



APDIM

Asian and Pacific Centre for
the Development of Disaster
Information Management

Sand and Dust Storms at Regional Scale: Opportunities for Partnership and Cooperation

Asian Conference on Disaster Reduction 2019

25–27 November 2019

Ankara, Republic of Turkey

Mostafa Mohaghegh

Senior Coordinator, APDIM

Mostafa.mohaghegh@un.org

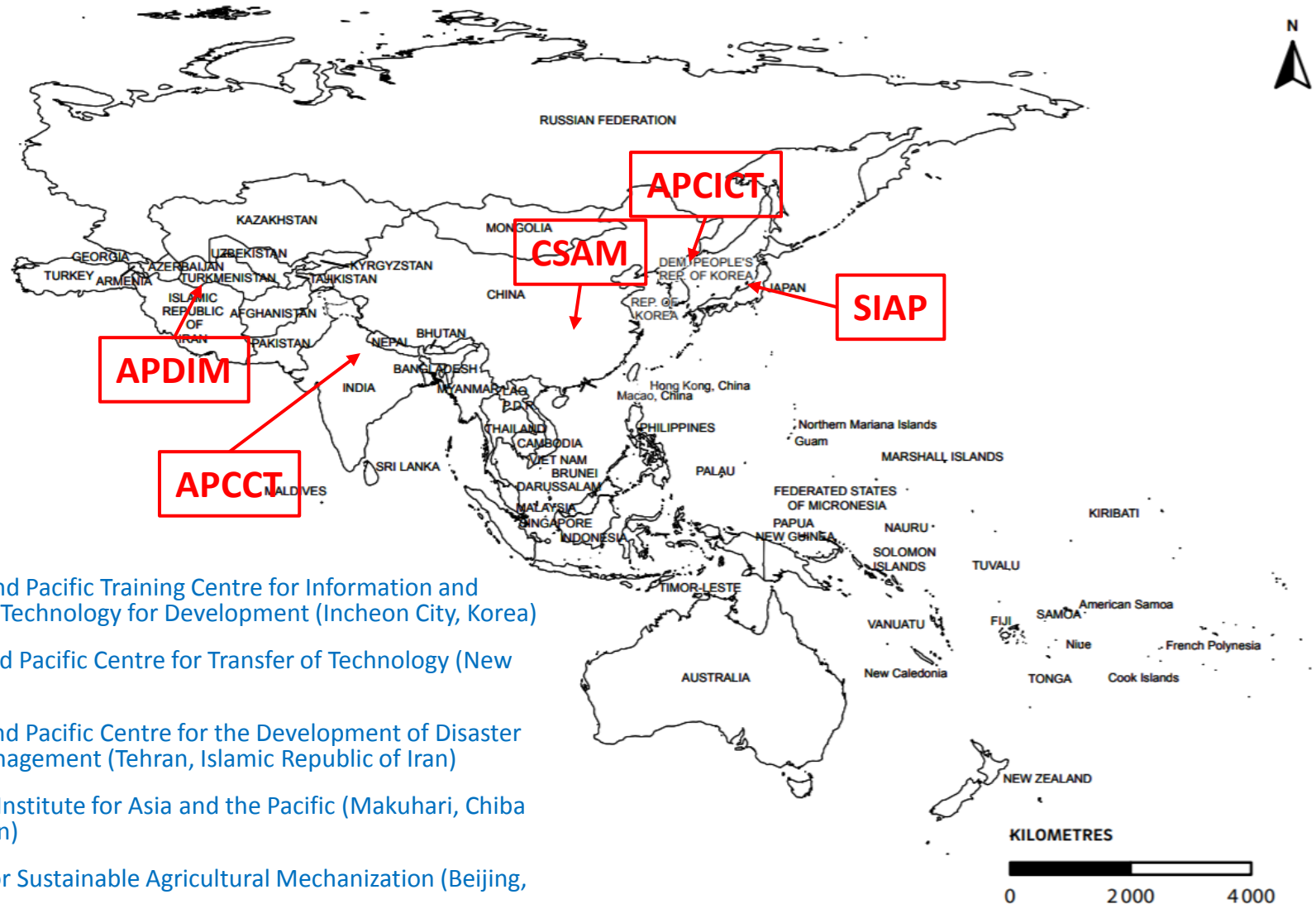


APDIM

Asian and Pacific Centre for
the Development of Disaster
Information Management

1. About APDIM

ESCAP's regional institutions:



- **APCICT**: Asian and Pacific Training Centre for Information and Communication Technology for Development (Incheon City, Korea)
- **APCCT**: Asian and Pacific Centre for Transfer of Technology (New Delhi, India)
- **APDIM**: Asian and Pacific Centre for the Development of Disaster Information Management (Tehran, Islamic Republic of Iran)
- **SIAP**: Statistical Institute for Asia and the Pacific (Makuhari, Chiba Prefecture, Japan)
- **CSAM**: Centre for Sustainable Agricultural Mechanization (Beijing, China).



APDIM
Asian and Pacific Centre for
the Development of Disaster
Information Management

Mandate

ESCAP Resolution 71/11

Establish the Asian and Pacific
Centre for the Development of
Disaster Information Management
(APDIM)

Subsidiary body of ESCAP:

APDIM is aligned with and
contributes to the strategic
framework and programme of work
of ESCAP

Goal and objective of APDIM

1. Reducing human casualties, economic damage and negative consequences of natural hazards through strengthening disaster information management in Asia and the Pacific.
2. Strengthening the capacity of countries in the region and regional organization to manage disaster information and disaster risk reduction.
3. Assisting the strengthening of regional cooperation and coordination between countries and regional organizations in disaster information management with the aim of achieving the socio-economic development of nations and achieving internationally agreed development goals, in particular those related to Sendai framework for disaster risk reduction 2015-2030 and the SDGs.



