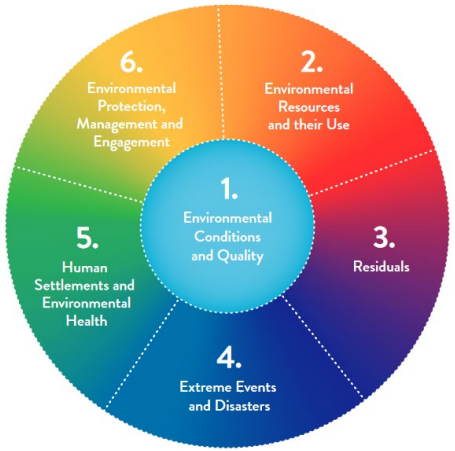
Review of the ECE Guidelines for the Application of Environmental Indicators

Using the FDES as the main structure



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ECE Guidelines for the Application of Environmental Indicators

What is this, why are they important in the ECE region?

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Adopted by the UNECE Committee on Environmental Policy in 2007 to help countries in Eastern Europe, Caucasus and Central Asia in:

a) **Improving the systems of environmental monitoring and reporting** for the purpose of environmental decision-making and public awareness raising;

b) **Making national environment assessments comparable** with those of other UN member states; and

c) **Facilitating data gathering** for future environmental assessment reports.

Several assessments carried out since then showed:

- Many countries used the guidelines as a starting point for developing environment statistics
- Guidelines strengthened collaboration between NSOs and MoEs

ECE Guidelines for the Application of Environmental Indicators

Current structure

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10 “traditional topics”

See:

https://unece.org/guidelines-application-environmental-indicators

49 “indicators”

Indicator	Description	Production	Glossary of terms
A. Air pollution and ozone depletion			
A1. Emissions of pollutants into the atmospheric air (updated October 2014)	PDF	XLS	PDF
A2. Ambient air quality in urban areas (updated October 2014)	PDF	XLS	PDF
A3. Consumption of ozone-depleting substances (updated October 2014)	PDF	XLS	PDF
B. Climate change			
B1. Air temperature (updated October 2014)	PDF	XLS	PDF
B2. Atmospheric precipitation (updated October 2014)	PDF	XLS	PDF
B3. Greenhouse gas emissions (updated October 2014)	PDF	XLS	PDF
C. Water			
C1. Renewable freshwater resources (updated October 2014)	PDF	XLS	PDF
C2. Freshwater abstraction (updated October 2014)	PDF	XLS	PDF
C3. Total water use (updated October 2014)	PDF	XLS	PDF
C4. Household water use per capita (updated October 2014)	PDF	XLS	PDF

ECE Guidelines for the Application of Environmental Indicators

XLS production sheets

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Example: indicator C-3 "total water use"

Calculates:

- Freshwater available
- Freshwater use
- Freshwater use per GDP

→ Actually a mix of basic statistics and indicators

Production sheet is aligned with UNSD water statistics questionnaire

		Unit	1990	1995	2000	2001	2002	2003	2004	2005
										Freshwater available
1	Freshwater abstracted (= Table C-2, row 4)	million m^3								
2	Desalinated water	million m^3								
3	Reused water	million m^3								
4	Imports of water	million m^3								
5	Exports of water	million m^3								
6	**Total freshwater available** (Rows 1 + 2 + 3 + 4 - row 5)	million m^3	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
7										**Freshwater use**
8	Losses of water during transport	million m^3								
9	**Total freshwater use** (Row 6 - row 8)	million m^3	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
10										*of which used by*
11	*Households*	million m^3								
12	*Agriculture, forestry and fishing (ISIC 01-03)*	million m^3								
13	*of which (of row 12) used for:* Irrigation in agriculture	million m^3								
14	*Manufacturing (ISIC 10-33)*	million m^3								
	Electricity industry (ISIC	.... m^3								

Rationale

Why a review of the indicators and online guidelines?

