

# Session 5: Disaster-related statistics



National Workshop on Environment Statistics and Climate Change Statistics

St. George's, Grenada, 12-14 November 2019



# DISASTER-RELATED STATISTICS: THE CURRENT SITUATION AND GROWING RELEVANCE

A growing sense of urgency to integrate disaster measurements with statistics, and the need for better data and statistical measurement to improve the understanding of disaster risk reduction, including strengthening resilience and preparedness.

At its 49th session in 2018, the Statistical Commission, in its decision 49/113 addressing the topic of climate change statistics, welcomed a greater focus on disaster-related statistics given the importance of the Sendai Framework, and decided to include in the agenda for the 50th session a separate item on this topic, building on existing work in this emerging area.



# DISASTER-RELATED STATISTICS: THE CURRENT SITUATION AND GROWING RELEVANCE

**UNSD, UNESCAP, UNECE, UNECLAC and UNISDR prepared a report for the 50th Session of the Statistical Commission, which:**

- Elaborated on the growing data demands and needs for disaster-related statistics;
- Took stock of the current situation of activities around the world, with an emphasis on the constraints that developing countries face;
- Contained a summary of the work of the main international and regional organizations that are active in statistics relating to hazardous events and disasters;
- Demonstrated that there is already considerable complementarity, coordination and cooperation taking place on this topic under the purview of the Statistical Commission;
- Provided an opportunity to discuss ways to continue to build and strengthen a common statistical framework and a network of experts among the multiple disciplines and areas of expertise; and
- Considered options and modalities for the establishment of a formal mechanism for sustaining cooperation and coordination of statistics related to hazardous events and disasters across the expert communities, organizations and regions of the statistical community.

<https://unstats.un.org/unsd/statcom/50th-session/documents/2019-16-DisasterStats-E.pdf>



# DISASTER-RELATED STATISTICS: THE CURRENT SITUATION AND GROWING RELEVANCE

## In making decision 50/116 at the 50th Session of Stat Com:

- Recognized the need for better, disaggregated and comparable data for statistical measurement and to incorporate social, economic and environment statistics into disaster information;
- Acknowledged the already considerable coordination and cooperation and emphasized the need for further capacity-building and training on this important topic;
- Appreciated the leading role of ESCAP in advancing the initial methodological development through the disaster-related statistics framework, which serves as a good starting point for a universally applicable tool with global relevance;
- Supported the continuing work under the leadership of the international and regional organizations, towards progressing a common statistical framework and a network of experts for disaster-related statistics among the multiple disciplines and areas of expertise involved; and
- Requested the organizations to consider options and modalities for the establishment and coordination of a formal mechanism under the purview of Stat Com to advance a common statistical framework, and report back to Stat Com at a suitable time.

<https://unstats.un.org/unsd/statcom/50th-session/documents/Report-on-the-50th-session-of-the-statistical-commission-E.pdf>



# Institutional process of endorsement of monitoring of Sendai Framework by that of 2030 Agenda for Sustainable Development



