DA12 project Kick-off webinar
9 - 11 March 2021

Caribbean SIDS relevant climate change and disasters indicators for evidence-based policies

Introduction to ECLAC methodology to produce environment, climate change and disasters indicators

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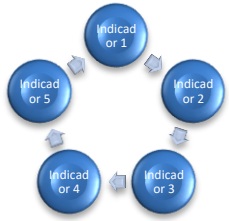


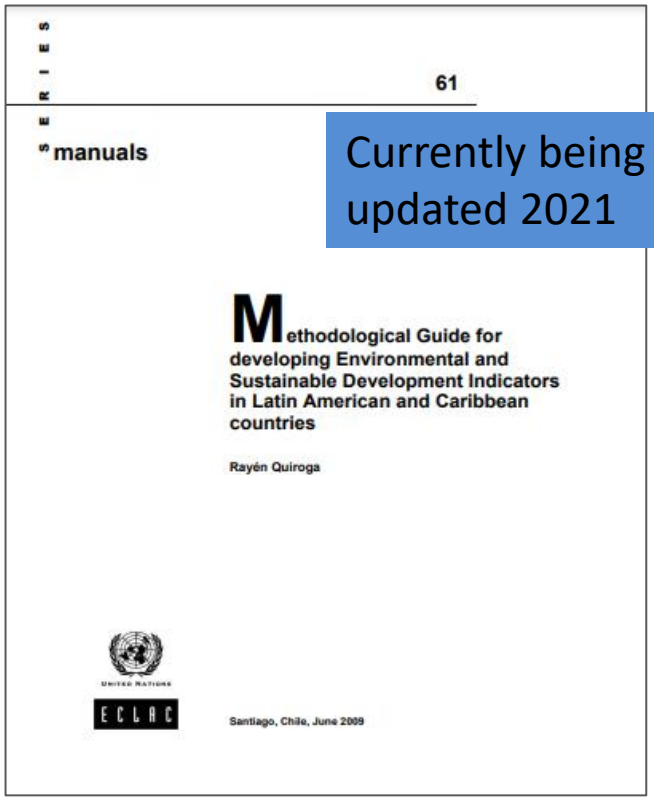
3 Products resulting from the indicator-building process

This methodology can be found in ECLAC Manual 61:

Methodological Guide to develop Environment and Sustainable Development Indicators in Latin American and Caribbean countries

It is based on an **inter-institutional collaborative** work approach to build and agree on the technical specifications of relevant and quality **indicators set** that describe or quantitatively report on the situation and trends of:

- **Environment as a whole**
- **Components of the environment** (water, air quality, forest, ecosystems and biodiversity, renewable energy and energy efficiency, agri-environmental, residuals, environmental health, environmental management, etc.)
- Multi-Domain processes:
  - **Climate change**
  - **Disasters**



Currently being updated 2021

Download:
https://www.cepal.org/en/publications/37890-methodological-guide-developing-environmental-and-sustainable-development

