

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

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Item 5 of the provisional agenda*

**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 Development 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 (MHEWS), data and statistics, technology innovation and applications, and knowledge for policy.

It reviews implementation of the secretariat's and United Nations Development System's programme of work at the regional level. It 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 need for customized sub-regional cooperation, to manage systemic and cascading risks.

The Committee on Disaster Risk Reduction is invited to take note of the work presented 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 of the United Nations Regional Cooperation Platform.

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** The present document is being issued without formal editing.

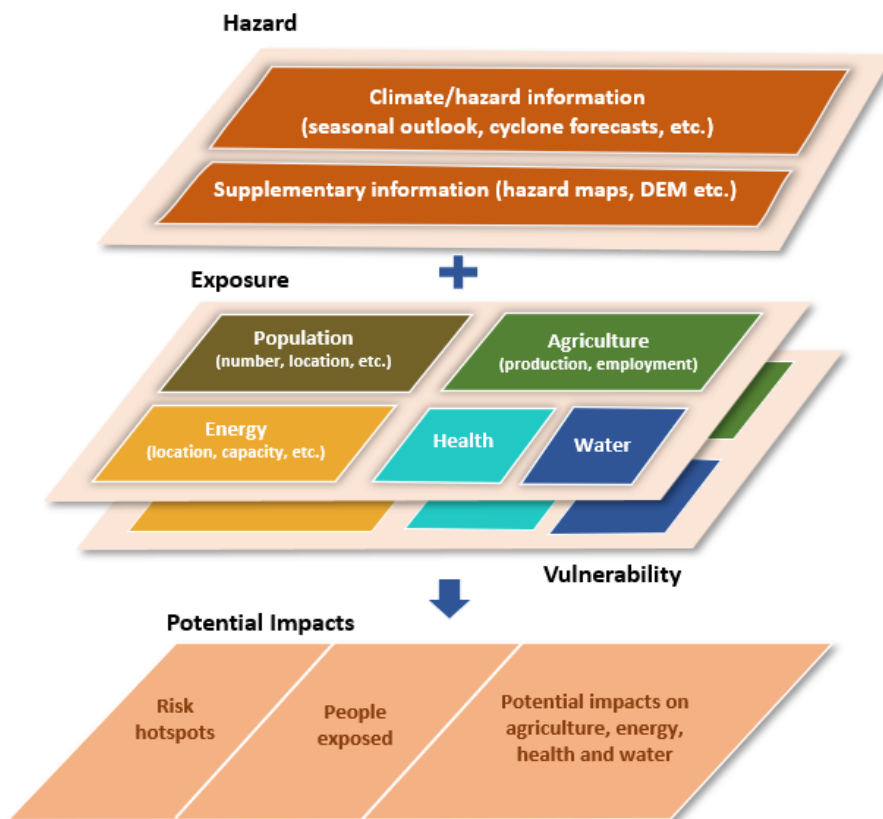
II. Work stream 1: multi-hazard early warning system

A. Technical cooperation

2. At the sixth session of the Committee on Disaster Risk Reduction, member States prioritized operationalizing the Asia-Pacific Disaster Resilience Network. 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



Source: Asia-Pacific Disaster Report 2021 (United Nations publication).

4. The methodology was presented at the South Asian Climate Outlook Forums (SASCOF 20th, 21st, and 22nd sessions), the Forum on Regional Climate Monitoring (RCM), Association of Southeast Asian Nations (ASEAN) Climate Outlook Forum 19th session (ASEANCOF-19), Forum on Regional Climate Monitoring, Assessment and Prediction for Asia (FOCRAII) 18th session, and the World Meteorological Organization (WMO)/ Economic and Social Commission for Asia and the Pacific (ESCAP) Panel on Tropical Cyclones (PTC 49th session).

5. The secretariat presented the Aral Sea Storyboard at the Sixth North and Central Asian Multistakeholder Forum on Implementation of the Sustainable Development Goals, highlighting the transboundary hazard in the subregion and its impact on people and agriculture. The interactive storyboard incorporated key findings from three technical working papers to present the challenges associated with the transboundary hazard and the need for a subregional approach. ESCAP Resolution ESCAP/79/9 requested the secretariat to commission a study on the necessity, viability, and modalities of establishing the United Nations special program for the Aral Sea basin and to facilitate a workshop on preventing and mitigating natural disasters in the water basins of the Aral Sea.

