United Nations ESCAP/CDR/2021/1

Economic and Social Council

Distr.: General
21 June 2021

Original: English

Economic and Social Commission for Asia and the Pacific
Committee on Disaster Risk Reduction

Seventh session
Bangkok and online, 25–27 August 2021
Item 2 of the provisional agenda*
Emergence of cascading risks and expanding disaster riskscape

Summary of the Asia-Pacific Disaster Report 2021

Note by the secretariat

Summary

The present document is based on the findings of the *Asia-Pacific Disaster Report 2021: Resilience in a Riskier World – Managing Systemic Risks for Biological and Other Natural Hazards*. For the first time, in 2021, biological hazards were added to the regional risk landscape, or "riskscape", presented in the *Report*. Indeed, it is estimated that when biological hazards are taken into account alongside natural hazards, current annual losses rise to $780 billion. Under a worst-case climate change scenario, annual losses will almost double, to $1.4 trillion. Consequently, the coronavirus disease pandemic, combined with the persistent reality of climate change, is reshaping and expanding the Asia-Pacific riskscape and establishing a new normal in the region.

In the *Report*, the following four types of hotspot are identified in which risks are intensifying or emerging: hotspot type 1, intensifying risk of recurring floods and droughts with disease; hotspot type 2, intensifying risk of tropical cyclones and typhoons with related biological hazards; hotspot type 3, emerging risk of heatwaves with disease; and hotspot type 4, emerging risk of climate-change-induced multi-hazard vulnerabilities with new at-risk populations. In intensifying risk hotspots, existing vulnerabilities are worsening, while in emerging risk hotspots, climate change is introducing new vulnerabilities. The pandemic has also demonstrated that while some member States have achieved success in dealing with individual disasters, many are still ill prepared for complex overlapping crises. In particular, the intersections of biological and natural hazards remain poorly understood.

To address the expanded riskscape, a new disaster resilience paradigm is needed to factor in cascading risks, and new risk-informed social infrastructure, frontier technologies and climate adaptation measures are needed to protect the poorest and delink cascading risk dynamics. With regard to investment, it is estimated that, in a worst-case climate change scenario, annual climate adaptation costs could amount to $270 billion, or 0.9 per cent of regional gross domestic product.

The document concludes with five key policy action areas and a twin-track response to unlock the potential of regional and subregional cooperation. Further details are provided in document ESCAP/CDR/2021/2.

The Committee on Disaster Risk Reduction may wish to provide further guidance on policy responses and the identification of the role of the secretariat in that regard.

* ESCAP/CDR/2021/L.1.

I. Introduction

1. The present document is based on the *Asia-Pacific Disaster Report 2021: Resilience in a Riskier World – Managing Systemic Risks for Biological and Other Natural Hazards*.[1] Over the past two decades, the Asia-Pacific region has made significant strides in disaster risk reduction, notably in forecasting with great accuracy where disasters are likely to strike and in the implementation of early warning systems that protect lives, livelihoods and economies. However, the coronavirus disease (COVID-19) has delivered an additional biological shock on a scale not experienced in a century. The pandemic, combined with the impacts of climate change, is reshaping and expanding the Asia-Pacific disaster riskscape, and a much more purposeful systemic approach to disaster risk reduction is required as a result.

II. Understanding the shifting contours of the regional riskscape

2. The Asia-Pacific region is already home to a complex disaster riskscape. The added impact of COVID-19, particularly as parts of the region have become epicentres of global infection in 2021, has expanded the riskscape in complex, dynamic and largely unpredictable ways, as at mid-June 2021.

A. Nexus of the pandemic, disasters and climate change, and cascading risks

3. As at 6 June 2021, 49 million confirmed COVID-19 cases (1.06 per cent of the region's population) had been reported in Asia-Pacific countries, and more than 748,000 deaths (0.02 per cent of the region's population). The South and South-West Asia subregion has suffered the greatest impact, with 37.2 million confirmed cases (1.84 per cent of the subregional population), followed by North and Central Asia, with 6.6 million cases (2.79 per cent of the subregional population).[2] As reported by the World Health Organization (WHO), the true figures may be 20 times greater.[3]

4. During the pandemic, the region has continued to experience hydrometeorological disasters. Tropical cyclones, such as Cyclone Amphan, Cyclone Nisarga and Cyclone Tauktae, have hit countries in the South and South-West subregion. Major flood events have been reported across the region, in China, Japan, Papua New Guinea, Pakistan, the Islamic Republic of Iran, Kazakhstan and Uzbekistan. The containment measures imposed to combat the pandemic, including lockdowns and travel restrictions, interrupted many established measures for natural disaster prevention, response and recovery. At the same time, natural disasters hampered the response to COVID-19 and facilitated its spread as people had to crowd together in emergency shelters.

