Measuring Hazardous Events and Disasters

Pilot set of core disaster-risk-related indicators

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- Main objectives of the Task Force

  - Support the statistical operationalisation of terms, definitions and classifications used in disaster risk management (e.g. statistical review of UNDRR/ISC Hazard Information Profiles)

  - Development of a set of core statistics and indicators of disaster risk

  - Implementation guidelines of core statistics and indicators

  - Organisation of Expert Fora in collaboration with IAEG-DRS and other partners

- Current TF members:

  - National experts from National Statistical Offices from Belgium, Italy (chair), Kazakhstan, Mexico, Netherlands, New Zealand, Türkiye and UK, as well as from University of Extremadura, ECLAC, ESCAP, IMF, OECD, UNDRR and WMO

First outcome of the work: **Recommendations on the Role of Official Statistics in Measuring Hazardous Events and Disasters**

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The CES Recommendations:

- **Complement the ESCAP DRSF**

- **Clarify the role of NSOs and NSS** in providing information related to hazardous events and disasters

- **Identify practical steps** to better support disaster risk management efforts in coordination with national agencies responsible for disaster risk management

- Identify important **follow-up activities (including development of indicator set)**

- Include **11 national examples** (case studies)

DISASTER-RELATED STATISTICS FRAMEWORK (DRSF)

Expert Group on Disaster-related Statistics in Asia and the Pacific

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Recommendations on the Role of Official Statistics in Measuring Hazardous Events and Disasters

UNITED NATIONS

https://unece.org/statistics/publications/recommendations-role-official-statistics-measuring-hazardous-events-and-disasters

Why do we need a set of **Core disaster-risk related Indicators?**

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Main benefits for countries by implementing these indicators:

- Strengthen **evidence** for disaster risk;

- **Regular production and dissemination** of disaster risk information by all national statistical systems;

- Inform about the **state of disaster risk in an internationally comparable way**;

- **Support monitoring and reporting** against international policy agreements (SDGs, Sendai framework, Paris agreement, etc.);

- Ensure **consistency and coherence of information** across administrative boundaries at the national and sub-national levels;

- Promote **data exchange and harmonization**, through interoperability and standardization;

- Add **value to existing statistics** to have regular statistics on disaster risk, support production of long-term data series;