Strategic focus:

Regional and South-South cooperation for addressing shared vulnerabilities arising from cross-border disasters through innovation



Service lines

Repository of
information, data
and knowledge
repository

Training, knowledge
and experience
sharing

Information services
on innovations for
cross-border
disasters

Three pillars conveying APDIM's thematic priorities

Information and knowledge repository

Regional repository of databases, information and knowledge

Regional hub of new tools, techniques and standards for information management

Capacity development

Regional capacity development hub for exchange of expertise, experiences and knowledge

Demand driven and customized training services to address information and knowledge gaps

Regional information services for cross-border disasters

Specialized services (geospatial & statistical) for cross-border disasters

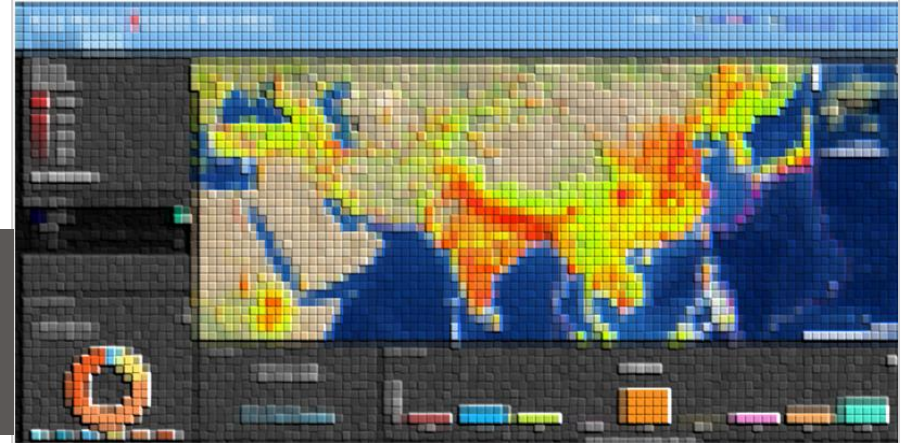
Regional information (maps & databases) for cross-border disasters



Information and knowledge repository pillar

Establishing regional cloud-based metadata platform

- Asia-Pacific Disaster Risk Atlas
- Operationalize the Atlas as regional online repository of multi-hazard risk information related to cross-border disasters



Asia-Pacific Disaster Risk Atlas



Application of APDIM Disaster Risk Atlas for SDS risk and damage assessment

Short-term forecast vs Long-term projection

1. Impact-based SDS risk forecast: By integrating layers of vulnerability and exposure information into short-term SDS forecast.
2. Long-term risk and loss assessment (AAL): By integrating long-term SDS hazard projection into vulnerability/exposure maps.
3. APDIM's mandate on the early warning network and close cooperation with WMO (ESCAP MOU with WMO). The work underway on impact-based forecasting



Capacity development pillar

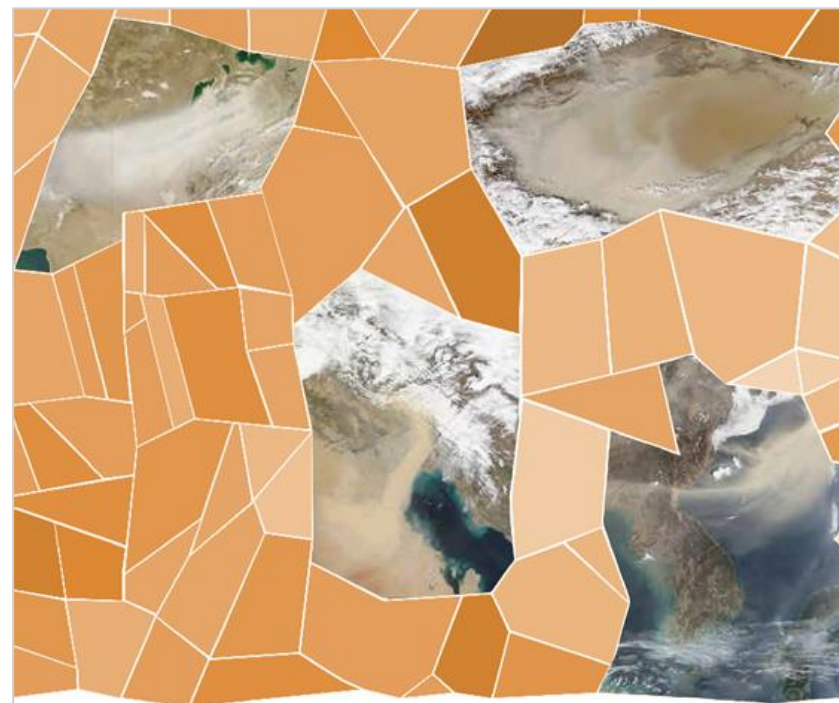
Capacity development programme focusing on Sendai Framework monitoring and disaster loss databases

- National training on Sendai Framework Monitoring in the Islamic Republic of Iran as initial pilot country in 2019.
- Capacity development on retrofitting of disaster loss databases in the Islamic Republic of Iran with NDMO and UNCT, in partnership with UNDP/GCDS
- Regional training programmes on disaster information management in multi-hazard risks in partnership with regional and national centres of excellence

Information services for cross-border disasters pillar

Regional slow-onset hazards network and alert system (with a focus on sand and dust storm)