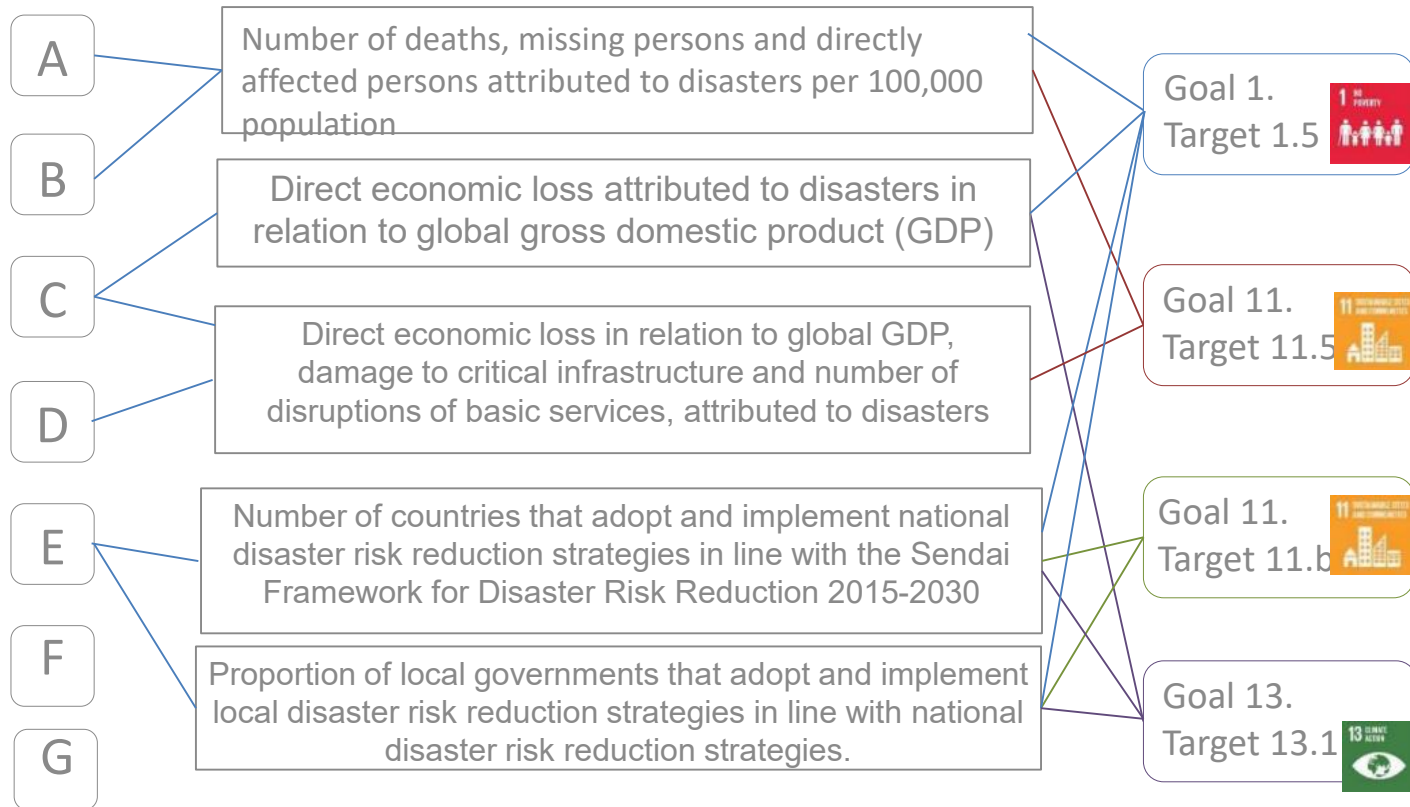
- **Open-ended Intergovernmental Expert Working Group on Indicators and Terminology (OIEWG)** related to DRR finalised its report over 2015-2016
- **IAEG-SDGs** recognized the OIEWG, and identified UN Office for DRR as **custodian agency** of DRR related Indicators, Dec 2015
- **UN General Assembly endorsed** the recommendations of the OIEWG contained in its report A/71/644, February 2017  
[http://dev.preventionweb.net/files/50683\\_oiewgreportenglish.pdf](http://dev.preventionweb.net/files/50683_oiewgreportenglish.pdf)
- **UN Statistical Commission, 48<sup>th</sup> Session, March 2017:** Endorsed Report of the IAEG-SDGs | Note by the Secretary-General - E/CN.3/2017/2\* proposing the recommended indicators of the OIEWG  
<https://unstats.un.org/unsd/statcom/48th-session/documents/2017-2-IAEG-SDGs-E.pdf>



