



Regional Technical Assistance Report

Project Number: 42103
August 2008

Natural Catastrophe Risk Insurance Mechanisms for the Asia and Pacific Region (Financed by the Japan Special Fund)

Asian Development Bank

ABBREVIATIONS

ADB	–	Asian Development Bank
ADB I	–	ADB Institute
CCRIF	–	Caribbean Catastrophe Risk Insurance Facility
DMC	–	developing member country
JRO	–	Japanese Representative Office
TA	–	technical assistance

TECHNICAL ASSISTANCE CLASSIFICATION

Targeting Classification	–	General intervention
Sectors	–	Law, economic management, and public policy; finance
Subsectors	–	Capital markets and funds, economic management
Themes	–	Sustainable economic growth, regional cooperation, private sector development
Subtheme	–	Promoting macroeconomic stability, private sector investment

GLOSSARY

Catastrophe	–	An insurance term synonymous with disaster (see below). Similarly, insurance terminology uses “peril” rather than the term hazard (see below).
Catastrophe loss	–	An insurance term implying high severity of loss that can threaten or cause insolvency and that does not lend itself to accurate prediction, and thus should be transferred by an individual, business, or nation to the insurer.
Disaster	–	A serious disruption to the functioning of a community or a society causing widespread human, material, economic, or environmental losses that exceed the coping ability of the affected community or society using its own resources.
Disaster risk management	–	The systematic process of using administrative decisions, organizations, operational skills, and capacities to implement policies, strategies, and coping capacities of a society to reduce the impacts of disasters.
Disaster risk reduction	–	A series of interconnected actions to minimize disaster vulnerability by avoidance (prevention) or limitation (mitigation and preparedness) of the adverse effects of hazards within the broad context of sustainable development.
Hazard	–	A potentially damaging physical event, phenomenon, or human activity that may cause loss of life, injury, property damage, social or economic disruption, or environmental degradation.
Indemnity insurance	–	Coverage based on the actual loss of the sponsor.
Insurance pool	–	A multi-insurance (or reinsurance) agreement under which each insurer in the group or pool assumes a specified portion of each risk ceded (i.e., transferred) to the pool.
Megacity	–	A metropolis with a population of 10 million or more and a high concentration of people and valuable infrastructure.
Parametric insurance	–	Coverage based on predetermined triggers, which is less expensive and materializes more quickly than a traditional insurance product that is based on actual losses that must be

- assessed by claims adjustors before a payment is made.
- Risk – The probability of harmful consequences, or expected loss of lives, people injured, property, livelihoods, economic activity disrupted (or environment damaged) resulting from interactions between natural hazards and vulnerable conditions
 - Risk transfer – Shifting a risk by means of a two-party contract such as insurance.

NOTE

In this report, "\$" refers to US dollars.

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I. INTRODUCTION

1. Natural disasters place a substantial financial burden on developing member country (DMC) governments and contribute to fiscal and economic volatility. Dealing with natural hazard risk requires attention at several levels: from frequent disasters of limited reach to rare events of catastrophic proportions, from general economic considerations to specific project-level applications, from insurance and risk transfer to disaster response and contingency planning, and from remote rural areas and small island nations to densely populated urban centers. The *Disaster and Emergency Assistance Policy*¹ of the Asian Development Bank (ADB) provides a general framework through which ADB can help DMCs to reduce disaster risk. To understand the complexity of disaster risk management in the Asia and Pacific region and to identify ways to assist DMCs, ADB undertook in 2006 a regional technical assistance (TA) on catastrophe risk insurance mechanisms.² The final report recommended holding a workshop to exchange ideas and explore the prospects for an Asian insurance pool.

2. The Ministry of Finance of Japan met with ADB in October 2007 to follow up on the recommendations of the TA on Development of Catastrophe Risk Insurance Mechanisms. Since ADB's Pacific Department was embarking on a support program³ for a World Bank initiative to develop a catastrophe risk insurance scheme requested by Pacific island governments, this component was included in the discussions and subsequent developments. A working party comprising ADB and Government of Japan officials developed a conference and workshop program exploring a series of issues pertaining to the operation of risk pooling facilities and issues relating to megacities and the Pacific.⁴ The TA is consistent with pillar 4 of ADB's regional cooperation and integration strategy.⁵ The design and monitoring framework is in Appendix 1.

