Enhancing the Capacity for Impact-based-Forecasting for Resilience

Asia Pacific Disaster Resilience Network (APDRN)

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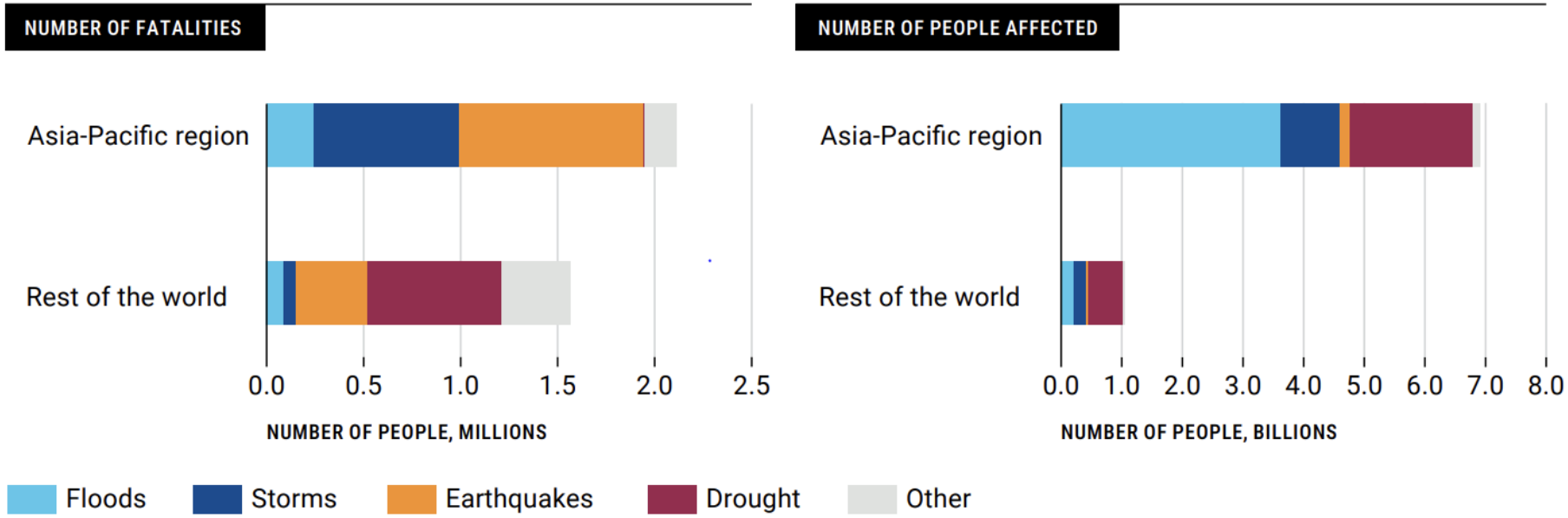
Climate-related hazards have greatly affected countries in the Asia-Pacific region.

Since 1970, around **half of Asia-Pacific fatalities** and **most of the affected** from natural disasters were from tropical cyclones/floods/droughts.

Number of fatalities and people affected in the Asia-Pacific region and the rest of the world, 1970-2020