B. Partnership initiatives

6. Based on the Memorandum of Understanding, renewed and signed in 2019, the secretariat built on the longstanding 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 and plans to further collaborate on the implementation of the Early Warnings for All initiative in the region.

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

C. Economic and Social Commission for Asia and the Pacific (ESCAP) 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 vehicle for countries, in the region, to access and share data, tools and expertise to support disaster resilience.

9. In November 2022, the Advisory Council reconfirmed the components of the Trust Fund's 2021–2024 Strategic Note related to (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, through (c) regional cooperation, and (d) mainstreaming science, technology and innovation². In January 2023 the Advisory Council further reviewed and reiterated the strategic role of the Trust Fund to support the regional contextualisation and implementation of the 'Executive Action Plan on Early Warnings for All' in Asia and the Pacific.

III. Work stream 2: data and statistics

A. Geospatial information and services for disasters

10. Disaster risk reduction and resilience is one of the six thematic priorities of the Asia-Pacific Plan of Action on Space Applications for Sustainable Development (2018–2030) accounting for 50 out of the total 188 actions contained in the Plan.

11. Using geospatial information to improve countries' capacity for early warning and disaster management systems continues to be at the core of ESCAP's regional cooperation initiatives in space applications. Space-faring countries in the region continue to provide timely multi-spectral and high-resolution satellite imagery, tailored tools, and specific training activities free of charge to disaster-affected countries in the region for early warning, response, and damage assessment efforts through the Regional Space Applications Programme for Sustainable Development network and partnerships with other UN Satellite Center and international and regional initiatives. From 2020–2022, approximately 230 gigabytes (GB) of satellite imagery and products for damage assessment were provided. The value of the data, services, tools, and training activities is equivalent to \$1M to \$1.3M every year.

12. Furthermore, the Jakarta Ministerial Declaration on Space Applications for Sustainable Development in Asia and the Pacific, adopted at the Fourth Ministerial Conference on Space Applications for Sustainable Development in Asia and the Pacific held in Jakarta in October 2022, called for the acceleration of implementing the Plan of Action in its phase II (2022–2026). In this regard, at its 26th session in August 2022, the Intergovernmental Consultative Committee of the Regional Space Applications Programme for Sustainable Development supported the regional cooperation initiatives proposed by Indonesia, with active participation of other members, to improve the quality and delivery of early warning systems by leveraging geospatial information and digital applications. These proposed initiatives include a virtual satellites constellation for disaster risk management, rapid mapping of disaster hotspots through machine learning and digital innovation tools and engaging the youth in innovative use of geospatial information for sustainable development. The proposed initiative will complement existing initiatives, such as International Charter: Space and Major Disasters, United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) and Sentinel Asia but will address unmet information requirements during the pre-disaster phase.

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

13. In its fifth session, in January 2021, the Governing Council of The Asian and Pacific Centre for the Development of Disaster Information Management (APDIM) endorsed the Centre's 10-year strategic programme of work which sets the vision, long-term outcomes and key deliverables of the Centre.

14. Under its Long-term Outcome 1, Risk Information, Access to effective disaster risk information is enabled and facilitated at the regional and national level, to identify ways to strengthen risk data governance, impact-based forecasting, monitoring and early warning, the Centre brought together experts at the Regional Consultative Meeting on Disaster Information Management hosted by the Government of Türkiye on 6 and 7 December 2022. In collaboration with the Capacity Development for Disaster Reduction Initiative (CADRI) and other United Nations partners, the Centre assisted the Maldives in developing the National Disaster Management and Climate Change Strategy including through the Capacity Diagnosis Mission of Capacity Development for Disaster Reduction Initiative in October 2022. The Centre provided technical support to developing the Disaster Risk Reduction and Management Pillar of the United Nations Sustainable Development Cooperation Framework (UNSDCF) in the Islamic Republic of Iran for the period 2023–2027. The Centre also responded, in collaboration with the Information and Communications Technology and Disaster Risk Reduction Division, to the request from the government of the Islamic Republic of Iran after major floods by providing high-resolution satellite images of the affected areas to aid in the assessment and response operations. The Centre provided technical support for the development of the Regional Strategy on Disaster Risk Reduction and the Regional Disaster Risk Profile in Central Asia. It also contributed to regional discussions on cascading risks in the Economic Cooperation Organization (ECO) region, organizing a consultation on disaster risk reduction and management for cascading risks and biological hazards. At the Global Platform for Disaster Risk Reduction in Bali, Indonesia, the Centre moderated the thematic session on data challenges and solutions for disaster risk management the outcomes of which contributed to the Co-Chair's summary of the Global Platform. The Centre contributed to the production of the ESCAP Asia-Pacific Disaster Report 2021, specifically addressing the impact of sand and dust storms on human health.