II. ISSUES

3. Disaster risk management in the Asia and Pacific region has been largely neglected. A 2005 source estimated that about \$40 billion, or 1% of the entire Asia and Pacific region's gross national income of \$4 trillion, would be required to put needed disaster management infrastructure in place.⁶ An additional \$15 billion is typically required annually to restore the infrastructure and economic momentum of countries in the region that are hit by disasters. This cost could be significantly reduced through the implementation of appropriate measures to reduce disaster risk. However, recent reports find that the types of activities best able to reduce vulnerability—such as developing or revising building codes, developing risk management institutions, and developing insurance and other mechanisms for spreading risk—are precisely the activities for which member countries are least likely to borrow.⁷

¹ ADB. 2004. *Disaster and Emergency Assistance Policy*. Manila.

² ADB. 2005. *Technical Assistance for Development of Catastrophe Risk Insurance Mechanisms*. Manila (TA 6284-REG, approved on 9 December).

³ Pacific Department concept paper (February 2008). Regional Partnerships for Climate Change Adaptation and Disaster Preparedness. Regional Cooperation and Integration Fund.

⁴ The TA first appeared in the business opportunities section of ADB's website on 3 June 2008.

⁵ ADB. 2006. *Regional Cooperation and Integration Strategy*. Manila.

⁶ ESCAP. 2006. *Enhancing Regional Cooperation in Infrastructure Development Including That Related to Disaster Management*. New York: Economic and Social Commission for Asia and the Pacific (page 129). The source quoted is ADB. 2005. *Key Indicators of Developing Asian and Pacific Countries*. Manila.

⁷ World Bank. 2006. *Hazards of Nature, Risks to Development. An IEG Evaluation of World Bank Assistance for Natural Disasters*. Washington, DC: Operations Evaluation Department.

4. At the same time, the global character of natural disasters and their consequences are changing. Over the past 2 decades, deaths from disasters annually have fallen 30% despite the number of people whose assets are affected by disasters increasing by 59%.⁸ Moreover, the number of recorded disasters is rising annually, reaching in 2007 an all-time high of 950.⁹ The rise in the number of people whose assets are affected appears to be caused by three main factors: (i) climate change, which produces more extreme meteorological events; (ii) increased urbanization, which is poorly regulated; and (iii) the complexity of the development process itself, which tends to increase vulnerability to disaster.¹⁰

5. Natural disasters increasingly harm the most vulnerable people in the Asia and Pacific region. The diverse, unstable geophysical characteristics and harsh climates of the Asia and Pacific region make it especially vulnerable to natural disasters, and development gains are fragile and easily overwhelmed by their effects. In the 30 years from 1975 to 2005, Asia accounted for 37% of the world's recorded natural disasters, 57% of deaths, 89% of people affected, and 44% of property and infrastructure damage.

6. The Asia and Pacific region contains some of the world's fastest growing and densest urban concentrations. The United Nations projects that, by 2030, 55% of some 4.9 billion Asians (or 2.7 billion people) will live in urban areas.¹¹ Ten percent of this population is expected to live in 12 megacities of more than 10 million inhabitants, and many more will live in conurbations such as Hong Kong–Shenzhen–Guangdong, which could have 120 million people by 2010.¹² Urbanization and the rise of megacities fundamentally reshape the risk landscape. Decisive factors for a city's exposure to natural disaster are its geographical location and the total area covered. In the case of Asia, the potential for disaster is compounded by a lack of urban planning, which is a significant determinant of resistance or vulnerability. Because of the dominance of megacities in Asia, many of which serve global functions, natural disasters have the potential to disrupt entire regions.

7. Pacific island countries rank among the world's most vulnerable to natural disasters and face a more extreme challenge than their larger Asian neighbors. The concentration of productive capacity in relatively small areas that are becoming increasingly vulnerable to rising sea levels and an apparent intensification of hydro-meteorological events elevate the risks faced.¹³ A combination of reliance upon development partners for support in response to disasters and competing short-term priorities have also limited the adoption of disaster risk management actions.¹⁴ The intensity of extreme events is expected to increase with climate change. Unless urgent measures to manage disaster risk are undertaken, Pacific island countries' coping capacity could be increasingly compromised.

⁸ Data derived from the disaster events database, World Health Organization Collaborating Centre for Research on the Epidemiology of Disasters. Belgium.

⁹ Munich Re. 2008. *Natural Catastrophe Figures for 2007*. Press release accessed 2 January 2008.

¹⁰ P. Walker, et al. 2005. Smoke and Mirrors: Deficiencies in Disaster Funding. *British Medical Journal*: 330 (29 January). The authors suggest that governance factors, the structure of donor aid, debt policies, the dynamics of population growth, and economic globalization can influence vulnerability to disaster.

¹¹ United Nations. 2004. *World Urbanization Prospects*. New York.