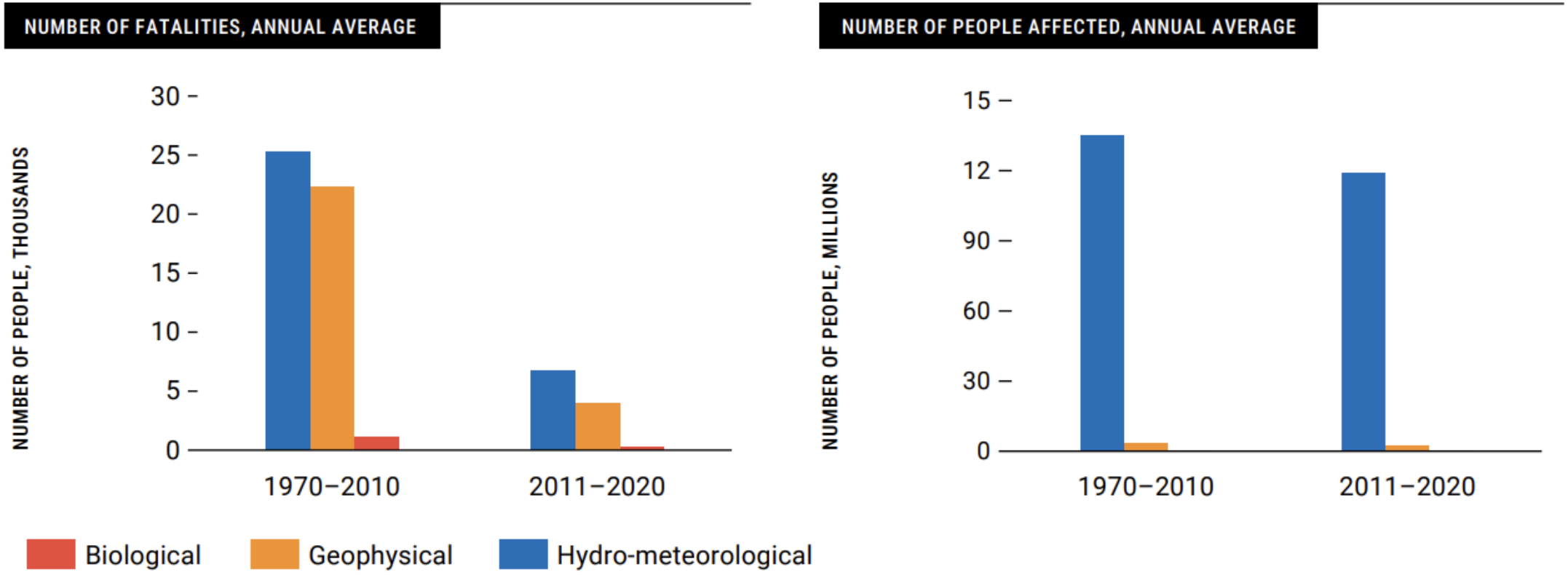


Source: Data from EM-DAT – The International Disaster Database. Available at https://www.emdat.be/ (accessed on 4 May 2021).

ESCAP (2021) Asia-Pacific Disaster Report 2021

Number of fatalities has reduced, but number of people affected has not.

Number of fatalities and people affected in the Asia-Pacific region, 1970-2020



Source: Data from EM-DAT – The International Disaster Database. Available at https://www.emdat.be/ (accessed on 4 May 2021).

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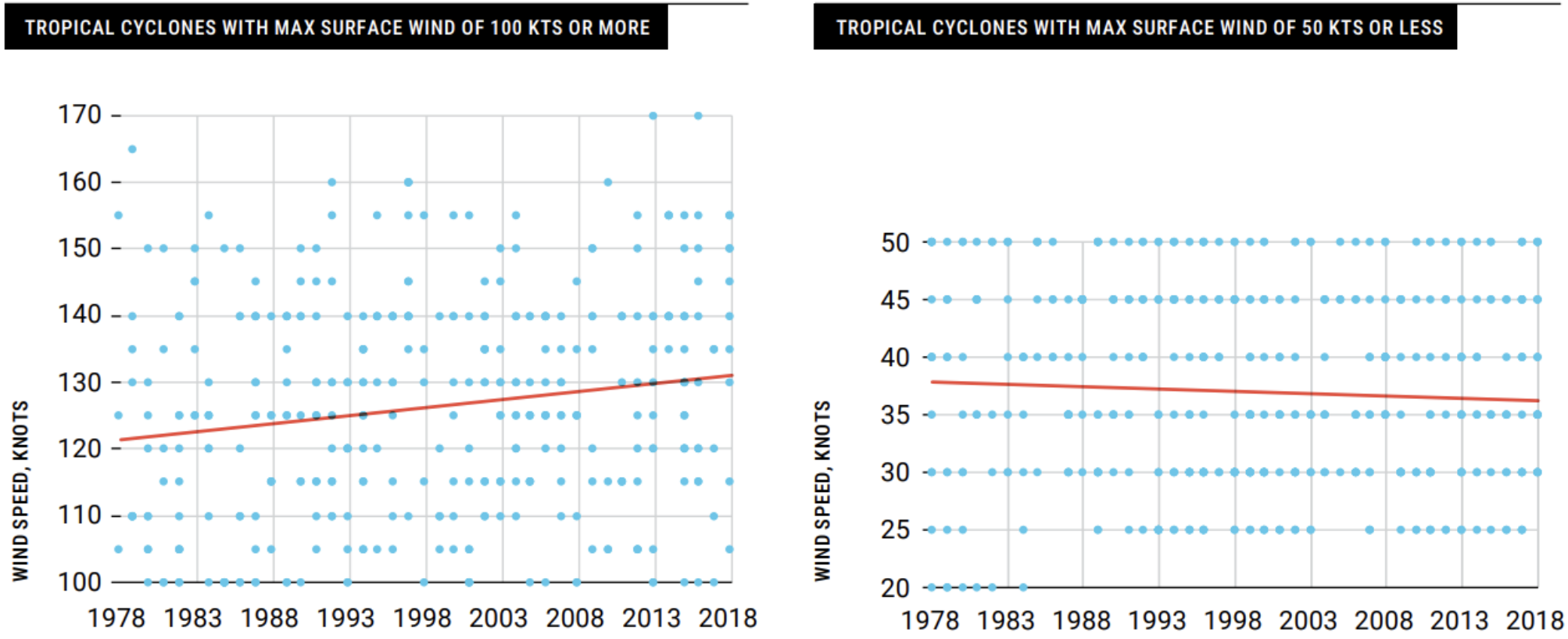
Intensity of tropical cyclones in the Western North Pacific…

The strongest cyclones, which have a maximum surface wind speed of 100 knots or more, seem to have been getting stronger.