- High-level Expert Consultation on “Regional Cooperation for Combating Sand and Dust Storms in Asia and the Pacific” [January 2018](#)
- Analytical report on “Sand and Dust Storms in Asia and the Pacific: Opportunities for Regional Cooperation and Action” [May 2018](#)
- AMCDRR 2018 side event on “Building resilience to slow-onset disasters: implications for regional cooperation” [July 2018](#)
- Expert Consultation on “Regional Cooperation for Building Resilience to Slow-Onset Disasters, including Sand and Dust Storms” [November 2018](#)



Sand and Dust Storms in Asia and the Pacific:

Opportunities for Regional Cooperation and Action



APDIM

Asian and Pacific Centre for
the Development of Disaster
Information Management

2. Critical gaps in reducing risk and negative impacts of sand and dust storm

2.1. Understanding the sources, assessing the risk and forecasting the impacts of sand and dust storms

Transportation infrastructures exposure to EQ and Landslide

Transportation Infrastructure

- Port
- Airport

Asian highway roads

Bridge length

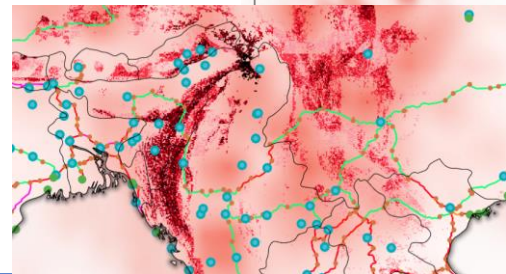
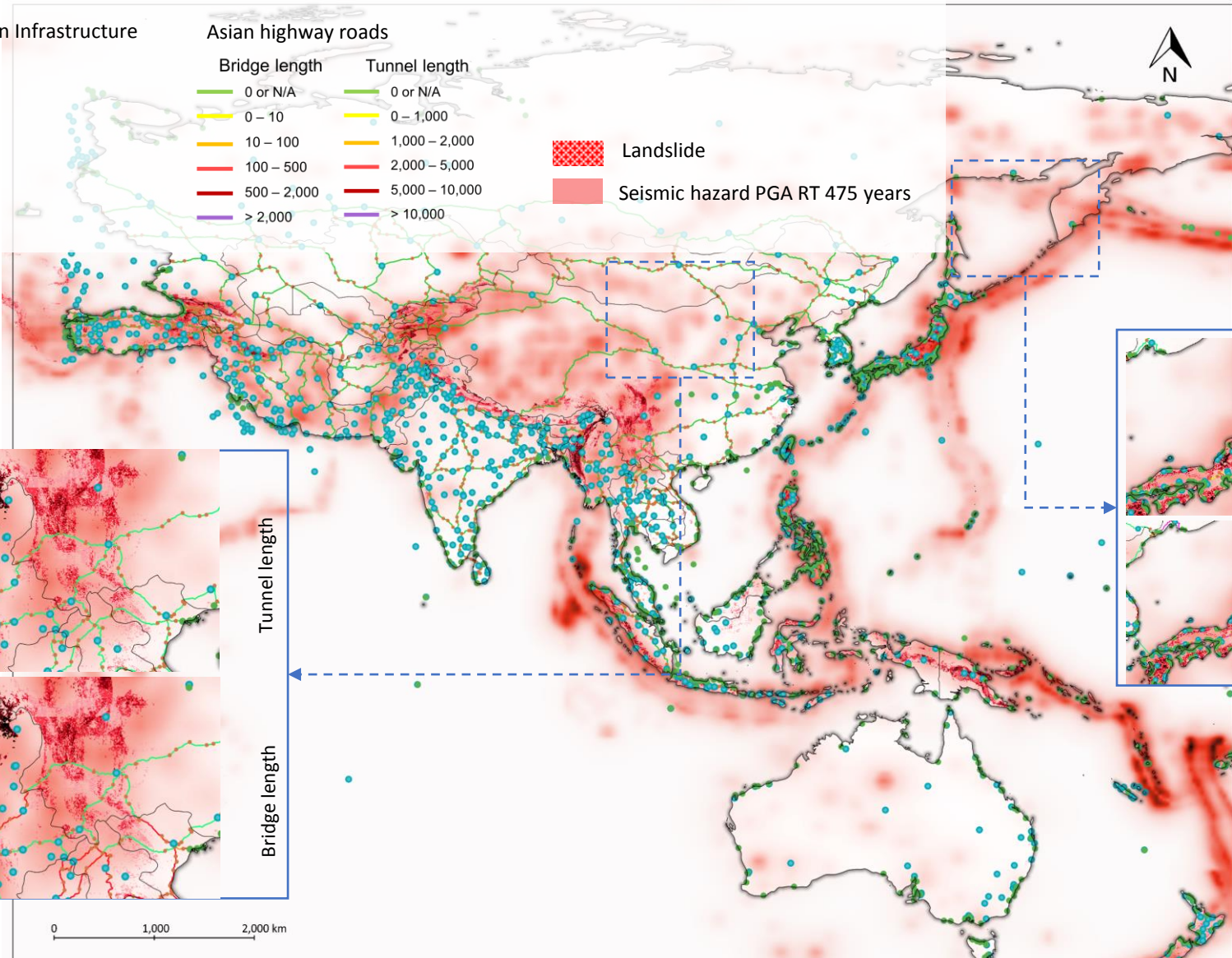
- 0 or N/A
- 0 – 10
- 10 – 100
- 100 – 500
- 500 – 2,000
- > 2,000

Tunnel length

- 0 or N/A
- 0 – 1,000
- 1,000 – 2,000
- 2,000 – 5,000
- 5,000 – 10,000
- > 10,000

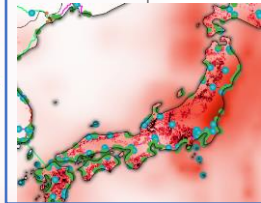
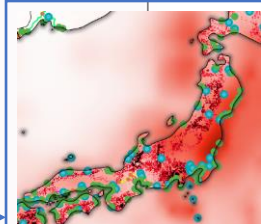
● Landslide