1

Principles for constructing indicator sets

1. Principles for building indicators

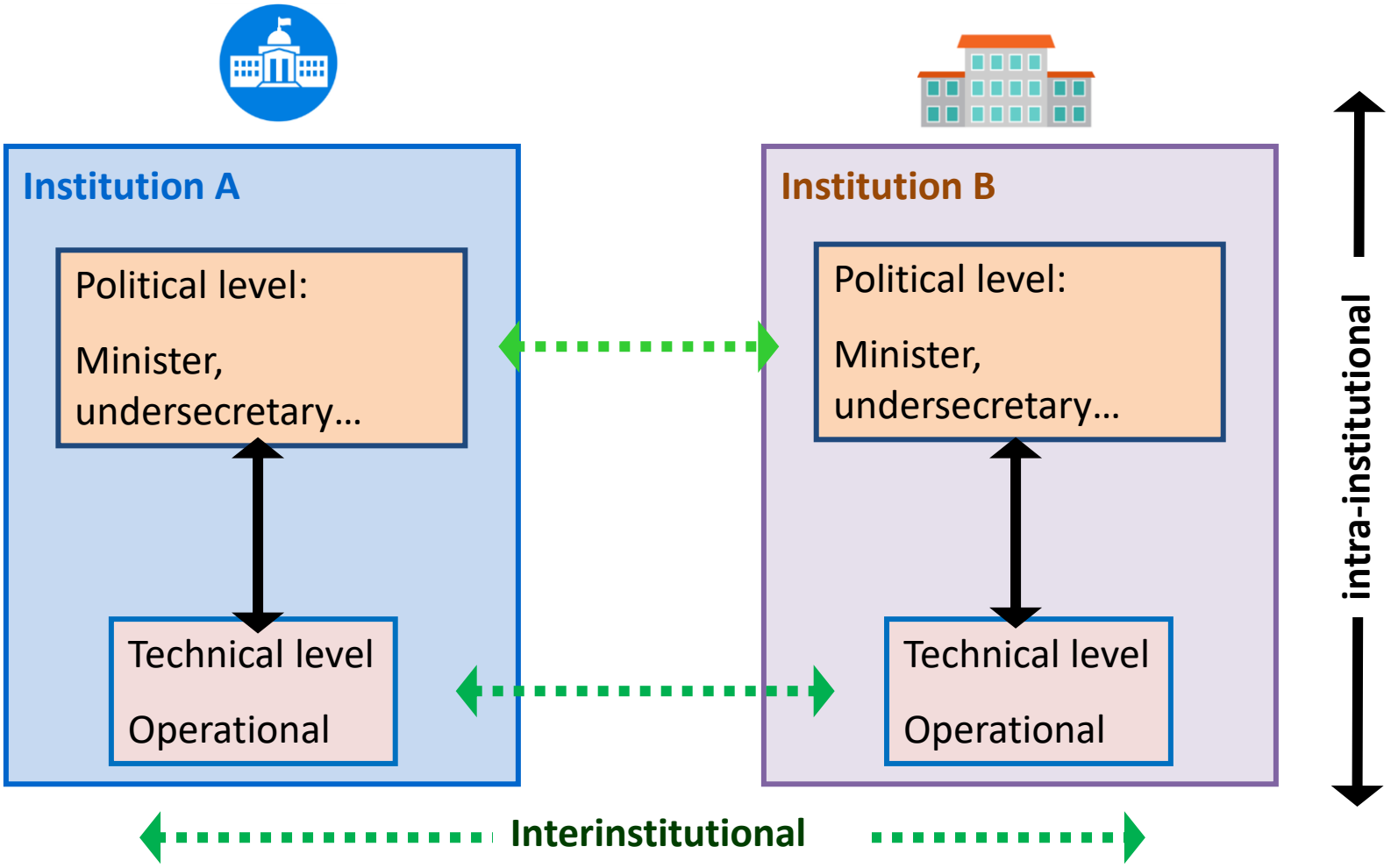
1. **Teamwork** and effective organization
2. **Inter-institutional** coordination and cooperation
3. **Demand-driven** indicator sets
4. Selection of **information and organization** of processes
5. **Manageable number** of indicators … progression
6. Strict compliance with procedures and statistical quality
7. User-friendly and attractive indicators dissemination
8. Flexibility and perseverance

Principle 1: Teamwork and effective organization

- Engage **producers**, processors, compilers and **users** of environmental and multi-domain indicators
- **Inter-institutional team** with work plan, goals and established leadership
- **Capacity building** for common methodology, concepts and tools to better construct the indicator set

Principle 2: Inter-institutional coordination and cooperation

Clear organization of cooperation among institutions and levels



Principle 3: demand-driven indicator sets

1. **Identification of the most important and critical decisions and interventions** (Reports or profiles of environment, development sustainability, the situation of climate change and/or occurrence and impact of disasters in the territory)

2. Identification and selection of the most useful potential indicators to guide these decisions and interventions

(Draft list of potential indicators)

3. Verification of statistical feasibility of the potential indicators (verification of existence, quality and statistical series and primary data systematization)

4. Assessment of primary statistical sources for datamining:

- Surveys and Censuses
- Quality ground monitoring stations and programs (air, water, soil, etc.)
- Remote sensing
- Administrative records
- Estimates
- Scientific research

Building demand-driven indicators for decision-makers, we make better use of limited resources

Principle 5: Manageable number of indicators (modular progressive approach)

- Each indicator (design, construction, publication, update) requires a strong investment of time, energy and dedication (knowledge, coordination, creativity, consultation, decision, consensus building)
- The first set of indicators should be manageable with available resources
- Each indicator counts and must contribute to the whole set

Less is more!!!