- Complement other recommended indicator sets (e.g. CES core CC-related indicators).
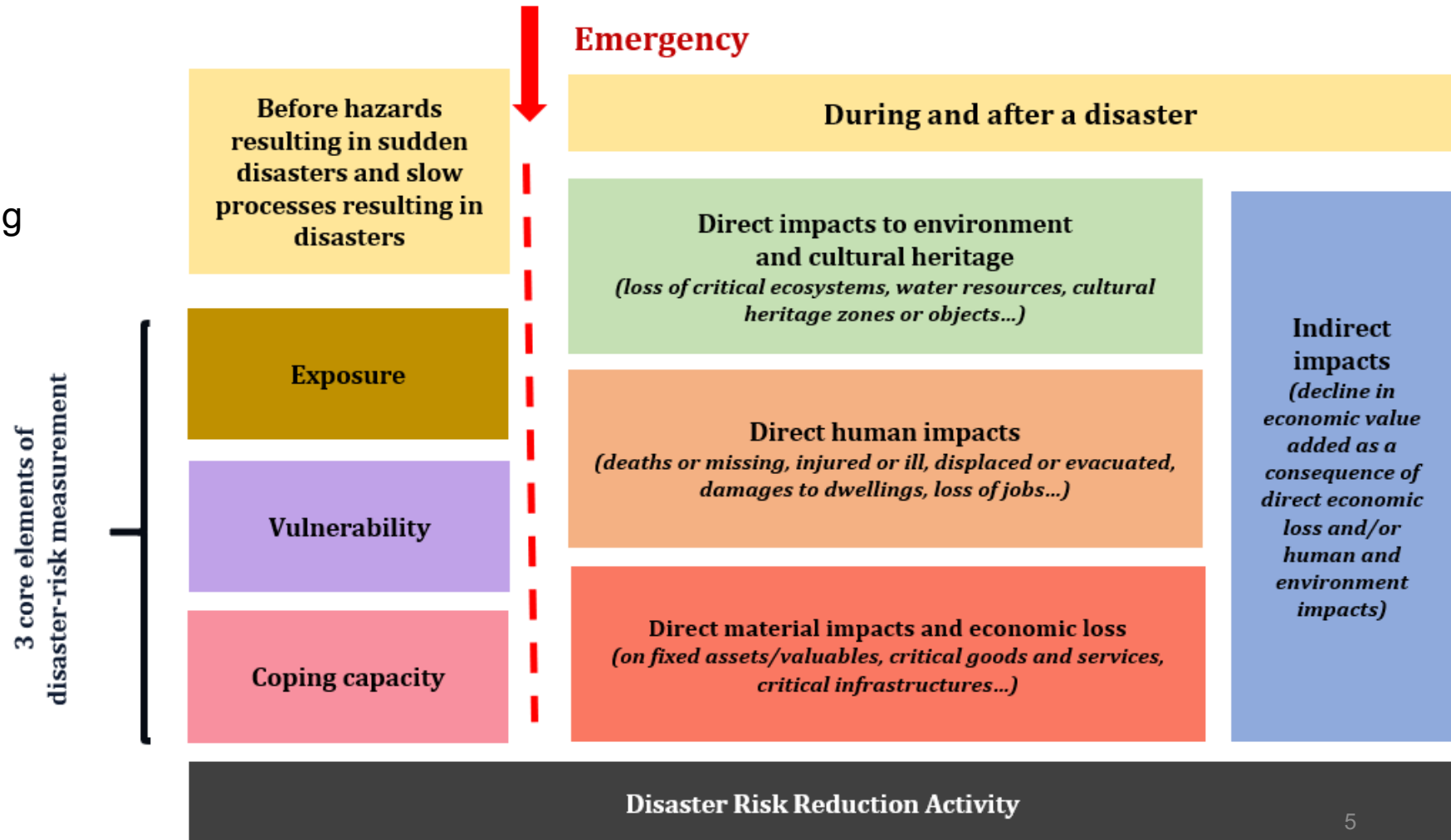
Conceptual foundation and selection of indicators
Disaster-related Statistics Framework (DRSF)

Selection criteria

- Relevance

- Sound methodology

- Data availability

- Use indicators from existing global/regional indicator FWs

Emergency

| Before hazards resulting in sudden disasters and slow processes resulting in disasters | During and after a disaster |

3 core elements of disaster-risk measurement

- Exposure
- Vulnerability
- Coping capacity

Direct impacts to environment and cultural heritage
(loss of critical ecosystems, water resources, cultural heritage zones or objects...)

Direct human impacts
(deaths or missing, injured or ill, displaced or evacuated, damages to dwellings, loss of jobs...)

Direct material impacts and economic loss
(on fixed assets/valuables, critical goods and services, critical infrastructures...)

Indirect impacts
(decline in economic value added as a consequence of direct economic loss and/or human and environment impacts)

Disaster Risk Reduction Activity

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Types of hazards (UNDRR/ISC hazard classification)

Current focus is on
- Main hazards driven by climate change
- Geohazards
- Environmental hazards
- Biological hazards
- Chemical hazards
- Technological hazards

as far as monitoring systems are generally available

DRSF elements

- Frequency and dimension of hazardous events
- Disaster risk: Exposure, vulnerability, coping capacity
- Disaster-risk reduction activities
- Disaster impacts

Elements at risk

- People
- Housing
- Basic services
- Critical infrastructure
- Economic activity
- Ecosystems
- Food security and agriculture
- Water security
- Energy security
- Health care
- Cultural heritage
- Governance

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Core indicators

- Recommended for implementation by all countries

- Prioritisation of prevailing hazards

- Capacity to produce the underlying statistics in the short-, mid- and long-term

Complementary indicators

Complement the core indicators, by providing additional detail (sub-national detail, sectoral detail) or focus, or by covering additional aspects

