**National workshop:**

Generating climate change and disaster indicators for policy decision-making in Belize
09 - 11 Nov 2022

# How to develop a methodological sheet & examples


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# You can have a look at the Methodological Sheet you received by email

**CAPACITY BUILDING WORKSHOP: BUILDING INDICATORS ON ENVIRONMENT, CLIMATE CHANGE AND DISASTERS**
**GENERIC METHODOLOGICAL SHEET**

**Notes:**

- Information for the fields in **green** is **already available in the Excel** file where the indicator was calculated.
- Use this methodological sheet (MS) as a template to develop the MS for your indicator. Remove the description stated in each of the fields and place the information related to your indicator.
- Focus **only on those fields in bold.** If time allows filled out the rest of the fields.
- Fields in blue are those that may be made **publicly available** in the Methodological Sheet of the Indicator. Fields must be adapted for communicational purposes before publishing.
- Fields in pink are for **internal use** by technical teams and should not be published. However, part of the content may be published in a technical file, omitting the contact details of the reporting institutions and other aspects of internal use.
- Listed fields are for reference and must be adapted for each country or territory according to its needs and institutional framework.
- The fields order can be modified for more user-friendly communication purposes.

| | | |
|---|---|---|
| 1 | Name of the indicator | Give the indicator a name that is as clear, concise and as user-friendly as possible (Example: "Energy intensity of production", Forest coverage of the territory", "Occurrence and impact of disasters associated with climate change"). The name of the indicator should define precisely what the indicator displays, measures, or captures.<br>The indicator´s units of measure should NOT be included in this field (there is another field for this). |
| 2 | Short description of the indicator | Provide a short description of what the indicator shows, especially if it has a scientific or technical name. Use clear and straightforward language that helps the user to understand the indicator better. |
| 3 | Definition of the variables that | Specify each of the variables that constitute the indicator. If possible, adopt the definition used by the institution producing the data. For example, "The concept of fragmentation of ecosystems used by the Conservation of |

- **Name of the indicator**
  - Give the indicator a name that is as clear, concise and user-friendly (“Energy Intensity of Production”) and that defines exactly what the indicator shows.
  - The indicator units of measure should NOT be included in this field.

- **Short description of the indicator**
  - Provide a short description of what the indicator shows, especially if it has a scientific or technical name, using clear and simple language that gives the user guidance regarding the indicator in question.

- **Definition of variables that make up the indicator**
  - Specify each of the variables that make up the indicator. If possible, adopt the definition used by the institution producing the data, for example: “The concept of fragmentation of ecosystems used by the Conservation of Biodiversity Institute of Ministry X has been adopted.”
  - Definitions established / adopted internationally are used in the same way (it is particularly important in the construction of SDG indicators to allow comparisons / "dialogue" with other countries). For example: definitions of forest or native vegetation used by FAO

- **Unit of measurement**
  - Stipulate the unit of measure in which the variable(s) or the indicator values are expressed. For example: Number, percentage, km2, tons, tCO2eq (tons of CO2 equivalent).

- **Scope (what the indicator measures)**
  - It must be specified which dynamics or dimensions are the ones that the indicator “captures” or “shows”. Show exactly what things/phenomena/situations the indicator in question would be telling us for users.

- **Limitations (what the indicator does not measure)**
  - It should be clarified what other aspects, dimensions and dynamics cannot be captured or seen from the indicator.
  - The objective is to avoid extrapolations on its scope of application (those that a less expert user could consider contained). Allow the use of proxy indicators (which measure a part or a component of a certain reality that would be difficult to measure otherwise). For example: the number of heat sources is a proxy for measuring the occurrence of forest fires. But it does not fully measure this phenomenon (it is an approximation to be used when a more precise measure is not available). On the other hand, this indicator does not allow to size the burned area or to specify the topology of burned vegetation.

- **Relevance of the Indicator**
  - The importance of the proposed indicator in the assessment on the environment (state, pressures, etc.) or on sustainability must be specified. In essence, it is about connecting the contents of the indicator with the environmental problems and challenges (or even with the environmental policies/objectives) of sustainability in the specific territory it covers (country, biomass, etc.). This implies defining the variable or variables that make up the indicator, linking them with environmental or sustainable development problems that the user can perceive or understand.

- **Formula for calculating the indicator**
  - You must specify the operations and processing of the variables that are necessary to obtain the final value of the indicator.
  - It must contain the dimensions of the indicator (temporal and geographic) through subscripts, in addition to all the corresponding scientific notation (summations, average, etc.).
  - This must be done for each observation / measurement point / parameter (territorial, historical, etc.). In this way, mistakes are avoided regarding the unit of measurement in which the indicator will be expressed.