Wind speeds of tropical cyclones in the Western North Pacific, 1978-2018



Source: Data from Joint Typhoon Warning Center (JTWC), Annual Tropical Cyclone Reports.

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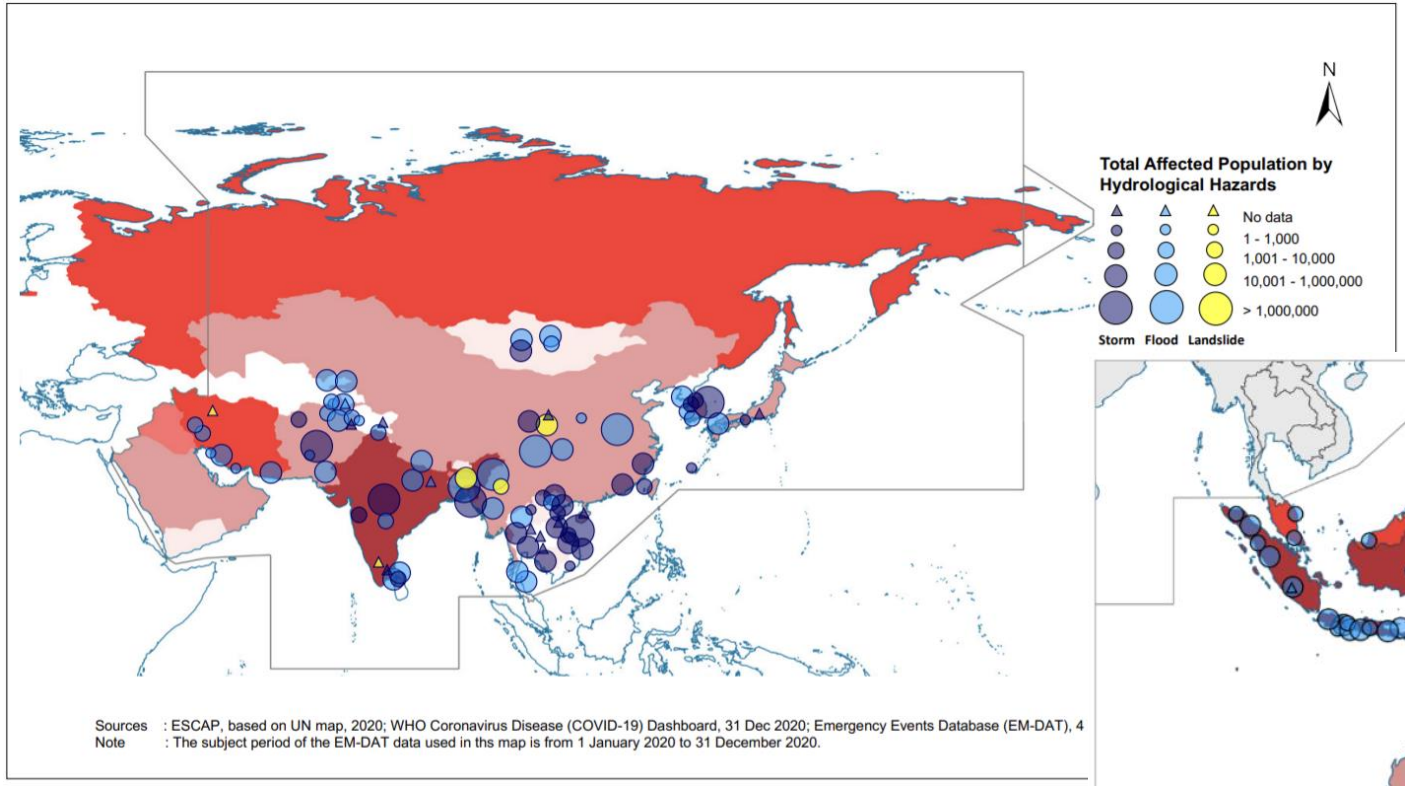
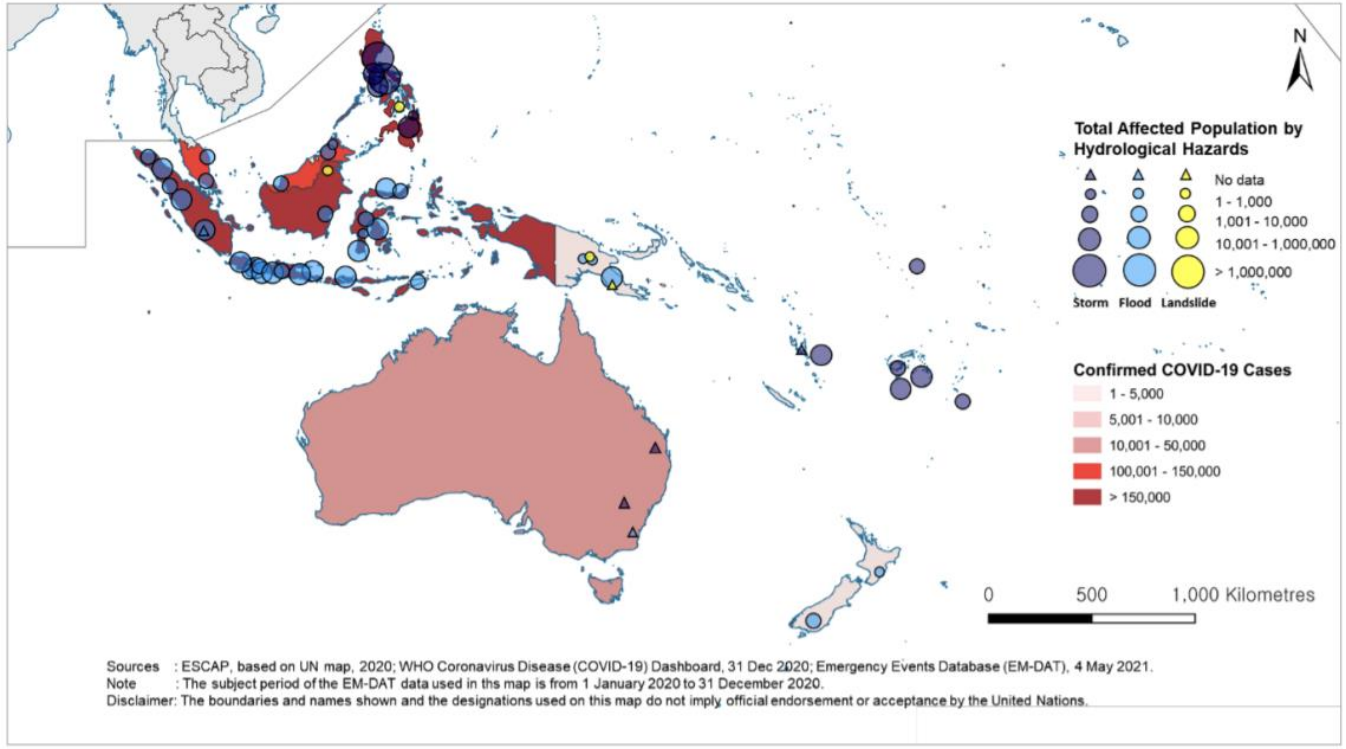
Climate-related hazards converging with COVID-19