■ Seismic hazard PGA RT 475 years



Tunnel length

Bridge length



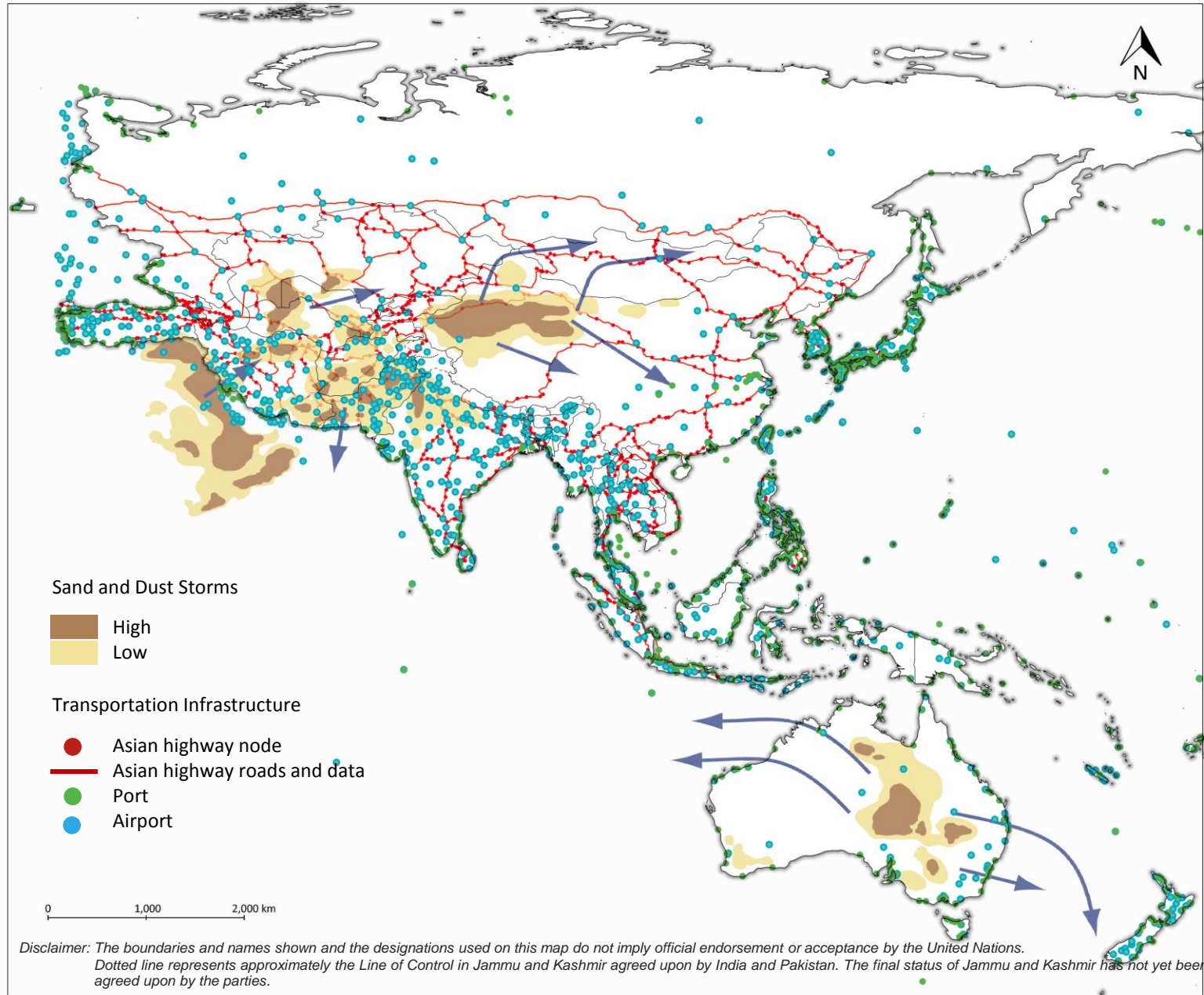
Tunnel length

Bridge length

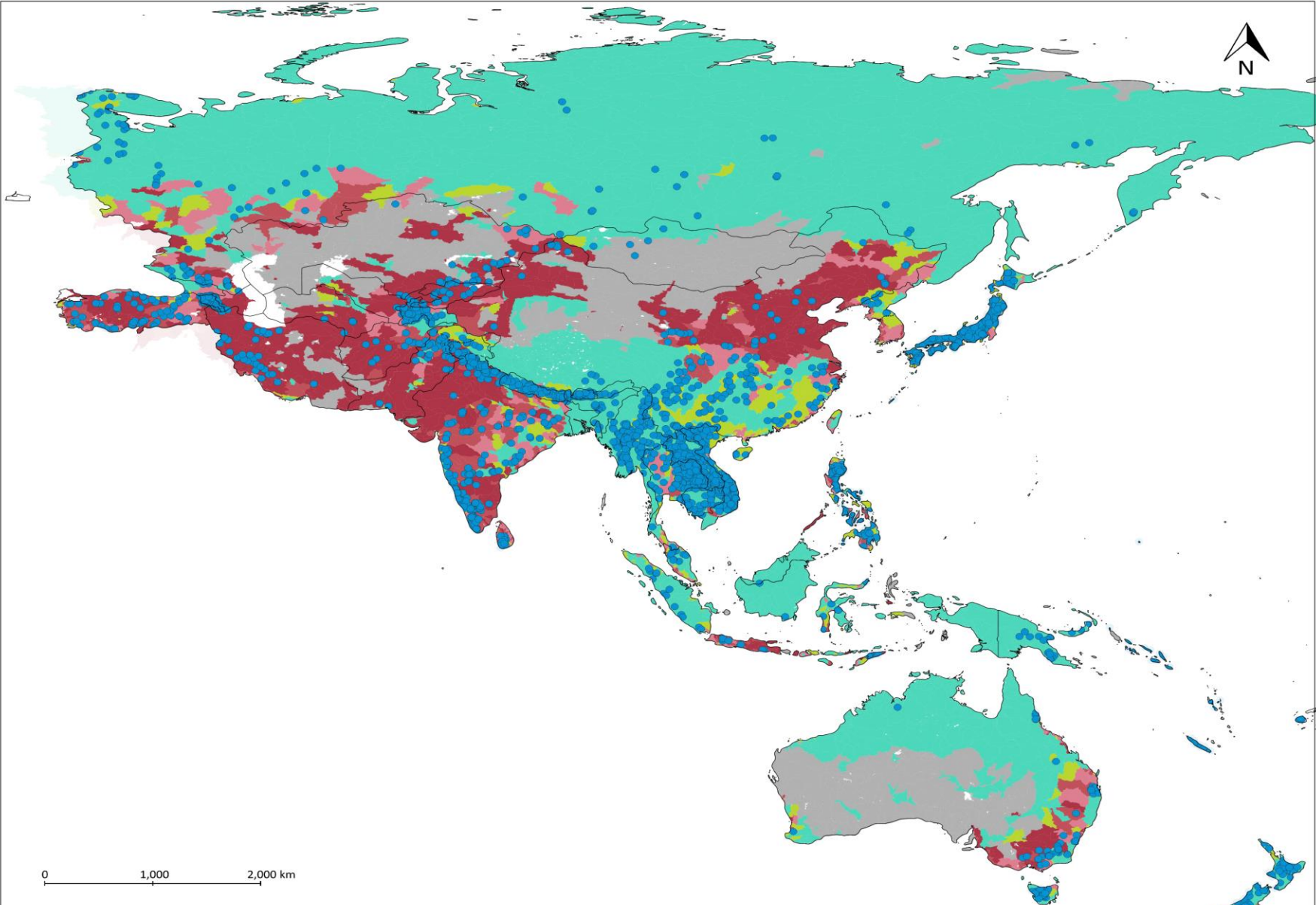


Disclaimer: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

Transportation infrastructures exposure to Sand and dust storms

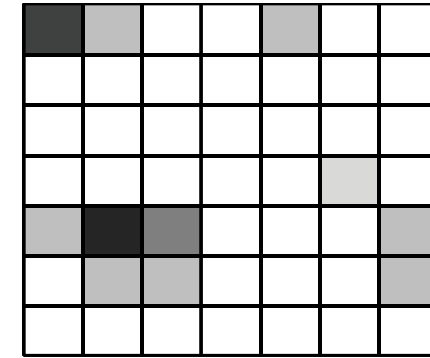
