Catastrophe risk management

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In India, catastrophe losses such as the Gujarat earthquake and Mumbai floods have hit insurance companies hard. A catastrophe pool could help create a stable supply of insurance protection and encourage risk mitigation. **By Partha Panda and Rama Warrier**

Is a Pool the Answer to Indian Catastrophe Risks?

THE INDIAN SUB-CONTINENT is among the world's most disaster prone areas with approximately 55% of land vulnerable to earthquakes, 10% of land vulnerable to cyclones and 5% of land vulnerable to floods, according to the National Institute of Disaster Management.

India experienced one of the worst earthquakes in recent times on 26 January 2001 in Gujarat, with the reported damage to property at about $4.5 billion and more than 30,000 deaths. Large parts of the country's long coastline of 8,041km, are vulnerable to cyclones. Cyclones developing in the Bay of Bengal can cause heavy devastation on the eastern coast of the country, as shown by the Orissa super cyclone in October 1999 with around $600 million economic losses.

India receives an annual precipitation of 400 million hectare meters. Of this, 75% falls during four months of monsoon (June- September). The area vulnerable to floods is 40 million hectares and the average area affected by floods annually is about 8 million hectares. The average annual total damage to crops, houses and public utilities during the period 1953- 1995 was about Rs.9,720 million ($220 million).

The insurance market

According to the Insurance Regulatory and Development Agency Journal, the Indian general insurance market has grown from about $2.5 billion in 2001-02 to about $4.5 billion in 2005-06, a jump of about 80% in a period of four years. It is expected that the premium growth will accelerate in the next five to seven years. In spite of this phenomenal growth and the prospects for more, insurance penetration (premiums as a percentage of gross domestic product) and insurance density (premiums per capita) for non-life insurance are very low.

Catastrophe pools – a conceptual view

Individual insurers/reinsurers can create a fund or a pool to insure against low frequency/high severity events, although in some state mandated pools, the government provides the initial capitalisation. The Turkish Catastrophe Insurance Pool is an example of this. Otherwise, the pool could be a combination of private and public funding. In other cases, the government may act as a co-reinsurer or the reinsurer of last resort. In the case of claims exceeding a certain threshold, the pool reserves can pay claims.

The purpose of the pool would be to create capacity, particularly at times when reinsurance support is not consistent or has become expensive as a result of large losses for reinsurers worldwide.

In addition, the pool can aim to limit the burden of natural catastrophes on government budgets, provide risk mitigation options for the constituents of a pool, establish long term reserves to finance future catastrophe losses, provide coverage at affordable premiums and encourage risk sharing by insurers and property owners.

Key drivers

Country specific factors and aspects of the international reinsurance market provide incentives for the development of a pool.

FIGURE 1: CATASTROPHE LOSSES IN THE INDIAN SUB-CONTINENT

Event	State, country	Year	Economic losses ($m)	Insured losses $m)*
Earthquake	India, Pakistan, Afghanistan	2005	5000	NA
Earthquake	Gujarat, India	2001	4964	110
Floods and landslide	Maharashtra ,Gujarat, Madhya Pradesh-India	2005	3333	844
Cyclone	Orissa, India	1999	~600	117
Heavy flooding due to monsoon rain	Gujarat, India	2005	444	156

*Property and business interruption losses, excluding life and liability losses
Source:(a) Swiss Re, sigma, No. 2/20064
(b) Indian insurance industry sources

FIGURE 2: NON-LIFE INSURANCE PENETRATION & DENSITY – 2005

Country	Non-life insurance penetration (%)	Non-life Insurance density ($)
United States	5.01	2122.0
United Kingdom	3.55	1311.9
Turkey	1.30	65.9
Japan	2.22	790.4
Australia	3.09	1203.2
India	0.61	4.4
World	3.18	219.0

Source: Swiss Re, Sigma No 5/20063

India specific drivers:

a) Capacity utilisation: In the pre-liberalisation era, the market reinsurance programme used the market capacity to the fullest, which has not been the case since the opening of the market after 2000-01. Before then, all four general insurance companies were government owned and, hence, could sit together and design a common reinsurance programme which leveraged their total capacity base. With diversification of ownership post-liberalisation, this advantage has been lost.

b) Growth of exposures: The market has been growing at the rate of 15-16% annually. Higher penetration and density of insurance than the existing levels (Figure 2) present increased risk exposure and higher insured catastrophe exposures.