5. Biological and natural hazards have always intersected, but research on their joint impacts is scarce. According to the *Report*, floods worsen living conditions and can lead to gastrointestinal illnesses and a heightened risk of vector-borne diseases, such as dengue and malaria. Cyclones can cause water contamination, which can lead to the spread of communicable and infectious

[1] The executive summary for policymakers and the full report will be available on 27 August 2021.

[2] WHO COVID-19 Dashboard. Available at https://covid19.who.int/ (accessed on 30 May 2021).

[3] CNBC, "WHO says 10% of global population may have been infected with virus", 5 October 2020.

diseases. When droughts force people to migrate, there are often increases in child malnutrition and stunting as well as in adult malnutrition. Heatwaves increase deaths from cardiovascular and respiratory conditions.

6. The pandemic has shown that a riskscape of overlapping and cascading hazards will be the new normal in the Asia-Pacific region. It has also demonstrated that while some member States have achieved success in dealing with individual disasters, many are still ill prepared for complex overlapping crises, and the intersections of biological and natural hazards remain poorly understood.

B. Intensifying risk hotspots, emerging risk hotspots and cascading risk clusters

7. The *Report* shows that cascading risks are clustered around four distinct types of hotspot which fall into two categories: intensifying risk hotspots and emerging risk hotspots. Intensifying risk hotspots are defined as areas where the impacts of hazards are increasing population vulnerability, while in emerging risk hotpots, the impacts of hazards are putting new populations at risk. The four types of hotspot, present in and across specific subregions, are characterized by unique sets of intensifying and emerging risks leading to specific complex risk scenarios for each subregion in Asia and the Pacific. The four types of hotspot are the following: hotspot type 1, intensifying risk of recurring floods and droughts with disease; hotspot type 2, intensifying risk of tropical cyclones and typhoons with related biological hazards; hotspot type 3, emerging risk of heatwaves with disease; and hotspot type 4, emerging risk of climate-change-induced multi-hazard vulnerabilities with new at-risk populations.

8. **Hotspot type 1: intensifying risk of recurring floods and droughts with disease.** Hotspots of this type are mainly located in river basins. Among the region's main river basin hotspots, one that will continue to intensify is the Ganga-Brahmaputra-Meghna basin, which is home to the largest concentration of poor people in the world. There, almost 292 million people are being exposed to medium-high, high and very high cascading risks. The percentages of national populations included in this figure are the following: 69 per cent in Bangladesh, 28 per cent in India, 14 per cent in Nepal, 3.9 per cent in Bhutan and 2 per cent in China. The country most at risk with regard to this hotspot type is India, followed by China, Bangladesh, Pakistan and Viet Nam.

9. **Hotspot type 2: intensifying risk of tropical cyclones and typhoons with related biological hazards.** Hotspots of this type are intensifying in the Philippines and Japan, as well as in China and the Pacific small island developing States. However, a hotspot of particular concern is the Bay of Bengal, where cyclone intensity appears to be particularly prominent. There, almost 23 million people will be exposed to cyclones and cyclone-related health hazards, such as vector-borne diseases.

10. **Hotspot type 3: emerging risk of heatwaves with disease.** The Asia-Pacific region is experiencing an increase in heatwaves, with direct effects on human health as well as high economic and social costs. Of all the natural disasters, heatwaves have perhaps the most-direct links to human health. According to the *Report*'s estimates, future at-risk populations in hotspots of this type are located in South and South-West Asia (India, Bangladesh, Pakistan, Nepal, Turkey and Afghanistan) and in East and North-East Asia (China, Japan and Republic of Korea). Other hotspots of this type are located in North and Central Asia, including transboundary areas in Kazakhstan and Kyrgyzstan, and are expected to pose serious risks to individual well-being and national economies.

11. **Hotspot type 4: emerging risk of climate-change-induced multi-hazard vulnerabilities with new at-risk populations.** Climate change coexists with natural and biological hazards and such risk drivers as population density in many parts of the region. However, the more severe hotspots of this type are emerging in Central Asia, South-East Asia and the Pacific small island developing States as more people and economies are exposed to climate risks. These severe hotspots are predicted in the moderate and worst-case climate change scenarios.