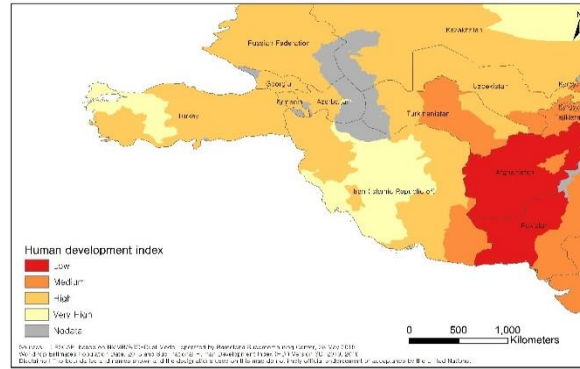
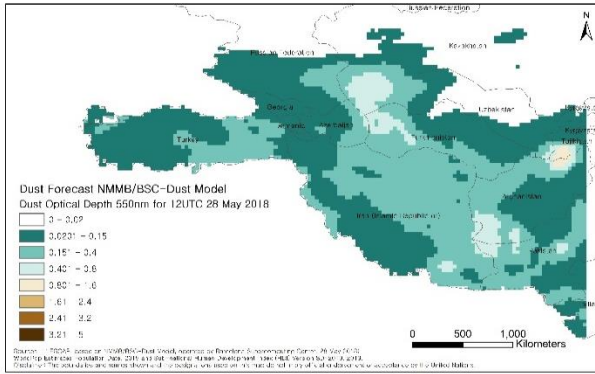


Many hydropower stations would experience water scarcity by 2030



Disclaimer: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

SDS Impact Forecasting: methodological Framework



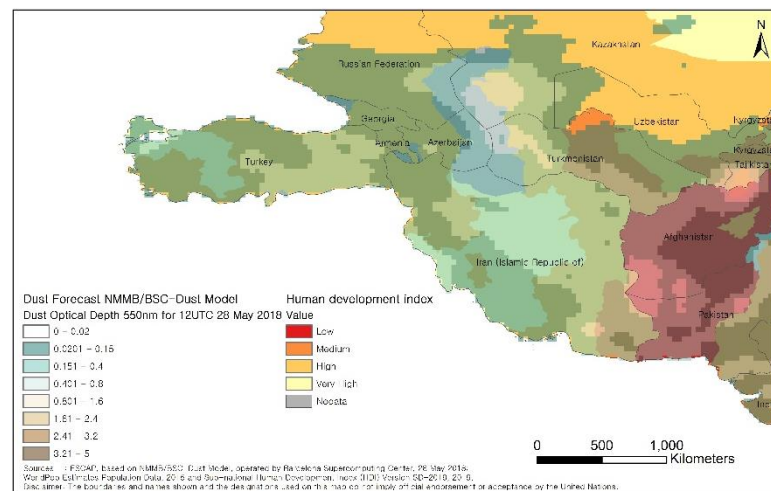
Dust forecast data
NMMB/BSC-Dust –
Barcelona Supercomputing
Center.