¹² ADB. 2008. *Managing Asian Cities: Sustainable and Inclusive Urban Solutions*. Manila.

¹³ Lester, R. 2005. Public Private Partnerships and Natural Disasters Risk Management in East Asia and the Pacific. In *Catastrophe Insurance – Challenges for Insurers in the Asia-Pacific Region*, edited by Neil R. Britton. Proceedings of a conference sponsored by Aon Re Australia Limited. Sydney, NSW: Southwood Press.

¹⁴ See World Bank. 2006. *Not If But When: Adapting to Natural Hazards in the Pacific Islands Region*. Washington, DC; and United Nations International Secretariat for Disaster Reduction. 2007. *Disaster Risk Reduction: Global Review 2007*. Geneva.

8. One consistent shortcoming in the risk management strategies of developing countries has been the lack of planning and financial protection against disasters. Traditionally, developing countries have relied on their own limited financial resources and international assistance to cover their disaster losses. This resource application for reconstruction financing places a strain on the ability of the countries to fund longer-term economic and social development programs. This problem has been overcome in developed countries in part by developing *ex ante* financing tools (insurance being an example) that provide needed post-disaster reconstruction funding. Developing countries either have not prioritized such investment in future financial stability or have been unable to afford participation in this market.

9. Country or state level catastrophe risk pooling has been available for several decades in developed nations.¹⁵ The New Zealand Earthquake Commission and Japan's Government-created Japanese Earthquake Reinsurance are examples. Catastrophe risk pooling is a more recent initiative in transitional and developing economies and has typically been a response to recent catastrophic events. The Turkish Catastrophe Insurance Pool and compulsory earthquake insurance scheme provide coverage for all residential buildings that fall within municipal boundaries.¹⁶ The Taiwan Residential Earthquake Insurance Program (2002) provides replacement coverage on all earthquake losses. In Indonesia, the Government took an initiative in 2003 to promote insurance coverage for natural disasters by requiring all licensed general insurance and reinsurance operators in Indonesia to cooperate in insuring special risks through a joint undertaking of all companies known as the Indonesian Reinsurance Pool. The People's Republic of China is currently considering a general concept for establishing an earthquake insurance pool, probably based on some form of public-private partnership among insurers, reinsurers, and government.

10. Regional pooling mechanisms are rarer and more recent. The first is the Caribbean Catastrophe Risk Insurance Facility (CCRIF), which became operational on 1 June 2007 following a series of natural disasters in the region in 2004. It uses a parametric model and provides 16 participating governments from the Caribbean with immediate liquidity if one of them is hit by a hurricane or earthquake of a specified intensity or greater.¹⁷ CCRIF acts as a risk aggregator by allowing participating countries to pool their country-specific risks into one, better-diversified portfolio. There is no cross-subsidization because each government's premium is directly related to each country's specific risk profile. Initial risk capital provided by donors,¹⁸ including the World Bank, allows CCRIF to retain a portion of the risk through its own reserves, thereby reducing the cost of premiums and dependency on reinsurance.

11. Despite the high cost of disasters, risk transfer and other *ex ante* risk financing mechanisms remain the least explored or adopted options in the Asia and Pacific region, mainly because of such shortcomings as poor regulatory environments, poor data, limited technology transfer, and a general lack of insurance awareness. A clear information gap exists in the understanding of key officials in the most vulnerable DMCs of such catastrophic risk insurance

¹⁵ Sector-specific insurance, such as crop insurance, is more commonplace. See, for example, FAO. 2005. Insurance of Crops in Developing Countries. *Food and Agriculture Organization Agricultural Services Bulletin #159*. Rome: Food and Agriculture Organization. United Nations.

¹⁶ In particular, the obligation to extend credit and construct dwellings for the public in the event of an earthquake.

¹⁷ Parameters for coverage are determined prior to impact and are triggered automatically after occurrence and the severity has been confirmed by an independent authority, like the US Geological Survey (for earthquakes).

¹⁸ Rather than subsidizing premiums, which might need to be done in perpetuity, donating to risk capital allows the facility to become independent after a period of years. Donors' financial contributions to the reserves help all participating countries by reducing the amount of reinsurance that needs to be purchased. As reserves increase, the pool will become increasingly resilient and less dependent on reinsurance, with a consequent reduction in premium costs.

schemes and their potential to alleviate the economic impacts of natural disasters. An increased government awareness of catastrophe insurance options brings with it the added benefits of sensitizing governments to the practice of risk management and the use of systematic hazard assessment, and it also demands that finance ministries become involved in considering strategies to manage disaster risk. Furthermore, insurance industry players have not yet started to focus on the potential markets created by a pool of DMCs, preferring instead to focus on single markets in specific countries and cities. Development partners are now factoring risk management into country strategies, and risk transfer has shown up as a major consideration. Bringing key parties together to discuss, evaluate, and collate information on existing pool options can assist in catalyzing the conditions needed for the take off of regional and/or subregional catastrophe insurance.