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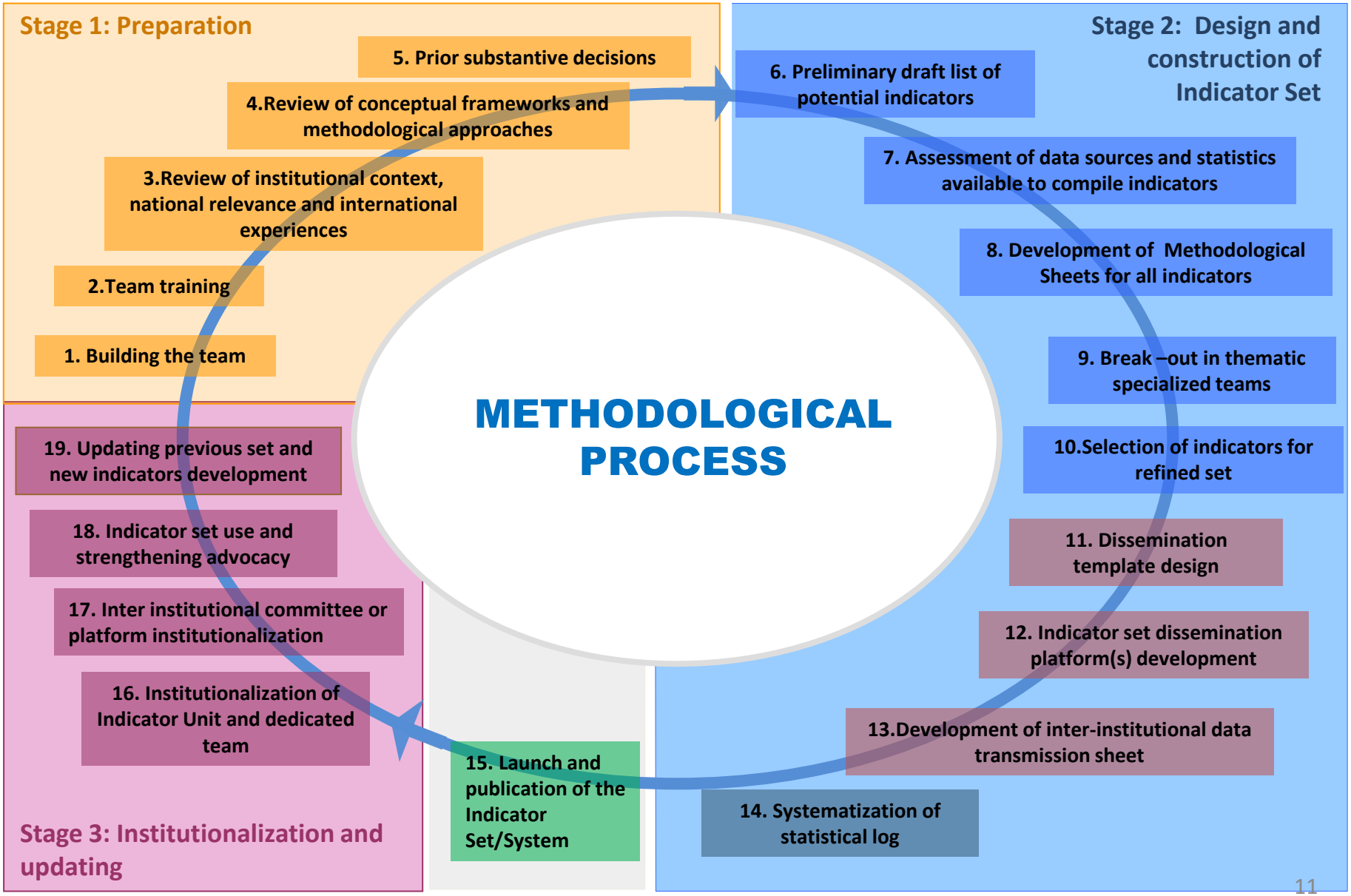
Building indicators: Methodological road map