The *ECE Joint Task Force on Environmental Statistics and Indicators* requested the Secretariat to review the ECE set of environmental indicators and the associated guidelines to

- **Inform better the recent global policies** (such as 2030 Agenda, Paris Agreement and Sendai Framework for Disaster-risk Reduction);
- Improve data availability for regular **pan-European Environmental Assessments**
- **Link them with statistical frameworks**, such as the FDES and SEEA;
- **Increase user-friendliness** of the metadata.

Guidelines for the Application of Environmental Indicators

The Joint Task Force revised the Guidelines for the Application of Environmental Indicators in Eastern Europe, Caucasus, Central Asia and South-Eastern Europe. With this revision the online version of the Guidelines was created.

In the Online Guidelines each indicator is presented through three files: description of the indicator, table for the production of the indicator, and glossary of terms.

The latest update for each indicator is indicated with a relevant date.

Indicator	Description	Production	Glossary of terms
A. Air pollution and ozone depletion			
A1. Emissions of pollutants into the atmospheric air (updated October 2014)	PDF	XLS	PDF
A2. Ambient air quality in urban areas (updated October 2014)	PDF	XLS	PDF
A3. Consumption of ozone-depleting substances (updated October 2014)	PDF	XLS	PDF
B. Climate change			
B1. Air temperature (updated October 2014)	PDF	XLS	PDF
B2. Atmospheric precipitation (updated October 2014)	PDF	XLS	PDF
B3. Greenhouse gas emissions (updated October 2014)	PDF	XLS	PDF
C. Water			
C1. Renewable freshwater resources (updated October 2014)	PDF	XLS	PDF
C2. Freshwater abstraction (updated October 2014)	PDF	XLS	PDF
C3. Total water use (updated October 2014)	PDF	XLS	PDF
C4. Household water use per capita (updated October 2014)	PDF	XLS	PDF
C5. Water supply industry and population connected to water supply industry (updated October 2014)	PDF	XLS	PDF
C6. Connection of population to public water supply	Integrated into C5		
C7. Water losses (updated October 2014)	PDF	XLS	PDF
C8. Reuse and recycling of freshwater (updated October 2014)	PDF	XLS	PDF
C9. Drinking water quality (updated October 2014)	PDF	XLS	PDF
C10. BOD and concentration of ammonium in rivers (updated October 2014)	PDF	XLS	PDF
C11. Nutrients in freshwater (updated October 2014)	PDF	XLS	PDF
C12. Nutrients in coastal seawaters (updated October 2014)	PDF	XLS	PDF

Revision process has been multi-dimensional

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1. Distinction between “indicators” and “data and statistics”, using the definitions used in the UN Framework for the Development of Environment Statistics (FDES)
2. Presentation of the indicators according to FDES structure
3. Review of the list of indicators
4. Update of indicator metadata, including filling of some “placeholders”
5. All information stored in a bilingual database (English and Russian)