Countries have faced **cascading risks** from the pandemic & other hazards.

WMO (2021) State of the climate in Asia 2020 & State of the climate in SW Pacific 2020



Impact-based forecasting can provide valuable information for policymakers, stakeholders and the public to address these risks.

ESCAP mandates

2015 **ESCAP Resolution 71/12 Strengthening Regional Cooperation Mechanism for the Implementation of the SFDRR 2015-2030 in Asia and the Pacific**

- *To guide actions… **to strengthen** disaster risk modelling, assessment, mapping, monitoring and **multi-hazard early warning systems**…, **particularly those related to hydrometeorological issues**, by deepening existing regional cooperation mechanisms…*

2017 **ESCAP Resolution 73/7 Enhancing regional cooperation for the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030 in Asia and the Pacific**

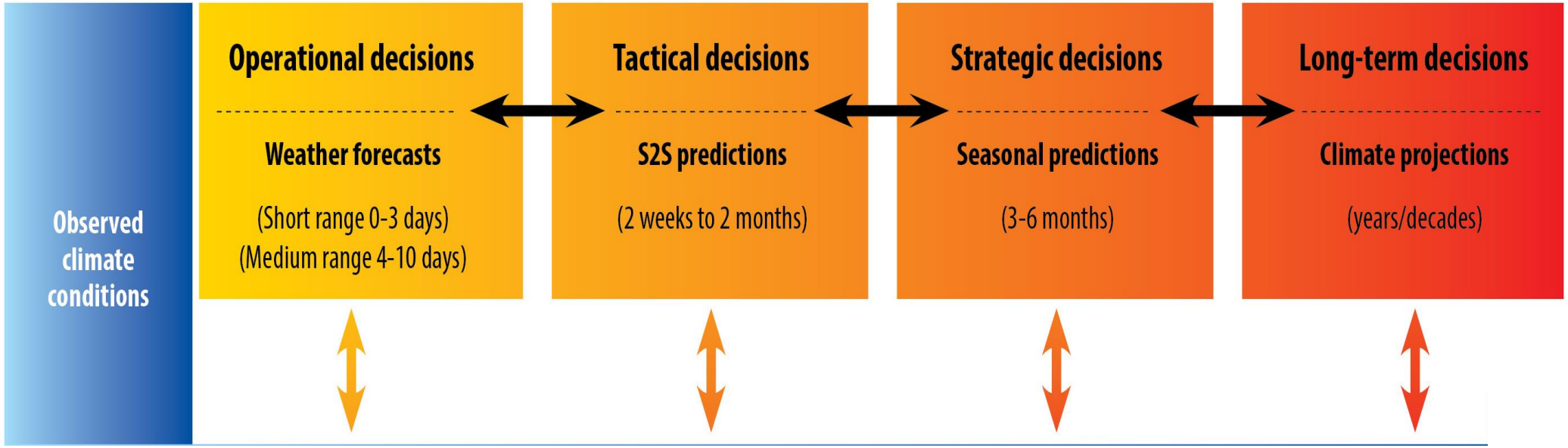
- *Continue to support and facilitate **multi-hazard early warning systems, impact-based forecasting** and disaster risk assessment to strengthen regional cooperation mechanisms;*

