Pathways to Adaptation and Resilience in East and North-East Asia

SUBREGIONAL REPORT

Asia-Pacific Disaster Report 2022 for ESCAP Subregions

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About the report

Resilience in a Riskier World: Managing Systemic Risks from Biological and Other Natural Hazards, the Asia-Pacific Disaster Report (APDR) 2021 captured a comprehensive picture of the complexity of disaster risk landscape ('riskscape') from natural and biological hazards in the Asia-Pacific region. The full-length publication is available at https://www.unescap.org/kp/2021/asia-pacific-disaster-report-2021. Following the release of the APDR at the seventh session of the ESCAP inter-governmental Committee on Disaster Risk Reduction in August 2021, the report was customized for each of the five ESCAP subregions, namely East and North-East Asia, North and Central Asia, South-East Asia, South and South-West Asia and the Pacific. The current report highlights the key takeaways for East and North-East Asia.

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Summary

Natural hazards have imposed a huge development burden in East and North-East Asia. The subregion was accounted for 29 per cent of all fatalities from disasters and 35 per cent of the people affected in the Asia-Pacific region in the past decade. Moreover, climate change is reshaping its disaster riskscape, and disaster risk from extreme climate events is intensifying in many parts of the subregion. While the total average annual losses (AAL) is estimated at US$499 billion in the current scenario, the estimation increases up to $1,086 billion under the worst-case climate change scenario.

Climate change is also likely to exacerbate interactions between biological and other hazards. This can affect the underlying risk drivers of poverty and inequality, and further interrupt the achievement of the Sustainable Development Goals (SDGs) in the subregion. While countries in East and North-East Asia have already faced the dual challenge of managing natural hazards amid the COVID-19 pandemic, they will face an increasingly complex set of hazards from climate change and climate-related biological hazards. It is thus essential to ensure that vulnerable populations have sound social protection, before, during and after disasters have hit.

The adaptation cost to climate-related and biological hazards is estimated at less than one-fifth of the AAL, adding to only 1 per cent of the subregional GDP. Thus, economic recovery from the COVID-19 pandemic should include investing in climate adaptation to build resilient economies and populations to future crises, through making new infrastructure and water management systems more resilient, strengthening early warning systems, improving dryland agriculture, and protecting mangroves. This will help ensure the achievements of the Sustainable Development Goals in East and North-East Asia.

Frontier technologies and digital solutions can greatly support building resilience, for example, to improve risk analytics and impact-based forecasting. While strengthening multi-hazard early warning systems is essential in building resilience to natural hazards, as noted in the Sendai Framework for Disaster Risk Reduction 2015-2030, impact-based forecasting can provide valuable information for disaster management agencies, sectoral ministries and other stakeholders for better monitoring and preparation of potential disasters. The utilization of frontier technologies and digital solutions will also require investment in innovation ecosystems that fosters the implementation of resilience-related SDGs.

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CHAPTER 1

The shifting contours of the East and North-East Asia disaster riskscape

Highlights

- Climate change is reshaping the East and North-East Asian disaster riskscape, and disaster risk from extreme climate events, such as extreme temperature, typhoons and droughts, is intensifying in many parts of this subregion.
- In East and North-East Asia, the total average annual losses (AAL) from the newly expanded disaster riskscape, in the current scenario, is estimated at $499 billion.[1] AAL estimation increases to $813 billion under the moderate climate change scenario, and $1,086 billion under the worst-case climate change scenario.
- Climate change, thus, not only reshapes hazard risks, but also exacerbates interactions between biological and other hazards, which in turn affects the underlying risk drivers of poverty and inequality, in a vicious circle.

The disaster riskscape of East and North-East Asia

Over the past 50 years, natural hazards have affected over 3 billion people and more than half a million people have lost their lives in East and North-East Asia.[2] The subregion accounts for 29 per cent of all fatalities from disasters and 35 per cent of the people affected in the Asia-Pacific region (Figure 1-1). Japan recorded the highest number of fatalities in the subregion with close to 20 thousand fatalities in the last decade, accounting for about 70 per cent of all fatalities in the subregion, largely due to the Great East-Japan Earthquake in 2011.[3] The picture dramatically changes when looking at the affected population, with China accounting for 90 per cent of the people affected in the subregion, with an average of 40 million people affected per year. This is then followed by the Democratic People's Republic of Korea with an average of 4 million people affected per year, accounting for 9 per cent of the subregional total.

While many people have been suffering from natural hazards, significant progress has been made in East and North-East Asia in the number of people affected by disasters in the past three decades. In the last decade, specifically, the number of people affected in East and North-East Asia has decreased by 60 per cent (Figure 1-2). Although a sudden increase in the number of fatalities was seen in the decade between 2001 and 2010, this was driven mainly by a single intensive geophysical hazard, the 2008 Wenchuan earthquake in Sichuan Province of China that caused around 87,000 fatalities.[4] Significant progress has been made in reducing the number of fatalities and people affected by hydrometeorological hazards, especially from floods and tropical cyclones in the past three decades.