Human development
index(Subnational) –
UNDP

Gridded population
data - **Worldpop**

Overlaying

**Sub-regional
Impact
Forecasting of
SDS Event
28 May 2018**

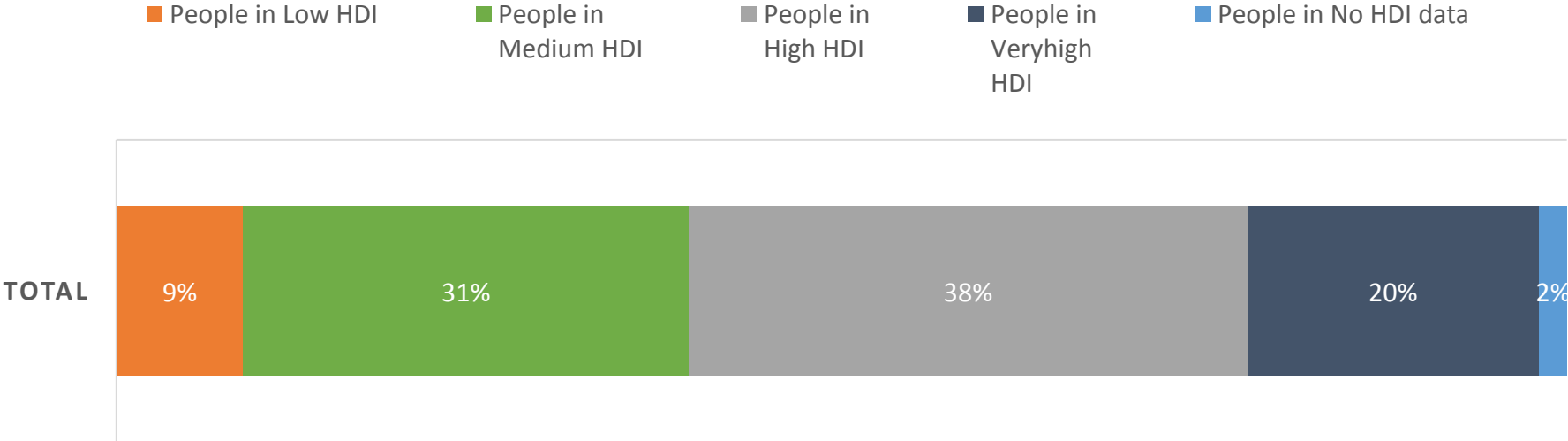


**Central and
South Asia**

Results Key messages

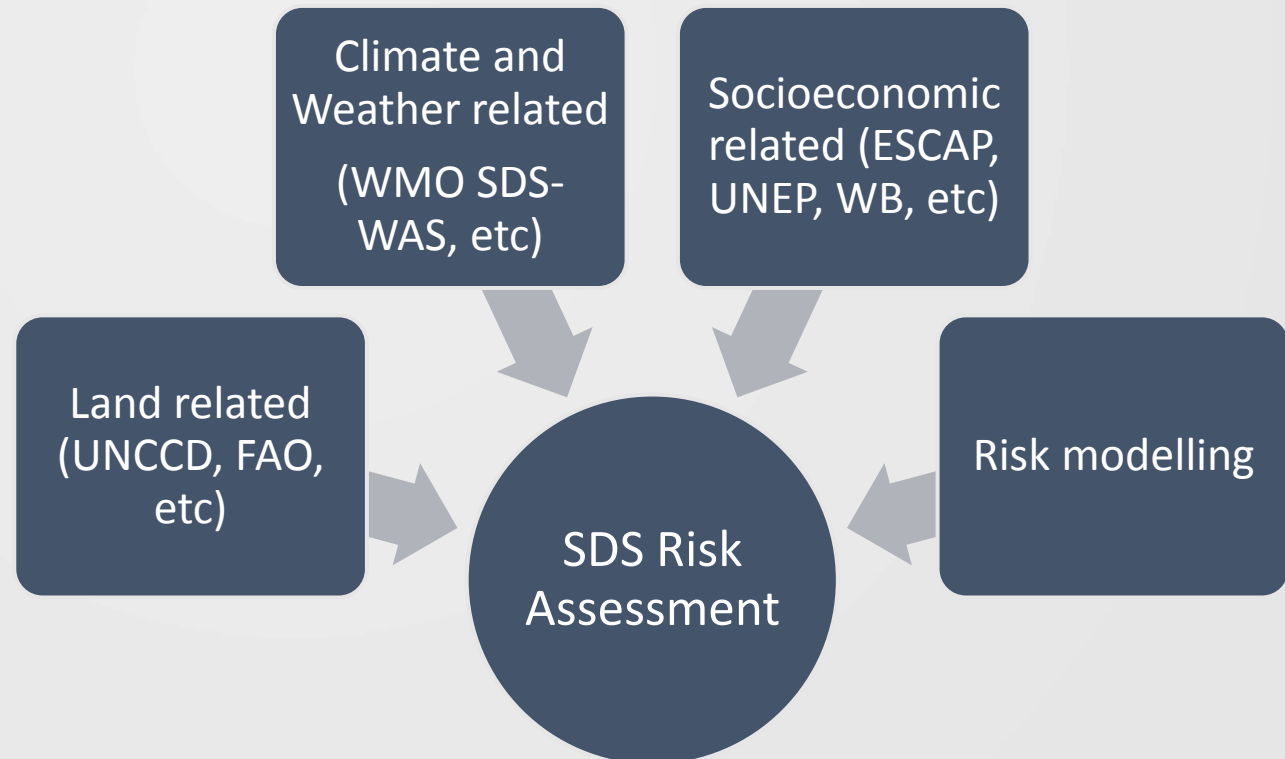
- 1. **324 million people** are in the range of SDS impacts
- 2. **4.704 billion dollars** of economic stocks are exposed.
- 3. **127 million people** are in the Low and Medium Human Development Index area

