Working Paper

Global Common Framework for Disaster-related Statistics

Annotated outline

1 Introduction

This section would introduce the framework, outlining the need for it, putting it in the context of international disaster-related policy and statistical frameworks,

1.1 Why this framework?

1.1.1 Increasing disaster threat

1.1.2 Need for better statistics

1.2 Relevant international frameworks

1.2.1 Policy frameworks

- Sendai Framework and its predecessors
- SDGs
- Paris Agreement
- Others

1.2.2 Statistical frameworks

- UNESCAP DRSF
- UNECE Recommendations
- UNESCAP framework (forthcoming)
- UN Framework for the Development of Environmental Statistics
- UN System of Environmental-Economic Accounts
- UN System of National Accounts
- Strategic Framework on Geospatial Information and Services for Disasters
- Other

2 Concepts and definitions

This section would focus on narrative descriptions of the key concepts/definitions required in DRS.

2.1 Key concepts and definitions

- The disaster cycle
- Risk and risk management
- Impact (direct and indirect)
- Hazard
- Disaster
- Disaster risk
- Disaster-risk management
- Exposure
- Vulnerability
- Capacity
- Etc.

2.2 Hazard types

- This section would be a more detailed discussion of the major types of hazards that exist, based on UNDRR Hazard Definition and Classification Review.

3 Producers and users of disaster-related statistics

This section would focus on narrative descriptions of the various players involved in the production and use of DRS, their roles and responsibilities and the tools they have at their disposal.

3.1 Producers

3.1.1 Disaster-risk management agencies (DRMAs)

3.1.2 National statistics offices (NSOs)

3.1.3 Others

3.2 Users

3.2.1 Disaster-risk management agencies

3.2.2 Humanitarian agencies (national and international)

3.2.3 Others

3.3 Tools for producing and using disaster-related statistics

3.3.1 Surveys

3.3.1.1 On-going (e.g., population censuses; gender-based surveys)

3.3.1.2 Ad hoc (e.g., post-disaster impact surveys)

3.3.2 Spatial data

3.3.2.1 Remotely sensed data

3.3.2.2 Geographic information systems

3.3.3 Modelling

3.3.3.1 Hazard risk modelling

3.3.3.2 Exposure/vulnerability/capacity modelling

3.3.4 Administrative databases

3.3.5 "Big data" databases (e.g. mobile phone data)

3.3.6 Other tools

4 Types of disaster-related statistics

This section would focus on a narrative description of the various types of statistics that make of the domain of disaster-related statistics. The statistics themselves would be presented in subsequent sections

4.1 Disaster risk reduction-related statistics

On-going DRS are those that should be collected and disseminated on a routine basis, mainly by DRMAs and NSOs.

4.1.1 Statistics on hazard

On-going statistics on hazard include maps and other data relating to various hazard types (as defined in the UNDRR Hazard Definition and Classification Review)

4.1.2 Statistics on exposure, vulnerability and capacity

On-going statistics on exposure, vulnerability and capacity include statistics related to the exposure, vulnerability and capacity of human, infrastructure and systems/processes to hazards

4.1.3 Statistics on disaster risk management

On-going statistics on disaster risk management include those related to the efforts of governments, households, civil society and business to mitigate disaster risk

4.1.3.1 Disaster risk-management expenditures

Statistics on the DRM expenditures of governments, households and businesses

4.2 Disaster event-specific statistics

Disaster-specific DRS (DS-DRS) are those that should be collected in response to a specific disaster event. These include the statistics required for management of an active disaster and those needed for post-disaster assessment.

4.2.1 DS-DRS for disaster management

DS-DRS for active-disaster management are statistics that should be collected and used for disaster response during an active disaster event (e.g., area impacted, numbers of people in impact area, services impacted, etc.)

4.2.2 DS-DRS for post-disaster assessment

DS-DRS for post-disaster assessment are the statistics that should be collected for assessment of disaster impact management effectiveness following the end of a disaster event (e.g., location/duration of event, number of deaths/injuries, number of buildings destroyed, etc.) to assess the needs for relief, response and recovery.

4.2.2.1 Disaster impacts

- Direct

- Indirect

Further details of the types of disaster-related statistics have been annexed.

5 Issues related to implementation

This section would be a narrative description of the issues related to implementation of a set of DRS that would qualify as official statistics.

