance for health, agriculture, property, vehicle and business interruption
- Rainfall/ precipitation extremes result in flash flood or draught – needs insurance for property, food, vehicle, health, life and business interruption
- Intensified mid-latitude storms and tropical cyclones result in wind storm, snow storms, hailstorm and avalanche – needs insurance for property, food, vehicle, health, life and business interruption

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Climatic Transurance

Transurance makes uninsurable climatic losses insurable and helps insureds deal with the full impact of loss events.

To Transure collateral losses, a company creates a relationship between the amount of collateral losses and the size of the insurance recovery it may make.

For example, if a company proves it will have uninsurable collateral losses equal to 20% of the amount it recovers from its insurance policy, it can purchase a Transurance policy that pays 20% of the amount that its insurance policy pays to create a budget for collateral losses.

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