C. Climate change is exacerbating hazard impacts in all risk hotspots

12. The *Report* provides evidence from extensive scientific studies to show that climate change is affecting weather extremes. The climate variability and the increase in extreme temperature fluctuations can affect the frequency and intensity of disasters and make certain places and population groups more vulnerable. Climate change is thus not only a hazard in its own right, but it also exacerbates interactions between biological and other natural hazards, which in turn strengthen such underlying risk drivers as poverty and inequality, in a vicious circle.

13. The authors of more than 300 peer-reviewed studies on the impact of climate change on weather have concluded that climate change will make approximately 70 per cent of extreme weather events either more likely or more severe, with the clearest link emerging between climate change and heatwaves.[4] The *Report* serves to analyse the impacts on populations and economies in the representative concentration pathway 4.5 scenario, which corresponds to an increase of 2 degrees Celsius above pre-industrial levels by 2050 (also referred to in the present document as the moderate climate change scenario) and the representative concentration pathway 8.5 scenario, which corresponds to an increase of 4.3 degrees Celsius (also referred to in the present document as the worst-case climate change scenario). In both the moderate and the worst-case climate change scenarios, heatwaves will extend to other areas and become more intense, expanding in South-East Asia, South-West Asia and a number of countries in North and Central Asia. In East and North-East Asia, 400 million people will be more exposed to heatwaves than before, while the number in North and Central Asia will rise to 35 million. There is also increasing evidence that a rise in global temperatures and heatwaves will result in an increase in sand and dust storms in a number of subregions, which will have significant impacts on human health.

14. In both climate change scenarios, the region's poorest and most vulnerable people will be profoundly affected. On the basis of the United Nations Development Programme human development index, which is a measure of achievement in health, education and standard of living, the *Report*'s findings indicate that the most vulnerable populations will be located in the Ganga-Brahmaputra-Meghna basin and parts of South-East Asia and South-West Asia. In Bangladesh, for example, in the worst-case climate change scenario, almost 70 per cent of the poor will be exposed to cascading risks, which will push them towards intergenerational deprivation.

15. In addition, climate change will most likely further hinder the poor's access to basic services and critical infrastructure. In Myanmar, for example, 43 per cent of health-care facilities are located in districts with extreme multi-hazard risks and people living in extreme poverty. In Nepal, almost 93 per cent of the electricity grid and 98 per cent of hydropower capacity are exposed to

[4] Stephanie C. Herring and others, eds., "Explaining extreme events of 2019 from a climate perspective: special supplement", *Bulletin of the American Meteorological Society*, vol. 102, No. 1 (January 2021).

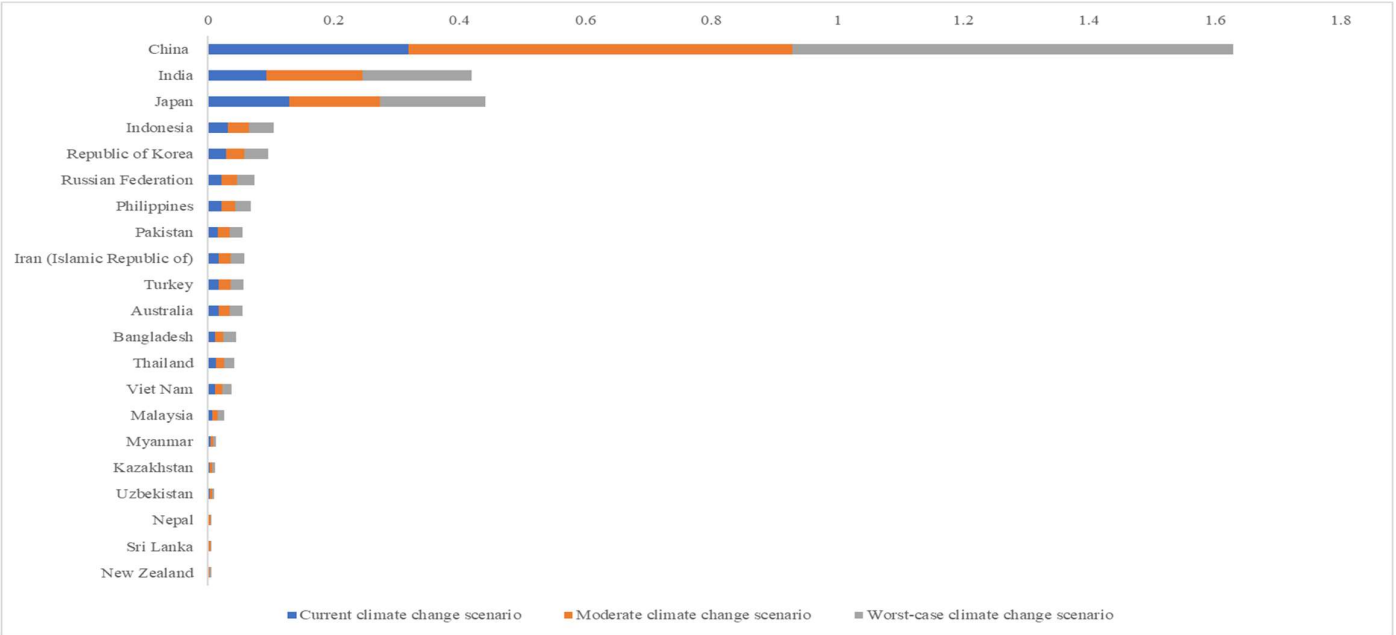
multiple risks, with dire implications for health-care facilities and the communities that rely on them. Risk-informed infrastructure is needed to cope with climate change and the related multiple risks. Health systems in particular have to be sufficiently resilient to adapt to a changing climate, especially if they serve poor and low-income populations.