- **Graphic or representation, with trend phrase**
  - Prepare a representation, ideally graphical, of the indicator. Often, from the analysis of the graphs, errors and problems are discovered (more than if the analysis is done from tables).
  - Before defining the presentation: Try several diagrams or types of graphs until you see the optimal result of what you want to show with the indicator in question.
  - Create a trend phrase that could title the entire indicator, or just the graph.
  - Example: Evolution of pesticide consumption by planted agricultural area

- **Trends and challenges**
  - Include a brief paragraph beneath the graph to inform the user of the implications and challenges revealed by the indicator's trend line

- **Notes on possible outliers in the series**
  - If applicable, describe possible explanations for unexpected increases and / or decreases in the historical series: for example, droughts, floods, natural disasters, economic crises, etc.

- **Coverage or Scale of the indicator**
  - The coverage of the indicator can include different scales, or even combine several of them, in any case it must be well specified considering the coverage of the variables that compose it. Examples: communal, provincial, departmental, national, more than 100,000 habitants, etc.

- **Source of data**
  - The source of the data used to build an indicator must be stipulated for each of the variables/components, in detail: specify not only the institution, but also the department or office, and/or the physical or electronic publication where it is available (if applicable) and, if possible, the name and contact email of the person in charge.

- **Method of collecting or capturing the data**
  - Describe the method through which the basic data is captured or generated. In general, one can mention surveys, censuses, administrative records and monitoring stations, among others.

- **Data Availability (qualitative)**
  - Data availability refers to how easy or difficult it is to systematically access the data, regardless of whether it is formally produced. It also refers to the way in which these data are produced or published (even with its possible access limitations). For example, it can be said: "Fully available in physical or electronic format", or "Available in a restricted way to public bodies", or "Primary data available in Household Survey, but requires further processing to generate the required information", or "Reserved information", etc.

- **Data Periodicity**
  - The periodicity must be specified for each variable that makes up the indicator. This is understood as the period of time in which the data is updated. For example: "Every four years", "yearly", "bi-monthly", and so on. When appropriate, specify the periodicity of the data collection, registration and publication. As an observation, it should be considered that data that have irregular, random or too widely spaced periodicity should be avoided.

- **Period of currently available time series**
  - Specify the time period that comprises the currently available series, for example: “Period 1987-2015”, historical series available from 2002, available years: 2001, 2003, 2006, 2007, 2011, 2013 and 2014, etc.

- **Indicator update periodicity**
  - Group recommendation of how often makes sense and it is possible to recalculate the indicator to update its value. That is, update your values or your measurement.

- **Relationship of the indicator to environmental or sustainable development policy objectives in Latin American and Caribbean countries**
  - It must be made explicit if there are policies, goals, quality standards or even relevant baselines for the indicator in the country, and with respect to which progress can be evaluated over time or in different territories.

- **Link with regional or worldwide initiatives**
  - Indicate the existing relationship with the goals or the request for periodic information agreed in Conventions, Agreements or Regional (LAC) or global / international conventions.

- **Data table**
  - Statistical data that are the basis for calculating the indicator allow for a more thorough analysis and make it possible to find the best graphic representation.
  - Include an Excel spreadsheet with the historical time series required to calculate each indicator.

# Focus on the most important fields

- During the breakout groups we will focus on **11 out of the 21** proposed fields of the Methodological Sheet (50% approx.)
- All fields are important but selected ones are **crucial** for the  understanding and replicability of the indicator

# Example of an Indicator Methodological Sheet : Resilience and adaptive capacity to climate-related hazards and disasters

Goal 13: Take urgent action to combat climate change and its impacts
Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
Indicator 13.1.1: Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population

## Institutional information

**Organization(s):**

United Nations Office for Disaster Reduction (UNISDR)

## Definition and Rationale

**Definition:**
This indicator measures the number of people who died, went missing or were directly affected by disasters per 100,000 population.

**Concepts:**

**Death:** The number of people who died during the disaster, or directly after, as a direct result of the hazardous event.

**Missing:** The number of people whose whereabouts is unknown since the hazardous event. It includes people who are presumed dead, for whom there is no physical evidence such as a body, and for which an official/legal report has been filed with competent authorities.

**Directly affected:** The number of people who have suffered injury, illness or other health effects; who were evacuated, displaced, relocated or have suffered direct damage to their livelihoods, economic, physical, social, cultural and environmental assets. Indirectly affected are people who have suffered consequences, other than or in addition to direct effects, over time, due to disruption or changes in economy, critical infrastructure, basic services, commerce or work, or social, health and psychological consequences.

