Measuring Disaster Occurrence and Human Impacts

Sokol Vako

United Nations Statistical Institute for Asia and the Pacific

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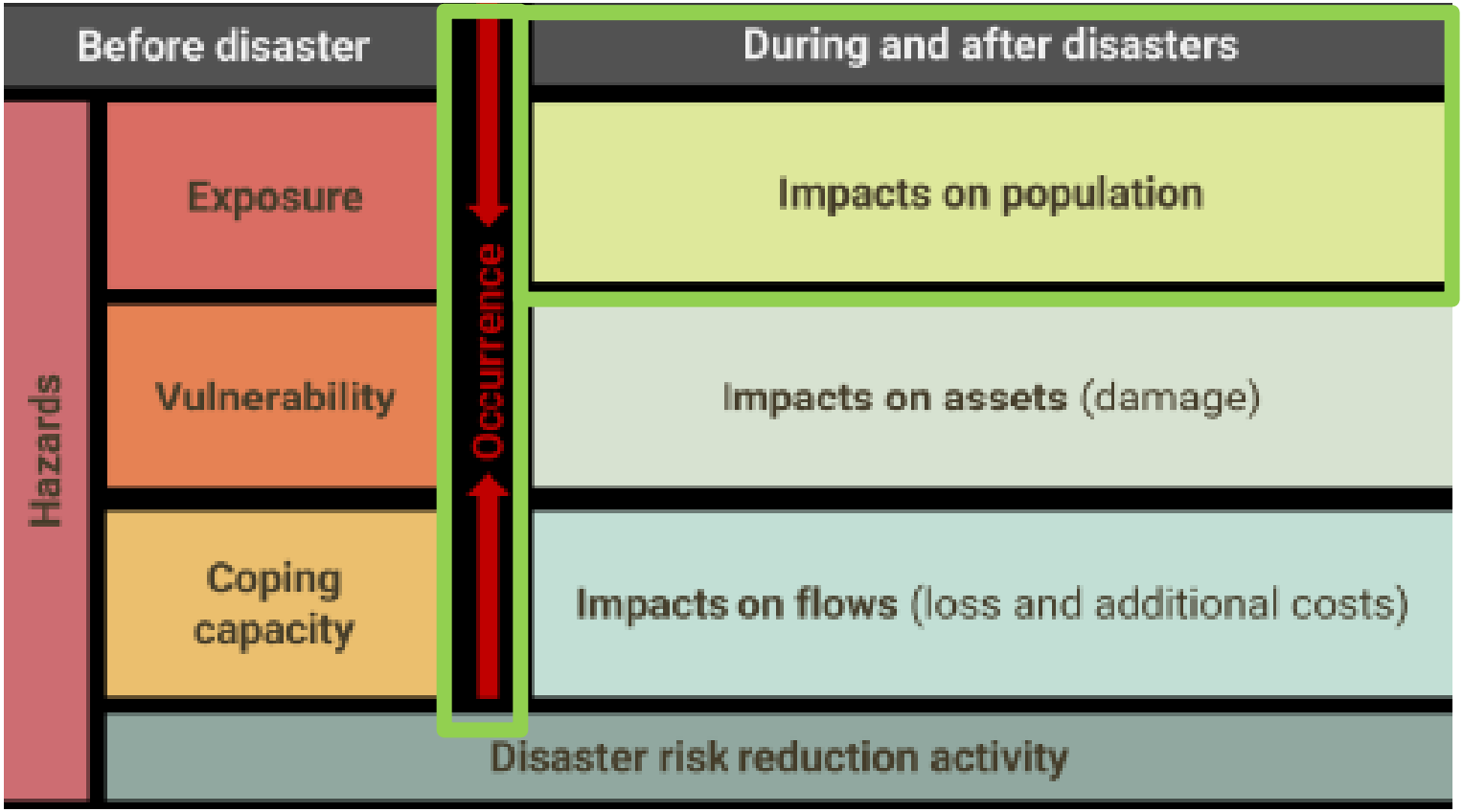
Components of disaster related statistics

The proposed update:



Let's again start with some definitions

A **hazard** is 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

A **hazardous event** is the manifestation of a hazard in a particular place during a particular period of time.