12. While the availability of insurance for natural hazards depends on a range of factors in the world insurance market, there is no evidence of a shortfall in the amount of catastrophe reinsurance capacity available for DMCs. Reinsurers and global insurers have been covering DMC risks selectively for many years, and reinsurers are already expanding their activity in DMCs where economic growth can generate meaningful profits as well as allow risk diversification. Nonetheless, the volatility of reinsurance pricing is such that developing countries often find themselves unable to participate unless the early stages of a catastrophe pooling arrangement can benefit from stable, low-cost backing provided by institutions such as multilateral development banks (footnote 12).

III. THE TECHNICAL ASSISTANCE

A. Impact and Outcome

13. The impact of this TA will be the strengthened financial resilience of participating member nations against the economic effects of selected natural disasters. The expected outcome is the development of a consensus on forward action by governmental, private sector, and development partners to implement conference and workshop conclusions concerning the pooling of DMC risk in catastrophe insurance schemes, which could lead to the development of an ADB action plan for catastrophe insurance. Key outputs will be a conference and two workshops and a publication comprising technical papers.

B. Methodology and Key Activities

14. The TA has three key activities:
- (i) preparation of preconference technical papers by internationally acknowledged specialists outlining major issues, recent developments, and considerations in moving forward (see Appendix 2 for the technical papers titles);
 - (ii) organization and arrangements for an international conference on catastrophe insurance for 250–300 participants to be held in Tokyo in November 2008 and for two workshops focused on catastrophe insurance for (a) Asian megacities and (b) the Pacific, to be held simultaneously the day after the conference; and
 - (iii) production of a report comprising a compilation of key papers, deliberations on key issues identified during conference and workshop deliberations, and recommendations for future action, to be placed on the ADB website.

15. Participants in the conference and workshops will be officials from selected DMCs, selected development partners, multilateral development banks, regional insurers and reinsurers, catastrophe pool operators, and insurance brokers. Participation at the conference

and associated workshops will be by invitation. The draft program for the conference and workshops and expected preconference technical paper titles is in Appendix 2.

16. The selection of participating countries for the Pacific workshop will be undertaken by the Pacific Department in consultation with the World Bank. The World Bank will be a partner in this workshop and provide at least two resource persons. For the megacities workshop, the criteria will be Asian megacities (i.e., discrete urban areas with resident populations of more than 10 million) prone to earthquakes, tsunamis, typhoons or cyclones, and/or major flooding. Representatives from Bangladesh (Dhaka), India (New Delhi, Mumbai, and Kolkata), Indonesia (Jakarta), Pakistan (Karachi), Philippines (Metro Manila), and the People's Republic of China (Shanghai, Beijing, and Chengdu) will be invited.

C. Cost and Financing

17. The TA will be financed on a grant basis by the Japan Special Fund, funded by the Government of Japan. The total cost of the TA is \$800,000. The cost estimates and financing plan are in Appendix 3.

D. Implementation Arrangements

18. The TA will be implemented over an 8-month period, starting in August 2008 and ending in March 2009. It will be executed by the Capacity Development and Governance Division of ADB's Regional and Sustainable Development Department, in collaboration with ADB's Pacific Department and its Office of Cofinancing Operations. The organization of the conference and workshop will be overseen by a steering committee comprising representatives of ADB and the Ministry of Finance of Japan.

19. The TA will finance 10 person-months of international consulting services and 10 person-months of national. The proposed consultants are (i) a lead consultant and conference controller with specialist knowledge of financial and insurance products and markets and of capital risk markets (international, 4 months intermittent); (ii) a natural hazard modeling technical consultant (international, 3 months); (iii) a catastrophe insurance technical consultant (international, 3 months); (iv) an events management planner (national, 4 months); and (v) a conference coordinator (national, 6 months intermittent). Individual consultants will be recruited by ADB in accordance with its *Guidelines on the Use of Consultants* (2007, as amended from time to time). The outline terms of reference for consultants are in Appendix 4. The technical consultants will be selected using the single source selection method on the basis of their involvement in the earlier TA in this area (footnote 1). ADB will disseminate the outputs with a report that will also be available on the ADB website and with internal and external press releases.