## Common indicator system of Sendai Framework and 2030 Agenda for Sustainable Development

### Target

### Goal / Target



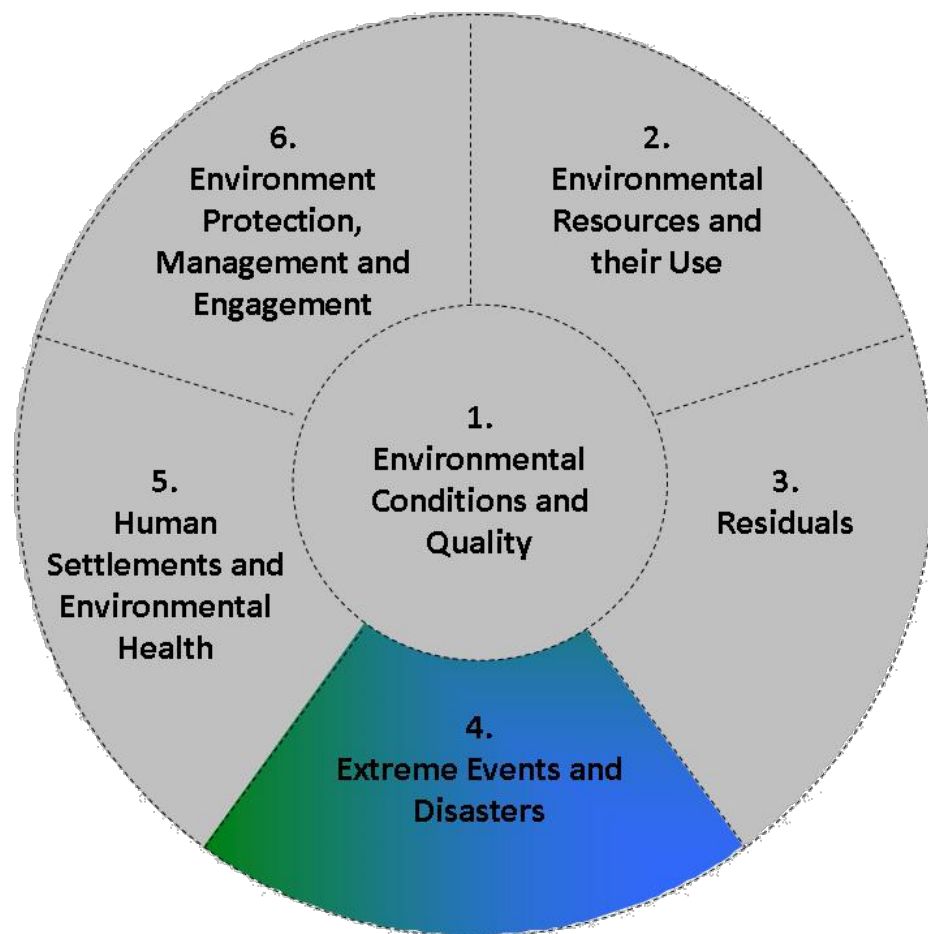
# Statistical Work on Disasters in UNSD

- UNSD produced the Framework for the Development of Environment Statistics (FDES 2013), which organizes environment statistics into 6 components, each broken down into sub-components and statistical topics.
  - Component 4 on Extreme Events and Disasters: Organizes statistics on the occurrence of extreme events and disasters and their impacts on human well-being and the infrastructure of the human sub-system.
  - In Component 6 on Environmental Protection, Management and Engagement: One of the sub-components focuses on the preparedness and management of disasters.
- UNSD is developing a Manual on the Basic Set of Environment Statistics containing a set of methodology sheets for the collection or compilation of all environment statistics of the Basic Set of Environment Statistics embedded in the FDES 2013. Several methodology sheets have been completed; one on disasters is currently being finalized.
- The 47<sup>th</sup> session of the Commission noted the link between climate change and disaster reduction, and requested that the Sendai Framework be considered in the development of the global set of climate change statistics and indicators. As part of the work of UNSD to develop this global set, the close link between climate change statistics and disaster-related statistics is strongly being taken into account.



# FDES and disaster statistics

## Component 4: Disasters and Extreme Events



This component organizes statistics regarding the occurrence and impacts of extreme events and disasters on human wellbeing and on the infrastructure of the human sub-system. It consists of two sub-components, 4.1: Natural Extreme Events and Disasters and 4.2: Technological Disasters





# FDES: Component 4: Disasters and Extreme Events

## Definitions:

- **Extreme Event:** An event that is normally as rare or rarer than the 10th or 90<sup>th</sup> percentile within its statistical reference distribution at a particular location.
- **Disaster:** Described as a result of exposure to an extreme event.

