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Joint Task Force on Environmental Statistics and Indicators

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Review of the Guidelines for the Application of Environmental Indicators

Amendment of the Guidelines for the Application of Environmental Indicators

Note by the secretariat

Summary

At its fourteenth and fifteenth sessions, the Joint Task Force on Environmental Statistics and Indicators discussed steps for amending the "Guidelines for the Application of Environmental Indicators" to:

(a) Inform better the recent global policies (such as the 2030 Agenda for Sustainable Development and the Paris Agreement on climate change);

(b) Link indicators and statistics with statistical frameworks, such as the United Nations Framework for the Development of Environment Statistics and the System of Environmental-Economic Accounting;

(c) Increase user-friendliness of the metadata.

The present document sets out the steps that have been taken to review the Guidelines and presents a draft of a revised structure of the indicator metadata for discussion by the Joint Task Force.

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I. Introduction

1. Environmental indicators are a key tool for environment assessment in the countries of Eastern European, Caucasus and Central Asia (EECCA). Appropriately chosen indicators based on sufficient time-series data can show key trends, help describe causes and effects of environmental conditions and make it possible to track implementation of environmental policies in the EECCA countries and to assess its efficiency.

2. At its fourteenth session, held on 29 May 2007 in Geneva, the United Nations Economic Commission for Europe (ECE) Committee on Environmental Policy adopted the "Guidelines for the Application of Environmental Indicators in Eastern Europe, Caucasus and Central Asia" (ECE/CEP/144, para. 23) which were prepared by the Working Group on Environmental Monitoring and Assessment.

3. The Guidelines cover 36 indicators and related data sets that were recommended as important from the viewpoint of national and international requirements, as understandable to the public and as supported, to the extent possible, by international methodological guidance. Presence on other international indicator lists was an important additional selection criterion. It relates to:

(a) Sustainable development indicators of the United Nations Commission on Sustainable Development;

(b) The indicators from the United Nations Statistics Division/United Nations Environment Programme (UNEP) Questionnaire on Environment Statistics;

(c) The indicators for the second environmental performance reviews (EPR) under the ECE review programme;

(d) The Kiev Assessment indicators and the European Environment Agency core set of indicators;

(e) World Health Organization (WHO) Regional Office for Europe proposals for a core set of European environmental health indicators.

4. The Guidelines were published in English and Russian as Portable Document Format (PDF) documents[1] and in form of downloadable templates with explanatory files for each of the indicators.[2]

5. At the Seventh Environment for Europe Ministerial Conference (Astana, 2011) it was decided to develop a Shared Environmental Information Systems across the pan-European region (ECE/ASTANA.CONF/2011/2/Add.1, para. 14).

6. The Working Group, at its sixteenth session, agreed on a first set of 67 data flows for constituting the Shared Environmental Information System for the pan-European region. The Joint Task Force on Environmental Statistics and Indicators agreed on a subset of 22 data flows for 18 core indicators for production and sharing. The "Guidelines for the Application of Environmental Indicators in Eastern Europe, Caucasus and Central Asia" provide the methodological reference for the production of these indicators.

7. In recent years, EECCA countries have made significant progress in producing, sharing and using the recommended indicators and the underlying environmental statistics and data. Progress in implementation is reported regularly at the meetings of the Joint Task Force. A systematic assessment of the implementation will be carried out in form of a final review of the Shared Environmental Information System.[3]

8. The "Guidelines for the Application of Environmental Indicators in Eastern Europe, Caucasus and Central Asia" are considered to be a "living" instrument (see introduction of the Guidelines). Countries should review them periodically to incorporate new

[1] See https://www.unece.org/fileadmin/DAM/env/europe/monitoring/Belgrade/CRP1.Indicators.En%20edited.MK.pdf

[2] See https://www.unece.org/env/indicators.html

[3] For more details see ECE/CEP-CES/GE.1/2019/3

methodologies and standards developed by relevant international forums, to add new agreed indicators and to adapt them to practical experience gained through application.