15. Under its Long-term Outcome 2, Information Capacity and Application, Country and regional organizations have the capacity to access, understand and apply disaster risk information towards risk-informed development policies and investments, the Centre translated the Academy Module on Information and Communications Technology (ICT) for Disaster Risk Management, developed by the Asian and Pacific Training Centre for Information and Communication Technology for Development (APCICT) of ESCAP, into the Urdu and Persian languages. The Centre contributed to the Fourth Training of the Disaster-related Statistics Framework (DRSF) Knowledge Sharing and Awareness Raising Workshop on Sand and Dust Storms in Agriculture, organized by the Food and Agriculture Organization (FAO) on 23 March 2021. The Centre played an active role in the Second Expert Forum for Producers and Users of Disaster-related Statistics, co-organized by the Economic and Social Commission for Western Asia (ESCWA), the United Nations Office for Disaster Risk Reduction (UNDRR), the United Nations Statistics Division, the Economic Commission for Europe (ECE), the Economic Commission for Latin America and the Caribbean

(ECLAC), the Inter-Agency and Expert Group on Disaster-related Statistics, in cooperation with the League of Arab States and other regional and sub-regional partners. The Centre also actively engaged with the ESCAP Technical Working Group (TWG) on Disaster-related Statistics, contributing to the development of ESCAP's Step by Step Guide on the use of Quantum Geographic Information System (QGIS) in Producing Urban Hot Spot Maps and A Guide on How to Produce Maps of Populations Exposure to Hazards using Quantum Geographic Information System.

16. Under its Long-term Outcome 3, Regional Cooperation - the Centre applying the findings of the Sand and Dust Storms Risk Assessment report, conducted regional, subregional, and national level consultations, which led to the development of the ESCAP Regional Plan of Action on Sand and Dust Storms in Asia and the Pacific (ESCAP/78/12/Add.1). This Action Plan, endorsed by ESCAP member States in May 2022 at the 78th Session of the Commission, is the key reference point for countries in the region to guide their actions at national and regional levels to reduce the impact and source of sand and dust storms. Furthermore, the Centre actively participated in various meetings and workshops focused on sand and dust storms. This includes the WMO Sand and Dust Storm Warning Advisory and Assessment System (SDS-WAS) Northern Africa-Middle East-Europe (NAMEE) Regional Steering Group meeting, where discussions revolved around the activities of the Northern Africa-Middle East-Europe node, cooperation with United Nations bodies and programmes, and the establishment of the Sand and Dust Storm Warning Advisory and Assessment System West Asian regional node. The Centre also contributed to the Space Technology Applications for Drought, Flood, and Water Resource Management workshop organized by the United Nations Office for Outer Space Affairs and participated in the Regional Ministerial Meeting of Environmental Cooperation for a Better Future in the Islamic Republic of Iran. The Centre led the Working Group on Regional Cooperation and Mediation in the United Nations Coalition on Combating Sand and Dust Storms. It contributed to the Sand and Dust Storms Management and Mitigation in Central Asia workshop organized by the United Nations Convention to Combat Desertification (UNCCD) and the Regional Environment Centre for Central Asia (CAREC). The Centre also organized an online discussion in collaboration with the Arab Centre for Climate Change Policies (ACCCP) of ESCWA, focusing on enhancing understanding and expanding inter-regional and regional cooperation on sand and dust storms within the context of the United Nations Coalition on Combating Sand and Dust Storms. Additionally, the Centre contributed to the United Nations Convention to Combat Desertification Conference of Parties 15 (COP 15) and the United Nations Framework Convention on Climate Change (UNFCCC) pre- Conference of Parties 26 side event. It also contributed to the Final Workshop and Programme Formulation on the Inter-regional Technical Cooperation Programme (TCP) on Catalyzing Investments and Actions to Enhance Resilience Against Sand and Dust Storms in Agriculture, held in Abu Dhabi.