A disaster should be categorized using the same criteria as the CRED Emergency Events Database (EMDAT). This means that **at least one of the following** criteria must be fulfilled:

- i. Ten (10) or more people reported killed;
- ii. One hundred (100) or more people reported affected;
- iii. Declaration of a state of emergency; **or**
- iv. Call for international assistance has been made.



# FDES Component 4: Disasters and Extreme Events

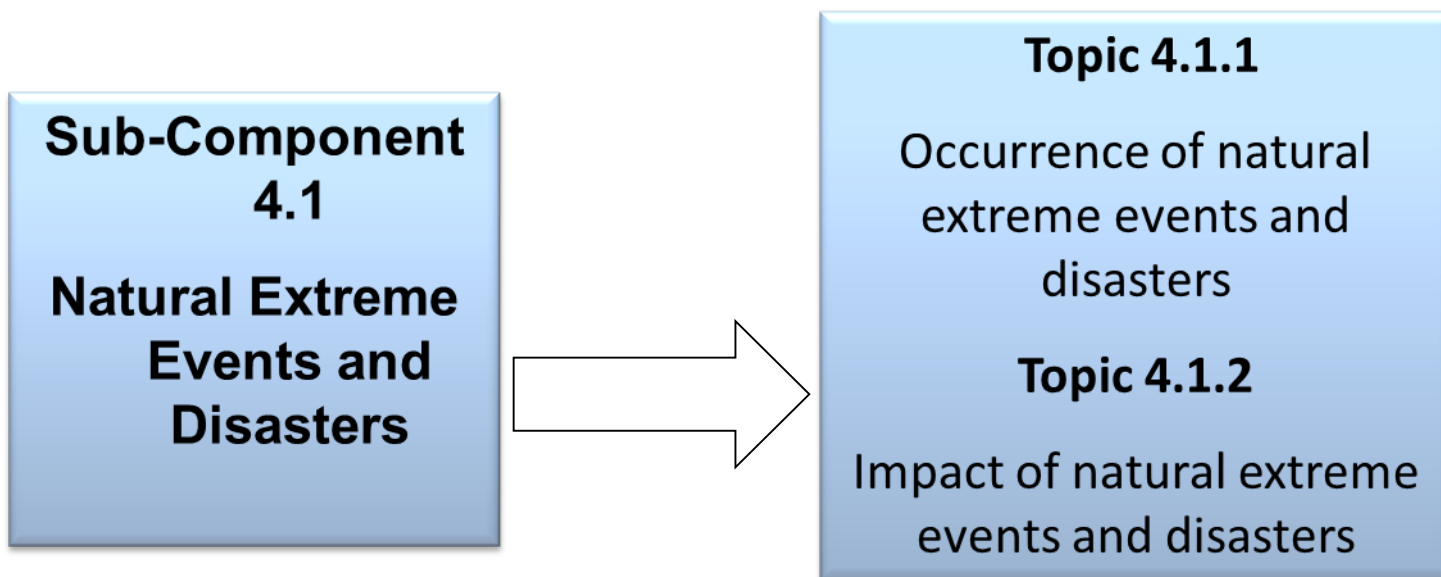
## Data Sources:

- National and sub-national authorities responsible for:
  - Disaster management and assistance
  - Emergency management and response agencies
  - Insurance companies
  - Optical and radar satellite operators for satellite information
  - Seismic monitoring and research centres



# FDES Component 4: Disasters and Extreme Events

## Sub-Component 4.1: Natural Extreme Events and Disasters



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# FDES Component 4: Disasters and Extreme Events

## Sub-Component 4.1: Natural Extreme Events and Disasters

Topic 4.1.1: Occurrence of natural extreme events and disasters

Includes:

- Type of natural disaster, location, magnitude, date of occurrence and duration.
- Extreme events and disasters can be categorized and classified using the current classification of the Centre for Research on the Epidemiology of Disasters Emergency Disasters Database (CRED EMDAT).