Aftermath of the earthquake in Gujarat, India- 2001

c) Risk accumulations: There are high accumulations of risks around certain areas of India. Delhi, Mumbai, Chennai and Kolkata account for a very large proportion of the country's risk concentration. Delhi is highly seismic and the remaining three cities are prone to windstorm and flooding. Similarly, with the increase in high value risks, the accumulation pattern is changing significantly.
d) De-tariffing of market: Following the end of the tariff system in the general insurance market in January 2007, the controls on the premium ratings by the insurance regulator have been lifted. This may to lead to some instability in the market. The big question is affordability of coverage for catastrophe risks, which has been taken for granted.
e) Accumulation data/common data standards: There is a need for sharing of accumulation control data and for data standards to be able to model the loss exposures for catastrophe risks. Such sharing and standards are non-existent at present.
f) Reduce government burden: At present, rehabilitation and rebuilding after a disaster are a large drain on government resources. The aim of the pool would be to reduce government exposure to disaster losses.

International drivers:

a) Volatility of international reinsurance markets: A catastrophe pool would be a good tool to cushion the local insurance industry against hardening reinsurance rates and the cyclical nature of catastrophe excess of loss reinsurance rates.
b) Lesser dependence on overseas support: The aim is to develop better capabilities for risk retention within the country and reduce the dependency on international reinsurers.
c) Avoidance of coverage related issues: When catastrophe protection is purchased from reinsurers, the insurance companies may face terms and conditions which might not be pertinent to the local market conditions.

Structure and administration

The pool would be a primary reinsurer for catastrophe risk and an arrangement between the insurers/reinsurers and the government. It would act as the national catastrophe reinsurer.

Members: All insurance companies registered and licensed to operate in India would be the shareholders of the pool.

Funding: All members would make equal capital contributions to the pool. While premiums paid into the pool fund would support its capitalisation, the government might need to make initial contributions to arrive at a minimum level of capital for insurance risk-taking requirements. The total paid capital of the pool can be decided by the insurers with the regulator and the government. As an initial start, the pool can be of the size of INR 10 billion (approx $222 million), i.e the aggregate limit of indemnity which can be payable by all insurers to all policyholders per any one occurrence would be INR 10 billion or $222 million.

Administration: The pool could be administered and regulated by the General Insurance Corporation of India (which is the only reinsurer and designated as the national reinsurer) or by a separate entity of insurer representatives. The pool administrator would develop policies and legislation regarding the catastrophe program, sponsor relevant legislation and ensure implementation of proposed policies and legislation, and the required technical activities for the pool.

Pricing: The pool administrator would formulate the pricing for the perils covered, keeping in view the matrix of zoning, building categories and classification, wall material, roof types, earthquake intensity for the region, wind velocity and flood severity.

Perils covered: The suggested perils that should be covered in the Indian context are:

- Earthquake (shock)
- Fire following earthquake
- Storm – cyclone, hurricane, tornado
- Flood and inundation
- Tsunami
- Storm surge

The policy should have the option to be taken on first loss basis by the insured. The insured would bear the first 10% of the loss of each and every policy from a single catastrophe event occurrence.

Challenges for the CAT pool

- The biggest hurdle is the lack of availability of hazard frequencies, vulnerability and financial data, and details related to the claims arising from different segments.
- If one or more high intensity catastrophe losses took place before the pool built up sufficient reserves, there would be serious risk of insolvency.
- International reinsurance rates would still influence pricing as the pool might need protection until its reserves were sufficiently built up.
- The competition and the potential volatility thrown up by property de-tariffing in the Indian general insurance market could weaken member commitment for the pool.
- Collecting, validating and compiling catastrophe exposure and loss data would be a critical activity, and this is an area currently wanting in the Indian insurance market.

Conclusion

The big question is: Would cat pool India work? It is certainly not the ultimate solution for putting to rest the worries of catastrophe risk carriers in India, but it is an option worth considering for improving the catastrophe risk management for the country.

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