Building Resilience to High-Impact Hydro-meteorological Events through Strengthening Multi-Hazard Early Warning Systems in Small Island Developing States and Southeast Asia project

Session 3a: Overview of the co-sponsoring project

Jochen Luther (Project Manager), jluther@wmo.int
Project Officer, Regional Office for Asia and the Southwest Pacific

1st Meeting of the Southeast Asia Project Steering Committee (SEA-PSC-1)
23 November 2017, Ha Noi, Viet Nam

WMO OMM
World Meteorological Organization
Organisation météorologique mondiale

This project was undertaken with the financial support of:
Ce projet a été réalisé avec l'appui financier de :
Environment and Climate Change Canada
Environnement et Changement climatique Canada

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

What is an early warning system (EWS)?

Definition based on the revised United Nations Office for Disaster Risk Reduction (UNISDR) Terminology for Disaster Risk Reduction (DRR)(2017), an outcome of the Open-ended Intergovernmental Expert Working Group (OIEWG) on indicators and terminology relating to DRR (2016)

"***An integrated system of hazard monitoring, forecasting and prediction, disaster risk assessment, communication and preparedness activities systems and processes that enables individuals, communities, governments, businesses and others to take timely action to reduce disaster risks in advance of hazardous events.***"

Annotations: Effective "end-to-end" and "people-centred" early warning system may include four interrelated key elements:

1. disaster **risk knowledge** based on the systematic collection of data & disaster risk assessments**;**
2. **detection, monitoring, analysis and forecasting of the hazards and possible consequences**;
3. **dissemination and communication** by an official source, of authoritative, timely, accurate and actionable warnings and associated information on likelihood & impact;
4. **preparedness** at all levels to respond to the warnings received.

These four interrelated components need to be coordinated within and across sectors and multiple levels for the system to work effectively and to include feedback mechanism for continuous improvement. Failure in one component or lack of coordination across them could lead to the failure of the whole system.

Four components of an EWS

An updated checklist based on the outcomes of the Multi-Hazard Early Warning Conference (MHEWC), May 2017, Cancún, Mexico

DISASTER RISK KNOWLEDGE

1. Are key hazards and related threats identified?
2. Are exposure, vulnerabilities, capacities and risks assessed?
3. Are roles and responsibilities of stakeholders identified?
4. Is risk information consolidated?

DETECTION, MONITORING, ANALYSIS AND FORECASTING OF THE HAZARDS AND POSSIBLE CONSEQUENCES

1. Are there monitoring systems in place?
2. Are there forecasting and warning services in place?
3. Are there institutional mechanisms in place?

WARNING DISSEMINATION AND COMMUNICATION

1. Are organizational and decision-making processes in place and operational?
2. Are communication systems and equipment in place and operational?
3. Are impact-based early warnings communicated effectively to prompt action by target groups?

PREPAREDNESS AND RESPONSE CAPABILITIES

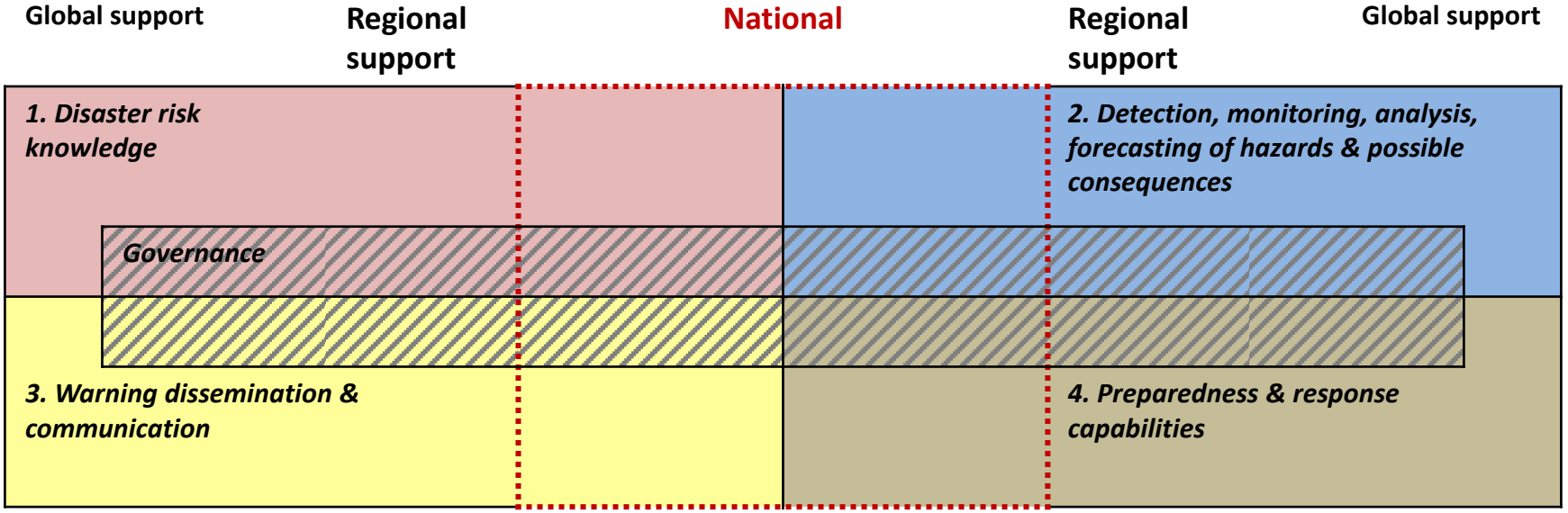
1. Are disaster preparedness measures, including response plans, developed and operational?
2. Is public awareness and education conducted?
3. Is public awareness and response tested and evaluated?

