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**Scaling up subregional and regional cooperation frameworks to manage cascading risks**

**Overview of the work of the secretariat and the United Nations system at the regional level**

# Overview of the work of the secretariat and the United Nations system at the regional level***

*Summary*

The present information document, prepared by the secretariat, informs the Committee on Disaster Risk Reduction of the progress of its regional work which falls under four work streams: multi-hazard early warning systems, data and statistics, technology innovation and applications, and knowledge for policy.

It reviews implementation of the secretariat's programme of work and highlights activities that capitalize on multitier partnership networks that build regional cooperation, and promote solutions through the uptake of innovative technology applications. The document further presents the challenges that are emerging from the coronavirus disease (COVID-19) pandemic and underlines the acute need for customized sub-regional cooperation, to manage systemic and cascading risks.

The Committee is invited to provide further guidance on areas of work of the secretariat in support of regional and subregional disaster risk reduction and resilience-building strategies.

## I. Introduction

1. The secretariat's work in regional and subregional disaster risk reduction and resilience-building strategies to manage cascading risks, discussed in document ESCAP/CDR/2021/2, is operationalized through technical cooperation and knowledge sharing activities. In this regard, the present document provides information on the progress made in its four work streams endorsed by the Committee on Disaster Risk Reduction at its sixth session. These work streams, discussed below, are multi-hazard early warning systems, data and statistics, technology innovation and applications, and knowledge for policy. This information document also reports on the work of the United Nations on "Delivering as One" for disaster risk reduction and resilience in the specific context of the deliverables of the Issue-Based Coalition on Building Resilience.

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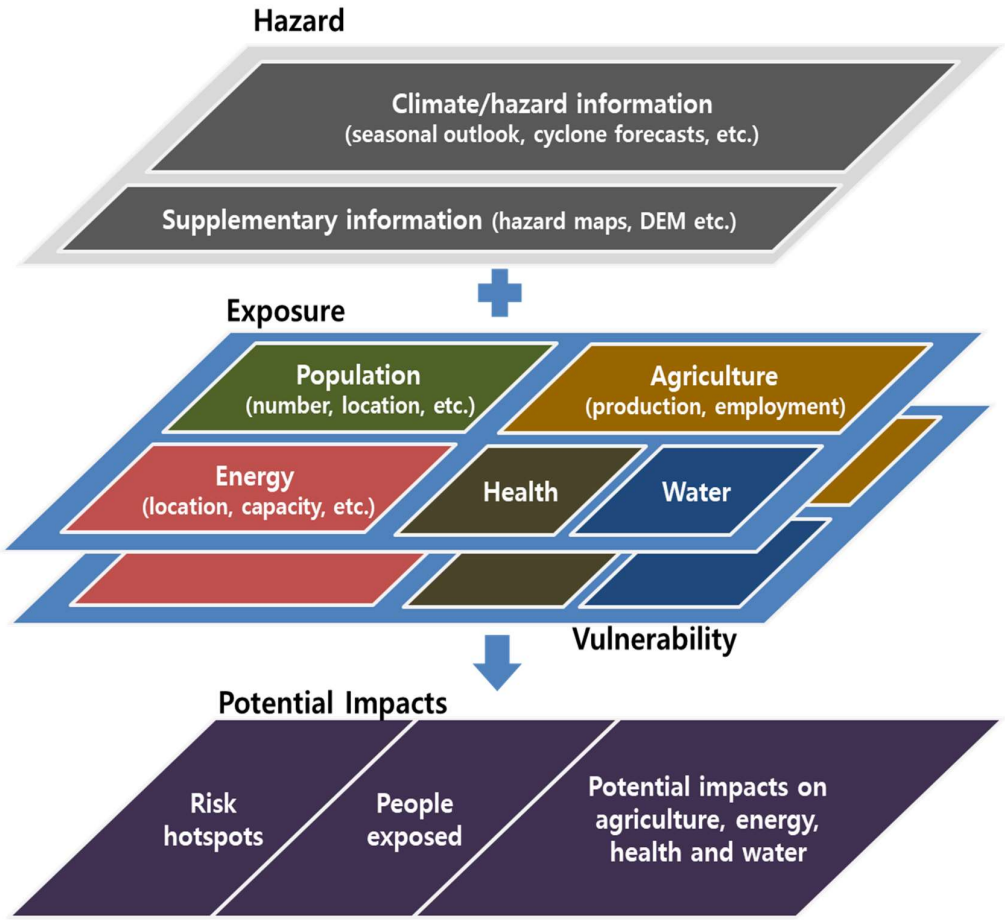
# II. Work stream 1: multi-hazard early warning system

## A. Technical cooperation

2. At the sixth session of the Committee, member States prioritized operationalizing the Asia-Pacific Disaster Resilience Network.[1] Thus, the secretariat facilitated technical cooperation on contextualizing and strengthening multi-hazard early warning systems for different sub-regions.