D. Annual economic losses to double in the expanded riskscape

16. For the first time, the *Report* includes estimated economic losses stemming from the combined impacts of disease, disasters and climate change. Current annual losses from both hydrometeorological and geophysical natural hazards are estimated at approximately $780 billion. The losses will increase to $1.1 trillion in the moderate scenario and to $1.4 trillion in the worst-case scenario. That estimate is in line with established research estimates, which indicate that, on average, potential losses from climate-related risks in Asia are between $1.2 trillion and $4.7 trillion.[5] It is also double the annual losses estimated in 2019.

17. In absolute terms, the greatest losses in the worst-case climate change scenario will be in China, India, Japan, Indonesia, the Republic of Korea and the Russian Federation (see figure I). However, when assessed as a percentage of gross domestic product (GDP), losses will be greatest in the Pacific small island developing States, as seen in the analysis of hotspot types 3 and 4, along with other least developed countries (see figure II). The Pacific small island developing States, which bear high burdens of natural and biological hazards, are already the most ecologically fragile countries and will have some of the worst climate change outcomes.

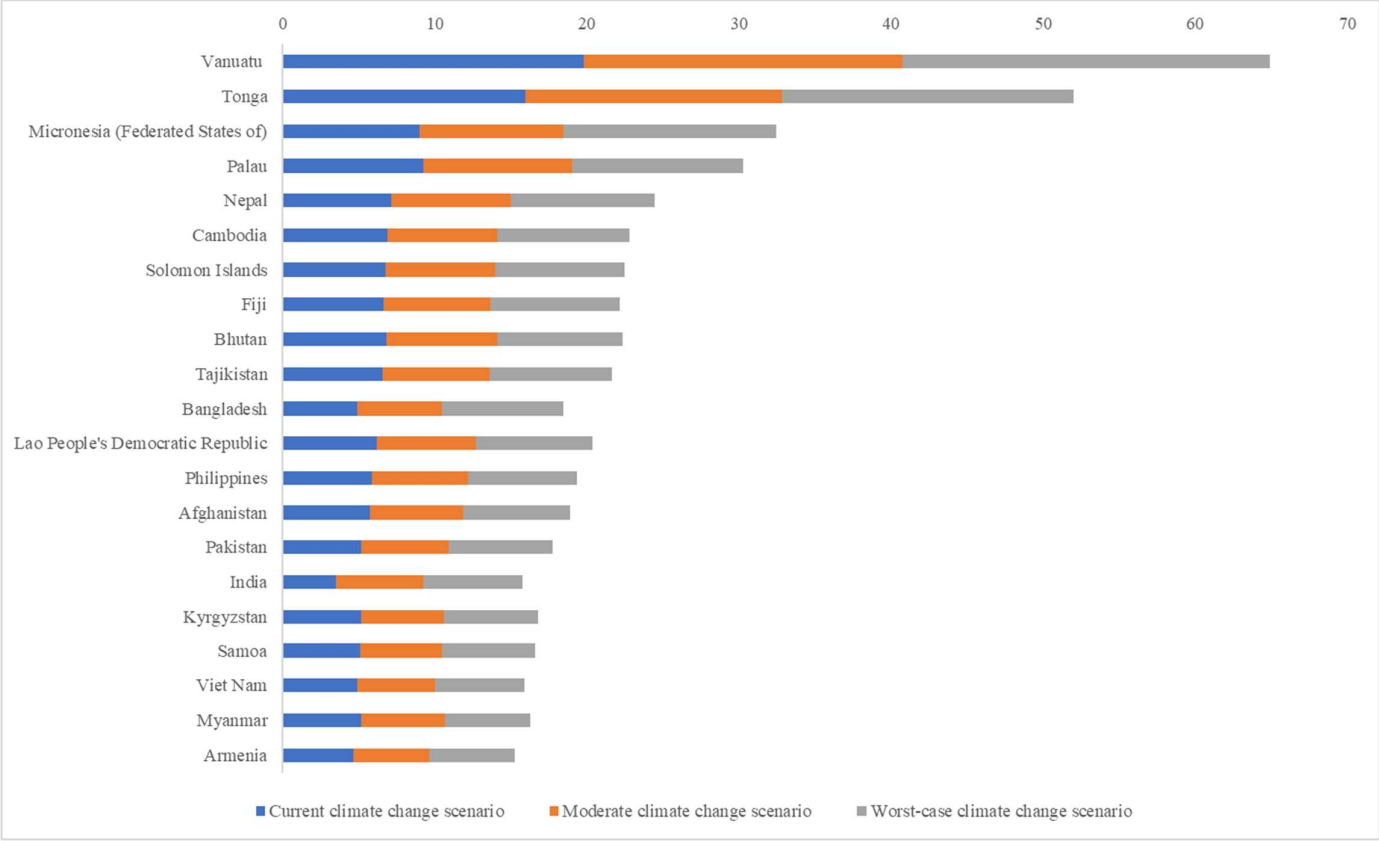
Figure I
Average annual losses from natural and biological hazards in three climate change scenarios: current, moderate and worst case
(Billions of United States dollars)