A disaster is a serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following effects: human, material, economic and environmental losses and impacts.

Types of disasters

For statistical purposes (and others) it is often useful to categorize disasters along the following dimensions:

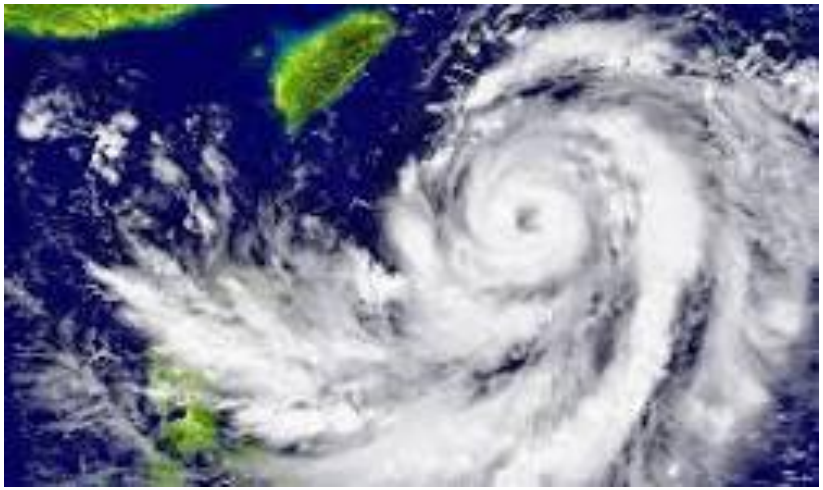
* Small scale vs. large scale
* Frequent vs. infrequent
* Slow-onset vs. sudden-onset

Lets go through a couple of examples to help us define these terms.

Types of disasters

A typhoon (hurricane) passes over the southern half of the country. What type of disaster is it?

* Small scale or large scale?
* Frequent or infrequent?
* Slow-onset or sudden-onset?



Types of disasters

The annual winter sandstorms have started, and they are impacting areas where 70% of the population live. What type of disaster is it?

* Small scale or large scale?
* Frequent or infrequent?
* Slow-onset or sudden-onset?

Types of disasters

One last example: Over the past decade, desertification has increased each year by 50 square kilometers on average. What type of disaster is it?

* Small scale or large scale?
* Frequent or infrequent?
* Slow-onset or sudden-onset?

Types of disasters

* *Small-scale disaster:* a type of disaster only affecting local communities and which require assistance beyond the affected community.

* *Large-scale disaster:* a type of disaster affecting a society and which requires national or international assistance.(c)*Frequent disaster:* a type of disaster with a high probability of occurrence and the return period of a given hazard and its impacts. The impact of frequent disasters could be cumulative or become chronic for a community or a society.

Types of disasters

* *Frequent disaster:* a type of disaster with a high probability of occurrence and the return period of a given hazard and its impacts. The impact of frequent disasters could be cumulative or become chronic for a community or a society.

* *Infrequent disaster:* a type of disaster with a low probability of occurrence and the return period of a given hazard and its impacts

Types of disasters

* *Slow-onset disaster:* a type of disaster that emerges gradually over time. Slow-onset disasters could be associated with drought, desertification, sea-level rise or epidemic disease.

* *Sudden-onset disaster:* A type of disaster triggered by a hazardous event that emerges quickly or unexpectedly. Sudden-onset disasters could be associated with earthquakes, volcanic eruptions, flash floods, chemical explosions, critical infrastructure failure or transport accidents.