3. Under the Asia-Pacific Disaster Resilience Network, the secretariat advanced the sharing of information, expertise, resources and good practices, and developed a methodological approach for impact-based forecasting to integrate natural and biological multi-hazard early warning systems. The secretariat initiated partnerships with member States and supported international cooperation mechanisms, such as the International Network for Multi-Hazard Early Warning Systems. The secretariat analysed risk information and socio-economic exposure and vulnerability to identify potential impacts of climate on sectors, such as agriculture, disaster risk management, energy, health, and water management (figure).

**Methodology to operationalize impact-based forecasting**




[1] See ESCAP/CDR/2019/3, decision 1.

4. The methodology, addressing the challenges that emerged from the ongoing coronavirus disease (COVID-19) pandemic, was presented at the South Asian Climate Outlook Forums (16th, 17th, and 19th sessions), the Forum on Regional Climate Monitoring, Assessment and Prediction for Regional Association II (16th and 17th sessions), the East Asia Winter Climate Outlook Forum (8th session), the World Meteorological Organization (WMO)/ Economic and Social Commission for Asia and the Pacific (ESCAP) Panel on Tropical Cyclones (47th session) and the 2020 Global Multi-Hazard Alert System in Asia Workshop.

5. The secretariat provided contextualized technical support by noting the different 'riskscapes' of sub-regions and countries. Together with the WMO, Food and Agriculture Organization, the Regional Integrated Multi-Hazard Early Warning Systems for Africa and Asia, and the Thai Meteorological Department, the secretariat organized the Joint Workshop on Strengthening Multi-Hazard Early Warning Systems and Early Actions in South-East Asia, in 2020, to provide understanding of multi-hazard early warning systems.[2] Subsequently, the secretariat contributed to two national workshops, organized by WMO for Viet Nam (in November/December 2020) and Thailand (in January 2021), which provided technical training on producing impact-based forecasts for multiple hazards.

## B. Partnership initiatives

6. Based on the memorandum of understanding, renewed and signed in 2019, the secretariat built on the long-standing partnership with WMO by facilitating regional cooperation, for tropical cyclones, through the ESCAP/WMO Typhoon Committee and the WMO/ESCAP Panel on Tropical Cyclones, and expanded partnerships for other hazards through Regional Climate Outlook Forums. To improve the production and utilization of early warning information, the secretariat enhanced cooperation between the meteorological and hydrological communities, disaster risk reduction agencies and other sectoral communities. The secretariat also substantively contributed to two regional reports of the State of the Climate of WMO.

7. The secretariat is expanding its partnerships with sub-regional organizations to support cooperation and sharing of best practices. It includes, amongst others, collaboration with the Association of South-East Asian Nations (ASEAN), the South Asian Association for Regional Cooperation, the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation, the North-East Asian Subregional Programme for Environmental Cooperation and the Secretariat of the Pacific Regional Environment Programme.

## C. Economic and Social Commission for Asia and the Pacific Trust Fund for Tsunami, Disaster and Climate Preparedness

8. Since 2005, the ESCAP Multi-Donor Trust Fund for Tsunami, Disaster and Climate Preparedness in Indian Ocean and Southeast Asian Countries has provided sustained financial support for key initiatives that deliver cost-effective, early warning products and services, particularly for tsunamis and extreme weather systems. The Trust Fund continues to scale up, share and replicate successful pilots through regional cooperation. Investments in these systems have brought substantial benefits, making the Trust Fund an effective

[2] United Nations Economic and Social Commission of Asia and the Pacific, "Joint Workshop on Strengthening Multi-Hazard Early Warning Systems and Early Actions in South-East Asia", 18–20 February 2020. Available at www.unescap.org/events/joint-workshop-strengthening-multi-hazard-early-warning-systems-and-early-actions-south-east.

vehicle for countries, in the region, to access and share data, tools and expertise to support disaster resilience.