Source: *Asia-Pacific Disaster Report 2021: Resilience in a Riskier World – Managing Systemic Risks for Biological and Other Natural Hazards* (forthcoming).

[5] Jonathan Woetzel and others, "Climate risk and response in Asia", *Future of Asia* (McKinsey Global Institute, November 2020).

Figure II
Average annual losses from natural and biological hazards in three climate change scenarios: current, moderate and worst case
(Percentage of gross domestic product)



Source: *Asia-Pacific Disaster Report 2021*.

III. Key areas for policy action to address the expanded riskscape

18. Cascading risks are systemic. Characterized by deep uncertainties, systemic risks are complex, heterogeneous and especially unpredictable. A failure in one aspect of health care, namely addressing human susceptibility to coronaviruses, has had catastrophic consequences around the world. Similarly, the enormous risk that climate change will continue to pose to many systems will trigger food and water shortages, forced migration, epidemics and loss of biodiversity, all of which will exacerbate societal tensions and may even lead to armed conflict, further reducing government capacity to tackle climate change as a result. In the expanded riskscape, a paradigm shift is needed to address the underlying risk drivers. To that end, five key policy action areas are proposed below.

A. Reorganize traditional disaster risk management to advance integrated and multi-hazard early warning systems

19. The convergence of biological and natural hazards has reshaped the disaster riskscape, the effects of which have been particularly significant in the region's river basins, the Bay of Bengal and the Pacific small island developing States. There are also emerging risk hotspots in North and Central Asia, particularly of the type related to heatwaves and related biological hazards.

Climate change is exacerbating these interactions and intensifying risks in already vulnerable areas. Thus, disaster risk management and early warning systems need to address systemic risks in closely connected social, economic and environmental systems, instead of addressing individual hazards.

20. For the purpose of addressing systemic risks, the best approaches are those that take into account series of risk scenarios with various interlinkages and relationships. Planners can develop composite risk matrices that serve to identify and stratify vulnerable populations and their varying needs and capacities so as to arrive at comprehensive risk assessments that facilitate targeted actions. In 2020, the secretariat developed a prototype of composite matrices that categorized districts or areas into appropriate risk zones and incorporated risks from endemic, natural and biological hazards. The methodology, piloted in matrices for Bangladesh and India, integrated short-, medium- and long-term risk data from diverse sources and highlighted the states most exposed to cascading risks from disasters, including monsoon floods amid COVID-19, in the context of such endemic risk drivers as poverty, inequality and population density.