2021 ***7th Session of ESCAP Committee on Disaster Risk Reduction*** *& 3rd ESCAP Disaster Resilience Week*

- Thematic expert meeting **on the implementation of the health aspects of the Sendai Framework** for Disaster Risk Reduction – **recognized impact-based forecasting as an important measure**
- *Committee recommended … to promote multi-hazard early warning systems, including through **impact-based forecasting approach for the detection of hazards with reasonable lead time**…*

Impact-based forecasting

- A structured approach for **combining hazard, exposure and vulnerability data** to **identify risk** and support decision-making
- Moving from broadcasting ***what the weather will be*** to ***what the weather will do***
- Synthesizing weather information with exposure and vulnerability information to **identify the range of risks faced over an area**
- Impact-based forecasting, in different timescale, can help decisions of relevant stakeholders.

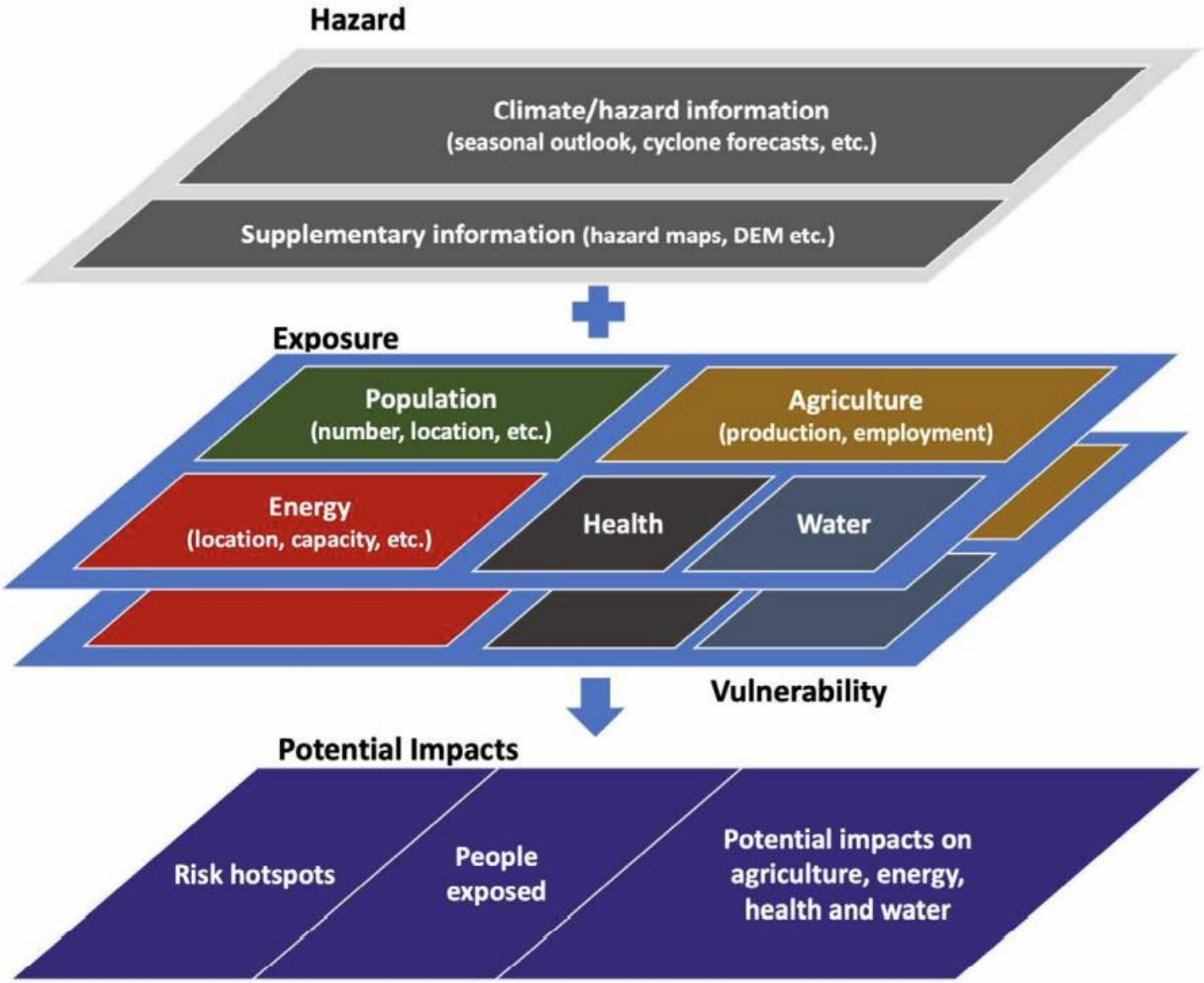


Source: ESCAP(2018) Asia-Pacific Disaster Report 2017

ESCAP approach for Impact-based Forecasting

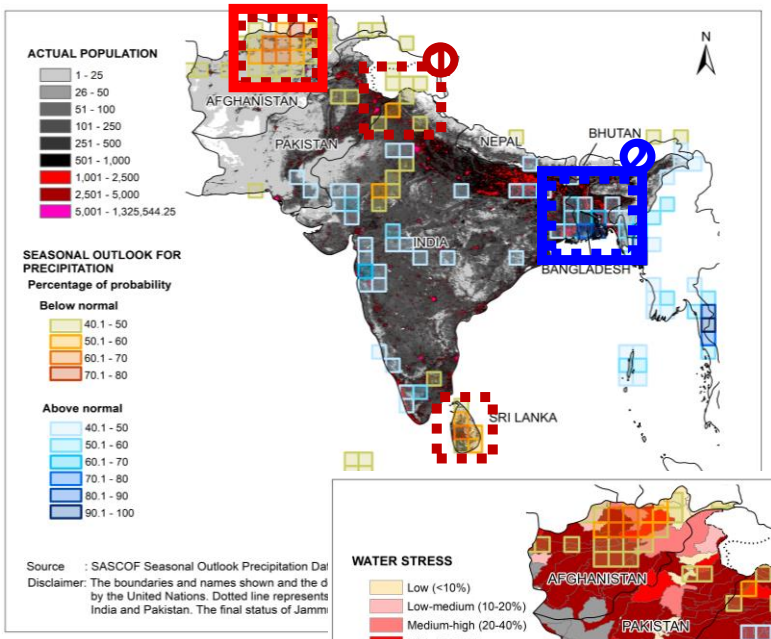
Global Framework for Climate Services of WMO
(https://gfcs.wmo.int/)

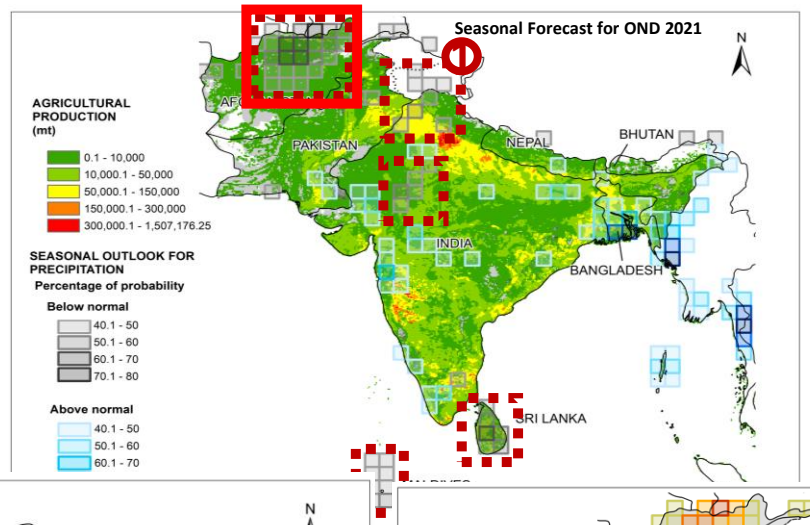
Priority areas
- Agriculture and food security
- Disaster risk reduction
- Energy
- Health
- Water