9. The Joint Task Force decided to review the Guidelines and its set of indicators to:

(a) Inform better the recent global policies (such as the 2030 Agenda for Sustainable Development and the Paris Agreement on climate change);

(b) Link indicators and statistics with statistical frameworks, such as the United Nations Framework for the Development of Environment Statistics (FDES) and the System of Environmental-Economic Accounting (SEEA);

(c) Increase user-friendliness of the metadata.

10. The present document sets out the steps that have been taken to review the "Guidelines for the Application of Environmental Indicators in Eastern Europe, Caucasus and Central Asia" and its indicators.

II. Required amendments

11. This chapter summarizes the discussions and conclusions of the Joint Task Force concerning the required amendments of the Guidelines at its fourteenth and fifteenth sessions.

A. New policy information needs

1. 2030 Agenda for Sustainable Development

12. In 2015, the United Nations approved the 2030 Agenda for Sustainable Development to eradicate extreme poverty and achieve sustainable development by 2030. The 2030 Agenda builds upon and exceeds the ambitions of the Millennium Development Goals in its number and scope of goals and targets, as well as in calling for all United Nations Member States, developing and developed alike, to participate.

13. The 2030 Agenda includes 17 Sustainable Development Goals (SDGs). Several Goals are directly or indirectly related to achieving environmental targets, such as SDG 6 – clean water and sanitation; SDG 7 – affordable and clean energy; SDG 11 – sustainable cities and communities; SDG 12 – responsible consumption and production; SDG 13 – climate action; SDG 13 climate action; SDG 14 – life below water; or SDG 14 – life on land.

14. According to the United Nations Statistics Division[4] almost half of the SDG targets require environment statistics to compile its indicators. UNEP, in its report "Measuring Progress: Towards Achieving the Environmental Dimension of the SDGs",[5] warns that for 68 per cent of the environment-related SDG indicators there is insufficient data to assess progress.

15. The Joint Task Force noted the importance of aligning of the ECE environmental indicators with the SDG indicators.

2. Paris Agreement

16. The Paris Agreement, adopted at the twenty-first session of the Conference of the Parties to the United Nations Framework Convention on Climate Change in 2015, aims to strengthen the global response to the threat of climate change in the context of sustainable development and poverty eradication. The relationship between climate change and sustainable development is underscored throughout the Paris Agreement.

[4] See https://unstats.un.org/unsd/envstats/meetings/2017-EAC/documents/Session%201_UNSD_Environmentally-related%20SDG%20indicators%20and%20the%20UNSD-UN%20Environment%20Questionnaire%20on%20Environment%20Statistics.pdf

[5] See https://www.unenvironment.org/resources/report/measuring-progress-towards-achieving-environmental-dimension-sdgs

17. Article 2 describes the purpose of the Paris Agreement. Two aspects are highlighted here. First, Member States committed to holding the global average temperature increase to well below 2°C above pre-industrial levels and to pursuing efforts to limit the increase to 1.5°C, with the aim to "significantly reduce the risks and impacts of climate change". Second, Member States committed to "increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production".

18. Accordingly, the Paris Agreement and the outcomes of the twenty-first session of the Conference of the Parties to the United Nations Framework Convention on Climate Change lay down requirements for national and global plans covering the following domains:

(a) Emission reduction;

(b) Conservation, mitigation and adaption;

(c) Minimization of losses and damage;

(d) Financial assistance;

(e) Technology transfer;

(f) Capacity building;

(g) Climate change education;

(h) Transparency;

(i) Global stock-taking.

19. The detailed set of information for monitoring the Paris Agreement has not yet been laid down. It will most likely, next to information required for the greenhouse gas inventories, require environment-related information about climate change impacts (e.g., on ecosystems and environmental resources), climate change adaptation (e.g., water use efficiency, climate change adaptation expenditures) and climate change mitigation (e.g., energy efficiency) in physical and monetary terms.