9. In November 2020, the Advisory Council adopted the Trust Fund's new Strategic Note.[3] Over the period 2021–2024, the Trust Fund will continue to promote a multi-hazard approach and strengthen regional cooperation for effective and sustainable end-to-end early warning systems for coastal hazards, such as tsunamis, tropical cyclones, flooding and storm surges. The Fund will contribute to building more resilient communities by supporting two key people-centred pillars: (a) strengthening multi-hazard early warning systems for all people, with a focus on the vulnerable and marginalized and (b) strengthening social and economic resilience in the Asia-Pacific region. These pillars will be supported by two modalities of implementation to enhance disaster and climate risk management, through (c) regional cooperation, and d) mainstreaming science, technology and innovation.

# III. Work stream 2: data and statistics

## A. Geospatial information and services for disasters

10. The secretariat has provided over 50 reports and 45 gigabytes of satellite imagery and products to member States for early warning, response and damage assessment relating to various climate hazards, through the Regional Space Applications Programme for Sustainable Development and under its collaborations with the United Nations Institute for Training and Research Operational Satellite Applications Programme and the Asia-Pacific Regional Space Agency Forum. Member States shared space-based data, products and services free of charge through partnerships with other United Nations agencies and international/regional initiatives.

11. With foresight, the Asia-Pacific Plan of Action on Space Applications for Sustainable Development (2018–2030) included epidemics in its proposed actions and requested the secretariat and its member States to strengthen regional cooperation to leverage data sharing and develop capacity on mapping health risk hotspots using geospatial information and big data. In this regard, the secretariat organized two webinars, in May and July 2020, with stakeholders from over 30 countries. Using geospatial data, the secretariat is analysing correlations between the COVID-19 pandemic and socio-economic sectors, and identifying risk hotspot areas by assessing risk drivers, such as high population density, mobility, poor sanitation, low connectivity and low awareness.

12. Several member States in South-East Asia requested the secretariat to provide regional and sub-regional training to use satellite imagery to analyse the impact of the COVID-19 pandemic, develop a data hub, and produce comprehensive situation maps for the pandemic. In this regard, the secretariat is collaborating with the National Institute of Aeronautics and Space of Indonesia, the Geo-Informatics and Space Technology Development Agency of Thailand and the ASEAN Research and Training Center for Space Technology and Applications, to develop operational procedures and training materials. The collaboration will focus on integrating geo-referenced data, with regard to the

[3] United Nations Economic and Social Commission for Asia and the Pacific, "ESCAP Multi-Donor Trust Fund for Tsunami, Disaster and Climate Preparedness", Strategic Note 2021–2024, December 2020. Available at www.unescap.org/sites/default/d8files/event-documents/TTF-Strategic-Note-2021--2024-rev-20210201.pdf.

pandemic, in a comprehensive data hub and support policy makers for evidence-based action and policy making.[4]

## B. Asian and Pacific Centre for the Development of Disaster Information Management

13. In 2020, the seventy-sixth session of the Commission approved the permanent mandate of the Asian and Pacific Centre for the Development of Disaster Information Management. In 2018, the second session of the Governing Council of the Centre adopted three key service areas for the Centre for the period 2019–2021: (a) information and knowledge repository, (b) capacity development and (c) regional cooperation on transboundary hazards. In its fifth session, in January 2021, the Governing Council endorsed the Centre's 10-year strategic programme of work which sets the vision, long-term outcomes and key deliverables of the Centre.

14. In the area of information and knowledge repository, the Centre published the *Preliminary Assessment of the Gaps and Needs for Disaster Risk Information and Data Management Platforms in Asia and the Pacific Region*, in 2020. The assessment evaluated current capacities, the needs of various stakeholders and available services, and provided suggestions for international and regional support to enhance risk data management and use of risk information in disaster risk reduction at the national level.

15. For capacity development, in 2020, the Centre published a *Guideline on Monitoring and Reporting the Impacts of Sand and Dust Storms, through the Sendai Framework Monitoring*, to support member States in their efforts to monitor and report the impact of these hazards. It adopts a hazard-specific approach to the Sendai Framework Monitoring and can be used as a complementary resource to the United Nations Office for Disaster Risk Reduction Technical Guidance for Monitoring and Reporting Against Global Targets of the Sendai Framework. The Centre also provided technical support to a Scoping Workshop on Disaster Risk Reduction Mainstreaming in Development Plans, organized by the Plan and Budget Organization of the Islamic Republic of Iran, with expertise from the Centro Internazionale in Monitoraggio Ambientale Foundation.