Presentation of indicators according to FDES structure

Benefits of aligning it with the UN FDES

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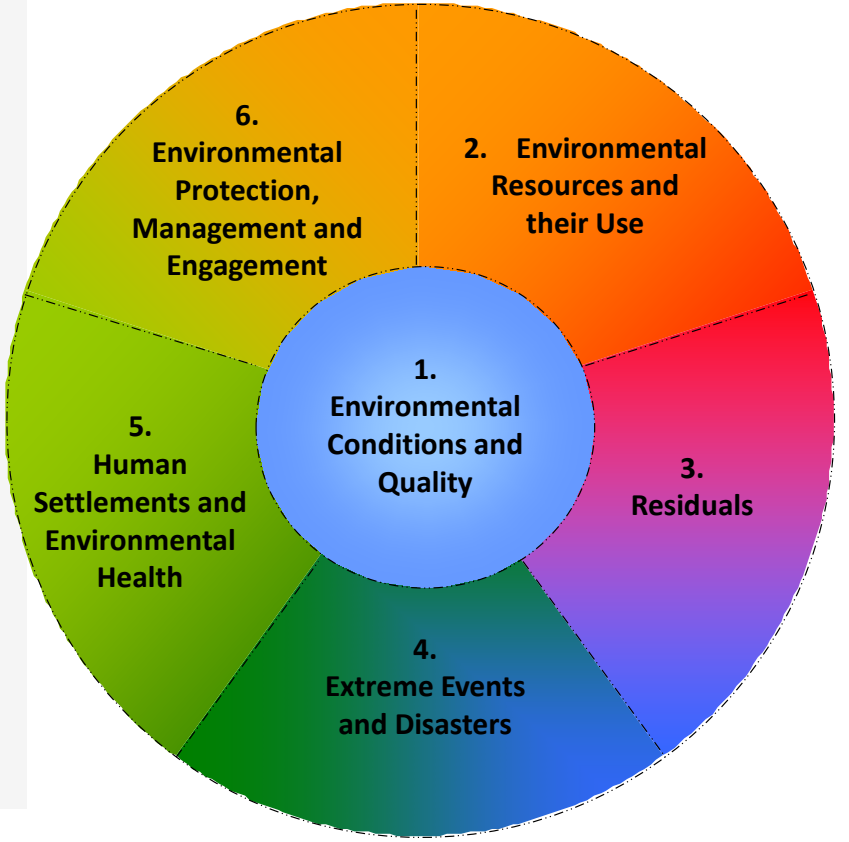
Some benefits of using the structure of the FDES for the list of recommended UNECE Environmental Indicators:

1. Use of a globally agreed structure
2. FDES defines environmental indicators, data and statistics
3. FDES is broad, comprehensive and integrative. It defines the overall scope of environment statistics, thus can be used to identify information gaps and to set priorities
4. It can handle “cross-cutting issues”, such as climate change, COVID-19 or circular economy
5. New indicators can easily be added
6. Supports implementation of environmental statistics
7. Methodological guidelines (BSES manual) available



Presentation of indicators according to FDES structure

Example: Climate change-related indicators

Indicator theme “B. Climate change” (old guidelines) included indicators on physical conditions of the atmosphere (B1. and B2) and air emissions (B3). This is problematic from several points of view:

1. Greenhouse gas emissions are missing in indicator theme “A. Air pollution and ozone depletion”.
2. Climate change is a cross-cutting issue with a broad scope, including climate change drivers, emissions, impacts, mitigation and adaptation.

Therefore, indicator theme “B. Climate change” was removed; indicators moved to other areas (called “topics” in the newly proposed structure).

OLD STRUCTURE

B. Climate change

- B1. Air temperature (updated October 2014)
- B2. Atmospheric precipitation (updated October 2014)
- B3. Greenhouse gas emissions (updated October 2014)

NEW STRUCTURE (FDES)

Topic “Atmosphere, climate and weather” (component “Environmental conditions and quality”, sub-component “Physical conditions”)

Topic “Emissions of greenhouse gases” (component “Residuals”, sub-component “Emissions to air”)

Bilingual database

All information needed for compiling the metadata is maintained in a database

- All data are maintained in English and Russian in a database
- Repetitive information (e.g. statistics needed for compiling indicators, reference documents, FDES structure, SDG indicators etc.) is to be maintained only once
- Each indicator and each data item has a unique ID
- Metadata sheets can be generated and exported automatically (e.g. as pdf)
- Potential to be further developed as searchable online application

Structure of the guidelines document

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A. Background
B. Presentation of the list of indicators
    A. Clarification of the terminology
    B. Distinction between “indicators” and “data and statistics” in the revised Guidelines
    C. Grouping of the list of indicators
    D. Organization of the list of indicators in the revised guidelines
C. Selection of the indicators
    A. Component “environmental conditions and quality”
    B. Component “environmental resources and their use”
    C. Component “residuals”
    D. Component “human settlements and environmental health”
    E. Component “environmental protection, management and engagement”
D. Data and statistics needed for compiling the list of indicators