Recommendations

20. The Joint Task Force recommended to review the "Guidelines for the Application of Environmental Indicators in Eastern Europe, Caucasus and Central Asia" and its indicators to determine whether its methodologies for indicator compilation are consistent with those of the SDG indicators.

21. Furthermore, the Joint Task Force suggested to identify additional indicators potentially to be added to the list of ECE environmental indicators if they are needed for monitoring of the targets of the 2030 Agenda for Sustainable Development or the Paris Agreement in the region.

B. New international statistical standards and frameworks

1. Framework for the Development of Environmental Statistics 2013

22. The UN Statistical Commission, at its forty-fourth session, endorsed FDES 2013 as the framework for strengthening environment statistics programmes in countries. The Committee has subsequently recognized it as a useful tool in the context of SDGs and the 2030 Agenda for Sustainable Development.

23. FDES lists the most important environment statistics to describe the statistical topics thus providing guidance to countries developing national environment statistics programmes.

24. FDES provides an organizing structure to guide the collection and compilation of environment statistics at the national level. It is broad and holistic in nature and covers the various issues and aspects of the environment (including cross-cutting issues such as climate change) relevant for policy analysis and decision making.

25. FDES organizes environment statistics in a simple and flexible manner into components, sub-components, statistical topics, and individual statistics, using a multilevel approach. The six components are: (i) Environmental conditions and quality; (ii) Environmental resources and their use; (iii) Residuals; (iv) Extreme events and disasters; (v) Human settlements and environmental health; and (vi) Environment protection, management and engagement.

26. FDES is structured in a way that allows links to economic and social domains. It is compatible with and supports other state of the art frameworks and systems, both statistical and analytical, such as SEEA, the Driving force—Pressure—State—Impact—Response framework, or the SDG indicators.

27. For EECCA countries, FDES provides an important reference for identifying priorities and developing environment statistics.

2. System of Environmental-Economic Accounting 2012

28. SEEA is the accepted international standard for environmental-economic accounting, providing a framework for organizing and presenting statistics on the environment and its relationship with the economy. It brings together economic and environmental information in an internationally agreed set of standard concepts, definitions, classifications, accounting rules and tables to produce internationally comparable statistics.

29. SEEA is a framework that integrates economic and environmental data to provide a more comprehensive and multipurpose view of the interrelationships between the economy and the environment, and the stocks and changes in stocks of environmental assets, as they bring benefits to humanity. It contains the internationally agreed standard concepts, definitions, classifications, accounting rules and tables for producing comparable statistics and accounts. The SEEA framework follows a similar accounting structure as the System of National Accounts (SNA). The framework uses concepts, definitions and classifications consistent with SNA to facilitate the integration of environmental and economic statistics. SEEA is a multi-purpose system that generates a wide range of statistics, accounts and indicators with many different potential analytical applications. It is a flexible system that can be adapted to countries' priorities and policy needs while at the same time providing a common framework, concepts, terms and definitions.

30. In 2014 the UN Statistical Commission “recognized SEEA as an important statistical framework for the post-2015 development agenda and the sustainable development goals indicators”.

31. Several EECCA countries have already started implementation of selected SEEA accounts.[6] Environmental statistics and indicators produced according to the “Guidelines for the Application of Environmental Indicators in Eastern Europe, Caucasus and Central Asia” are an important starting point for producing some of these accounts.

Recommendations

32. The Joint Task Force recommended to provide reference to both FDES and SEEA in the “Guidelines for the Application of Environmental Indicators in Eastern Europe, Caucasus and Central Asia” and in the indicator metadata.

33. The Joint Task Force furthermore noted that the current distinction between indicators and (underlying) “data” may require a review and be aligned with the terms and definitions used in FDES in its section 1.4 on “environmental information, data, statistics and indicators”.