Stage I: Preparation

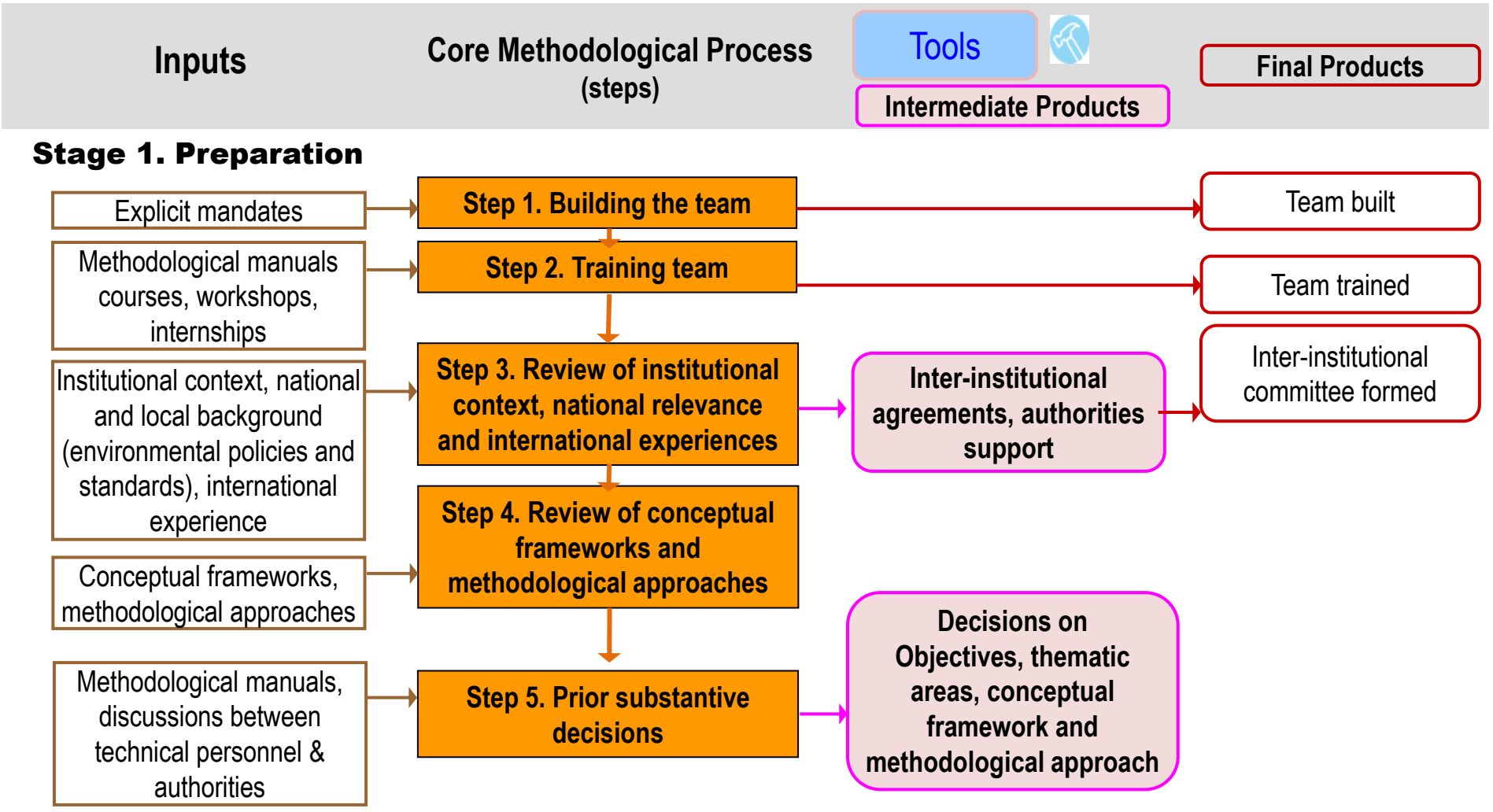
Stage II: Design and construction of indicator set