# FDES Component 4: Disasters and Extreme Events

## Sub-Component 4.1: Natural Extreme Events and Disasters

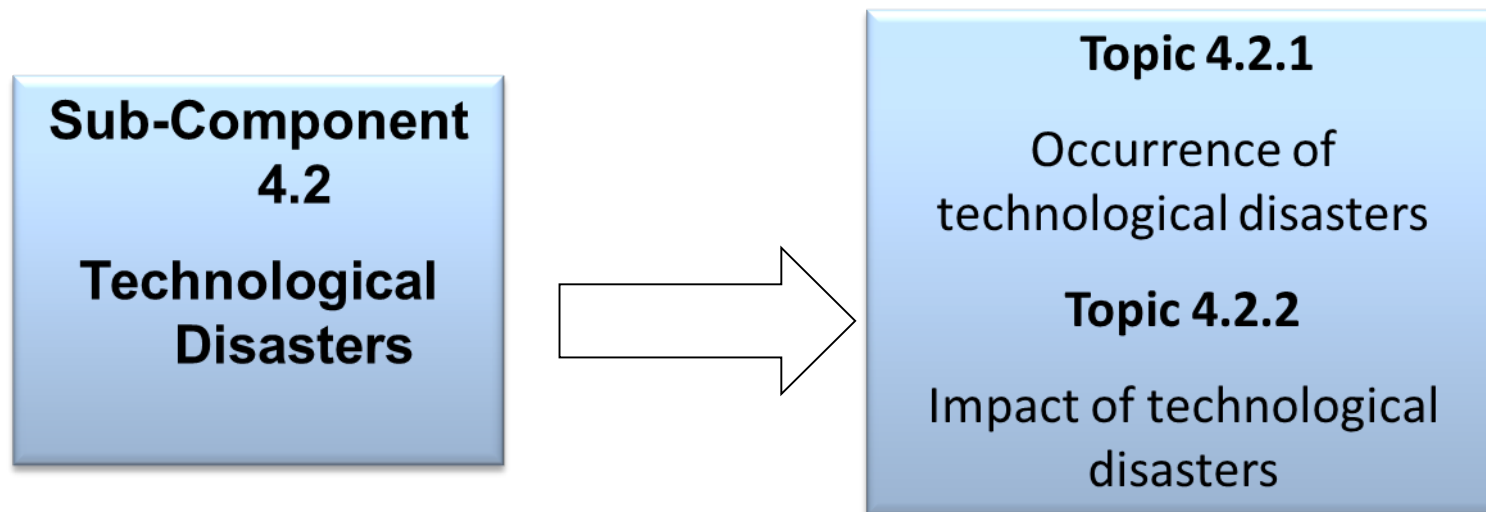
### Topic 4.1.2: Impact of natural extreme events & disasters

- Impact can be measured/informed by: the number of people killed, injured, homeless and affected, as well as economic losses.
- Economic losses can refer to damage to buildings and other economic assets, no. of transportation networks affected, economic disruption or loss of revenue to commercial services, as well as utility disruption.
- Physical losses or damages refers to the magnitude of the impact of event or disaster on the quantity and quality of land, crops, livestock, aquaculture, biomass, etc.
- Specific impact of each natural disaster on the integrity of the local ecosystem can also be reported on.
- External assistance received for disaster relief can also be measured.



# FDES Component 4: Disasters and Extreme Events

## Sub-Component 4.2: Technological Disasters



# FDES Component 4: Disasters and Extreme Events

## Sub-Component 4.2: Technological Disasters

Includes information on the occurrence and impact of such disasters on human lives and habitats, and on the environment as well as on disaster preparedness for such types of disasters.

Technological disasters arise from human intent, negligence or error, or from faulty or failed technological applications.

Types of technological disasters recognized by CRED:

1. Industrial disasters which cover leakages of fluid toxic chemicals, oil spills and explosions;
2. Transport disasters: accidents of mechanized transport of chemicals, volatile materials or other hazardous substances by road, rail, water or pipeline;
3. Miscellaneous disasters such as arson fires and other disasters of varied origin.



# FDES Component 4: Disasters and Extreme Events

## Sub-Component 4.2: Technological Disasters

### Topic 4.2.1: Occurrence of technological disasters

#### Content:

- Includes occurrence and nature of disasters resulting from human intent, negligence, error or from faulty or failed technological applications.