21. The matrix for Bangladesh, for example, shows that, in 2020, 15 districts in the red zones, home to almost 12 million people, were the most exposed to cascading risks from disasters. The 12 million people who faced the highest risk were served by approximately 610 hospitals, almost 40 per cent of which were exposed to heavy floods in 2020. The matrix further served to predict that Cox's Bazar would need immediate intervention. The prediction was borne out when the Government of Bangladesh relocated many families from refugee camps to a permanent settlement and, in partnership with local and international organizations, took the necessary precautions and surveillance measures, which helped to contain the spread of the virus within the camps.

B. Invest in a regional resilience package

22. Strengthening climate adaptation and resilience to hazards will require financial commitment. In the worst-case climate change scenario, total annual climate adaptation costs are estimated at $270 billion, or 0.9 per cent of the region's GDP, including $68 billion for adapting to biological hazards. At present, these costs are not reflected in either the nationally determined contributions or the intended nationally determined contributions of the countries in the region. The health sector needs particular attention. Without rapid action, climate change will have devastating impacts on human health. Governments have been advised by WHO to prepare national health adaptation plans, but progress in that regard has been mixed. Only the Governments of Bangladesh, Bhutan, Nepal and Sri Lanka have completed plans.

C. Increase investments in risk-informed social infrastructure and shock-responsive social protection

23. The pandemic shock has reaffirmed the importance of social protection, specifically encompassing disaster preparedness principles. Over the years, Governments have tried to ensure that social protection is more responsive to shocks. However, the scale of the pandemic's economic impact has brought to the fore the need for social protection to not only respond to shocks but also be prepared for them.

24. Such social protection requires a comprehensive portfolio of pro-poor investments that span the entire life cycle and promote a culture of prevention that builds inclusiveness and resilience. The aim should be to build on existing achievements to attain universal social protection. Investments in risk-informed health and education infrastructure and service delivery are equally important. The measures needed to offer a social protection that is prepared for shocks include the following: (a) using emerging technologies to support resilience, and ensuring that routine social protection programming is based on a solid understanding of the risks, shocks and stressors, including cascading risks; (b) preparing to scale up existing programmes or activate new emergency programmes to accommodate new populations and needs; and (c) where relevant, aligning existing social protection programmes with scalable measures for disaster preparedness.

D. Capitalize on frontier technologies to ensure that no one is left behind

25. Frontier technologies have been used in the past to augment the impacts of evidence-based investments in health, education and social protection. According to the *Asia-Pacific Disaster Report 2019: The Disaster Riskscape across Asia-Pacific – Pathways for Resilience, Inclusion and Empowerment,* digital identity systems, risk analytics, satellite data and computer-based flood and drought modelling have been used to deliver direct benefit transfers and index-based payouts to small and marginal farmers. In 2021, in the race to control the COVID-19 pandemic and protect populations, Governments across the region have increasingly invested in frontier technologies, taking advantage of scientific advances and adapting innovation to local exigencies. The effectiveness of the technologies has differed in accordance with variations in the timing and scope of the spread of the virus, which has typically been transmitted in waves or clustered in specific locations. Nevertheless, in the early stages of the pandemic, the countries that had previous experience with severe acute respiratory syndrome appeared to be better prepared, with national responses based on surveillance, testing, contact tracing and strict quarantine.

26. Throughout the course of the pandemic, artificial intelligence and the manipulation of big data have facilitated a better understanding of the transmission mechanisms. Advanced modelling techniques have been used for early detection, rapid diagnostics and the prevention of virus spread as well as for managing critical supplies and delivering equipment. Such technologies have been used effectively not only in Australia, China, New Zealand, the Republic of Korea and Singapore, but also in other, less technologically advanced middle-income countries.

27. Effective action has also depended on organization and social mobilization, including the promotion of social distancing and hygiene combined with efficient regimes of testing, isolation and treatment. In 2021, these techniques have met particular challenges in the densely populated urban slums of many countries in the region. Nevertheless, frontier technologies have been used to support official actions and local community surveillance, enabling authorities to keep an ear to the ground, for example to detect unintended consequences of official action and take corrective steps.

28. The value of community action empowered by new technologies was also demonstrated in the early stages of the pandemic in the Mumbai slum of Dharavi, the largest in Asia. The Dharavi model involves micromapping, robust surveillance, public-private partnerships, community engagement and proactive leadership, which are key components of effective disaster management. The model was successful during the first wave of the virus in 2020.