5.1 Institutional cooperation and roles/responsibilities

5.2 Quality and standards for disaster-related statistics

5.2.1 The principles of official statistics

5.2.2 The quality dimensions of official statistics

- Relevance
- Accuracy
- Timeliness
- Interpretability
- Accessibility
- Coherence

5.3 Privacy and disaster-related statistics

5.4 Data management for disaster-related statistics

5.4.1 Principles of data management

5.4.2 DRS database design

5.4.3 DRS Database management

5.5 Dissemination of disaster-related statistics

5.5.1 On-going dissemination

5.5.1.1 National reporting

5.5.1.2 International reporting

- Sendai framework reporting
- Other international reporting

5.5.2 Dissemination for active disaster management

5.5.2.1 Reporting to the public

5.5.2.2 Reporting to first responders

5.5.2.3 Reporting to international organizations

5.6 Prioritization of implementation

Appendix 1 – Types of disaster-related statistics

A. Disaster risk reduction-related statistics

In this section, the specific statistics that fall under the heading on-going DRS are outlined.

1. Statistics on hazard

Here the types of statistics needed to assess hazards in each of the major categories of the UNDRR hazard classification are presented. It is necessary to go to this level of detail (and, in fact, much more) to present a reasonably comprehensive listing of the statistics required to assess hazard risk. Of course, not all countries will face all hazards, so the actual list of statistics compiled by any country will be smaller. Many of the statistics required will be spatial in nature (e.g., area exposed to flood risk). Other statistics will be required, however, since not all risks are spatial in nature (and some extraterrestrial risks can pose threats to the entire planet); for example, statistics on risk of societal hazards could include rates of violent crime.

1.1 Meteorological/hydrological hazards

1.2 Extraterrestrial hazards

1.3 Geohazards

1.4 Environmental hazards

1.5 Chemical hazards

1.6 Biological hazards

1.7 Technological hazards

1.8 Societal hazards

1.9 Statistics on exposure, vulnerability and capacity

Here the statistics on the exposure, vulnerability and capacity of humans, physical infrastructure and systems/process to withstand hazard risk are presented. Ideally, the statistics should be broken type by type of hazard, since exposure, vulnerability and capacity all differ widely depending on the risk; for example, the statistics required to understand population exposure, vulnerability and capacity related to flood risk are entirely different from those required to understand risk from a cyberattack.

1.9.1 Human exposure, vulnerability and capacity

1.9.2 Physical infrastructure exposure, vulnerability and capacity

- By type of infrastructure

1.9.3 Systems and processes (e.g., institutions, cybersecurity) exposure, vulnerability and capacity

- By system/process

1.10 Statistics on disaster risk management

Here the statistics on efforts by various sectors of society to mitigate disaster risk would be presented. Again, the statistics should be broken down by type of hazard.

1.10.1 Public risk management (e.g., government DRM expenditure)

- By level of government

1.10.2 Household risk management (e.g., emergency preparedness plans)

- By type of household

1.10.3 Civil society risk management

- By type of agency

1.10.4 Business risk management

- By sector (agriculture, mining, other primary industry, manufacturing, utilities, transportation, communications, finance/Insurance, other)

1.10.5 DRM Expenditure account (SNA consistent)

- An SNA-consistent accounting of DRM expenditures across all three sectors of the economy

B. Disaster event-specific statistics

In this section, the specific statistics that fall under the heading of disaster-specific DRS would be outlined.

2. DS-DRS for active-disaster management

DS-DRS for active-disaster management are statistics that should be collected and used for disaster impact management during an active disaster event (e.g., area impacted, numbers of people in impact area, services impacted, etc.)

2.1 Statistics on human impacts

- Deaths, injured, unaccounted for, needing shelter, etc.

2.2 Statistics on built environment impacts

- Buildings damaged by type, buildings destroyed by type
- Roads damaged by type, buildings destroyed by type
- Etc.

2.3 Statistics on land and ecosystem impacts

- Land areas impact by type
- Ecosystems impacted by type
- Etc.

2.4 Statistics on system/process impacts

- Services disrupted by type (e.g., health care, police services)
- Systems disrupted by type (e.g., computer networks, labour markets)
- Processes disrupted by type (e.g., border checks)

2.5 Statistics on emergency resource deployments

- First responders
- Equipment
- Food/water
- Etc.

2.6 Statistics on emergency resource requirements

- First responders
- Equipment
- Food/water
- Etc.

3. DS-DRS for post-disaster assessment

DS-DRS for post-disaster assessment are the statistics that should be collected for assessment of disaster impact management effectiveness following the end of a disaster event (e.g., location/duration of event, number of deaths/injuries, number of buildings destroyed, etc.)

3.1 Disaster impacts

3.1.1 Impacts on humans

- Direct
- Indirect

3.1.2 Impacts on the built environment (physical and monetary)

- Direct
- Indirect

3.1.3 Impacts on land and ecosystems (physical and monetary)

- Direct
- Indirect

3.1.4 Impacts on systems/processes (physical and monetary)

- Direct
- Indirect

Appendix 2 – List of DRS

In this annex, the complete list of DRS will be presented in the form of an Excel table.