#### Examples:

- Nuclear meltdowns and pipeline or tanker leakages that result in significant harm to the environment, including potentially significant consequent impacts on humans.

#### Scope:

- Identification and characterization of different types of events including information on type of disaster, location, date of occurrence and duration. Where pertinent because of repeated episodes, the frequency of these technological disasters can also be critical in guiding policy-making and the development of deterrents.





# FDES Component 4: Disasters and Extreme Events

## Sub-Component 4.2: Technological Disasters

### Topic 4.2.2: Impact of technological disasters

Includes the specific impacts on humans and damage to the ecosystems and to the economy, arising from technological disasters.

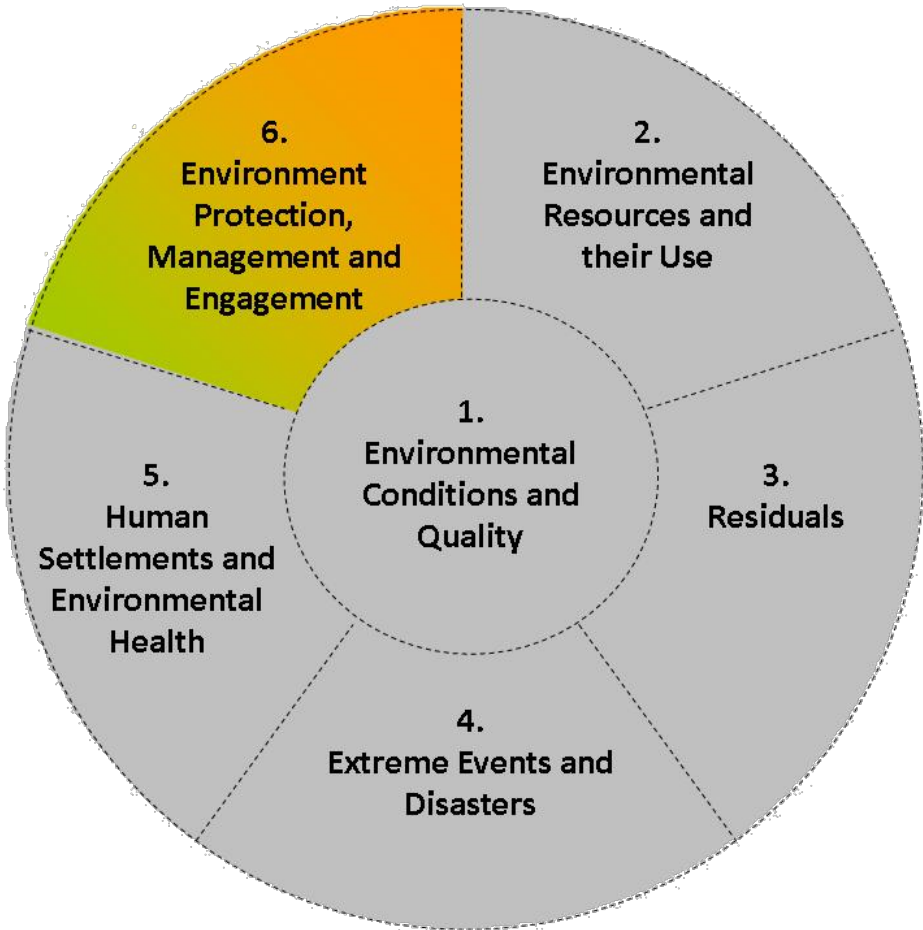
Impacts include environmental damage, radiation-related conditions and diseases or other health impacts, property damage, loss of livelihoods, services and housing, social and economic disruption.

Statistics:

- Number of people killed, injured, rendered homeless, or affected, as well as economic losses.
  - Economic losses: Damage to buildings and other economic assets, number of transportation networks affected, economic disruption or loss of revenue to commercial services, and utility disruption.
  - Physical losses or damages: The magnitude of the impact of the event or disaster on the quantity and quality of land, crops, livestock, aquaculture, biomass.
- If available, estimations of the loss of work days and of the economic cost in monetary terms (e.g., loss of wages or costs of treatment) and external assistance received for disaster relief.