[6] See https://seea.un.org/content/global-assessment-environmental-economic-accounting

C. Modification of international questionnaires, methodological guidelines and classifications

34. The "Guidelines for the Application of Environmental Indicators in Eastern Europe, Caucasus and Central Asia" make reference to important international questionnaires, such as the "United Nations Statistics Division/UNEP Questionnaire on Environment Statistics" (sections waste and water).[7] In recent years, UNEP and the United Nations Statistics Division have made some changes of this questionnaire.

35. The "Guidelines for the Application of Environmental Indicators in Eastern Europe, Caucasus and Central Asia" refer to methodological guidelines that were available in 2007. Some of them have been updated and new guidelines have been developed. One example is the "International Recommendations for Energy Statistics" that was adopted in 2011.

36. Important classification systems, such as the "Standard International Energy Product Classification" have been updated or were developed since 2007.

Recommendation

37. The Joint Task Force recommended to review the references given to international questionnaires, methodological guidelines and classifications for each indicator.

D. Improving the user-friendliness of the Guidelines and structure of the metadata

38. Currently, for each indicator three files are made available online[8]:

(a) A description file (metadata): This file provides a general description, the relevance for environmental policy, methodology and guidelines, data sources and reporting and references at the international level;

(b) A Microsoft Excel[9] production file: This file can be populated with the time series for each indicator and the underlying data sets;

(c) A glossary of terms: This file contains abbreviations and units of measurement which are used in the description file and the production file.

39. The Joint Task Force identified several issues to improve the user friendliness of the guidelines and to better consider technological developments in dissemination of the data. These include for example:

(a) Encouraging countries to replace the Microsoft Excel production files with more modern ways for data dissemination. Several countries, among them for example Armenia and Kazakhstan, have included the set of environmental indicators in their searchable statistical databases;

(b) Currently, some of the indicators listed in the guidelines represent more than one indicator. This is confusing for producing, managing, disseminating and using of the information. For example, production file of indicator "I1 – Waste generation" calculates the two indicators "Waste from economic activities per unit of GDP" and "Households waste per capita".

(c) The indicator names are often not precise, for example "D5 – Trends in the number and distribution of selected species" measures the absolute number of selected groups of species, but not a distribution of species.

[7] See https://unstats.un.org/unsd/envstats/questionnaire

[8] See https://www.unece.org/env/indicators.html

[9] Reference to commercial companies or products does not imply endorsement by the United Nations or its Member States.

(d) Information stored in separate files is difficult to maintain and use. For example, to get the full information for an indicator, three different files need to be accessed; there is lots of repetition in the different files;

(e) Some texts in the description files (for example on policy relevance) are too long, and the length of text is not harmonised across indicators;

(f) Some policy references and methodological references are outdated;

(g) The presentation on the website is not very attractive and is not searchable.

40. The Joint Task Force suggested that the structure and content of the description files should be maintained as much as possible when producing revised metadata.

Recommendations

41. It was recommended to develop a database for storing the revised metadata in a searchable and structured form. This would help to reduce redundancies and to maintain the metadata in both English and Russian languages in the future. Metadata sheets, similar to the current description files, should be generated from the database. At a later stage, provided the availability of the necessary resources, the database could be made available online with various search and output functions (such as generating metadata sheets for a selected indicator or a group of indicators).

42. It was furthermore recommended to gradually replace the existing Microsoft Excel production files with enlarged metadata sheets that, in addition to the currently included information, would also include information about the underlying data and statistics.

43. If necessary, the existing indicator names should be changed to improve clarity.

44. In some cases, it would be necessary to split one indicator into several indicators (for example as described above for indicator "I1 – Waste generation");

45. The entire content of the current metadata needs to be reviewed, in particular the policy and methodological references.

III. Procedure

46. At its fifteenth meeting, the Joint Task Force suggested to form small subgroups to carry out the amendment of the indicators. These subgroups are formed by experts of the ECE secretariat and members of the Joint Task Force. Where relevant and possible, other subject matter experts from countries and international organizations and should be involved.