IV. THE PRESIDENT'S DECISION

20. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$800,000 on a grant basis for Natural Catastrophe Risk Insurance Mechanisms for the Asia and Pacific Region, and hereby reports this action to the Board.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and/or Indicators	Data Sources and/or Reporting Mechanisms	Assumptions and Risks
<p>Impact Strengthened financial resilience of participating developing member countries (DMCs) against the economic effects of selected natural disasters</p>	<p>Quicker national economic recovery from natural disasters</p>	<p>1. Annual Hyogo Framework of Action progress reports 2. National account data for participating DMCs</p>	<p>Assumption</p> <ul style="list-style-type: none"> Risk pooling concept for the Asia and Pacific region is feasible. <p>Risks</p> <ul style="list-style-type: none"> Absence of reliable information on catastrophe exposure Increased number of payouts from climate change may overwhelm pool.
<p>Outcome A consensus on forward action to implement conference and workshop conclusions</p>	<p>1. National governments develop action plans to develop the concept of catastrophe insurance. 2. Public and private sectors explore the viability of regional and/or subregional catastrophe insurance mechanism(s).</p>	<p>National plans and annual policy statements of participating DMCs' development partner program documents</p>	<p>Assumption</p> <ul style="list-style-type: none"> Relevant organizational and administrative steps to develop a viable mechanism are identified. <p>Risks</p> <ul style="list-style-type: none"> The right people do not participate in the conference and workshops. Decisive issues are not identified or agreed on.
<p>Outputs</p> <ol style="list-style-type: none"> Conference and workshop logistical arrangements Preconference technical papers Conference and workshop outcome documents Conference and workshop participants have a heightened understanding of issues surrounding catastrophe insurance and risk pooling. 	<p>Key stakeholders are identified and exposed to relevant issues in a conference and associated workshops. Conference and workshop design allows for developing a consensus on forward action.</p>	<p>End of conference and workshop evaluations from participants</p> <p>Conference and workshop reports and papers</p>	<p>Assumption</p> <ul style="list-style-type: none"> Financial services for managing risk are acceptable. <p>Risk</p> <ul style="list-style-type: none"> Agreement on way forward not reached
<p>Activities with Milestones</p> <ol style="list-style-type: none"> 1.1 Working group appointed and agency responsibilities agreed (already accomplished) 1.2 Meeting format approved and key topics identified. Date and location finalized (already accomplished) 2.1 Consultants appointed (beginning of August 2008) 2.2. Resource persons identified. Speakers identified and workshop participants identified and invited (beginning of August 2008) 3.1. Pre-workshop papers disseminated (end of September 2008) 3.2. Workshop (beginning of November 2008) 4.1 Report with forward planning distributed (end of January 2009) 			<p>Inputs</p> <p>Asian Development Bank: \$800,000, 10 person-months international consultancy, 10 person-months national consultancy, and 12 person-months staff time</p>

PROPOSED PROGRAM AGENDA

A. Preconference Technical Papers

The following are the preconference technical paper titles:

- (i) Leveraging Insurance and Capital Markets Against Natural Catastrophes
- (ii) Are there deficiencies in the commercial insurance market's coverage of Asia/Pacific catastrophe risk, and does risk pooling bridge the gap?
- (iii) Catastrophe Insurance Triggers: What Is the Best Fit for Asia/Pacific?
- (iv) The Building Blocks of Catastrophe Insurance
- (v) Special Nature of Disaster Risk in the Pacific
- (vi) What Pacific Developing Member Countries Want from Catastrophe Insurance
- (vii) The Caribbean Catastrophe Risk Insurance Facility as a Technical Model
- (viii) The Experience of Caribbean Catastrophe Risk Insurance Facility from a Caribbean Country Perspective
- (ix) The Special Nature of Disaster Risk in Megacities
- (x) What Developing Member Countries with Megacities Want from a Catastrophe Risk Insurance Program
- (xi) Asian Development Bank's Potential Role in Catastrophe Risk Financing