Stage III: Institutionalization and updating

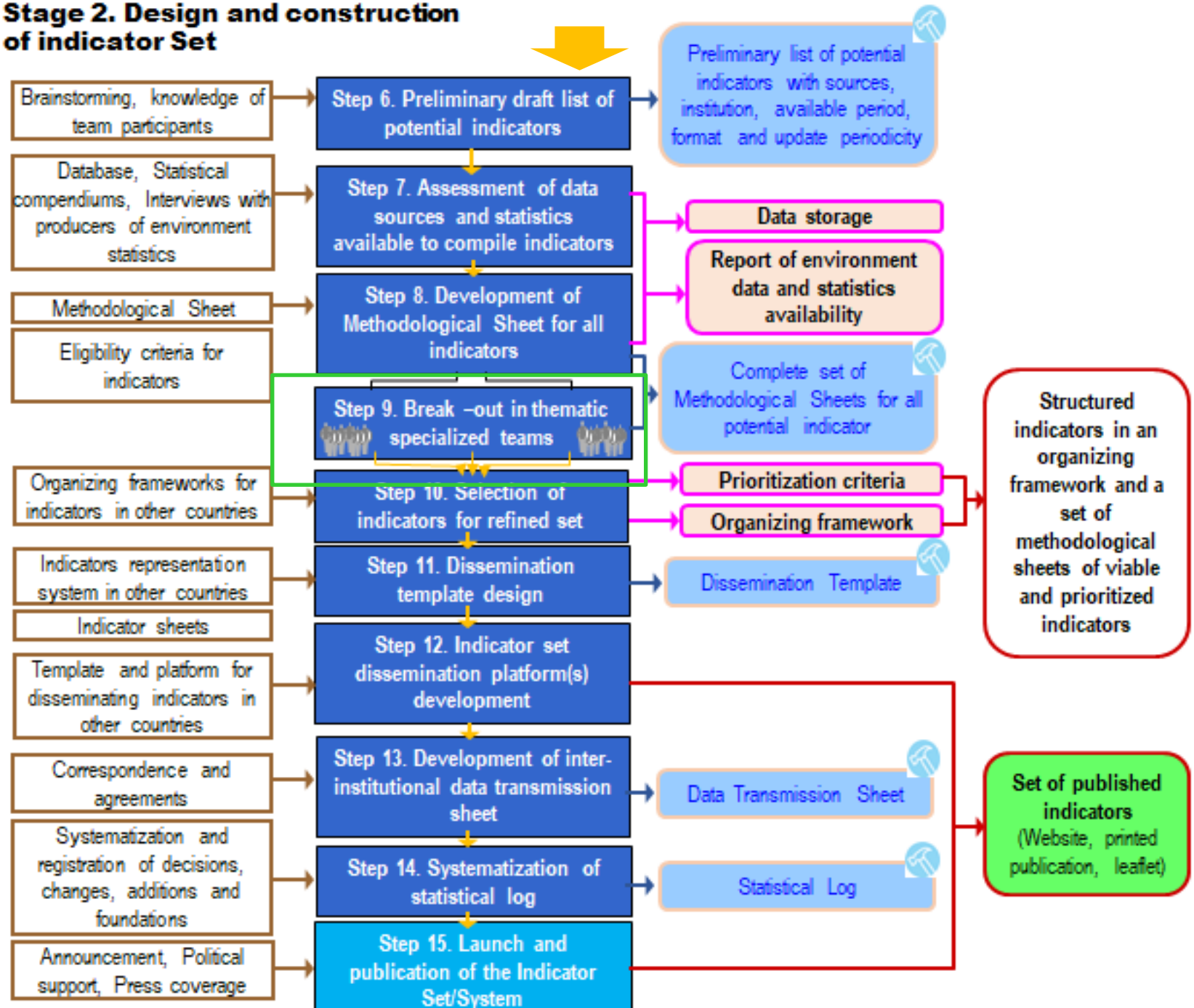
2. Methodological road map



Stage I: Preparation



Stage 2. Design and construction of indicator Set



Stage II: Design and development of indicators

Step 8: Development of Methodological Sheet for all indicators

- Key tool in constructing the indicators set
- Internal use
- Contains all the technical specifications of the indicator and its underlying variables
- Clarifies and share technical content and specificities
- Allows for a common comprehension and building process
- Informs about the design/construction progress of each indicator
- Facilitates the technical analysis of each indicator
- Selected content will be used in the indicator dissemination template
- Enables comparability of the indicator over time and across space

Example 1 of Indicator Methodological Sheet : Pesticides Use

Dataset Information:	
Title	**Pesticides Use**
Abstract	The FAOSTAT Pesticides Use domain contains statistics on the agricultural use of major pesticide groups and of relevant chemical families. Data are disseminated by country, with global coverage, over the period 1990-2018, with annual updates. Data are disseminated in quantity (metric tonnes) of active ingredients.
Supplemental	The FAOSTAT Pesticides Use domain contains information on the use of major pesticide groups: 1. Insecticides (Chlorinated hydrocarbons, Organo–phosphates, Carbamates–insecticides, Pyrethroids, Botanical and biological products and Others not elsewhere classified); 2. Mineral Oils; 3. Herbicides (Phenoxy hormone products, Triazines, Amides, Carbamates–herbicides, Dinitroanilines, Urea derivatives, Sulfonyl urea, Bipiridils, Uracil, Others not elsewhere classified); 4. Fungicides and Bactericides (Inorganic, Dithiocarbamates, Benzimidazoles, Triazoles Diazoles, Diazines Morpholines, Others not elsewhere classified); 5. Seed Treatment-Fungicides (Dithiocarbamates, Benzimidazoles, Triazoles Diazoles, Diazines Morpholines, Botanical products and biological, Others not elsewhere classified); 6. Seed Treatment-Insecticides (Organo-phosphates, Carbamates–insecticides, Pyrethroids, Others not elsewhere classified); 7. Plant Growth Regulators; 8. Rodenticides (Anti–coagulants, Cyanide Generators, Hypercalcaemics, Narcotics, Others not elsewhere classified); 9. Other Pesticides NES (not elsewhere specified); 10. Disinfectants.