29. In the complex cascading risk environments, social media has helped to improve communication between health experts, government authorities and at-risk communities. In Indonesia, for example, particularly in rural and suburban areas, religious leaders have used social media to raise awareness about the risks of COVID-19 among their followers. Social media also helped authorities to transmit real-time and actionable information. At the global level, the WHO COVID-19 Dashboard has provided the latest location-specific updates on the pandemic, including the number of infected people and deaths. The Dashboard has also been adopted and modified at the country level in combination with relevant surveillance management systems.

30. Government agencies also increasingly invested in the collection of big data and in integrated multi-hazard risk mapping, which had proved effective in previous complex and dynamic disasters. With some adaptations, government authorities were able to use hotspot mapping to highlight the incidence of COVID-19 and predict the spread of the virus, revealing the connections between cases and clusters of infections and identifying super spreader cases or events. The resulting cluster containment strategies have proved to be quite effective in restricting the spread of COVID-19, especially within vulnerable communities. With continued investments in big data and mapping techniques, officials will be able to make critical, risk-informed interventions, such as imposing lockdowns in hotspots and insulating other provinces and cities from the spread of the virus, in a more accurate and timely manner.

E. Boost resilience efforts through pandemic-related fiscal stimulus spending

31. The pandemic opened up new possibilities for fiscal spending with medium- and long-term recovery objectives centred on resilience and climate adaptation. While in previous studies, including some by the secretariat, the breakdown of estimated climate adaptation costs across different sectors[6] has shown that the highest proportion of adaptation costs were related to infrastructure, followed by coastal zones, water supply and flood protection, none of the estimates factored in the cost of addressing biological hazards.

32. According to the *Report*'s estimates, in the worst-case climate change scenario, the costs of adaptation to biological and natural hazards in the Asia-Pacific region are only one fifth of the region's annual losses due to such hazards. The secretariat estimates total annual adaptation costs at $270 billion (0.9 per cent of regional GDP), of which $68 billion (0.22 per cent of regional GDP) is for adaptation to biological hazards. Approximately 70 per cent of total annual adaptation costs, or $190 billion, are in East and North-East Asia. The adaptation costs need to be considered alongside capacity to pay. In that regard, costs as a percentage of GDP vary from 1.4 per cent in the Pacific small island developing States to less than 1 per cent in South-East Asia and North and Central Asia. By that measure, Vanuatu has the region's highest costs, at more than 8 per cent of GDP.

33. To increase adaptation spending, Governments will need to diversify their sources of financing. In addition to those used for normal public spending, sources can include COVID-19 recovery packages; new climate finance instruments, such as climate resilience bonds; debt-for-resilience swaps; and debt relief initiatives. Governments can also share the cost burden through

[6] World Bank, *Economics of Adaptation to Climate Change: Synthesis Report* (Washington, D.C., 2010).

public-private partnerships, an area in which innovative instruments of parametric insurance have gained some traction.

34. The COVID-19 stimulus packages being rolled out in almost every country of the region offer a unique possibility to delink the cascading risks at the nexus of disease, disasters and climate change. According to the *Report*, 44 national fiscal packages cover health, 42 cover employment and 33 cover social assistance. However, none appear to contain any forward-looking allocations for climate adaptation or environmental protection, specifically, and there is also a dearth of related data. Some components of the packages will have knock-on benefits by protecting vulnerable populations from the impacts of natural hazards, but the packages also need to include explicit resilience-building measures specifically dedicated to addressing biological and other natural hazard shocks of the future.

35. In its analysis of early response and recovery efforts at the regional level, the secretariat found some emphasis on green priorities, including 111 measures that addressed both economic recovery and environmental protection. The measures covered such issues as energy, surface transport, air travel and tourism, land use, water and waste, and disaster risk management. However, they were not part of coherent national plans for building back better. More than half of the measures had been unplanned, and they were outnumbered overall by those that focused purely on economic recovery. In addition, at the global level, only a small fraction of the post-COVID-19 spending plans served to build climate resilience. According to a review of domestic stimulus plans, dirty measures, or those that increased carbon emissions, outnumbered green initiatives four to one. This imbalance must be addressed if the Sustainable Development Goals are to be reached. Future economic growth and shared prosperity will depend on rebalancing the economic, social and environmental dimensions of sustainable development.

IV. Way forward for regional and subregional action

36. In light of the need to transform disaster risk reduction, climate preparedness and health sector management, and thereby address some of the deep uncertainties in managing systemic risk, a twin-track response is proposed below.