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Core indicators

- Tier 1: Indicator is conceptually clear, an internationally established methodology and standards are available, and data are regularly produced by at least 50 per cent of countries, for every region where the indicator is relevant
- Tier 2: Indicator is conceptually clear, an internationally established methodology and standards are available, but data are not regularly produced by countries
- Tier 3: Internationally established methodology or standards are not yet available, but methodology/standards are being (or will be) developed or tested

Example of indicators and associated attributes

ID	Indicator	Elements at risk											Comments	Tier	Methodology	Source
		P	H	BS	CI	EA	Ec	F	W	En	He	CH				
29	Proportion of population without quality access to electricity			x						x			A relevant indicator, but internationally it still needs to be defined what "quality access" means from a methodological and measurement point of view.	3	For example, Spain's Red Electrica measures "non-availability rate" (percentage of total time)	TF
31	Proportion of world heritage sites without an emergency preparedness plan											x	Countries have the duty to supervise and approve emergency preparedness plans; see also UNESCO database: https://whc.unesco.org/en/list/	2	UNESCO: Emergency preparedness plans: https://whc.unesco.org/archive/2007/whc07-31com-72e.pdf	TF
36	Proportion of land that is degraded over total land area (SDG 15.3.1)					x	x	x	x	x	x		Possible proxy indicator: Change of land area affected by soil erosion (global CC set indicator 61); this is an indicator that can also be used to measure impact	1	SDG and global CC: https://unstats.un.org/sdgs/metadata/ and https://unstats.un.org/unsd/envstats/climatechange.cshtml	SDG 15.3.1, CC 71
Coping capacity																
37	Proportion of agricultural area under productive and sustainable agriculture (SDG 2.4.1)					x	x							1	SDG and global CC: https://unstats.un.org/sdgs/metadata/ and https://unstats.un.org/unsd/envstats/climatechange.cshtml	SDG 2.4.1, CC 148
38	International Health Regulations (IHR) capacity and health emergency preparedness (SDG 3.d.1)	x								x				1	SDG: https://unstats.un.org/sdgs/metadata/	SDG 3.d.1
	Number of people per 100 000 that are															

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Frequency and dimension of hazardous events (3)
- Proportion of hazardous events with deaths per year (per type of hazard)

Exposure (6)
- % of population living in hazard-prone areas in relation to total population
- % of farmland in hazard-prone areas in relation to total farmland

Vulnerability (6)
- % of population living below the national poverty line, by sex and age (SDG 1.1.1)
- % of world heritage sites without an emergency preparedness plan

Coping capacity (12)
- % of agricultural area under productive and sustainable agriculture (SDG 2.4.1)
- Health worker density (SDG 3.c.1)

Direct impacts (20)
- Number of disasters (per hazard type) declared by government per year
- Direct economic loss attributed to disasters in relation to GDP (SDG 1.5.2, SF C-1)

Indirect impacts
Research item

Disaster-risk-reduction activities (6)
- Proportion of government expenditure on DRR in relation to GDP

The **set of core indicators** was adopted by CES in June 2023 as a **Pilot Set:**

- **Consultation** with Member Countries is **currently ongoing**

- Set of core indicators **will be refined**

- Identification of core statistics

- **Supporting** countries in developing the indicators (**drafting of implementation guidelines**)

- **Continuous exchange of knowledge and experience** (e.g. at annual Expert Fora for Producers and Users of Disaster-related Statistics – 2024 Expert Forum in Addis Ababa (28 October – 1 November, hybrid format)

- **NSOs contribute with data to disaster risk management** (DRM)
  - Including in rapid emergency response
- **Collaboration between NSOs and NDRMAs** needs to be strengthened
- **Development of a global DRSF**
  - Ouput of ECE TF work will be an important a milestone
- There is a **need to adopt common terminology**, concepts (e.g. definition of hazard, vulnerability, disaster, etc.) and classifications (e.g. HIPs) by all stakeholders
- **NSOs need to understand which official statistics are needed and with which quality for DRM** (e.g. population at risk, infrastructure at risk, economic value of assets at risk, etc.)

Thank you very much for your attention!