17. During the seventh session of the Centre's Governing Council, the Governing Council emphasized the importance of effective risk assessments and of impact-based forecasting, monitoring and early warning to better prevent and reduce the risk of disasters, build resilience and support the implementation of the Sendai Framework for Disaster Risk Reduction 2015–2030. The Governing Council recommended that the Centre incorporate those recommendations into its future programme of work and activities within the scope and mandate given to it.

IV. Work stream 3: technology innovation and applications

Capacity-building

18. The secretariat continues to respond to capacity-building demand by members and associate members through long-standing initiatives, such as the ESCAP Regional Drought Mechanism Drought Monitoring and Early Warning and training programs supported by regional centres for space science and technology education affiliated with the United Nations and those offered by ESCAP member states.

19. The ESCAP secretariat has been responding to emerging capacity development demands, such as those around building capacities to leverage the power of innovative digital applications to improve the processing, delivery, and utilization of geospatial information. While the opportunities for applying geospatial artificial intelligence to reduce the risk of disasters are well-documented, there are several challenges, including the lack of human capacities, that undermine the efforts of countries to maximize the full potential of this technology to reduce disaster risk. Since 2022, ESCAP has been working towards enhancing the capacity of flood mapping experts from national space agencies, disaster management agencies, and academia in Bangladesh, China, India, Indonesia, Japan, Kiribati, Pakistan, Republic of Korea, Russian Federation, Sri Lanka, and Thailand to use digital technology and geospatial information systems to map flood-related and wildfire disaster hotspots. Experts from these countries were assisted in developing flood hotspots and risk maps using open-source and easy-to-use models that use digital technologies, such as artificial intelligence, big Earth data, and cloud computing. In 2023, ESCAP continues to provide support towards validating the tools and to further improve them by integrating socio-economic data, land cover, building footprints, and machine learning algorithms to perform spatial flood probabilistic risk assessment modelling and mapping.

20. In 2022, ESCAP launched two Massive Open Online Courses (MOOCs) in collaboration with the United Nations University Institute for Water, Environment, and Health (INWEH) on using active and passive remote sensing for mapping floods and droughts. As of April 2023, more than 1,700 participants from 30 countries in the Asia-Pacific enrolled in the course, with more than 450 female participants. The Massive Open Online Courses focused on introducing the participants to the Google Earth Engine Code Editor platform and the implementation of Artificial Intelligence based surface water detection, drought detection, and monitoring algorithms.

21. Since 2018 to 2022, ESCAP has sponsored 24 young professionals from 12 developing countries to study postgraduate courses on remote sensing and geographic information system (GIS) for disaster management and sustainable development in the Centre for Space Science and Technology Education in Asia and the Pacific, and the Association of Southeast Asian Nations Research and Training Centre for Space Technology and Applications.

22. Space-based data can substantially augment ground-based observations to track the evolution of drought. Under the Asia-Pacific Plan of Action on Space Applications for Sustainable Development, the Regional Cooperative Mechanism for Drought Monitoring and Early Warning (RCM-DMEW) which has been one of the secretariat's flagship programmes under the Regional Space Applications Programme for Sustainable Development (RESAP) since 2013 has been expanded (in terms of the number of countries participating) and deepened (in terms of drought monitoring coverage and derivative

applications) through the regional service nodes operated in China, India, and Thailand. It has also expanded to Central Asia with support from the Russian Federation. As a result of these initiatives, countries that are prone to drought, such as Kazakhstan, and Kyrgyzstan, Mongolia, Sri Lanka, built their capacities to access and process geospatial data for drought early warning and monitoring.

V. Work stream 4: knowledge for policy

Knowledge products

23. The secretariat issued five subregional reports of the Asia Pacific Disaster Risk (APDR) to highlight the subregional specificities of the climate risk and vulnerability. 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 2023 edition of the report, which is to be launched at the Committee, highlights the expanding and cascading Asia-Pacific riskscape, the importance of transformative adaptation to disaster risk reduction and presents policy options for addressing these cascading risks.

24. In addition, an updated 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 with the latest Climate Information for Managing Risks in a Changing Climate (CIMP6) data 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 on a sector level.