A. Operationalizing regional policy coherence for disaster, climate and health resilience

37. Experience from past crises has demonstrated the limitations of compartmentalizing policymaking in economic, social and environmental silos. All three dimensions of sustainable development are interconnected, and in the face of climate change, society can no longer consider economic and environmental shocks separately. The pandemic, with all its tragic consequences and huge economic losses, has exposed the frailties of human society in the face of powerful natural forces. At the same time, climate change is constantly reshaping the Asia-Pacific disaster riskscape, requiring member States to adjust their responses. Consequently, the pandemic demonstrates that even though the significant progress in managing disaster risk and the powerful technological tools and deeper scientific knowledge are helping planners to more accurately identify the hotspots at greatest risk from natural disasters and the communities that are most exposed, such efforts may not be enough to prepare for future challenges.

38. The adoption of the Sendai Framework for Disaster Risk Reduction 2015–2030 reflects the deep understanding that member States already possess with regard to the need for a more integrated approach to disaster management in which risks are addressed together rather than individually, especially considering the exacerbating effects of climate change. Additionally, at the seventy-seventh session of the Economic and Social Commission for Asia and the Pacific, member States were encouraged to promote discussions on the implementation of the health aspects of the Sendai Framework, including by taking note of the Bangkok Principles for the implementation of the health aspects of the Sendai Framework for Disaster Risk Reduction 2015–2030 and other relevant regional and subregional frameworks and initiatives.[7]

39. A regional strategy to build back better for disaster, climate and health resilience with four cross-cutting workstreams, namely on integrated early warning systems, climate adaptation and resilience, infrastructure resilience, and policy coherence for health and disaster risk reduction, is needed. The details of the regional strategy are highlighted and discussed in depth in document ESCAP/CDR/2021/2.

B. Subregional priorities

40. As evident in the four types of hotspot identified in the *Report*, cascading systemic risks are also present in specific combinations that are unique to specific geographical areas within and across subregions. Subregional approaches and strengthened subregional cooperation, therefore, will be another key mechanism for addressing the expanded riskscape.

41. In the *Report*, the secretariat, building on the work of the Global Commission on Adaptation, established five key priorities for adapting to the expanded riskscape: early-warning systems; climate-resilient infrastructure; improved dryland agriculture crop production; mangrove protection; and water security. According to the Global Commission on Adaptation, strengthening early warning systems has the highest cost-benefit ratio (9:1), followed by protecting mangroves (6:1), building resilient infrastructure (5:1), improving dryland agriculture (5:1) and making water resource management more resilient (4:1).

42. In the *Report*, a similar framework is applied to the Asia-Pacific subregions. On that basis, in South and South-West Asia, early warning systems and climate-resilient infrastructure are the highest priorities, followed by water security, improved dryland agriculture crop production and mangrove protection. In South-East Asia, however, the key priorities are mangrove protection and water security, reflecting the increasing impact of droughts, floods and cyclones on the subregion. In East and North-East Asia, the highest priority is climate-resilient infrastructure, while in North and Central Asia, the key priorities are water security and improved dryland agriculture crop production. Lastly, in the Pacific small island developing States, the key priorities are water security, improved dryland agriculture crop production and mangrove protection. Additionally, according to the *Report*, various nature-based solutions deliver positive benefits for multiple sectors and will support both economic and social resilience across all subregions. Further details on scaling up cooperation at the subregional level are provided in document ESCAP/CDR/2021/2.

[7] Commission resolution 77/1.

V. Issues for consideration by the Committee

43. In conclusion, the overriding responsibility of those tasked with disaster management is to protect the most vulnerable. Much has been achieved for which the region can take credit. At the same time, the Asia-Pacific region, in its immensity and diversity, is home to a variety of problems, priorities and increasingly complex systemic risks. All member States need to have in common sound principles for managing disaster risk in a more coherent and systematic way based on political commitment and strong regional and subregional collaboration. The secretariat stands ready to support members and associate members to further this aim.

44. To that end, the Committee may wish to take the following actions:

(a) Deliberate on the findings and recommendations of the *Asia-Pacific Disaster Report 2021*, as summarized in the present document;

(b) Share insights into how the disease-disaster-climate nexus, as captured in the expanded riskscape, is manifesting during the pandemic;

(c) Highlight experiences and lessons learned in managing cascading risks emanating from disasters, climate change and the pandemic;

(d) Consider calling on the secretariat to assist scaling up regional and subregional cooperation strategies that integrate disaster, health and climate perspectives to complement national efforts to manage disaster risk in a more coherent and systematic way.