The population ratio based on the level of Human Development Index(HDI) in the forecasted sand and dust storm area



Key areas for effective SDS Risk Assessment:

- i. Land use issues (land degradation, desertification, and water resource management);
- ii. Climate and weather-related issues,
- iii. Socio-economic vulnerability/exposure.
- iv. Risk modelling



Key questions to be addressed

What are the objectives and use of regional SDS hazard and risk assessments?

What risk assessment methodology would be most useful in developing an overview of the SDS risk in the region up to 2030?

What data and indicators would be needed?

What kind of data is currently available for SDS risk assessment and which organizations collect that data?

What kind of data is needed for SDS risk assessment that is not currently being collected? (data gap)

What is the way forward?



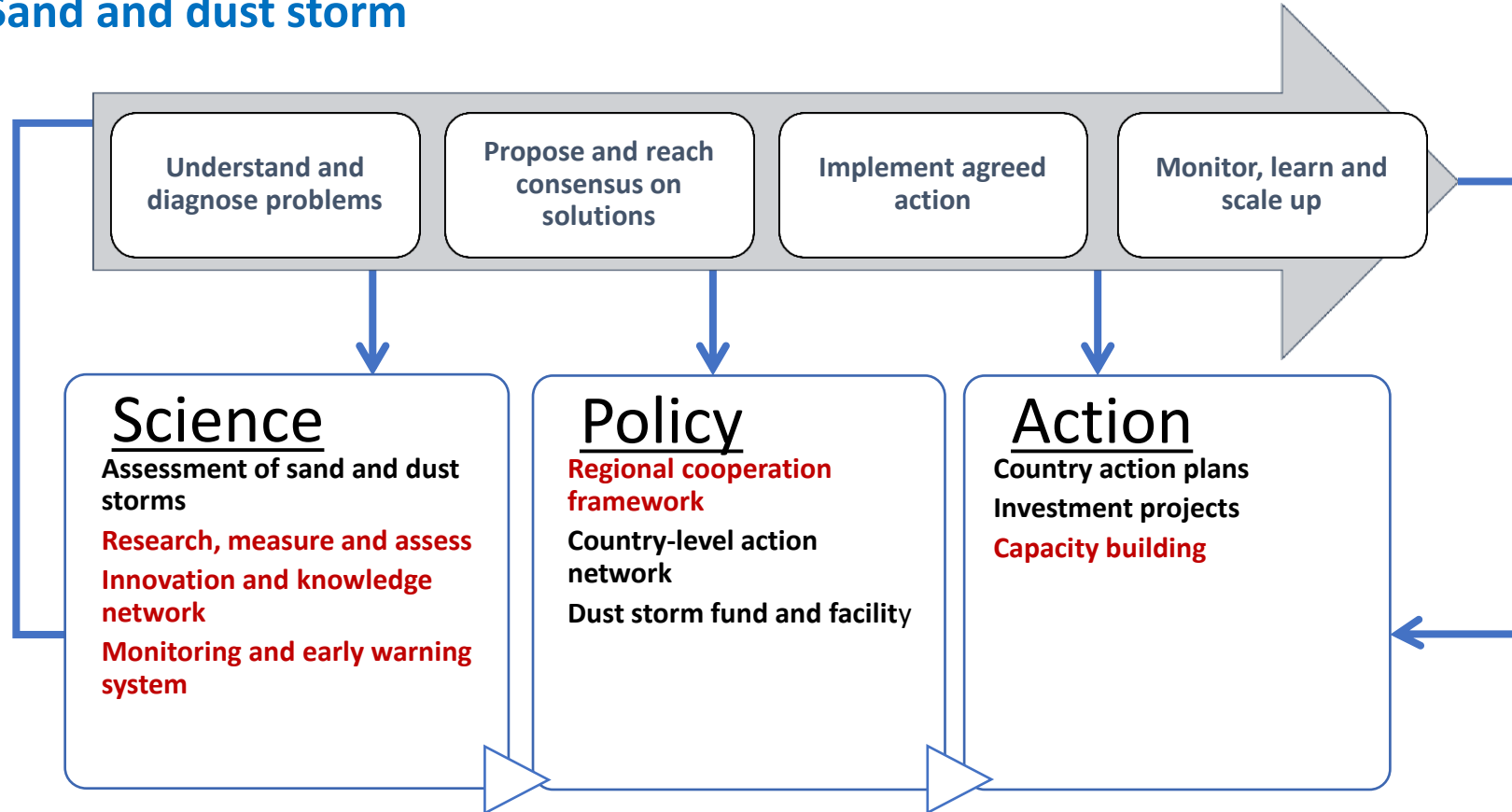
APDIM

Asian and Pacific Centre for
the Development of Disaster
Information Management

2. Critical gaps in reducing risk and negative impacts of sand and dust storm

2.2 Policy for sand and dust storm risk management

Science , Policy , Action Nexus Sand and dust storm



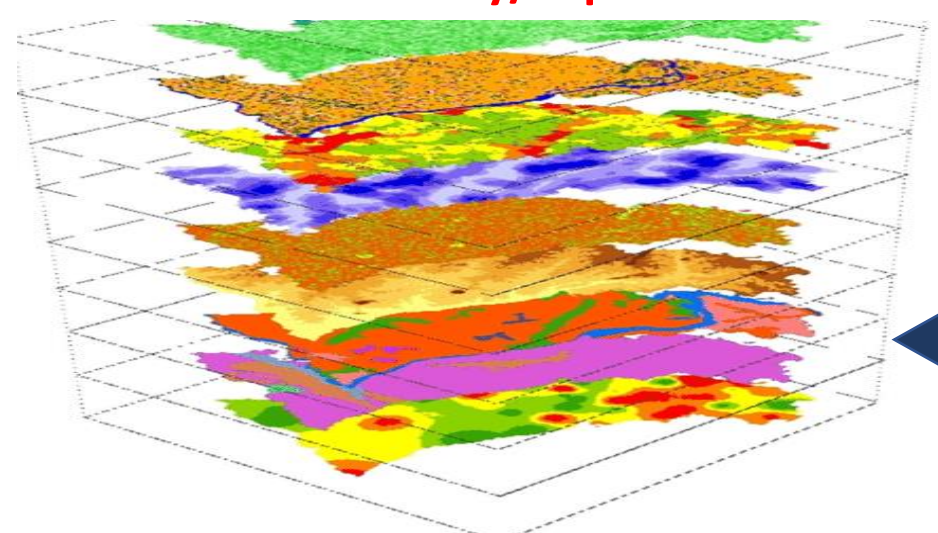


Impact-based SDS risk forecast

Hazard



Vulnerability/Exposure



Socioeconomic vulnerability layer (transportation, energy, ICT, economic stock, population, etc)

Long-term loss projection (Average Annual Loss)



THE DISASTER RISKScape ACROSS ASIA-PACIFIC

PATHWAYS FOR RESILIENCE,
INCLUSION AND EMPOWERMENT
Asia-Pacific Disaster Report 2019



UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific



APDIM
Asian and Pacific Centre for
the Development of Disaster
Information Management



APDIM

Asian and Pacific Centre for
the Development of Disaster
Information Management

Key messages of Asia-Pacific Disaster Report 2019

1. Economic losses are on the rise
2. Disaster risks accumulate and cluster in four hotspots (Environmental fragility, poverty and disaster risk converging in four risk hotspots)
3. Disasters widen inequalities in incomes and opportunities
4. Invest in resilience to outpace risk
5. Empower the poor through big data and new technologies



APDIM

Asian and Pacific Centre for
the Development of Disaster
Information Management

2. Critical gaps in reducing risk and negative impacts of sand and dust storm

2.3. Regional and sub-regional cooperation

The Asia-Pacific Disaster Resilience Network:

A part of Regional Road Map for implementation of 2030 Agenda for Sustainable Development
Progress is reported to Asia-Pacific Forum for Sustainable Development linked with HLPF

**Regional platform for multi-hazard
early warning systems**

Hazard cluster approach to partnership networks



**Extreme
weather events**

**Tropical
cyclones
in partnership
with WMO**



**Geophysical
hazards**

