Maps and sustainability

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The International Map Year [mapyear.org]

Maps and sustainability

- International Map Year
- Maps
  - Relevance
  - Pitfalls
- Maps and the sustainability goals
  - ICA initiative
  - Sustainable maps

Maps

- A map is a visual representation of an environment
  - maps tell stories
  - maps invite
  - maps show patterns
  - maps reveal relationships
  - maps explain
  - maps provide overview
  - maps offer insight
- Maps that matter should arouse interest, be instantly understandable, and be relevant to society
Relevance

- Map innovations

About Cartography (tools)

- The art, science, and technology of making and using maps

Cartography and maps

- CARTOGRAPHY
  - art
  - science
  - technology

- making
- using

- MAPS

About Cartography (tools)

- The art, science, and technology of making and using maps

Bertin’s Data Analysis

- Many ‘correct’ design options
About Cartography (tools)

- ...the art, science, and **technology** of making and using maps

![Internet, Displays, Mobile](image)

About Cartography (process)

- ...the art, science, and technology of **making** and using maps

![Professionals & Crowd](image)

About Cartography (process)

- ...the art, science, and technology of **using** maps

![Everyone](image)

Changes

- Objective of Cartography:
  Design and create maps that are ‘authoritative’ and offer insight and support decision making

  - Yesterday
    - Filling gaps to present the essence of the message

  - Today
    - Retrieve the essence and presented interactively in multiple alternatives allowing the user to interact, change, and ultimately understand
ICA’s International Map Year

- How can maps be relevant for the global goals?

How can maps be relevant for the global goals?

Example: Goal 4 Education

- Goals
  
  Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

- Targets
  
  4.1 4.2 4.3 4.4 4.5 4.6 4.7

- Indicators
  
  4.1.1 4.2.1 4.3.1 4.4.1 4.5.1 4.6.1 4.7.1
  4.1.2 4.2.2 4.4.2 4.5.2 4.6.2 4.7.2

http://www.un.org/sustainabledevelopment/education/

Goal 4: Education - Sample Targets

- 4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes
- 4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education
- 4.3 By 2030, ensure ………
  
  ....

Goal 4: Education - Sample Indicators

- **4.1** By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes.
- **Indicator 4.1.1** Percentage of children who achieve minimum proficiency standards in reading and mathematics at end of: (i) primary (ii) lower secondary. [BAA]
- **Indicator 4.1.2** Completion rate (primary, lower secondary, upper secondary). [AAA]

- **4.2** By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education.
- **Indicator 4.2.1** Early Childhood Development Index. [BBB]
- **Indicator 4.2.2** Participation rate in organized learning (one year before the official primary entry age). [BAB]

Goal 4: Education - Getting the data

<table>
<thead>
<tr>
<th>Target</th>
<th>Indicator</th>
<th>Feasibility</th>
<th>Suitability</th>
<th>Relevance</th>
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</tbody>
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Goal 4: Education - Analyzing the data

| 4.1    | 4.1.1 Completion rate of levels of education | Nominal
| 4.1.2 Completion rate of levels of education | Interval
| 4.2    | 4.2.1 Early Childhood Development Index | Ordinal
| 4.2.2 Participation rate in organized learning | Ratio
| 4.3    | 4.3.1 Enrollment ratios by level and type | Nominal
| 4.4    | 4.4.1 Participation rate among 25-65 years | Interval
| 4.4.2 % of computer and information literate | Ordinal
| 4.5    | 4.5.1 Parity indices (female/male, urban/rural) | Ratio
| 4.6    | 4.6.1 % of proficient | Nominal
| 4.6.2 Youth/adult literacy rate | Interval
| 4.7    | 4.7.1 % of 13yrs promoting governance | Ordinal
| 4.7.2 13yrs proficiency of environmental science and geoscience | Ratio

Measurement scale decides on required symbology

- a) nominal: hamlet and road
- b) ordinal: high and low
- c) interval: temperature
- d) ratio: number of students
Pitfalls with symbols choices
Which province has most inhabitants?

Pitfalls with Choropleth map

ICA and its Commissions and Working Groups
The sustainability goals and their targets can be mapped based on their indicators.

Seventeen commissions have mapped each of the sustainability goals. They have done this often as a multi-commission effort from their particular perspective.

The resulting poster collection created gives an overview of the strength of cartography. It shows how maps can give insight in the data.

Obviously not all indicators are available as of today, so in some cases the maps are based on fictional or older data.
United Nations - Global Goals

Draft Posters

Combine spatial statistics with visualization
the choice of a map projections matters

Next?

- August: UN- GGIM New York poster exhibition

Let's make the world a better place with maps