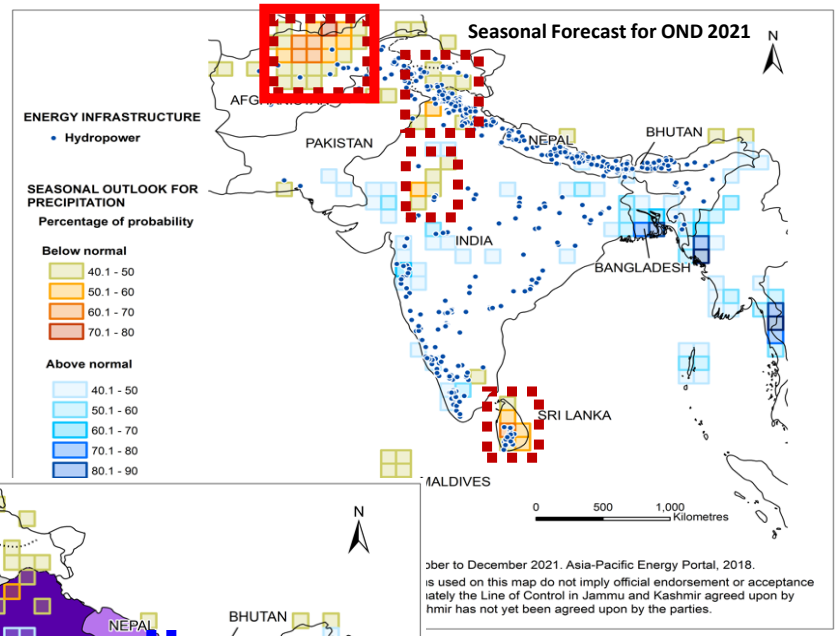


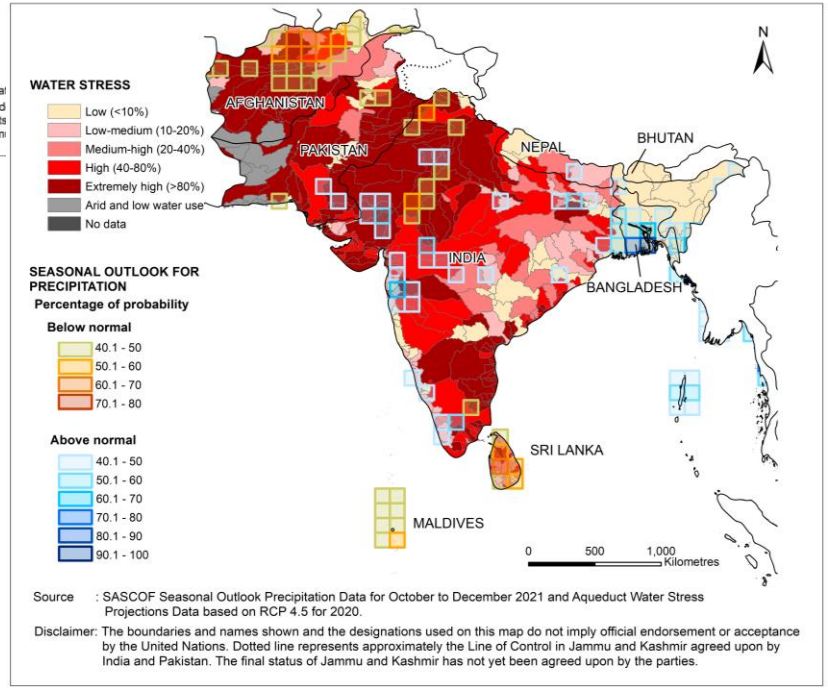
Source: ESCAP (2021) Overview of the work of secretariat and the UN system at the regional level. ESCAP/CDR/2021/INF/1

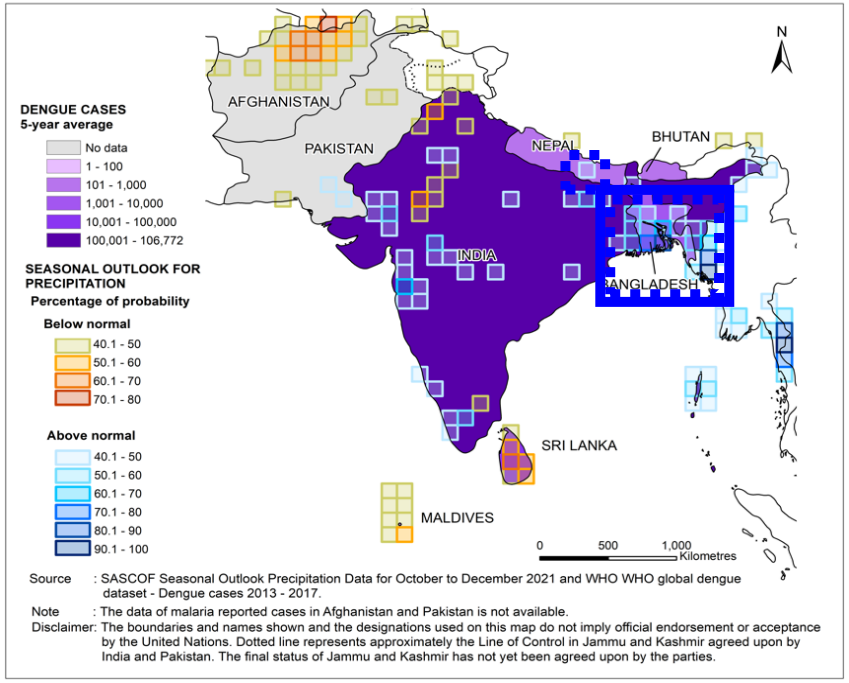
Demonstrative cases of impact-based forecasting for various sectors





