Switzerland's state of the environment in a global context

29.11.2011
Background I: FOEN SOER

- Role of FOEN between Agency and Ministry (content & institutional framework)
- Different products for different target groups

Agency → Ministry

Open data Datadownload → Data analysis Interpretation → Assessment Measures Policies


http://map.bafu.admin.ch

Protection du climat: projets menés en Suisse. Directives d'exécution relatives aux mesures de compensation
Background II: FOEN SOER

- National indicators as basis for all products
  > completion of indicator set (DPSIR),
  > addition of cantonal, european, global aspects

Climate indicators

The climate is changing – various indicators bear this out worldwide and for Switzerland. The observed warming is attributed largely to the steadily rising emissions of greenhouse gases. The adverse effects of climatic changes can be limited by abating emissions and taking measures to adapt to altered climatic conditions.

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<tr>
<th>DPSIR</th>
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<td>Kilometre performance of road transport of goods</td>
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<td>Pressure</td>
<td>*Greenhouse gas emissions</td>
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<td>State</td>
<td>*Annual mean temperature</td>
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Planned: development of trend / perspective indicators
Background II: Local and Global Aspects

- Local aspects: development of indicators on a cantonal level (canton BS/BL)
- European aspects: covered in EEA indicator system
- Global aspects:
  - Traditionally not FOEN focus for all themes (except climate, biodiversity ..)
  - UNEP expertise > Comparison btw Swiss and world indicators > International Comparison
Switzerland's state of the environment in a global context: comparison of indicators

Hy Dao, Stefan Schwarzer
UNEP/GRID-Europe
FOEN indicators - Noise

About 170 indicators in total

Source: Office fédérale de l'environnement : SonBase

Evaluation de l'état: négatif
Evaluation de la tendance: neutre
Type d'indicateur: Stat

Commentaire:
La nuisance sonore affectant de loin le plus grand nombre de personnes est le bruit du trafic routier, suivi des émissions des chemins de fer et de l'aviation. L'augmentation constante du trafic routier en particulier, annule parfois l'effet obtenu par les mesures d'assainissement.

Méthode:
SonBase permet de calculer les émissions des sources en partant des données de base disponibles (géographie, statistiques, trafic, etc.). Dans le module Bruit (CadnaA), la propagation et les immissions sonores en résultant sont déterminées à l'aide d'un modèle altimétrique digital.

http://www.bafu.admin.ch/umwelt/indikatoren/
FOEN indicator - Noise

http://map.bafu.admin.ch/
**CO₂ emissions**

http://www.bafu.admin.ch/umwelt/indikatoren/

* = Core indicator

The per-capita CO₂ emissions indicator permits a simple comparison of the warming impact attributable to an individual person in different countries. Per-capita emissions can also provide a reference for setting reduction targets (e.g. under a "Contraction & Convergence" approach).
Emissions de CO2 à Genève (2010), par commune

Légende

- CO2 (tonnes/an)
  - 1508 - 12592
  - 12693 - 45522
  - 45523 - 84748
  - 84747 - 142110
  - 142111 - 777685

- CO2 (tonnes/habitant/an)
  - 1.2 - 2.0
  - 2.1 - 4.0
  - 4.1 - 6.0
  - 6.1 - 9.0
  - 9.1 - 31.5

Source des données : CadaGE, Etat de Genève
Objectives of the project

• For suitable indicators of the FOEN indicator system, following data should be generated and presented:
  – A **dataset** containing the global means of the selected indicators, for all countries where respective data is available.
  – A **text description** and interpretation of the indicator should also be added.

Duration of the project: June – December 2011
CO$_2$ emissions – top-down

One national figure distributed according to the share of national population => assumption of uniform per capita emissions

Equivalent to a population map

Swiss in the World study

GRID-Europe Science Day – IEH2, Geneva - 29 Nov. 2011
Population Growth Rate

Source: World Population Prospects, the 2010 Revision (WPP2010), United Nations Population Division
Income growth

Indexed, 1990=100

- Latin America + Caribbean
- Europe
- Asia + Pacific
- Africa
- North America
- Switzerland

Source: World Bank
CO2 emissions – fossil fuels

Source: Carbon Dioxide Information Analysis Center (CDIAC)
Protected areas

Source: United Nations Environment Programme/World Conservation Monitoring Center (UNEP-WCMC)
Challenges

• The majority of the “Swiss Indicators” are quite specific
  – No global equivalent (e.g. housing area)

• Country naming & groupings
  – definitions of regions: EU 27, EEA 32, OECD, UNEP, World Bank, “Western Europe”, ...
  – ISO codes not used systematically

• Comparability
  – semantics, data acquisition methods, ...
Challenges

• Data sources
  – Primary, compiled, dates, ...

• Data harmonisation for aggregation
  – what thresholds of data availability for computation of regional values? 75%?

• Visualisation challenges
  – display totals, per capita, indices?
  – types of graphs
In-Cell Bar Chart

Recycling, as Per Cent of All Municipal Waste

Switzerland
France
USA
Germany
South Korea

0 10 20 30 40 50
Per cent
## Bar Chart

<table>
<thead>
<tr>
<th>Recycling</th>
<th>Composting</th>
<th>Incineration with Energy Recovery</th>
<th>Incineration</th>
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Histogram, by ranking

% Organic of Total Agricultural Area

Organic Farming (2009)

Switzerland
Conclusions

• Data analysis & Information visualisation
  – two (connected) worlds

• Quantitative approach possible, but for selected themes
  – e.g. drivers: population, income; classical env. themes: water, pollution…

• Consider also more qualitative approaches
  – e.g. biodiversity, landscape, green economy, …
Thank you