What is a multi-hazard EWS (MHEWS)?

(UNISDR 2017/OIEWG 2016)

"***Multi-hazard early warning systems*** *cover a range of hazards and impacts. They are designed to be used in multi-hazard contexts* ***where hazardous events may occur simultaneously, cascadingly or cumulatively over time, and taking into account the potential interrelated effects****.*

A multi-hazard early warning system ***increases the efficiency and consistency of warnings*** *through coordinated and compatible mechanisms and capacities, involving multiple disciplines for updated and accurate hazards identification and monitoring for multiple hazards."*



Definition of «Hazard»

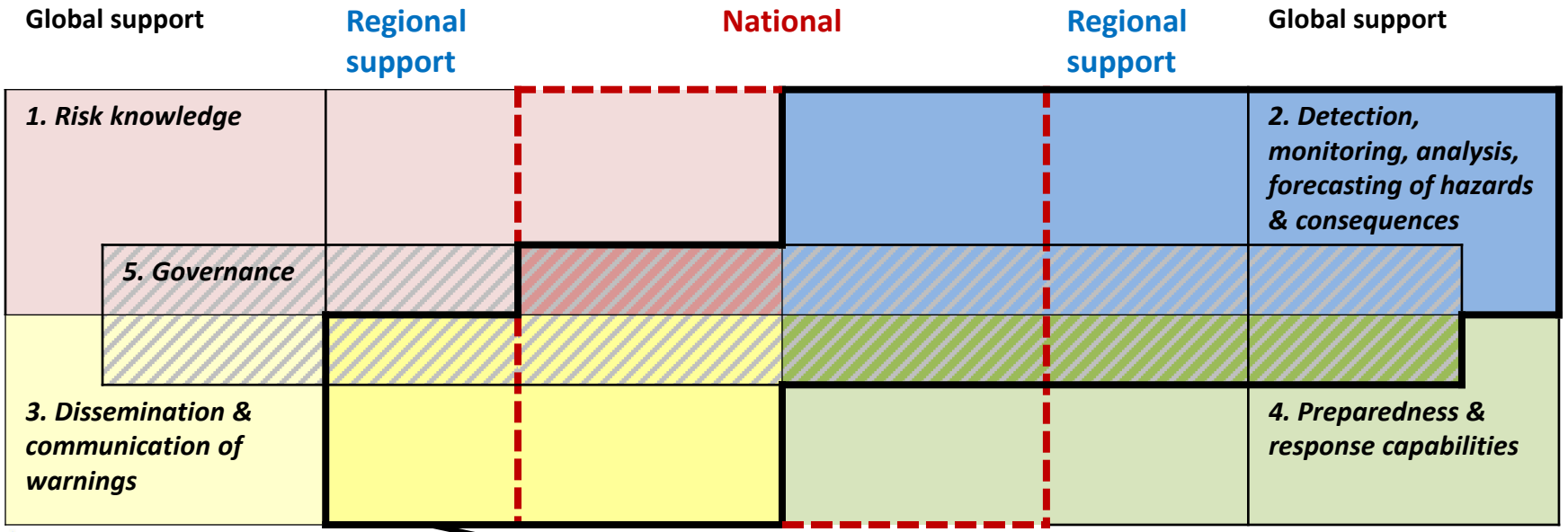
- ***A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation.***

- **Multi-hazard** means (1) the selection of multiple major hazards that the country faces, and (2) the specific contexts where hazardous events may occur simultaneously, cascadingly or cumulatively over time, and taking into account the potential interrelated effects.