**Tsunamis and
earthquakes
*Intergovernmental
Oceanographic
Commission***



**Slow-onset
hazards**

**El Niño, droughts,
sand and dust
storms
*Regional Integrated
Multi-hazard Early
Warning System for
Africa and Asia,
WMO, Convention
to Combat
Desertification,
UNEP***



APDIM
Asian and Pacific Centre for
the Development of Disaster
Information Management

Disaster Information Management

Asian and Pacific Centre for the Development of Disaster
Information Management



APDIM

Asian and Pacific Centre for
the Development of Disaster
Information Management

Scaling up the mandates for enhancing regional Cooperation, facilitating the Impact-based forecasting

ESCAP Resolution 72/7 (2016) Regional cooperation to combat Sand and Dust Storms in Asia and the Pacific

- To accord priority to SDS work as transboundary challenges
- To Work, including through APDIM, to promote regional/inter-regional networking.

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

Support and facilitate multi-hazard early warning systems, impact-based forecasting and disaster risk assessment to strengthen regional cooperation mechanism.

Tehran Ministerial Declaration on Combating SDS (5 July 2017) recognized the role of APDIM in developing human and institutional capacities in disaster information management.



APDIM

Asian and Pacific Centre for
the Development of Disaster
Information Management

APDIM's contribution to the SDS Agenda in the region

- Expert consultation meeting on regional cooperation for building resilience to slow-onset disasters including sand and dust storms, Tehran, 5-6 November 2018 (Regional & international partnership and networking)
- Expert Group Meeting to Combat Sand and Dust Storms: Towards a Regional Plan of Action for Information Sharing and Capacity Development in Asia and the Pacific, Bangkok, 27-28 August 2019 (Regional action plan to combat the negative impacts of SDS in Asia and the Pacific)
- Sand and Dust Storms Risk Assessment in Asia and the Pacific, Geneva, 30-31 October 2019 (Projection of impacts of SDS by 2030 based on historical records and analysis of trends)



Way foreword:

- Regional sand and dust storms risk assessment
- Regional and international consultation on sand and dust storms risk reduction
- Developing regional plan of action on sand and dust storms
- Expanding regional and international networking and partnership
Examples: ADRC, UN Coalition on Sand & Dust Storm, UNCCD, WMO (SDS-WAS), UN Resident Coordinators (*To leverage UN capacities to the extent possible fully aligned with the UN System Development Reform of the SG*).



ESCAP

AP **DIM**

Asian and Pacific Centre for
the Development of Disaster
Information Management

Mostafa Mohaghegh,
Senior Coordinator,
Asian and Pacific Centre for the
Disaster Information Management

Email: mostafa.mohaghegh@un.org

Thank
You