Day 1 8:30 am–9:30 am	Registration and Coffee
9:30 am–9:40 am	Opening Address by Vice-Minister of Finance, Government of Japan
9:40 am–10:00 am	<p style="text-align: center;">(1) Keynote Address – Asian Development Bank (ADB)</p> <ul style="list-style-type: none"> • Placing conference and workshops in context: work already done in region and commitments of international community to transform the way catastrophe risk has been managed in developing member countries (DMCs) • What sets the Asia and Pacific region apart when it comes to assessing, measuring, insuring and managing catastrophe risk • Development consequences of climate change, including implications for DMC risk management and disaster relief and <i>ex ante</i> solutions, and the importance of funding and risk-transfer mechanisms • How can ADB be a catalyst as financier, manager, and investor to make catastrophe risk transfer a reality?
10:00 am–11:30 am	<p style="text-align: center;">(2) Leveraging Insurance and Capital Markets Against Natural Catastrophes</p> <ul style="list-style-type: none"> • With the continued merging of insurance and capital markets, what new capabilities and products are available to manage natural catastrophe risk in the Asia and Pacific region? What are the options available for region and their pros and cons? • Traditional insurance: market limits and experience (case study) • Catastrophe pools: what are the options and applications? • Catastrophe bonds: state of the market, suitable for Asia and Pacific pooling? (case study) • Catastrophe derivatives: a good fit with parametric triggers? (case study: Caribbean Catastrophe Risk Insurance Facility [CCRIF]) • Reinsurance perspective: Is the appetite there for Asia and Pacific region catastrophe risk?
11:30 am–12:00 am	Break

12:00 am–1:15 pm	<p>(3) Are there deficiencies in the commercial insurance market’s coverage of Asia and Pacific region catastrophe risk, and does risk pooling bridge the gap?</p> <ul style="list-style-type: none"> • Is there a catastrophe risk gap between what governments require and what the commercial market is prepared to offer? • What issues do insurers face in participating in catastrophe risk pools? • What is the reinsurance and capital market appetite for catastrophe risk today, given credit market dislocations? • Why is catastrophe pooling not utilized more often? What are the perspectives of industry and governments? • What can ADB, other international organizations, and donor countries do to fill the gap?
1:15 pm–2:15 pm	Lunch
2:15 pm–3:45 pm	<p>(4) Catastrophe Insurance Triggers: What is the best fit for the Asia and Pacific region?</p> <ul style="list-style-type: none"> • Characteristics of the Asia and Pacific region hazardscape: high frequency and high severity risk, broad vulnerability • Indemnity type: a traditional approach • Index trigger: the need for reliable industry data • Parametric insurance: appropriate for low frequency and high severity risk; a good fit for developing country catastrophe risk, but requires sound modeling
3:45 pm–4:15 pm	Break
4:15 pm–5:30 pm	<p style="text-align: center;">The Building Blocks of Catastrophe Insurance</p> <ul style="list-style-type: none"> • Can we learn what we need to know in order to build management systems and risk transfer mechanisms, given the lack of historical data and limited experience of traditional insurers? • The importance of reliable, consistent government data collection • Data collection, transmission, and translation • Risk mapping: feasibility, cost, and utility • Catastrophe modeling: Are there catastrophe modeling solutions that are adaptable to risks of the Asia and Pacific region?
5:30 pm–6:00 pm	<p style="text-align: center;">Closing Remarks</p> <ul style="list-style-type: none"> • Summary • Recommendations • Where do we go from here?
6:00 pm–6:30 pm	<p style="text-align: center;">Press Conference</p> <ul style="list-style-type: none"> • Ministry of Finance statement regarding the establishment of a platform for the private and public sectors to develop a regional catastrophe risk insurance mechanism • ADB–World Bank–DMC expression of support for further work on the formation of risk pools and the commitment of resources to complete the next steps
6:30 pm–8:00 pm	Reception

Day 2 9:30 am–1:00 pm <p style="text-align: center;">Workshops</p>	
Workshop 1: Creating a Viable Risk Pool for the Pacific	Workshop 2: Catastrophe Insurance for Asian Megacities
<i>Country focus:</i> <i>Cook Islands, Fiji Islands, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.</i>	<i>India (New Delhi, Mumbai, and Kolkata,), Bangladesh (Dhaka), Pakistan (Karachi), Indonesia (Jakarta), Philippines (Metro Manila), People's Republic of China (Shanghai, Beijing, and Chengdu)</i>
<i>Workshop focus: If Pacific nations choose to move forward with a Pacific initiative, what are the building blocks, impediments, and precedents that need to be considered?</i>	<i>Workshop focus: If ADB chooses to move forward with a megacities initiative, what are the building blocks, impediments and precedents that need to be considered?</i>
9:30 am–9:45 am <p style="text-align: center;">ADB Opening Remarks</p> <ul style="list-style-type: none"> • Special nature of disaster risk in Pacific island countries • Pacific vulnerability to global warming • The need for <i>ex ante</i> solutions and funding mechanisms <p style="text-align: center;">World Bank Opening Remarks</p> <ul style="list-style-type: none"> • What do Pacific DMCs want from catastrophe insurance? Building on experiences from around the world.	9:30 am–9:45 am <p style="text-align: center;">ADB Opening Remarks: The Case for a Megacities Risk Pool Initiative</p> <ul style="list-style-type: none"> • Special nature of disaster risk in megacities • Megacity vulnerability factors • The need for <i>ex ante</i> solutions and funding mechanisms • What do DMCs want from a risk pool? • Potential ADB financing role • Understanding the catastrophe risk factor in the ADB portfolio
9:45 am–11:00 am <p style="text-align: center;">The CCRIF</p> <ul style="list-style-type: none"> • What is the CCRIF? A technical presentation. <ul style="list-style-type: none"> ○ Trigger mechanism and developing a loss model ○ Structure of facility and operating rules ○ Policy wording ○ Operational history: loss events and payouts • The experience of a Caribbean country. A CCRIF participant speaks about the needs CCRIF was designed to meet, value provided and areas for strengthening <p style="text-align: center;">Questions and answers</p>	9:45 am–11:00 am <p style="text-align: center;">Developing Data and Triggers</p> <ul style="list-style-type: none"> • The utility of catastrophe modeling • The need for objective and verifiable data triggers • The feasibility of remote sensing satellite technology • Loss modeling alternatives and event confirmation <p><i>(Work product: Winnowing of alternative data sources to know where to focus resources)</i></p>

