

GDLN Seminar on Strengthening Disaster Risk Management in East Asia and the Pacific – Summary of February 11, 2009 Video Conference  
*Specialized Seminar – Introduction to Catastrophe Risk Financing Frameworks*

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**Key topics discussed:**

1. Lack of Insurance Coverage in the Aftermath of Disasters in Developing Countries
2. Introduction to Catastrophe Risk Financing Instruments
3. International Experiences: Turkish Catastrophe Insurance Pool (TCIP) and Caribbean Catastrophe Risk Insurance Facility (CCRIF)
4. Challenges in Implementing Catastrophe Risk Financing Instruments

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**Executive Summary**

*This Introduction to Catastrophe Risk Financing Frameworks seminar provided participants with an understanding of catastrophe risk financing frameworks. In addition, it informed participants of new product lines in risk mitigation and risk finance and transfer and shared experiences of Bank-financed projects, including Turkey’s Catastrophic Insurance Pool.*

- First, there is a **lack of efficient insurance provisions in developing countries** to cover post-disaster damages. Figures show that developing countries that are susceptible to natural hazards lack adequate coverage.
- Second, there are a number of effective **catastrophe risk financing instruments** emerging like the CAT DDO, cat bonds, and weather-related insurance programs that have been applied in developing countries.
- Third, experiences in Turkey where a catastrophe risk financing instrument (TCIP) was established show that it is slowly gaining traction with a penetration rate of insured housing units reached 22 percent as of 2008.
- Finally, developing countries require adequate support to establish catastrophe risk financing instruments. Moreover, some of these instruments are still far from perfect and require further research and amendments.

**Summary**

*1. Lack of Insurance Coverage in the Aftermath of Disasters in Developing Countries*

Over the last few decades, economic and insured losses in the aftermath of disasters have risen dramatically, according to Munich Re (2008). The main reasons for these increased costs are due to negative impacts from climate change, rapid urbanization, and population growth.

Many developing countries that are prone to natural hazards do not have insurance coverage for their key infrastructure systems; for example, after the Izmit earthquake in 1999 only 5 percent of the total loss was insured; after Hurricane Mitch in Honduras in 1998, only 6 percent was covered by insurance. This stands in contrast to developed countries where most infrastructures are insured under schemes offered by the private sector or government.

This lack of efficient insurance schemes in developing countries shifts the burden of disaster losses to the governmental budget, and may cause budget re-allocations due to necessary funding for relief and reconstruction measures, which then may later result in delaying the overall development goals of a country.

## *2. Introduction to Catastrophe Risk Financing Instruments*

The World Bank recognizes that developing countries require more support to deal with post-disaster financing, and also that immediate funding and liquidity are needed to finance post-disaster relief and recovery measures. A viable instrument to overcome this lack of financial liquidity is the newly developed Deferred Drawdown Option for Catastrophe Risks (CAT DDO) from the World Bank.

The CAT DDO offers governments the opportunity to have an active line of credit available after a disaster, which would be repaid as a loan. All IBRD countries are eligible to receive such a loan if certain criteria are met: a satisfactory hazard risk management framework must already exist, or be in preparation, as well as an appropriate macroeconomic policy framework. The purpose of this loan is to enhance the capacities of a government after a severe disaster has struck by providing immediately needed financial liquidity (bridging the gap), which is often lacking in the post-disaster recovery phase. The CAT DDO is intended for intense and infrequent catastrophes rather than for low – intensity, frequent disasters. The maximum amount of this loan is the lesser of either 0.25 percent of a country's GDP or US\$500 million over a period of three years and can be renewed four times. Costa Rica received such a loan in 2008 after several flood events caused extreme damages: US\$ 25 million in November 2005, US\$ 80 million in December 2007, and US\$ 40 million after tropical storm Alma in May 2008. The stand-by line of credit provided by the World Bank was worth US\$65 million and has yet to disburse.

Other instruments discussed during the seminar included catastrophe bonds (cat bonds) which are catastrophe-linked securities that transfer a specified set of risks from the sponsor to investors, who then invest this money in the capital markets. After Hurricane Katrina in 2005, the issuances per year of cat bonds increased to US\$4 billion in 2007 compared to US\$1-2 billion in the period from 1998-2001. Different triggers exist to compensate an insurer's loss, for example, parametric models provide payouts in the case a natural hazard exceeds the maximum limits agreed to in advance, such as windspeed levels for a hurricane bond, or peak ground acceleration for an earthquake bond.

The World Bank is also engaged in other programs to finance catastrophe risks, like economic losses of housing stock or agricultural production. In Malawi, an index was established to capture the risk of droughts, which was then used to calculate the premiums for agricultural production insurance. Malawi was only eligible to implement this program due to its excellent record of historical weather data. The reliability of weather data in developing countries is often questioned by insurance companies causing a moral hazard. This is exactly where the World Bank tries to step in by providing direct support and to mitigate the moral hazard.