Structure of the indicator metadata sheets

Example “Water Exploitation Index” 1/2

Indicator theme (old)	C Water
Component (FDES)	2: Environmental Resources and their Use
Sub-component (FDES)	2.6: Water Resources
Indicator topic (FDES)	2.6.2: Abstraction, use and returns of water

Indicator **C-2.3 Water exploitation index (WEI)**

ID and name in indicator guidelines	C2 Freshwater abstraction
First publication	10/15/2019 Latest update
Indicator definition	The indicator presents the annual total fresh water abstraction in a country as a percentage of its long-term annual average (LTAA) available water from renewable fresh water resources
Unit of measure	%
Coverage	Freshwater bodies (groundwater and surface water), all water abstractions
Spatial aggregation	National territory
Reference period	Calendar year
Update frequency	Annual
Purpose	The indicator provides, in relation to total resources available for abstraction, a measure of the pressure on the environment in terms of the abstraction of freshwater resources. It can reflect the extent of water resource scarcity and the distribution of abstracted water among different economic activities.
Policy context	Changes in the WEI help to analyse how changes in abstraction affect freshwater resources by increasing pressure on them or making them more sustainable. In terms of the threshold values of

Link with SDG indicators

SDG indicators	Comments
6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources	The SDG indicator is similar to the WEI, but also takes into account environmental water requirements

Policy references

Title and weblink	Comments
Integrated Water Resources Management http://www.gwp.org/the-challenge/what-is-iwrm/	
Convention on the Protection and Use of Transboundary Watercourses and International Lakes https://www.unece.org/env/water/text/text.html	
Environmental Strategy of countries of Eastern Europe, Caucasus and Central Asia https://www.unece.org/env/efe/Kiev/proceedings/html/Item7a.e.html	
Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy https://ec.europa.eu/environment/water/water-framework/index_en.html	

Structure of the indicator metadata sheets

Example “Water Exploitation Index” 2/2

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Methodology for indicator calculation	WEI = annual total freshwater abstraction / long-term annual average available water from renewable freshwater resources

Methodology references

Title of the reference document	Link
UNSD/United Nations Environment Programme Questionnaire 2018 on Environment Statistics - section "Water"	https://unstats.un.org/unsd/envstats/questionnaire
International Recommendations for Water Statistics	https://seea.un.org/content/seea-water
System of Environmental-Economic Accounting for Water	https://seea.un.org/content/seea-water
Metadata Water exploitation index (t2020_rd220), ESMS Indicator Profile (ESMS-IP)	https://ec.europa.eu/eurostat/cache/metadata/en/t2020_rd220_esmsip2.htm

Data and statistics needed to compile the indicator

ID	Data item	FDES topic
160	Precipitation	2.6.1: Water resources
161	Actual evapotranspiration	2.6.1: Water resources
162	Inflow of surface and groundwaters from neighbouring countries	2.6.1: Water resources
166	Fresh surface water abstracted: total	2.6.2: Abstraction, use and returns of water
167	Fresh groundwater abstracted: total	2.6.2: Abstraction, use and returns of water

Comments

Status of work and main conclusions

Status of work

- *ECE Joint Task Force on Environmental Statistics and Indicators* will discuss the current version of the document and the selection of indicators and priority indicators at its next meeting 3-4 November 2022
- Metadata are continuously being produced and translated
- A relatively slow process, because of limited resources available

Main conclusions

- We untied the data production perspective from the policy perspective, and at the same time allow the use of the statistics and indicators for multiple purposes.
- The indicator list can easily be adapted in the future if necessary.
- And most importantly, we now have maximum coherence of regionally important indicators and statistics with FDES.

Thank you!

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