Data, statistics and indicators: Concepts and production of environment, climate change and disasters statistics

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Starting Questions: What and how to measure?

What do we want to measure?

➢ **Situation and changes**

Status and environmental trends, CC and occurrence and impact of disasters

   – Temporary changes in key variables from t_0 ➡ t_1
   – Changes in the spatial distribution

Monitoring and evaluation of environmental dynamics, climate change and disasters

➢ **What is happening? What has changed?**
   Occurrence, impacts, mitigation, adaptation

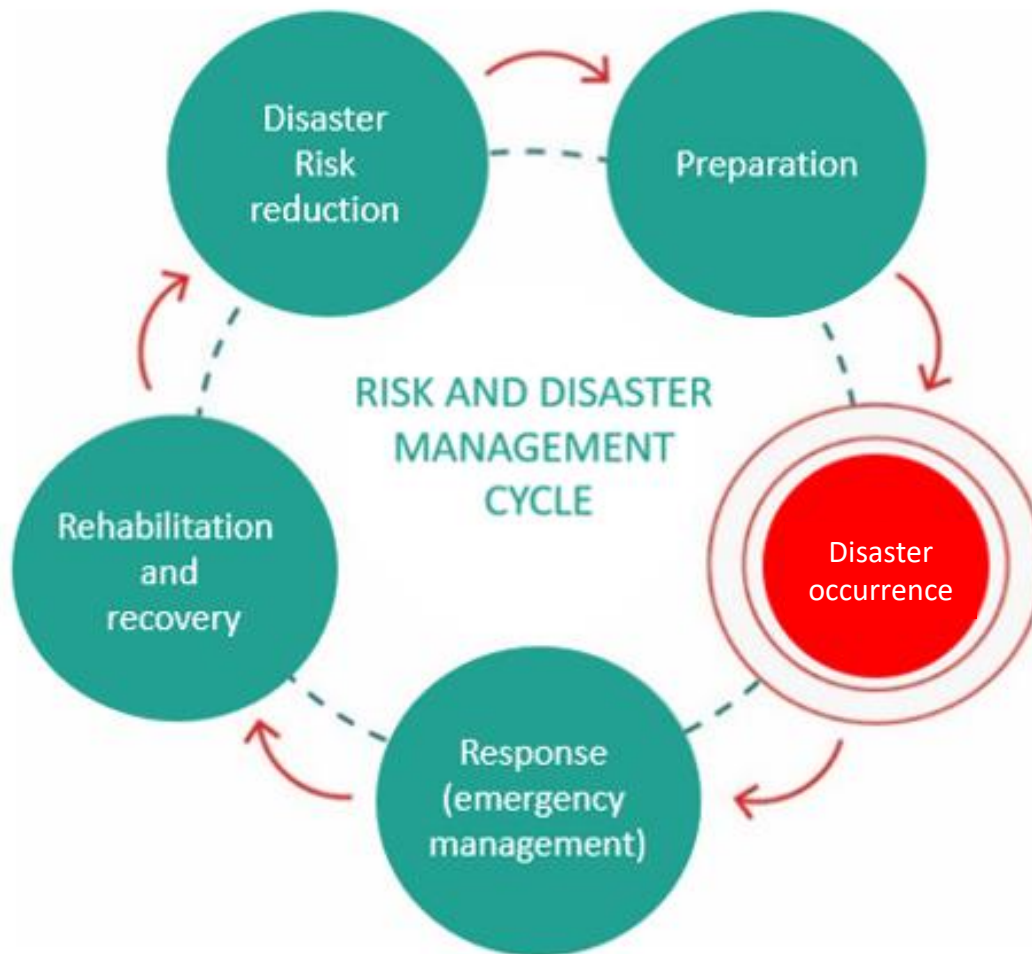➢ **Processes - programs, incentives, regulations, enforcement action**

Results
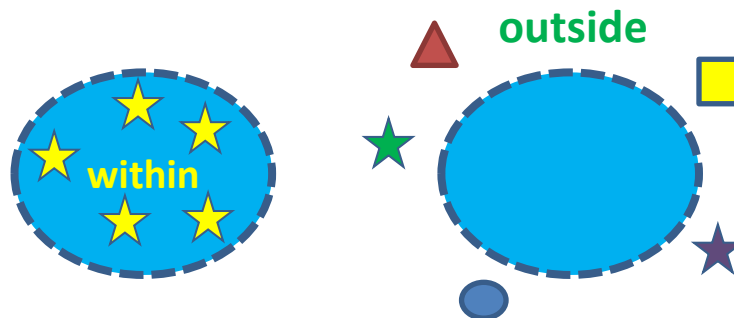Impacts

What proportion is attributed to the intervention?