16. The Centre contributes to the enhancement of regional cooperation and coordination among countries and organizations through disaster information management on trans-boundary disasters. This supports the achievement of the goals and targets of the 2030 Agenda for Sustainable Development and the Sendai Framework for Disaster Risk Reduction 2015–2030.

17. During the sixth session of the Committee, held in August 2019, experts attending the Expert Group Meeting on Sand and Dust Storms, emphasized the importance of risk assessment as the evidence base for the development of a regional action plan to combat the negative impacts of these hazards in Asia and the Pacific. They requested the Asian and Pacific Centre for the Development of Disaster Information Management for support and in response, the Centre

[4] Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific, "Strengthening regional cooperation in geospatial data sharing for mitigation of COVID-19 pandemics", webinar on COVID-19, 15 May 2020. Available at https://www.un-ggim-ap.org/meeting/webinar-covid-19, and United Nations Economic and Social Commission of Asia and the Pacific, "How space technology applications contributed to combatting COVID-19 pandemic", webinar, 30 June 2020. Available at https://www.unescap.org/events/webinar-how-space-technology-applications-contributed-combatting-covid-19-pandemic.

conducted the Sand and Dust Storms Risk Assessment in Asia and the Pacific. The report, to be published in 2021, provides a long-term horizon of the risk and potential socio-economic losses, and addresses the lack of understanding on the risk of sand and dust storms as a meteorological hazard.

# IV. Work stream 3: technology innovation and applications

## A. Capacity-building

18. Through the Regional Cooperative Mechanism for Drought Monitoring and Early Warning, the secretariat is enhancing the capacity of government officials to develop tailored tools for using geospatial information to promote climate-resilient agricultural development in the Lower Mekong River Basin. Through enhanced access to digital monitoring and early warning information for climatic shocks, transboundary water issues and geo-referenced production forecasts, geospatial information and in-situ water, weather, and crop data can be integrated to identify suitable climate-resilient agricultural practices. The secretariat also supported governments of Central Asia to develop a platform, methodologies, and indicators to assess drought risk, and integrate the use of statistical and geospatial data for land accounting. The secretariat is implementing a pilot project to monitor and forecast drought in Central Asia, beginning from Kyrgyzstan. The project seeks to integrate ground-based and satellite-derived data for drought maps and indicators to inform decision-makers. The system will benefit the region's widely rural populations that largely rely on agriculture and water resources.

19. The secretariat also implemented capacity-building activities by integrating geo-referenced data from the ground, air, space, and crowdsourcing. Through human, financial and technical resources from China, India, Indonesia, Japan, the Republic of Korea, the Russian Federation and Thailand, the secretariat organized 33 physical and online thematic trainings, attended by over 1,000 participants. The secretariat facilitated the participation of a number of officials in various post-graduate courses and degree programs on space applications and geo-informatics.

20. The ESCAP publication 'Geospatial Practices for Sustainable Development in Asia and the Pacific 2020: A Compendium' presented the diverse use and vital role of geospatial information and applications. The compendium provided a baseline for measuring progress in the implementation of the Asia-Pacific Plan of Action on Space Applications for Sustainable Development (2018–2030), demonstrated the diverse and vital contributions of geospatial applications toward sustainable development, including disaster risk reduction and resilience, and addressed cascading risks emerging from the COVID-19 pandemic.[5]

21. The compendium showcased the importance of accessible, available, actionable and affordable geospatial data to benefit people and inform practices, processes and policies. Thus, the secretariat will continue to: (a) leverage frontier technologies, such as artificial intelligence, the Internet of Things, cloud computing and Big Data; (b) engage end users in multiple sectors, the youth and the private sector; (c) manage information through the creation of a regional or national cloud-based metadata platform; and (d) strengthen implementation through enhanced partnership with global and regional stakeholders. The

[5] *Geospatial Practices for Sustainable Development in Asia and the Pacific 2020: A Compendium* (United Nations publication, 2020). Available at www.unescap.org/publications/geospatial-practices-sustainable-development-asia-and-pacific-2020-compendium.

secretariat supports capacity development in fostering technological advancements and innovations and enhancing the skills of professionals in applying geospatial information for the effective implementation of policies.