**Rationale and Interpretation:**
The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted by UN Member States in March 2015 as a global policy of disaster risk reduction. Among the global targets, "Target A: Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared with 2005-2015" and "Target B: Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared with 2005-2015" will contribute to sustainable development and strengthen economic, social, health and environmental resilience. The economic, environmental and social perspectives would include poverty eradication, urban resilience, and climate change adaptation.

The open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OIEWG) established by the General Assembly (resolution 69/284) has developed a set of indicators to measure global progress in the implementation of the Sendai Framework, which was endorsed by the UNGA (OIEWG report A/71/644). The relevant global indicators for the Sendai Framework will be used to report for this indicator.

**Disaster loss data is greatly influenced by large-scale catastrophic events, which represent important outliers. UNISDR recommends countries report the data by event, so that complementary analysis can be undertaken to obtain trends and patterns in which such catastrophic events (that can represent outliers) can be included or excluded.**

## Method of Computation and Other Methodological Considerations

**Computation Method:**
Related indicators as of February 2020

$$X = \frac{(A_2 + A_3 + B_1)}{Global\ Population} \times 100{,}000$$

Where:
$A_2$ Number of deaths attributed to disasters;
$A_3$ Number of missing persons attributed to disasters; and
$B_1$ Number of directly affected people attributed to disasters.
* Detailed methodologies can be found in the Technical Guidance (see below the Reference section)

**Comments and limitations:**
The Sendai Framework Monitoring System has been developed to measure the progress in the implementation of the Sendai Framework by UNGA endorsed indicators. Member States will be able to report through the System from March 2018. The data for SDG indicators will be compiled and reported by UNISDR.

**Proxy, alternative and additional indicators:**
In most cases international data sources only record events that surpass some threshold of impact and use secondary data sources which usually have non uniform or even inconsistent methodologies, producing heterogeneous datasets.

## Data Sources and Collection Method

**Data sources and collection method:**
Data provider at national level is appointed Sendai Framework Focal Points. In most countries disaster data are collected by line ministries and national disaster loss databases are established and managed by special purpose agencies including national disaster management agencies, civil protection agencies, and

# Example of an Indicator Methodological Sheet : Loss of forestry resources and ecosystems (Chile)

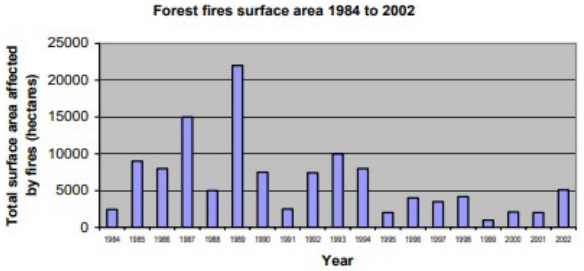
**ENVIRONMENTAL INDICATORS OF CHILE, NATIONAL ENVIRONMENT COMMISSION (CONAMA)**

| | |
|---|---|
| **PES (Priority environmental situation)** | Loss of forestry resources and ecosystems |
| **Type** | Specific Regional |
| **Regions** | V$^{th}$ Region |
| **Environmental category** | Ecological Support |
| **Category of information** | Impact |
| **Description** | Surface area burned annually due to the incidence of forest fires |
| **Interest** | Forest fires are a relevant cause of loss of forest cover, the permanence of which is linked to an important part of the natural resources of the region. The indicator is frequently questioned for two basic reasons. The first objection is that fires do not always produce loss of natural resources and, in fact, may constitute a natural mechanism for the rejuvenation of ecosystems. Secondly, fires are not always anthropic in origin. However, these habitual objections seem more suited to its use as an indicator of loss of biodiversity (the first objection) and of environmental pressure anthropic in origin (the second objection). According to national statistics, almost all forest fires are anthropic in origin, so this indicator is directly related to the pressure of society on this natural resource. At the same time, it demonstrates the regional efforts to control forest fires. |

| **Scope** | **Limitations** |
|---|---|
| In Chile, unlike in other places, most forest fires are anthropic in origin, therefore this indicator is directly associated with the pressure of human activity on forestry resources. | While surface area is a good indicator of the extent of the damage, it does not capture the degree of damage caused by the forest fire, which is of significance if the goal is to assure the availability of forestry resources. |

| | |
|---|---|
| **Method of calculation** | The information supplied by CONAF relates to monthly forest fires during the season from October to May, and the necessary summation must be carried out to estimate the surface area burned in the year. |
| **Statistical source** | National Forestry Corporation (CONAF) |

| **Series** | **Frequency** |
|---|---|
| 1984 to 2001 | Annual |




Source: Rayén Quiroga. "Indicadores regionales de desarrollo CONAMA", Documento de Trabajo No. 7, Economía Ambiental series", Santiago, Chile. National Environment Commission (CONAMA).

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# Thank you for your attention!

https://www.cepal.org/en/topics/environmental-statistics

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