25. The secretariat published the Geospatial Practices for Sustainable Development in South-East Asia 2022: A Compendium and an Executive Summary for Policymakers. The publication is part of a biennial series which aims to facilitate regional knowledge sharing, including on practices related to the uptake of geospatial information into policy. This 2022 edition features 12 innovative practices on disaster risk reduction and resilience in various sectors. The online database of geospatial practices and dashboard for reporting on the implementation of the Asia-Pacific Plan of Action on Space Applications for Sustainable Development (2018-2030) serves as a live repository of these practices from across the region. The secretariat also published a paper to explore strategic foresight applications of geospatial artificial intelligence (GeoAI) to support the achievement of the disaster risk reduction-related Sustainable Development Goals (SDGs).

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

26. The Issue-Based Coalition on Building Resilience of the United Nations Development System’s Regional Cooperation Platform serves as a platform for United Nations agencies to collaborate for accelerated action on disaster risk reduction, climate change adaptations, 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.

27. Together with the United Nations Office for Disaster Risk Reduction and the United Nations Development Programme (UNDP), the secretariat is leading the implementation of the work to enhance understanding of disaster and climate-related risks in Asia and the Pacific (work stream 2). ESCAP and United Nations Office for Disaster Risk Reduction as co-leads of the component on strengthening integration of health emergencies into disaster risk reduction throughout Asia Pacific, along with partners such as United Nations Population Fund (UNFPA) and United Nations Office for Project Services (UNOPS), are jointly developing guidance tools that will support the implementation of the health aspects of the Sendai Framework, specifically by taking note of the Bangkok Principles and other regional and sub-regional frameworks that promote an integrated health approach. The guidance tools will be shared with member states and experts during the 2024 Global Platform on Disaster Reduction followed by the Asia-Pacific Ministerial Conference on Disaster Reduction.

28. Two other key areas covered by the Coalition are on accelerating the work on durable solutions to internal displacement, in the context of disasters in Asia and the Pacific and engaging youth in regional dialogues on climate actions and building resilience. To support implementation of the Secretary General's Action Agenda on Internal Displacement, the International Organization for Migration (IOM) and the United Nations Office for Disaster Risk Reduction, in partnership with Development Coordination Office (DCO), Office of the United Nations High Commissioner for Refugees (UNHCR) and UNDP, as well as external partners as International Council of Voluntary Agencies (ICVA) and International Federation of Red Cross and Red Crescent Societies (IFRC), led a deep-dive session for the Resident Coordinators and the United Nations Country Teams. The fruitful dialogue led to the creation of a community of practice on how to support Resident Coordinator Offices (RCOs) and other partners in scaling up their work on averting, minimizing, and addressing disaster displacement.

29. Young professionals in Asia and the Pacific were provided support with their initiatives in science, engineering, technology, and innovation (SETI) to support Disaster Risk Reduction and climate change. Led by the United Nations Educational, Scientific and Cultural Organization (UNESCO), together with Inspire Alliance, a publication on the Future Literacy of Disaster Risk Reduction, engaging hundred plus young professionals, was published. Building on the cases of Cambodia and Vietnam, the scale-up of the child centered and vulnerability-focused risk assessment frameworks were showcased to SDG practitioners in the region via a virtual dialogue led by United Nations Children's Fund (UNICEF), United Nations Office for Disaster Risk Reduction and UNDP.

30. In 2023, the coalition will scale-up support to strengthening countries, national and subnational capacities, and United Nations Country Team (UNCT)'s technical abilities on how to mainstream disaster risk reduction and resilience across strategic documents. The coalition will also produce knowledge products demonstrating the need and pathways of integration of health and disaster risk reduction systems to build resilience to the disaster-climate-health nexus in the region. Furthermore, it will continue to provide support to governments with the implementation of the Sendai Framework Mid-Term Review recommendations by enhancing understanding of climate related risks, providing capacity building to policymakers to promote gender

responsive climate action and supporting member states to provide durable solutions to disaster and climate-related internal displacement.

31. 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, the secretariat 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. In partnership with FAO and WMO, the secretariat is also supporting ASEAN to align the ASEAN Regional Plan of Action for Adaptation to Drought 2021–2025 with the ASEAN Framework on Anticipatory Action in Disaster Management to further strengthen drought adaptation and risk-informed early action.