Questions: What and how to measure?

We need

1. Define detailed **demand** for indicators by policies and targets (for example, Disaster Risk Reduction-DRR)

2. Definition of variables and Statistical unit = boundaries
(what stays within and outside)

3. Articulate with a statistical classification (hierarchy, disaggregation)

4. Identify / Select / Develop data sources

5. Make the data collection and calculation **methodology explicit**

    Use international statistical standards and recommendations for spatial and temporal comparability (Statistical Commission UN)

6. Comprehensive description: metadata and methodology sheets

7. Inter and intra-institutional cooperation

outside

within

To measure and produce Official Statistics / Indicators

The production of spatial-temporal comparable statistical series and indicators requires:

1. **Technical capacities:** inter-institutional training, technical assistance to support countries

2. **Produce and update** on regular basis

3. **Disseminate** (e.g., sets of indicators)

4. **Institutional Development - political will and resources**
   a) Inter-institutional cooperation
   b) Intra-institutional cooperation
   c) Strong organization of specialized units in environmental / disaster / resilience statistics

With: Adequate resources / high hierarchical level ES unit (such as economic and social statistics area) in the organization chart

Quantitative environmental information includes data, statistics and indicators

— To turn data into statistics and indicators, it is required to apply **statistical processing** operations

— Operations based on statistical **methodologies, rules and standards** together with **specific procedures** in the domain of environmental statistics

— Certain types of environmental **data sources** involve specific collection and compilation processes

— Description of statistics and indicators in the form of **metadata** allows comparison over time and records possible differences with definitions, recommendations and international standards

— The use of relevant statistical **classifications** in the domain of environmental statistics guarantees temporal and spatial comparability
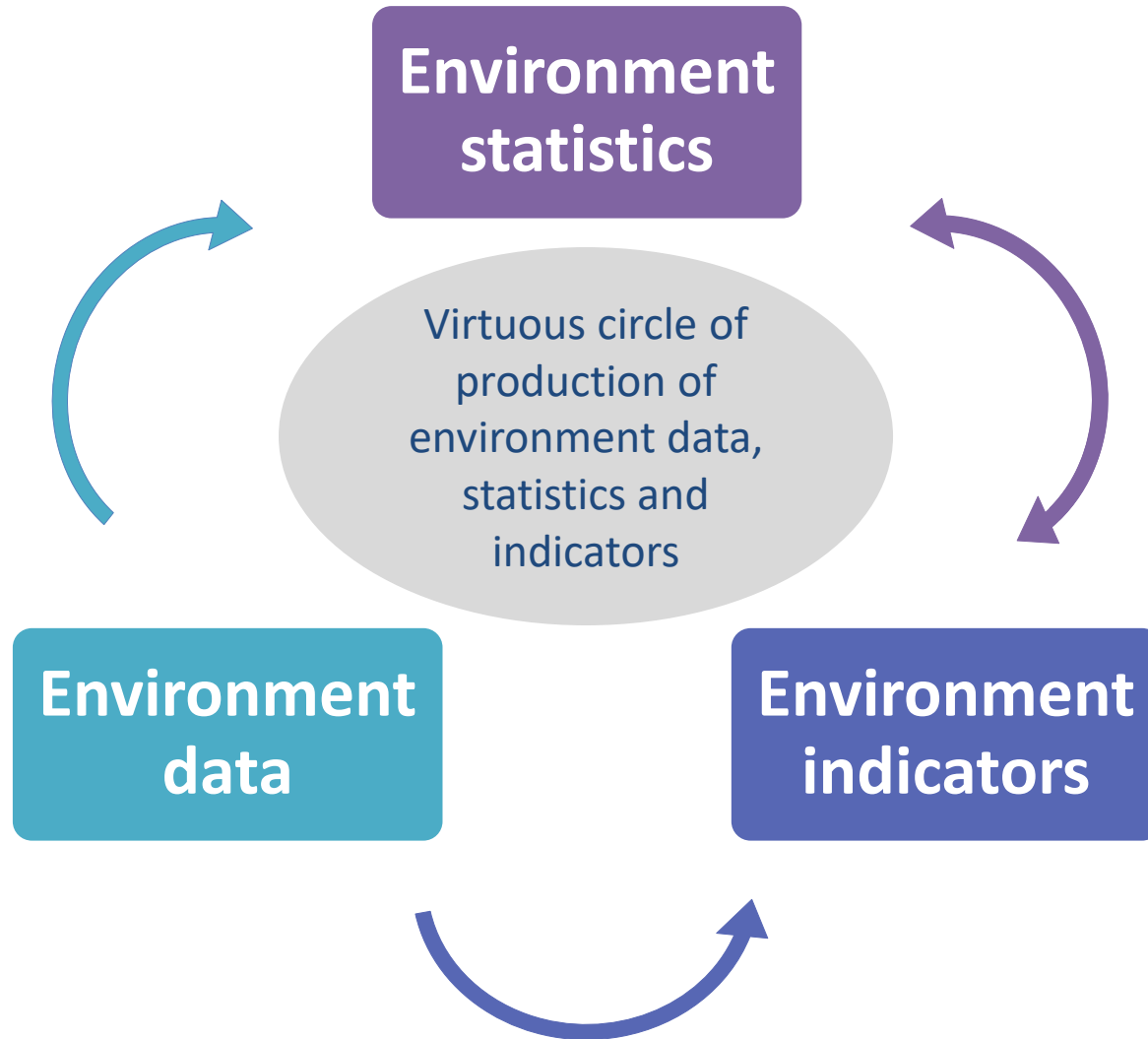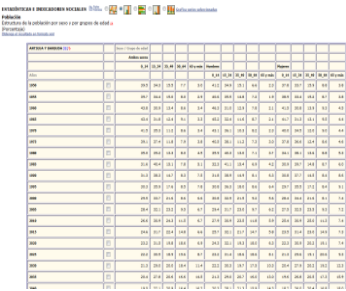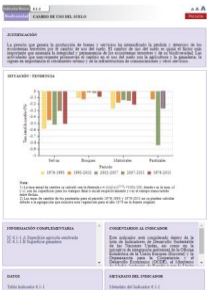
Environment Statistics System