<p><i>(Work product: Is the model portable to the Pacific? If yes, what are the issues, needs and risk parameters that are different?)</i></p>	
<p>11:00 am–12:00 noon</p> <p>Pacific Catastrophe Risk Pool Initiative</p> <ul style="list-style-type: none"> • The concept • Phase 1 technical assistance activities and outcomes <p><i>(Work product: Pacific DMC awareness of initial steps undertaken and indications of support)</i></p>	<p>11:00 am–12:30 pm</p> <p>Organizing and Managing a Megacities Risk Pool</p> <ul style="list-style-type: none"> • Organizational structure: entity, formation, beneficial ownership, management, control • Funding, claims paying ability • The insurance product: wording, perils covered, reinsurance, and capital market support • Data management
<p>12:00 noon–12:25 pm</p> <p>Organizing and Managing a Pacific Island Risk Pool</p> <ul style="list-style-type: none"> • Phase 2 technical assistance • Ongoing and proposed ADB support • Moderated discussion around the next steps forward including potential World Bank and ADB financing roles <p>12:25 pm–12:30 pm</p> <ul style="list-style-type: none"> • Wrap up by facilitator 	
<p>12:30 pm–1:00 pm</p> <p style="text-align: center;">Plenary</p> <ul style="list-style-type: none"> • Summary by workshop facilitators of conclusion and preliminary findings • Summary by ADB of next steps 	
<p style="text-align: center;">Lunch</p>	

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Total Cost
Asian Development Bank Financing^a	
1. Consultants	
a. Remuneration and Per Diem	
i. International Consultants	325
ii. National Consultants	55
b. International and Local Travel	34
c. Reports and Communications	2
2. Travel Support to Selected DMC Participants	217
3. Conference Facilities	91
4. Miscellaneous Administration and Support Costs	13
5. Contingencies	63
Total	800

DMC = developing member country.

^a Financed by the Japan Special Fund, funded by the Government of Japan.

Source: Asian Development Bank estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

1. International specialists will be recruited to work as consultants for the technical assistance and to collaborate with, and be guided by, staff from the Pacific Department, Office of Cofinancing Operations, and Regional and Sustainable Development Department of the Asian Development Bank (ADB). In addition, an event planner will be recruited in Tokyo to deal with on-the-ground arrangements and to work with the Japanese Ministry of Finance. A Manila-based conference coordinator will be recruited to ensure the smooth conduct of logistical requirements and preparations for the conference.

A. Consultants

2. The lead consultant-conference controller (international, 4 person-months intermittent) will have specialist knowledge of financial and insurance products and markets and of capital risk markets, and will take overall responsibility for the intellectual content of the conference, its execution and follow-up of the conference by doing the following:

- (i) Develop and coordinate the conference and workshop programs.
- (ii) Coordinate technical input from other technical consultants.
- (iii) Direct the activities of the Tokyo-based event planner and the Manila-based conference assistant.
- (iv) Prepare letters of intent to invited participants.
- (v) Act as the conference and workshop facilitator by maintaining overall responsibility for program contents and outcomes.
- (vi) Provide a verbal summary of conference highlights and outcomes at the end of the conference.
- (vii) Provide advice to identify and liaise with conference and workshop paper writers-presenters, moderators and panel members, using advice and input from other technical consultants.
- (viii) Coordinate the drafting of terms of reference for each paper presenter.
- (ix) Draft ADB's keynote address paper.
- (x) Coordinate and co-author the conference final report with other technical consultants.