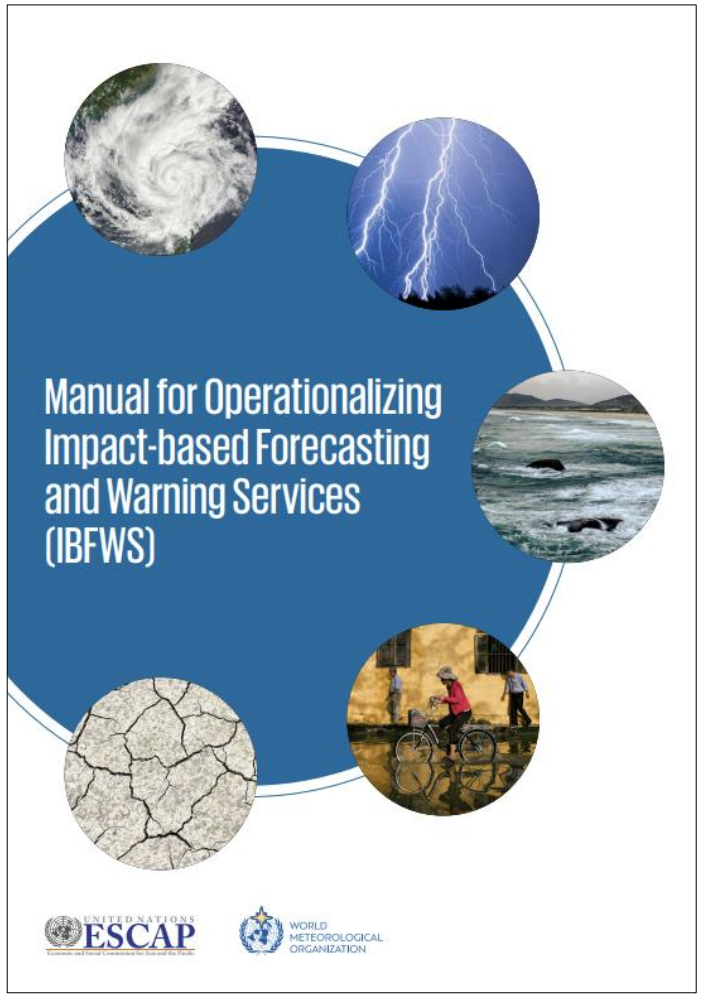


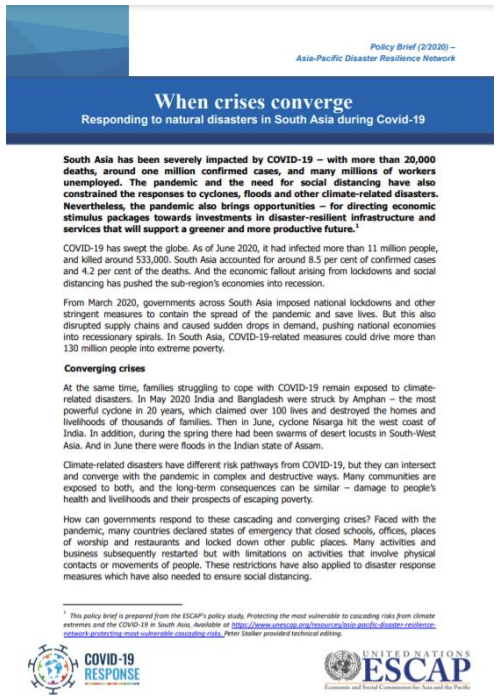




Asia-Pacific Disaster Resilience Network (APDRN) products

Training Manual and Working papers on IBF





Available at https://www.unescap.org/kp?f%5B0%5D=kp_category_facet%3A329

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OPERATIONALIZING IMPACT-BASED FORECASTING AND WARNING SERVICES

This manual was developed under the project "Operationalizing Impact-based Forecasting and Warning Services (IBFWS)", to support the capacity of the Viet Nam Meteorological and Hydrological Administration (VNMHA) to provide impact-based forecasting and early warning services. The objective is to introduce impact-based forecasting and the substantive steps for producing an impact-based forecast, with a focus on the local context of Viet Nam.

ABSTRACT

Traditionally, governments have employed hazard-focused warnings to communicate impending extreme weather conditions. However, while providing scientifically accurate information is important, it is critical to communicate what people need to know to effectively respond to hazard risks. This indicates a need to communicate specific and relevant potential consequences with respect to local contexts, not just for public end-users, but as well for different sectors and agencies. The development of this communication entails synthesizing weather information with quasi-static information on exposure and vulnerability profiles to identify the range of risks in an area. The identification of different levels of risks and impacts enables the issuance of different warnings to encourage adequate responses by relevant users to reduce damage and losses.

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