Occurrence statistics

Occurrence statistics

Earlier we defined hazardous events (with and without impacts) and disasters

As a starting point (and at a minimum) we would like to have information on:

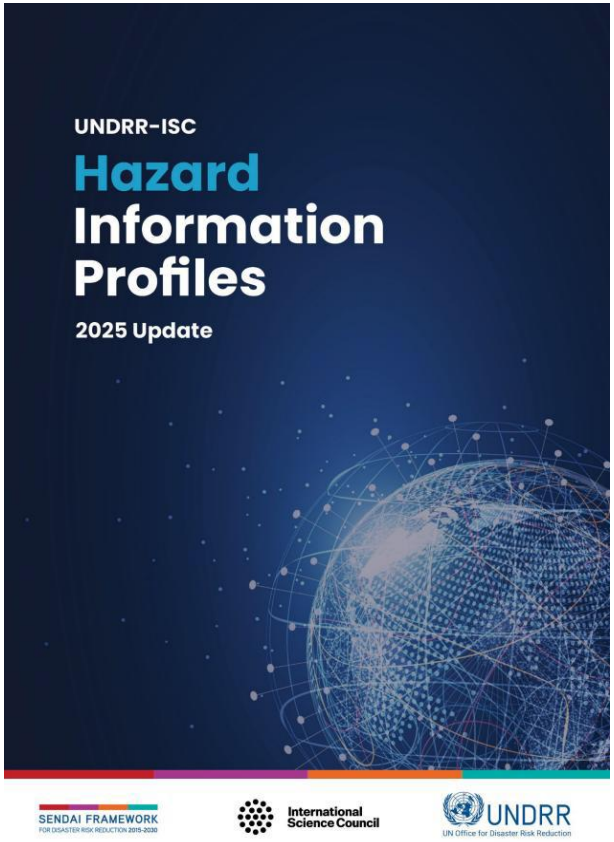
* What? (disaster type based on hazard classification)
* When? (the start and end of the event)
* Where? (location)

Occurrence statistics-What?

We use the Hazard Information profiles to classify the hazardous event and disasters.

Difficulty in recording cascading events (a primary event leads to other events, e.g., disease outbreak following a typhoon)

* Both/all event should be recoded in occurrence statistics
* Metadata should include information about the relationship of the occurrences



Occurrence statistics-When?

Statistics usually compiled on an annual basis---usually 1 Jan- 31 Dec

Sudden onset events (e.g. earthquakes, wildfires)

* Most are of a short and defined duration
* If event overlap over two periods (e.g., wildfire from 20 Dec to 15 Jan), record based on the beginning of the event

Slow onset events

* Should report based on the start of the event
* However if event is long (e.g., desertification that occurs over many years), occurrence can be reported for each year

Occurrence statistics-Where?

Measurement scope is national territory (including EEZ)

* For the compilation of tables and aggregating information, it maybe suitable to identify the subnational administrative regions impacted.
  * More detailed data needed for response and recovery efforts

* Treatment of cross-boundary events
  * Same event can impact multiple countries
  * Cascading events to be recorded as they occur
    * E.g., if heavy rain occurs in country X that leads to flooding country Y, country Y would record only flooding

Human impacts
(or impacts on population)

Human impacts

For each hazardous event with impacts and disasters:

* Number of deaths
  * Estimates can change overtime
  * Important to include information as to the time period for which statistics are being compiled
  * Sometimes there is difficulty in attributing deaths to disasters
    * E.g., Deaths due to air pollution confounded with other health parameters
* Number missing
  * Depending on the legal framework in your country, missing may eventually be presumed dead
* Number injured

Data should be aggregated on an annual basis; count is number of people

Human impacts

For each hazardous event with impacts and disasters (or the potential thereof):

* Evacuated
  * Temporary move to a different location
  * The same person can evacuate multiple times a year
  * If evacuation becomes displacement, we should record only as displacement
* Displaced
  * Forced or involuntary movement due to disaster, often urgent/emergency.
* Relocations
  * Planned movement due to high risk
  * If relocation due to multiple hazards, the most prevalent one should be used to categorize the hazard type.

Need to take special care to avoid double counting; count is number of people

Human impacts

Disruptions to livelihoods

* Job losses
* School day losses
* Disruptions to basic services (water electricity etc.,)

Thank You!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A short exercise