International Standards	The FAOSTAT Pesticides Use domain is compliant with the **System of Environmental-Economic Accounting for Agriculture Forestry and Fisheries (SEEA AFF)** in terms of: i) Definitions; ii) Classifications; and iii) Applicability: the FAOSTAT Pesticides Use data can be used to compile SEEA AFF Table 4.7 *"Physical flow account for pesticides"*. The FAOSTAT Pesticides Use domain is compliant with the Framework for the Development of Environmental Statistics (FDES 2013), FDES Component 1. *Environmental Conditions and Quality*; Component 2. *Environmental Resources and their use* and in Component 3. *Residuals* and FDES, Table 4.2 *"Core Set of Environmental Statistics"*.
Creation Date	1990
Last Update	2019
Data Type	Pesticides use statistics
Category	Agriculture
Time Period	1990–2018
Periodicity	Annual
Geographical Coverage	World
Spatial Unit	Country
Language	Multilingual (EN, FR, ES)

Data Collection	National data are collected from 205 countries and territories via the FAO Pesticides Use Questionnaire, http://www.fao.org/economic/ess/ess-home/questionnaires/en/. The data collected via questionnaire may be complemented with official government data sources, for instance from national statistical yearbooks and ministerial data portals, as well as with secondary data sources, such as country studies from other International Organizations. Data are flagged in the domain according to source. Several countries may report pesticides sales data or pesticides trade imports data in the Questionnaire, as a proxy for pesticides use. No data adjustments are made in such instances, albeit they may impact time series occasionally. Use of proxies are recorded in the "Country Notes" available on the FAOSTAT Pesticides Use domain.
Completeness	The database covers 173 countries and territories. Below is the response rate (defined as the number of countries who provide data) for the 2019 dispatch of the FAO Pesticides Use Questionnaire:

