

Measuring Hazardous Events and Disasters

Set of core disaster-risk-related indicators

Michael Nagy (United Nations Economic Commission for Europe)

Global Webinar on Strengthening Climate Change and Disaster-Related Statistics: Needs, Priorities, and Action



CES Task Force on Measuring Hazardous Events and Disasters

Established by the Bureau of the Conference of European Statisticians (CES) in 2015,
renewed ToR since 2020



- Main objectives:
 1. Support the statistical operationalisation of terms, definitions and classifications used in disaster risk management
 2. Development of a set of core statistics and indicators for “CES Region”
 3. Draft implementation guidelines
 4. Organisation of Expert Fora in collaboration with IAEG-DRS and other partners
- Current TF members:
 - National experts of Germany, Italy (chair), Indonesia, Mexico, New Zealand, Spain, Türkiye and UK, as well as from ECLAC, ESCAP, ESA OECD, UNDRR and WMO

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

Adopted by CES in June 2019



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

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
- ☐ Include 11 national examples (case studies)

DISASTER-RELATED STATISTICS FRAMEWORK (DRSF)

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

UNECE

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



Development of a set of “Core disaster-risk related Indicators”

One of the important “follow-up activities



Status of work:

- Electronic consultation with CES members and IOs ongoing (deadline 6 May)
- Planned submission to CES in June 2023
- Follow-up work to identify “Core statistics”

Work builds upon other global and regional work:

- CES Recommendations
- ESCAP DRSF
- CES Set of Core Climate Change-related Statistics and Indicators
- Global set of Global Set of Climate Change Statistics and Indicators
- SDG and Sendai Framework indicators

Set of “Core disaster-risk related Indicators”

Why?



Countries requested guidance to NSOs concerning the regular production of disaster-risk related information.

List of indicators does not constitute any obligation for their implementation.

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).

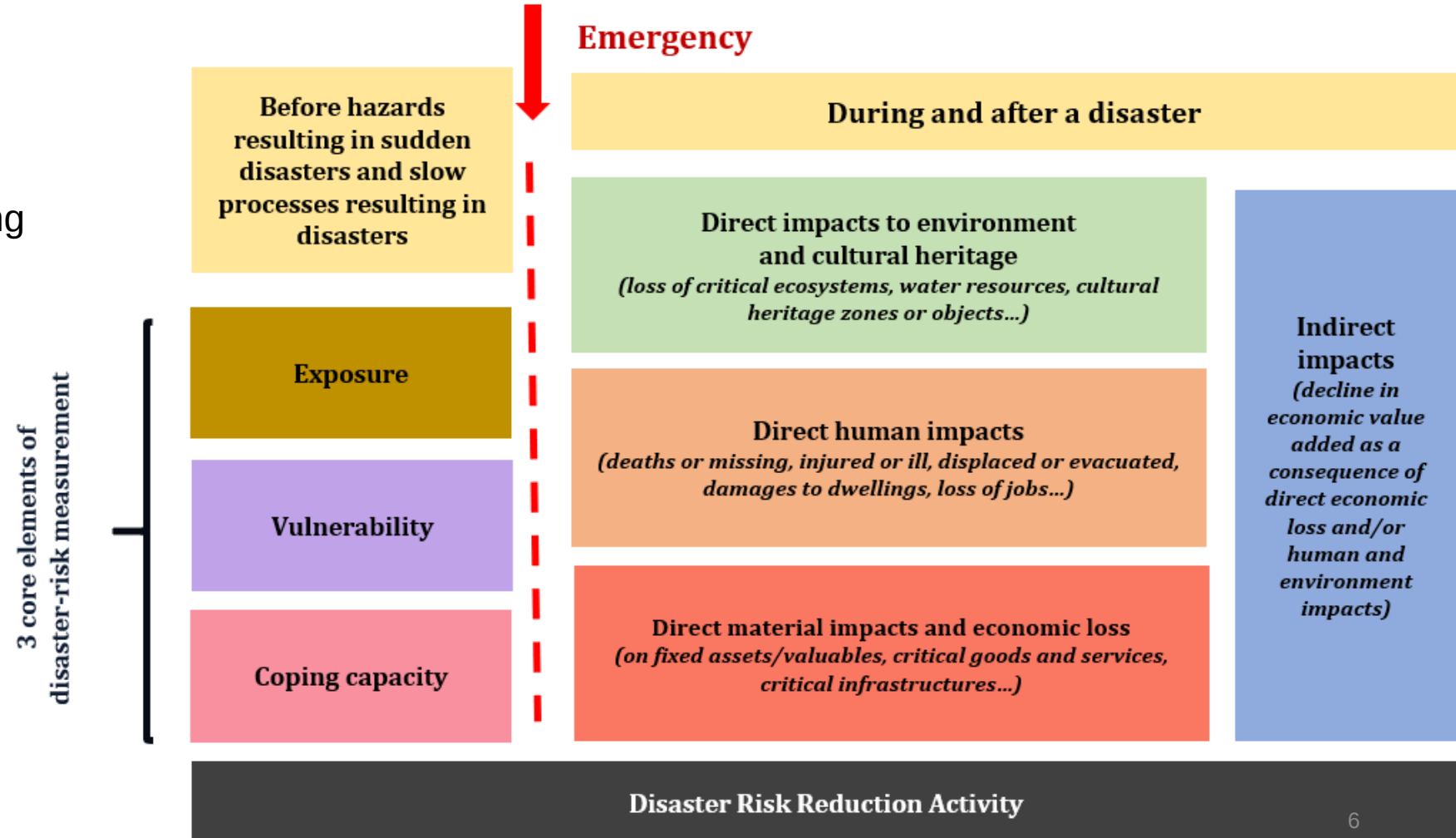
Conceptual foundation and selection of indicators



Disaster-related Statistics Framework (DRSF)

Selection criteria

- Relevance
- Sound methodology
- Data availability
- Use indicators from existing global/regional indicator FWs



Indicator Framework

3 main dimensions



Types of hazards (UNDRR/ISC hazard classification)

Current focus is on

- ☐ Main hazards driven by climate change
- ☐ Geohazards
- ☐ Environmental hazards
- ☐ Biological hazards
- ☐ Chemical and 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

Core indicators and complementary indicators



- ☐ **Core indicators:** Recommended for implementation by all countries. Prioritisation: Prevailing hazards; level of disaster risk for known hazards; Capacity to produce the underlying statistics in the short-, mid- and long-term.
 - ☐ 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.

- ☐ **Complementary indicators:** accompany or complement the message conveyed by “core” indicators, by providing additional detail (sub-national detail, sectoral detail) or focus, or by covering additional aspects.

Presentation of the indicators and their main characteristics



ID	Indicator	Elements at risk												Comments	Tier	Methodology	Source
		P	H	B S	C I	E A	E S c	F	W	E n	H e	C H					
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 <u>Electrica</u> 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/climateexchange.cshhtml	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/climateexchange.cshhtml	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																

Selected core indicators (53 in total)

Some examples



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

Next steps

- ✓ Identification of core statistics
- ✓ Supporting countries in developing the indicators
- ✓ Continuous exchange of knowledge and experience
- ✓ Implementation guidelines



Thank you very much for your attention!

Michael Nagy (michael.nagy@un.org)