## *3. Experiences from Newly Established Instruments: Turkish Catastrophe Insurance Pool (TCIP) and Caribbean Catastrophe Risk Insurance Facility (CCRIF)*

After the Izmit earthquake in 1999 in Turkey, the Turkish government in partnership with the World Bank and the European Bank for Reconstruction and Development, pushed the development of an efficient

catastrophe risk financing scheme since many buildings were not covered by any insurance. In 2000, the Turkish Catastrophe Insurance Pool (TCIP) was established to cover all residential buildings against damages caused by earthquakes.

A decree law requires that every household buy such insurance, with an average premium rate of only €46 per year. This scheme solely accepts claims resulting from earthquakes and no other natural hazards. The maximum payout is €7,000 per unit (building, or apartment) which is considered sufficient to repair damages in the aftermath of an earthquake. In the case of collapsed homes, this sum may not be sufficient; however, it is expected that only 10 percent of all affected building units would fall into this category. The aim of the TCIP is to provide each household with certain coverage even if the building was built before 2000. If luxury homes require higher coverage they are advised to buy additional insurance in the private market.

At the beginning, the key aim for this scheme was to create a proactive non-parametric instrument at an affordable price and to transfer the coverage and management of risk of housing units into the private sector. This was achieved; however, the penetration rate so far is low, with only 22 percent of dwellings insured as of 2008. Right after its launch in 2000, the penetration rate increased but in the following years it decreased, rising again in the last few years.

Even though it is compulsory for households to have such insurance coverage, most people do not buy it because there are no penalties or methods to enforce compliance under current law. The result is a low penetration rate.

The TCIP covers all earthquakes and does not follow a parametric approach in which only major earthquakes would be covered; however, the board of directors overseeing the TCIP is discussing this issue. Nevertheless, the key goal of this scheme is to transfer the burden of costs to the private market by “outsourcing” the management and operation of this scheme to private companies which are overseen by a board of directors. The Turkish government is not subsidizing the scheme.

Another multi-country or regional catastrophe risk financing scheme exists in the Caribbean. In 2007, the Caribbean Catastrophe Risk Insurance Facility (CCRIF) was established to spread the financial risks from natural hazards across the 16 member countries in the region.

CCRIF adopts a parametric approach and covers only damages where the hazards exceed the minimum requirements for a financial payout. An example of this was Hurricane Dean, which left a trail of destruction in Jamaica in 2007, the winds were just slightly below the threshold of 65 miles per hour. As a result there was no money disbursed.

#### *4. Challenges in Developing and Implementing Catastrophe Risk Financing Instruments*

In recent years new catastrophe risk financing instruments are emerging; however, there is still a gap between developed and developing countries in the amount of coverage of damage and losses by private insurance. A key problem is still the existing mistrust from private companies about the reliability of weather data in developing countries, as mentioned earlier, but they are also sceptical of the reliability of those governments to help incorporate and facilitate such a scheme. Additionally, the modelling of such a framework is complex and requires not only technical knowledge, but also time and financial resources.

Furthermore, developing countries are advised to fully implement building codes in order to facilitate the introduction of an efficient catastrophe risk financing instrument. Again, this is where the World Bank can offer support to overcome such obstacles.

Another problem is the public's lack of awareness regarding the purchase of insurance, as seen in Turkey, despite the government's efforts to promote it. Accordingly, it is difficult to convince people to pay for insurance over a long period rather than just for the first few years after a disaster has struck due to the low probability of major disasters recurring again in the following years.

Finally, catastrophe risk financing instruments are still far from perfect. It is suggested that parametric schemes should also integrate a damage loss component as a criteria for payout to cover incidents, like in Jamaica, where the strict parametric character of the CCRIF did not allow financial compensation even though the damages were significant.

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## **Further Information**

For more information on disaster risk management related to catastrophe risk financing frameworks, please visit the following links:

### **General:**

- Munich Re, Natural Catastrophes, 2008:  
[http://www.munichre.com/publications/302-06022\\_en.pdf](http://www.munichre.com/publications/302-06022_en.pdf)
- Global Facility for Disaster Reduction and Recovery, provides guidance:  
<http://gfdr.org/index.cfm?Page=home&ItemID=200;>
- Various available products: The World Bank Group's Catastrophe Risk Financing Products and Services:  
[http://gfdr.org/docs/WBG\\_Cat\\_Risk\\_Financing\\_Products\\_July\\_2008.pdf](http://gfdr.org/docs/WBG_Cat_Risk_Financing_Products_July_2008.pdf)
- Provention Consortium:  
<http://www.proventionconsortium.org/?pageid=19>
- International Institute for Applied Systems Analysis, risk modelling:  
<http://www.iiasa.ac.at/Research/RAV/index.html>

### **International Finance Corporation (IFC), The World Bank:**

<http://www.ifc.org/>

### **Caribbean:**

- The Caribbean Catastrophe Risk Insurance Facility (CCRIF):  
<http://www.ccrif.org/>