Production, dissemination and use of environmental statistics and indicators

| Production	Characteristics	Dissemination	Characteristics/Uses
Environment statistics	They describe the situation and trend of the environment and the main processes that affect it	• Tables and charts • Statistical compendiums • Databases	• Heavy • Multipurpose • Experts and Analysts • Build environment declarations • Report on multilateral environmental policies and agreements • To compile environmental accounts • SDG indicators required
Environment indicators	They describe and show the situations and the main environmental dynamics in synthesis form	File that presents indicators explained and contextualized	• Report for specific purposes (policies, programs) • Limited number • Citizenship • Decision makers • Authorities • Respond to SDG

Stages of statistical processing


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Data

+ Validation
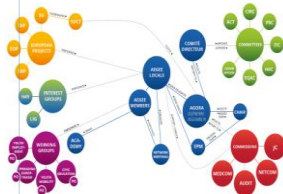
+ Structuration
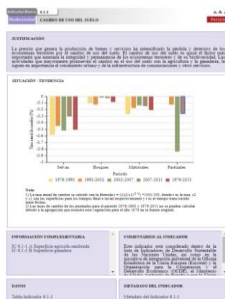
+ Description (metadata)

Statistics series
(compendia, yearbooks and databases)

Sex	Method	Mean	95% CL Mean		Std Dev	95% CL
F		60.5889	56.7315	64.4463	5.0183	3.3897
M		63.9100	60.3776	67.4424	4.9379	3.3965
Diff (1-2)	Pooled	-3.3211	-8.1447	1.5025	4.9759	3.7339
Diff (1-2)	Satterthwaite	-3.3211	-8.1551	1.5129		

Method	Variances	DF	t Value	Pr > |t|
Pooled				0.1645
Satterthwaite				0.1652
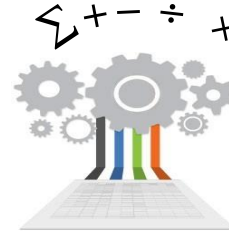
Selection and processing of statistics, aggregation and combination with economic and social statistics

Environment indicators
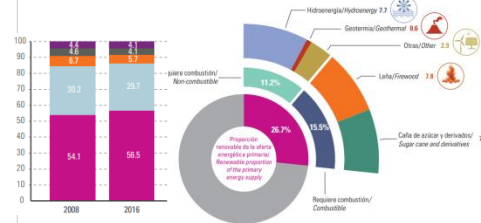
Users and uses of the indicators

- A2030 environment indicators
- Public policies and programs
- State of the environment
- Environment performance reports
- Environment accounts

Fuente: elaboración propia.

DA12 project national online workshop:

Generating climate change and disasters indicators for policy decision-making in Suriname

13 - 15 July 2021

Thank you for your attention!

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

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