3. Two technical consultants (international, 3 person-months each) will be responsible for the technical integrity and relevance of the program and its content. One technical consultant shall have specialist knowledge of natural hazard modeling, multi-criteria natural hazard risk assessment and loss modeling. The second technical consultant will have specialist knowledge of catastrophe insurance and financial and insurance products. They will each undertake the following:

- (i) Provide technical advice and support on the conference and workshop programs.
- (ii) Provide advice to identify and liaise with conference and workshop paper writers-presenters, moderators, and panel members.
- (iii) Draft the terms of reference for each paper presenter.
- (iv) Review workshop papers prior to final acceptance.
- (v) Prepare, write, and deliver a technical paper.
- (vi) Moderate a conference panel.
- (vii) Facilitate a workshop session.
- (viii) Jointly produce a "where do we go from here" paper.
- (ix) Co-author the conference final report.
- (x) Assist in other lead-up activities where necessary.

B. Event Planners

4. The events management planner (national, 4 person-months), comprising a team of professionals specializing in the coordination of international conventions, will assist in the preparation and implementation of the conference and workshops to be held in Tokyo, including organizational arrangements, logistics, and documentation. The events management planner will work with the lead consultant and conference controller and designated staff from ADB headquarters, as well as with designated staff from the Japanese Ministry of Finance and ADB's Japanese Representative Office (JRO) and ADB Institute (ADBI) in Tokyo. The planner will be responsible for all activities related to the development and management of the conference and workshops, including promotion, preparatory activities, and management and coordination during the conference proper. Specific tasks will include but will not be limited to the following:

- (i) Develop a logistical and management plan involving preparatory activities, conference management, media relations, and post-conference requirements.
- (ii) Take the lead in organizing the logistical requirements for the events and participants not sponsored by ADB, ensuring that all arrangements are set up in a timely manner.
- (iii) Coordinate with the lead consultant and conference controller, and with relevant staff in ADB headquarters, the Japanese Ministry of Finance, JRO, and ADBI in Tokyo.
- (iv) Manage the online (i.e., e-mail and fax) and on-site registration of Japanese participants.
- (v) Create and maintain a database of Japanese participants and invitees, and routinely follow up with reminders where necessary.
- (vi) Provide secretarial work for the preparation of the conference and facilitate the smooth operation of the conference secretariat in Tokyo and liaise with the Lead Consultant-Conference Controller.
- (vii) Coordinate with the designated hotel in Tokyo on all rooming requirements as well as on lighting and sound equipment and photo and video documentation.
- (viii) Assist in planning and managing media briefings.
- (ix) Prepare and submit a final report and/or financial report on conference and workshop expenses.
- (x) Perform other tasks as may be required and/or assigned.

5. The conference coordinator (national, 6 person-months intermittent) will ensure the smooth conduct of the preparations and activities for the conference and workshops to be held in Tokyo, including organizational arrangements, logistics, and documentation. The conference coordinator will report directly to the senior disaster risk management specialist of the Capacity Development and Governance Division. Specific tasks will include but will not be limited to the following:

- (i) Assist in developing a logistical and management plan involving preparatory activities, conference management, media relations, and post-conference requirements.
- (ii) Take the lead in organizing the logistical requirements for ADB-sponsored DMC participants, ensuring that all arrangements are set up in a timely manner and in accordance with existing ADB protocols, which will include facilitating the travel of the participants.
- (iii) Coordinate with relevant staff in ADB headquarters, the Lead Consultant-Conference Controller, the Japanese Ministry of Finance, JRO, and ADBI in Tokyo, and the Tokyo-based events management planner.
- (iv) Manage the online (i.e., e-mail and fax) and on-site registration of ADB-sponsored DMC participants.

- (v) Create and maintain a master database of participants and invitees.
- (vi) Provide secretarial work for the preparation of the conference and facilitate the smooth operation of the conference secretariat.
- (vii) Ensure the smooth coordination of the participation of ADB staff, consultants, and other support engaged by ADB for the conference and workshops.
- (viii) Coordinate with the ADB Department of External Relations on the design and creation of a website for the conference and the maintenance of website contents.
- (ix) Draft necessary correspondence, communications, presentation materials, and other documents.
- (x) Develop a design for a conference logo, backdrops, banners, and conference kit.
- (xi) Participate in selected workshops as directed by the senior specialist on disaster risk management.
- (xii) Compile, analyze, and report on key events and background papers.
- (xiii) Prepare and submit a financial report on conference and workshop expenses.
- (xiv) Perform other tasks as may be required and/or assigned.