# Component 6: Environment Protection, Management and Engagement



This component organizes information on environment protection and resource management measures and expenditure as well as social responses that aim at improving the environment and maintaining the health of ecosystems.

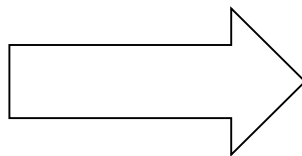
It has four sub-components.



# Sub-Component 6.3: Extreme Event Preparedness and Disaster Management

**Sub-Component  
6.3**

**Extreme Event  
Preparedness  
and Disaster  
Management**



**Topic 6.3.1:**  
Preparedness for natural  
extreme events and  
disasters

**Topic 6.3.2:**  
Preparedness for  
technological disasters



# FDES Component 6: Environment Protection, Management and Engagement

## Sub-Component 6.3: Extreme Event Preparedness and Disaster Management

### Topic 6.3.1: Preparedness for natural extreme events and disasters

Includes:

❖ Statistics such as existence and description of national disaster plans; the type and number of shelters in place; the type and number of internationally certified emergency and recovery management specialists; the number of volunteers; the quantity of first aid, and emergency supplies and equipment that are stockpiled. The existence of early warning systems for all major hazards, as well as the expenditure on disaster prevention, preparedness, clean-up and rehabilitation.



# FDES Component 6: Environment Protection, Management and Engagement

## Sub-Component 6.3: Extreme Event Preparedness and Disaster Management

### Topic 6.3.2: Preparedness for technological disasters

- Preparedness for technological disasters can be quite different from that of natural extreme events and disasters.
- Technological disasters usually arise at an industrial location or on a mode of transportation where it is often the corporate sector which has a vested interest or legal obligation in contributing to preparedness and clean-up.

Includes:

- Information about emergency management plans, as well as the expenditure on disaster preparedness, clean-up and rehabilitation.
- Measures of corporate disaster preparedness vary according to size of enterprise, its location and historical profile for technological disasters.



# Strategic Framework on Geospatial Information and Services for Disasters



**Governance  
and Policies**



**Awareness Raising  
and Capacity  
Building**



**Data  
Management**

LOCAL  
NATIONAL

## Priorities for Action

REGIONAL  
GLOBAL



**Common  
Infrastructure and  
Services**



**Resource  
Mobilization**



**UN-GGIM**

United Nations Secretariat  
Global Geospatial Information Management

*Positioning geospatial information to address global challenges*

[ggim.un.org](http://ggim.un.org)



# Strategic Framework on Geospatial Information and Services for Disasters

## Scope and Purpose

The strategic framework aims to guide all stakeholders and partners in the management of geospatial information and services in all phases of disaster risk management

## Expected Outcome

The social, economic, and environmental risks and impacts of disasters are prevented or reduced through the use of geospatial information and services

## Goal

Quality geospatial information and services are available and accessible in a timely and coordinated way to support decision-making and operations within and among all stakeholders and partners and in all phases of disaster risk management

## Priorities for Action

Member States with the support of regional and international organizations as well as other relevant organizations should focus their action on the following five priorities for action:

Priority 1 Governance and Policies	Priority 2 Awareness Raising and Capacity Building	Priority 3 Data Management	Priority 4 Common Infrastructure and Services	Priority 5 Resource Mobilization
Policies, collaborative agreements and legal frameworks aiming at improving the availability and accessibility of quality geospatial information and services among all stakeholders and partners established and implemented in all phases of DRM	Awareness is raised among concerned entities on the importance of geospatial information and services and all necessary technical and human capacities are built and/or strengthened	Geospatial databases and information products are developed based on common standards, protocols and processes as important tools in every decision-making process across all phases of DRM	Common facilities and services are established for all key stakeholders and partners to have a common operational picture of emergency scenarios	All necessary technical, human and financial resources are available to sustain all the activities of DRM

## Guiding Principles

The strategic framework is guided by the 2030 Agenda for Sustainable Development, International Strategy for Disaster Reduction, Sendai Framework for Disaster Risk Reduction (2015-2030), the UN-GGIM Global Statistical Geospatial Framework, UN General Assembly resolution on international cooperation on humanitarian assistance in the field of natural disasters, from relief to development and other relevant instruments. It is also guided by the principles of open data and requirements of national data infrastructure, and by the UN-GGIM's Statement of Shared Guiding Principles for the Management of Geospatial Information.