47. In a consultation with the Joint Task Force, the following priorities for review were identified:

(a) Indicators to be reviewed with first priority:

- A2 – Ambient Air quality;
- D – Biodiversity;
- G – Transport;
- H – Energy.

(b) Indicators to be reviewed with secondary priority:

- A1 – Emissions of pollutants into the atmospheric air;
- All water resources and use indicators C1–C8 under theme C – Water;
- All indicators under theme I – Waste;
- J1 – Environment protection expenditure (currently a placeholder).

48. Future meetings of the Joint Task Force will be used to

(a) Discuss the progress of work in the amendment of the Guidelines and the environmental indicators;

(b) Initiate a silent procedure for adoption of revised metadata;

(c) Identify working priorities for the remaining indicators;

(d) Identify new indicators which should be added to the list of ECE environmental indicators.

49. The ECE secretariat has designed a metadata database for the revised indicators. This database has the following main features:

(a) The database distinguishes conceptually between environmental indicators, data and statistics. Therefore, data items (or statistics) that are needed for the production of more than one indicator are only maintained once;

(b) It includes a library for reference documents (e.g., policy references and methodological references) and for international databases. This way, redundancy of information will be avoided;

(c) References can be made to the lists of SDG indicators, SEEA accounts and FDES themes, which are stored in the database;

(d) Outputs, such as metadata sheets, lists of data and statistics and a library of reference documents can be generated automatically;

(e) It has various search functions and other features that help maintaining the metadata.

50. At a later stage, provided sufficient resources are available, the database could be converted to an online accessible tool with user-friendly search and output functions.

IV. Structure and content of the indicator metadata

51. To take into consideration the above described requirements the existing structure of the indicator metadata (currently the description file) had to be extended. The draft indicator metadata now has the following structure:

Table 1
Draft indicator metadata structure

Header	Metadata	New item	Comments
General description	Indicator ID	Yes	A unique indicator identification which is based on the existing coding of indicators, for example “A-2.1” (Number of days with exceeded daily limit value).
	Indicator name	No	The precise name of the indicator, for example “Number of days with exceeded daily limit value of air pollution”
	Unit of measure	No	e.g. “Days per year”
	Coverage	Yes	e.g. “Selected cities”
	Reference period	Yes	e.g. “Calendar year”
	Update frequency	Yes	e.g. “Annual”
	Relation to other indicators of the UNECE guidelines	No	It was originally called “Context” The database now allows linking of the indicators if they are related with each other.
	Purpose	No	A short explanation why the indicator is relevant and what it measures.

Header	Metadata	New item	Comments
Relevance for environmental policy	Policy context	No	It was originally called “issue” and contains a free text explanation of the policy context.
	Link to SDGS	Yes	The link to one or more SDG indicators can be provided and explained. This refers to the list of SDG indicators which is available in the database.
	Policy references	No	It combines the information of the original data fields “international agreements and targets” and “references at the international level” in a structured way and without redundancy. This refers to a list of reference documents which are made available in the database of the library. New reference documents can be added.
Methodology and guidelines	Methodology for indicator calculation	Yes	This provides a general description of the calculation of the indicator.
	Methodology references	No	It combines the information of the original data fields “internationally agreed methodologies and standard” and “references at the international level” in a structured way and without redundancy. This refers to a list of reference documents which are made available in the database of the library. New reference documents can be added.
	Data and statistics	Yes	The list of data items which are required for the calculation of the indicator. This replaces the information which is currently available in the MS Excel production file. Each data item is only maintained once in the metadata database with a unique ID and relevant information, such as data sources, used classifications and its link to FDES and SEEA.
	Possible data validation	Yes	An explanation of basic rules for data validation
Other	Comments	Yes	Important information which is not covered by other data fields

52. The Joint Task Force is invited to review the structure of the metadata at its sixteenth meeting.