# V. Work stream 4: knowledge for policy

## A. Knowledge products

22. The secretariat issued various working papers addressing the intersection of the COVID-19 pandemic with extreme climate events. The findings from these papers were capitalized in the ESCAP flagship publication, The Asia-Pacific Disaster Report, that has been produced on a biennial basis since the disaster risk reduction programme was established by ESCAP member States in 2008. The 2021 edition of the report, which is to be launched at the Committee, highlights the expanding Asia-Pacific riskscape, the importance of a systemic approach to disaster risk reduction and presents policy options for addressing these cascading risks. To address these multiple challenges, the secretariat also organized a series of virtual meetings including a Special High-Level Event on Disaster and Climate Resilience in South Asia at the Fourth South Asia Forum on the Sustainable Development Goals.[6]

23. Ready for the Dry Years is a joint publication series by ASEAN and ESCAP, and is part of the effort to mobilize region-wide action as the risk of drought intensifies. The second edition of the report, published in 2020, provided the evidence base for the negotiations of the ASEAN Declaration on the Strengthening of Adaptation to Drought, which was adopted at the 37th ASEAN Summit on 13 November 2020. The secretariat is continuing its partnership with the ASEAN secretariat through the development of a Plan of Action to operationalize this Declaration. To support capacity building, the secretariat will produce knowledge products and organize activities to design national drought policies and strategies.

24. In addition, a dedicated knowledge sharing portal for the Asia-Pacific Disaster Resilience Network is to be launched during the ESCAP Resilience Week. This portal will provide comprehensive risk analysis through disaster risk modelling, mapping and monitoring, which can be utilized for contextualizing all hazard early warning systems for different sub-regions. It will also share knowledge products with policies and measures that can be applied to address risks.

# VI. United Nations on “Delivering as One” for disaster risk reduction and resilience

25. The Issue-Based Coalition on Building Resilience serves as a platform for United Nations agencies to collaborate for accelerated action on disaster risk reduction, climate change adaptions and resilience in the Asia-Pacific region. The platform focuses on an inclusive and human rights-based approach to climate-sensitive, risk-informed development. The coalition supports four work streams: (1) strengthening integration of health emergencies into disaster risk reduction throughout Asia and the Pacific, (2) enhancing understanding of disaster and climate-related risks in Asia and the Pacific, (3) strengthening resilient recovery and build-back-better, and (4) reducing the negative impacts of disaster and climate-related displacement.

[6] Special Event on Disaster and Climate Resilience in South Asia. Available at www.unescap.org/events/special-event-disaster-and-climate-resilience-south-asia.

26. Together with the United Nations Office for Disaster Risk Reduction and the United Nations Development Programme, the secretariat is leading implementation of the work to enhance understanding of disaster and climate-related risks in Asia and the Pacific (work stream 2). Under this work stream, a joint policy paper is being published for policymakers and planning ministries identifying the key building blocks of resilient infrastructure post COVID-19. Examined through the lens of the Sendai Framework for Disaster Risk Reduction 2015–2030, the paper highlights key pathways for developing an inclusive and resilient infrastructure system which considers the emerging and future risks from the disaster-health-climate change nexus.

27. The future work programme of this work stream includes:

(a) Developing and disseminating a risk marker to screen prospective development projects to make sure they are risk-informed and will not exacerbate critical risks;

(b) Providing tools and technical support for countries to develop multi-hazard scenarios to drive development planning, including workshops for Regional Commissions/United Nations Country Teams to present innovative ways to view the risk landscapes of the near future;

(c) Developing an inventory of existing risk information sources, mapping existing risk information to the multi-dimensional risk framework, and providing hands-on technical support to ensure countries achieve risk-informed development and planning processes in Asia and the Pacific.

28. The secretariat is also collaborating with ASEAN and other United Nations agencies through the ASEAN-United Nations Joint Strategic Plan of Action on Disaster Management 2021–2025. In line with the ASEAN Agreement on Disaster Management and Response, the plan outlines mutual intentions and commitments for continued collaboration, guided by key strategies and priorities. As the lead agency for the priority programme on risk assessment and monitoring, ESCAP is supporting the enhancement of ASEAN capacities to forecast, assess and monitor multiple risks, using science-based, climate responsive, and innovative approaches, and the strengthening of ASEAN systems on multi-hazard early warning and risk communication.