[http://ggim.un.org/documents/UN-GGIM\\_Strategic\\_Framework\\_Disasters\\_final](http://ggim.un.org/documents/UN-GGIM_Strategic_Framework_Disasters_final)



UN-GGIM

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Global Geospatial Information Management

Positioning geospatial information to address global challenges

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# DISASTER-RELATED STATISTICS FRAMEWORK (DRSF)

Asia-Pacific Expert Group on Disaster-related Statistics



Part I: Concepts

Part II: Implementation  
guidance

<http://communities.unescap.org/asia-pacific-expert-group-disaster-related-statistics/content/drsf>

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





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



- A Task Force on Measuring Extreme Events and Disasters developed the Recommendations, in full alignment with ESCAP DRSF.
- Recommendations was endorsed by the Conference of European Statisticians (CES) at its June 2019 session.
- Main contents:
  - Introduction
  - 2. Key terms and concepts
  - 3. Policy background
  - 4. Scope and measurement framework for statistics on hazardous events and disasters
  - 5. The role of the National Statistical System
  - 6. Key infrastructure
  - 7. Recommendations
  - 8. Implementation



# ECLAC: Statistical Conference of the Americas: Working Group on Measuring and Recording Indicators related to Disaster Risk Reduction



Promover el desarrollo y mejoramiento de las estadísticas nacionales y su comparabilidad internacional

14 Grupos de trabajo

- 10 country members:  
Bolivia, Chile, Colombia, Cuba, Ecuador, Mexico, Nicaragua, Peru, Paraguay and Dominican Republic.
  - Country coordinators: Paraguay and Peru.
  - Technical Secretariat: UNISDR
  - Assistance:  
Area of Environmental Statistics of ECLAC
- 2 in-person meetings in 2017:  
Cartagena de Indias (Colombia) and Panamá



# ECLAC: Statistical Conference of the Americas: Working Group on Measuring and Recording Indicators related to Disaster Risk Reduction

## OBJECTIVES

The objective of the Working Group will be the integration of data related to disaster risk reduction within the official statistics and thus allow us to benefit from its accuracy, consistency and quality, supported by the fundamental principles of the Official Statistics.

Be a counterpart with other regional economic commissions on the development of indicators for disaster risk reduction included in the SDGs.

Define or adapt indicators, minimum standards and metadata from data related to disaster risks relevant to the SDGs and the 2030 agenda.

Identify, disseminate and apply methodologies for the measurement of indicators and the processing of statistical data with relevant partners and technicians.



# ECLAC: Statistical Conference of the Americas: Working Group on Measuring and Recording Indicators related to Disaster Risk Reduction

## Activities and next biennium

N°.	Activities/product	Kind of product	Progress	Notes
1	Participation in events, exchange of metadata and methodologies; and technical support	Events	90%	Last meeting: December 2018
2	Directory of disaster risk reduction specialists from each country.	Dissemination resources	60%	
3	Theoretical framework on the role of the statistics and the national statistical offices in the registry of events related to disaster risk reduction linked to the relevant indicators within the Sendai Framework and the Sustainable Development Goals (SDGs).	Documents	60%	In process of collective construction among group members
4	Getting information from institutions specialized in the corrective and future disaster risk management in relation to the indicators of objectives A, B, C, D and E of the Sendai Framework	Documents	30%	
5	Diagnosis of gaps and needs in terms of disaster risk reduction in Latin America and the Caribbean	Documents	70%	Assistance from CEPAL y GIZ
6	Report on existing official statistics (national and regional level) on disaster risk reduction	Documents	-	
7	Report of the recommendations on the measurement of disaster risk reduction indicators in the official statistics.	Documents	30%	
8	International workshop in any member country to disseminate the results of the Report of recommendations on the measurement of disaster risk reduction indicators in the official statistics.	Events	-	



# Thank you for your attention!

For more information please contact the Environment Statistics Section  
at the United Nations Statistics Division:

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Website: <https://unstats.un.org/unsd/envstats/>