- Hazards include (as mentioned in the Sendai Framework for Disaster Risk Reduction 2015-2030, and listed in alphabetical order) biological, environmental, geological, hydrometeorological and technological processes and phenomena.

“Canada CREWS SEA-SIDS” project:

- **Full title:** Building Resilience to High-Impact Hydro-meteorological Events through Strengthening MHEWS in SIDS and **SEA**
  → aligned with the ***Climate Risk & Early Warning Systems (CREWS)*** initiative
- **Goal:** Contribute to reducing human and economic losses associated with hydrometeorological and climate-related hazards in SEA and SIDS
- **Objective:** Strengthen weather-, climate- and water-related impact-based decision support services to MHEWS stakeholders, from all socio-economic sectors & communities.



“Canada CREWS SEA-SIDS” project:

- Focus: Strengthening the **Regional Forecast Support Centre (RFSC) Hanoi** and **Regional Specialized Meteorological Centre (RSMC) Nadi** within the **Fiji Meteorological Service (FMS**) and the countries they serve:
  - **Pacific SIDS: Fiji, Cook Islands, Kiribati, Niue, Tuvalu** + some services to **Samoa & Tonga, Vanuatu, Solomon Islands, Federated States of Micronesia (FSM)** and to non-WMO members **Palau, Nauru, Republic of the Marshall Islands (RMI), Tokelau**
  - ***SEA: Cambodia, Lao PDR, Thailand, Vietnam*** *(RA II, all members of the Mekong River Commission (MRC)),* ***Philippines*** *(RA V)*
  - Further targeting **Caribbean SIDS: Haiti, Dominican Republic, Lesser Antilles** (RA IV)
- Hazards addressed: Severe Weather, Flash/River/Coastal Floods, Drought
- Total funding:
  - Canada-CREWS-SIDS-SEA: **CAD 10,000,000** (USD 7,400,000 approx.)
    → USD 2.53 m for SEA (USD 3.2 m incl. overhead & project mgmt.)
  - CREWS Pacific SIDS: **USD 2,500,000**
  - Implementation period: **Jan 2017 - Mar 2021 (Dec 2020)**

Expected outcomes of the project:

Outcome 1 – Governance:

- Strengthened governance structures/ mechanisms for targeted Regional Centres and NMHSs are in place

Outcome 2 – Enhanced product development & accessibility:

- Enhanced regional and national facilities and capacities to produce impact-based forecasts and risk-informed warnings of extreme/high-impact hydro-meteorological events → ***building mostly on the Severe Weather Forecasting and DRR Demonstration Project (SWFDDP), Coastal Inundation Forecasting Demonstration Project (CIFDP)/SSOP II, and Flash Flood Guidance System (FFGS)***

Outcome 3 – Improved service delivery:

- Participating Regional Centres and NMHSs (better) deliver impact-based and risk-informed hydro-meteorological data, products and services to MHEWS stakeholders for decision support → ***e.g. Climate Outlook Forums***

Members – Congress, Executive Council, Technical Commissions

Regular budget

WMO Programmes

- World Weather Watch
- Disaster Risk Reduction
- Tropical Cyclone
- Hydrology and Water Resources
- Marine Meteorology and Oceanography
- Public Weather Services
- World Climate
- …

Key WMO activities & co-sponsored programmes

WMO Systems

- WIGOS
- WIS
- GDPFS
- (GMAS)
- (Res 9 (Cg-17))
- APFM
- IDMP
- GFCS
- Strategy for Service Delivery
- Capacity Development
- …

WMO "Flagships"

- SWFDP
- SSOP I&II
- FFGS
- CIFDP
- GFCS UIP
- Impact-based forecasting
- Global Campus
- …

Extra-budgetary funds

Projects, VCP, Partnerships

- CREWS
- ECCC
- GCF
- GEF
- AF
- USAID
- KMA/KOICA
- JMA/JICA
- UKMO/DIFD
- …

Amounts (USD) for implementation available for SEA

Outcomes	USD
Outcome 1 – Strengthened governance structures/mechanisms for targeted Regional Centres/NMHSs are in place (Baseline, awareness of roles/responsibilities, strategic plans, SOPs)	230,000
Outcome 2 – Enhanced product development and accessibility (incl. regional/national facilities and capacities) (SWFDP-SeA, SEAFFGS)	1,850,000
Outcome 3 – Strengthened service delivery (PWS, CAP, QMS, ASEANCOF)	450,000
Total	**2,530,000**

(excluding overhead & project management)

WMO OMM

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

Thank you

Jochen Luther, Project Manager Canada-CREWS project, jluther@wmo.int

WMO OMM

World Meteorological Organization
Organisation météorologique mondiale