Region	Response Rate
Africa	11%
Americas	27%
Asia	35%
Europe	69%
Oceania	20%
Global	**32%**

Below is the imputation rate (defined as the number of imputations over the total number of records) for the Pesticides Use database:

Region	Imputation Rate
Africa	41%
Americas	33%
Asia	34%
Europe	14%
Oceania	40%
World	**29%**

National Focal Points	The FAO Questionnaire is sent to National Focal Points in National Institutions, typically National Statistical Offices, Ministries of Agriculture or other relevant Agencies.
Methods: Data gap filling	The following gap-filling methodology was applied to reported statistics in connection with: 1. Data errors (data reported in formulated products, rather than in active ingredients; and 2. Incomplete time series of subcomponents, for the purpose of computing aggregates of pesticides totals by country. 1. Data in formulated products (FP) was adjusted to active ingredients (AI) in the following manner. In cases of a temporary break in time series at time points i and k, i.e., for series of the kind $\{AI_i, FP_{i+1}, \ldots, FP_{k-1}, AI_k\}$, the average of the relative rate of change before and after the more recent break occurrence was applied to the break

Example 2 of 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

Stage II: Design and development of indicators

Step 10: Criteria for selection of indicators (to be included in refined set)

- Indicator relevance and pertinence to target or policy objective
- Statistical feasibility of indicator (availability of data series)
- Data quality of underlying variables
- Indicator robustness
- Indicator simplicity
- Indicator clarity and user friendliness
- Indicator security of directionality
- Completeness and consistency among fields in methodological sheet
- Optimal representation and graphic design for dissemination purposes

No indicator by itself is capable of informing about the whole complexity of environmental or multi-domain phenomena. Nevertheless, each selected indicator must provide enough statistical value to justify its place in the indicator set/system.

2. Methodological road map: Stage II

Example of Environment Indicators Set

(selected) Environment Indicators from Sweden

❑Emissions

1. Discharges to water and sewage sludge production
2. Emissions of atmospheric pollutants
3. Greenhouse gas emissions and removals
4. Quarterly and preliminary yearly emissions of GHG

❑Fertilizers

5. Nitrogen and phosphorus balances for agricultural land
6. Sales of fertilizers for agricultural and horticultural purposes
7. Sales of lime for agricultural and horticultural purposes, for lakes and woodlands
8. Use of fertilizers and animal manure and cultivation measures in agriculture

❑Land use

9. Activities zones
10. Concentration of holiday homes
11. Formally protected forest land, voluntary set-asides, consideration patches and unproductive forest land
12. Land use in proximity to the shoreline

