

Protecting Asia from Natural Catastrophes

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Professor Bertil Andersson, President of Nanyang Technological University,
Professor Pan Tso-Chien, Executive Director, Institute of Catastrophe Risk Management,
Ladies and gentlemen, good morning.

I am happy to join you at the 8th ICRM Symposium.

A Widening Protection Gap

Asia has a serious problem. The frequency and severity of natural catastrophes hitting the region is increasing.

- According to UN data, the number of natural disasters in the Asia Pacific has increased from an annual average of 44 disasters in the 1970s to 146 in the 2000s.
- We don't need much reminder of the tragic natural disasters that the people in Asia have suffered in recent years.
 - the Indian Ocean Tsunami in 2004;
 - the Tohoku Earthquake in 2011;
 - the Thailand Floods also in 2011; and
 - Super Typhoon Haiyan in 2013.

As Asia continues to grow rapidly, more lives, wealth and assets in Asia are correspondingly at risk from natural catastrophes.

- Growing urbanisation also means that wealth in Asia is increasingly concentrated in small, overpopulated megacities.
- There are 22 mega cities in Asia, each with more than 10 million inhabitants and hosting important commercial, manufacturing, and logistics hubs.
- Many of these cities are located in the Philippines, China, Japan, India, Indonesia, and Bangladesh, which are highly exposed to natural perils.

In Asia, insurance protection against natural catastrophes has not kept pace with economic development. There is a significant protection gap.

- Over the last 20 years, Asia has accounted for almost half the world's economic losses from natural disasters, amounting to more than US\$900 billion.

- Yet, less than 5% of economic losses in developing Asia were insured, compared to 40% in developed countries.

This means governments in Asia have had to finance the cost of recovery by raising revenues, issuing debt, or relying on donations from abroad, on an *ex-post* basis.

- This is not sustainable, and comes at the cost of economic development.

Insurance can and should play a bigger role to reduce the financial impact of natural disasters and improve disaster resilience.

- Insurance not only provides emergency relief post-disaster.
- More importantly, it is an *ex-ante* risk financing solution, as part of a comprehensive disaster risk reduction strategy.

Asia needs to close this natural catastrophe protection gap. Let me outline four key enablers: *technology and data*; *product innovation*; *research and development*; and an *integrated ASEAN market*.

Technology and Data

First, technology and data. Through the use of sensors, satellites, and IoT devices, more data is being captured about the causes and impact of natural catastrophes. Big data analytics enables better quantification and pricing of risks, and helps strengthen *ex-ante* risk resilience measures.

Take for example remote sensing.

- Satellites are being used to monitor rice growth patterns and anticipated yields in Vietnam, Philippines, India, Thailand and Cambodia.
- This builds up a knowledge profile of the area, and enables underwriting and pricing of risks.
- Insurers and governments are also able to detect droughts and floods, and their potential impact on harvests early, enabling a quicker response.
- And in the event of a disaster, the before and after images allow insurers to perform loss assessment and support quicker release of claims to the affected farmers.
 - No need to send loss surveyors to inspect damages in-person, which can be costly and time consuming.

Big data analytics is at the core of Singapore's own Natural Catastrophe Data Analytics Exchange (Nat Cat DAX).

- Nat Cat DAX is led by ICRM, in partnership with MAS and the industry.
- It will aggregate a variety of data sources including economic loss and exposure data as well as drone and satellite data to create a comprehensive database of Asia Pacific natural catastrophe risk.

- The consortium has commenced industry data collection efforts in Taiwan and Jakarta, and is also using satellite imagery to extract information on building features.
- I understand a more detailed update of its preliminary findings will be shared later in this conference.

Product Innovation

Second, product innovation. We are seeing new forms of insurance products and solutions, such as index-based and parametric insurance.

- Unlike traditional insurance which indemnifies actual losses, parametric insurance solutions make pay-outs based on catastrophe events hitting certain pre-defined parameters such as hurricane wind speed or earthquake magnitude.
- This removes the need for loss adjusters to survey the extent of losses.
- Insurers enjoy cost savings and policyholders get faster pay-outs

Asia Risk Transfer Solutions, or ARTS, is a local start-up co-founded by NTU graduate Alex Chen and Professor Haresh Shah, that has done this well.

- It has developed a risk analytics platform for the design, pricing and management of index based insurance products.
- ARTS' flagship crop platform in India has reduced the time taken for underwriters to calculate agriculture insurance premiums, from days to a matter of hours.
- ARTS' solution is being used to provide index-based agriculture insurance products to millions of farmers across the country.

We are also seeing increasing use of alternative risk transfer mechanisms, such as insurance-linked securities (or ILS) in disaster risk management.

- Catastrophe bonds, the most common form of ILS, enable insurers and reinsurers to transfer some of their risks to the capital markets.
- If no catastrophe occurs, the insurance company pays a coupon to the investors in these bonds.
- If a catastrophe occurs, the principal is forgiven and the money is paid to those who bought the catastrophe insurance.
- Japan has actively tapped on ILS to diversify the insurance industry's exposure to natural perils.

Research and Development

Third, research and development. Singapore has made good progress in fostering a natural catastrophe research ecosystem.

- Since its launch in 2010, ICRM has emerged as Asia's leading research institute in catastrophe risk.

- Besides leading Nat Cat DAX, ICRM has been involved in 16 core research projects - such as conducting seismic analysis for Sumatra and flood risk assessment for Jakarta.

A number of other local and global initiatives aimed at building disaster risk resilience is being undertaken in Singapore:

- Recently, the industry, led by Lloyds, signed a Natural Catastrophe Statement of Intent with MAS and UK Trade and Investment to promote the development of natural catastrophe insurance in regional markets.
- As part of the SOI, eight Lloyds Syndicates have committed US\$400 million in natural catastrophe capacity in emerging markets, including Asia.

An Integrated ASEAN Market

Fourth, improving market access. ASEAN countries are working together to open up insurance market access within ASEAN, enabling greater risk diversification beyond national boundaries. Diversification is critical to building resilience.

- Last year, ASEAN member states made a commitment to liberalise by 2025 the cross-border supply of international Maritime, Aviation and Goods-in-Transit or MAT insurance, catastrophe reinsurance and remaining classes of reinsurance.
- The majority of ASEAN member states have already committed to liberalise MAT insurance; and are aiming to substantially liberalise catastrophe reinsurance by 2019.

Conclusion

Insuring Asia against natural catastrophe is a most worthwhile endeavour. The growth and prosperity that Asia has achieved over the last three to four decades can potentially be set back by the economic and social disruptions that natural disasters unleash on a periodic basis.

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We must put in place mechanisms for the effective assessment, management, and transfer of disaster risks. Advances in technology, innovation, research, and market integration put us in a strong position to address these challenges.

Indeed, there are few human enterprises where the application of technology and innovation can have as much social purpose and public good as in the area of protecting societies against natural disasters.

- Singapore's insurance industry is committed to this goal.
- And I am pleased that NTU has been a key partner in many ways, contributing to our vision of being a global centre of excellence in insurance and risk management.

Thank you and I wish you a meaningful time at the conference.