Asian cities are particularly vulnerable to risks associated with natural disasters. They are exposed to various types of natural hazards, but water-related disasters pose particularly significant risks and undermine long-term economic growth, especially in coastal cities. According to Munich RE, between 1980 and 2017, Asia suffered disproportionately from natural disasters, both in terms of lives lost (over 1.2 million people or 71% total global loss of life) and uninsured assets (89% of total losses amounting to USD 1.69 trillion).

Building Resilient Cities: An Assessment of Disaster Risk Management Policies in Southeast Asia analyses disaster risk management (DRM) policies across levels of government to enhance urban resilience in Bandung (Indonesia), Bangkok (Thailand), Cebu (Philippines), Hai Phong (Viet Nam) and Iskandar (Malaysia). It aims to:

i) identify policy challenges related to DRM;
ii) assess the impacts of current DRM policy practices; and
iii) propose more efficient and effective DRM policy options.

This report was made possible due to the financial support of the Global Initiative on Disaster Risk Management (GIDRM), a project commissioned by the German Federal Ministry of Economic Cooperation and Development (BMZ) to the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.
Main findings

Preparedness

Southeast Asian cities are largely underprepared for natural disaster risks, especially in regards to vulnerability and risk assessment practices.

Of the case study countries, the Philippines has the most advanced urban disaster risk management framework, instructing the preparation and implementation of disaster management plans with financial resource allocation to local governments.

Land-use

In the last 20 years, urbanisation in the vicinities of the Bangkok Metropolitan Region has led to the disappearance of natural areas of water retention and flood plain that play a key role in managing excess water and limiting flood damage, as was the case for the 2011 floods.

Land-use policies do not often consider DRM, which has resulted in continued urban development in risk-prone areas.

Urban infrastructure

Two-thirds of Asia’s infrastructure needs still have to be built and financed by 2050, thus providing an opportunity to factor in resilience to natural disasters.

The municipality of Hai Phong retains only 15-20% of local taxes collected from residents and businesses, and none of the customs revenues collected from port duties, which negatively impacts its capacity to leverage public finance for climate and disaster-resilient infrastructure.

Insurance

The Thai government’s National Catastrophe Insurance Fund is a good example of a reinsurance reserve, where local insurance companies that issue policies retain part of the underwritten risk and transfer the rest to the fund.

Adequate private and public insurance mechanisms to share disasters risks are not yet well developed.

Governance

Co-ordination mechanisms between national and local governments are often lacking or not clearly defined.

In Indonesia, the National Agency for Disaster Management and the Disaster Management Authority make an active effort to co-ordinate across levels of government, but many provincial disaster management agencies have limited resources and often await national funding instead of actively allocating their limited budgets to their DRM projects.

Stakeholder engagement

Based on the lesson learned from the 2011 megafloods that local communities are first-responders in the event of a disaster, Bangkok has pursued further co-ordination with local residents by going out into the field and discussing flood issues with local leaders.

Stakeholder engagement can improve disaster preparedness and response mechanisms, but it is not yet uniformly pursued.
Linking climate-resilient infrastructure, crucial urban services and land-use planning to more holistic and integrated policy making is at the core of DRM strategies. As illustrated in the table below, there are numerous DRM initiatives and ongoing infrastructure projects in the case study cities. The emphases placed on transport and on water management highlight important opportunities to enhance urban resilience by integrating DRM into planning and decision-making processes.

Disaster risk financing mechanisms are being further developed in Southeast Asia. Although diversity of disaster risk financing mechanisms is lacking, the case study countries have all developed contingency funds at least experimentally: Indonesia’s National Rehabilitation and Reconstruction Fund; Malaysia’s National Disaster Relief Fund; the Philippines’ national- and local-level Disaster Risk and Reduction and Management Fund; Thailand’s National Catastrophe Insurance Fund; and Viet Nam’s National Financial Reserve Fund.

### Major infrastructure projects to enhance urban resilience in the case study cities

<table>
<thead>
<tr>
<th>CASE STUDY CITY</th>
<th>INITIATIVES &amp; PROJECTS FOR DIRECTLY ENHANCING DRM</th>
<th>LARGE-SCALE INFRASTRUCTURE PROJECTS WHICH WOULD REQUIRE CONSIDERATION OF DRM</th>
</tr>
</thead>
</table>
| BANDUNG (INDONESIA) | • Integrated rainwater and wastewater management system  
• Rehabilitation of the Citarum Basin  
• Installation of biopores in residences | • Jakarta-Bandung-Surabaya High Speed Rail  
• Intra-city transport (e.g. cable car)  
• 3 landfill sites in the BMR |
| BANGKOK (THAILAND) | • Development of large-scale polder and drainage systems since the 1980s  
• Flood Control Centre (FCC) | • Mass Rapid Transit Master Plan: 5 new urban mass transit lines |
| CEBU (PHILIPPINES) | • Metro Cebu Integrated Drainage Master Plan  
• Rainwater storage facilities in buildings | • Bus Rapid Transit in Cebu City |
| HAIPHONG (VIET NAM) | • Dikes along Cam-Ca river  
• Flood Control Master Plan | • Lach Huyen International Gateway Port |
| ISKANDAR (MALAYSIA) | • Segget River Restoration Project | • Kuala Lumpur-Iskandar-Singapore High Speed Rail |

Note: The projects were identified as “ongoing” or “planned” at the time of the study.
Key recommendations to enhance urban resilience

Based on the five case studies, the report provides the following policy recommendations to enhance urban resilience and to improve disaster risk management. While these recommendations are intended for Southeast Asian cities, they are also applicable to other cities around the world.

Conduct a comprehensive vulnerability and risk assessment to develop a local resilience action plan.

Adopt risk-sensitive land-use policies combining regulatory and fiscal instruments to guide urban development away from risk-prone areas.

Integrate disaster risk management policies and urban green growth policies, especially in the infrastructure sector, to generate “co-benefits”.

Foster vertical and horizontal co-ordination for a “whole-of-government” approach.

Engage stakeholders to promote inclusiveness and encourage a culture of disaster risk management.

Promote the use of information and communication technologies to reduce disaster risks.

Develop disaster risk financing mechanisms as the backbone of effective disaster response planning.

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