❑Marine and water environment

13. Lakes, watercourses and groundwater – environmental quality
14. Nitrogen load to sea
15. Phosphorous load to sea

❑Air – environmental quality

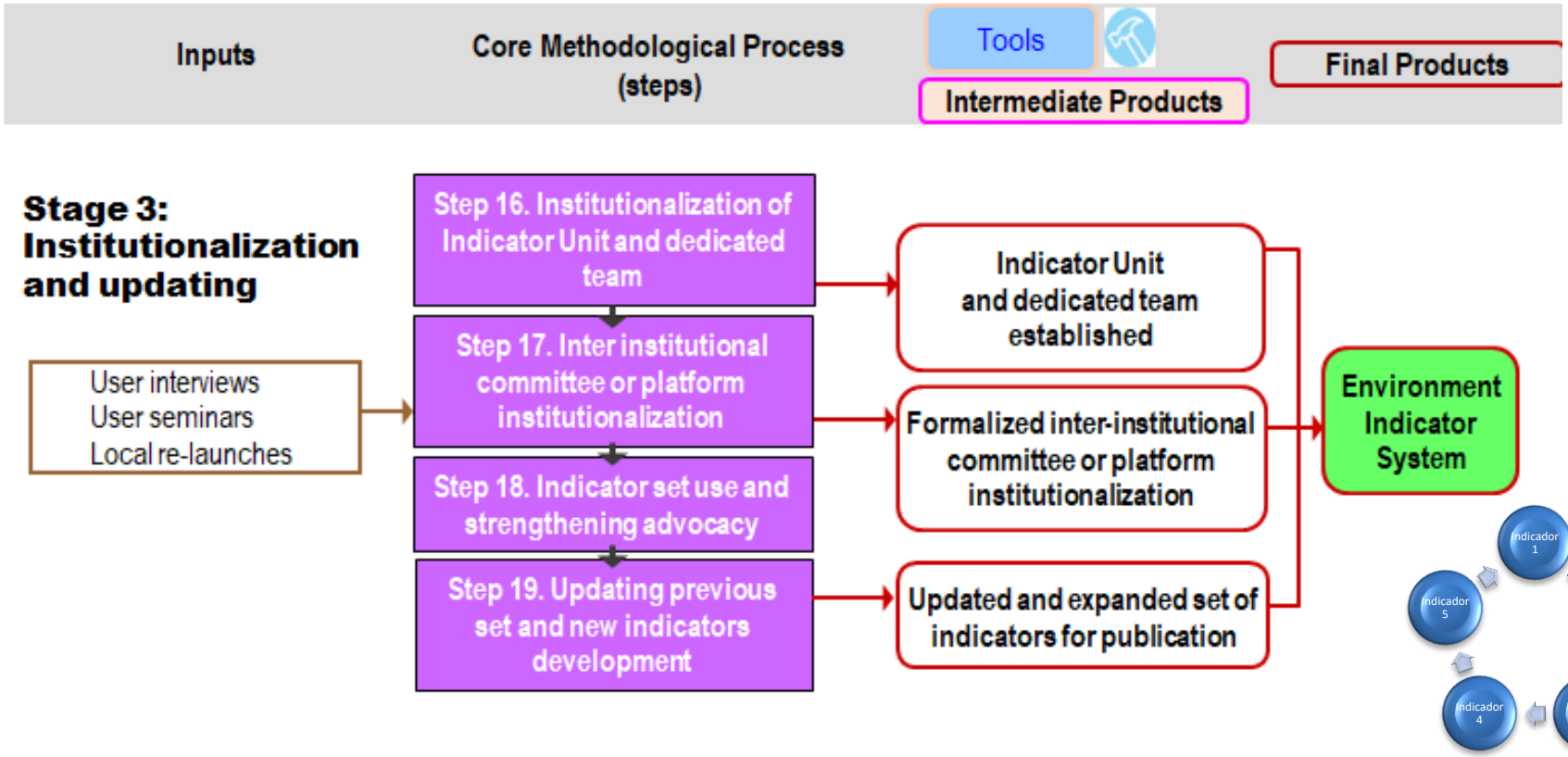
16. particulate matter (PM10 and PM2,5) in Swedish Municipalities
17. Nitrogen dioxide level in Swedish Municipalities
18. Sulphur dioxide in Swedish Municipalities

❑Waste

19. Sold, collected and treated amounts of electrical and electronic equipment and batteries
20. Generation and treatment of waste
21. Recycling rates for packaging that takes place in Sweden every year

Source: https://www.scb.se/en/finding-statistics/statistics-by-subject-area/environment/

Stage III: Institutionalization and updating of indicators



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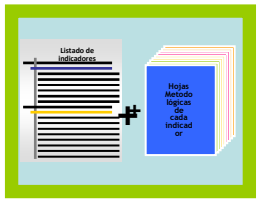
Products resulting from the indicator-building process

3. Products

1. Developers of first set of indicators ➡ Indicators Unit

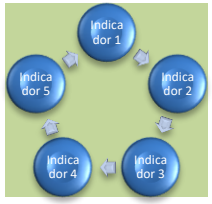
   Operations, team and resource allocation in annual program of work and regular budget



2. First set of Indicators

   Set of MS and dissemination template and platform

   Published or ready to be published



3. National environment/climate change/disasters indicator system

   Institutions, dedicated teams, resources, network and equipment

4. Inter-institutional committee or formal mechanism

   To organize and facilitate data sharing, regular updating and further development of new indicators

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Thank you!

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