Environmentally-related SDG Indicators, UNSD's Environment Statistics Data Collection and Climate Change Statistics

Side Event at the 48th session of the Statistical Commission: Promoting Official Statistics for Monitoring Environmentally-related SDG Indicators and Climate Change

(New York, 7 March 2017)

Environment Statistics Section, United Nations Statistics Division

Outline

- Why official statistics
- Selected environmentally-related SDG indicators
- UNSD’s environment statistics data collection and its application to SDG indicators
- Climate change statistics and official statistics

Why official statistics

- Fundamental Principles of Official Statistics (SC Wed, 8 March)
- Principles Governing International Statistical Activities
- SDGs: subparagraph (l) of decision 47/101 of the Commission - *agreed that the compilation of global indicators will be based to the greatest extent possible on comparable and standardized national* ***official*** *statistics provided by countries to the international statistical systems and that when other sources and methodologies are used, these will be reviewed and agreed by national statistical authorities and presented in a transparent manner*.
- High Level Forum on Official Statistics at 48th United Nations Statistical Commission: 6 March 2017
- Climate change: ECE and UNSD focus on official statistics

Goal 6: Ensure availability and sustainable management of water and sanitation for all.

Target 6.3: By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

Indicator 6.3.1: Proportion of wastewater safely treated

Target 6.4: By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

Indicator 6.4.1: Change in water-use efficiency over time &

Indicator 6.4.2: Level of water stress: freshwater withdrawal as a proportion of available freshwater resources

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable.

Target 11.6: By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.

SDG indicator 11.6.1: Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities

Goal 12: Ensure sustainable consumption and production patterns.

Target 12.4: By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.

SDG indicator 12.4.2: Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment

&

SDG indicator 12.5.1: National recycling rate, tons of material recycled

UNSD/UNEP Questionnaire on Environment Statistics

- 8th round sent out in 2016 (water and waste statistics) for which data are currently being validated and disseminated.
- About 172 member states and areas in 5 languages.
- Complemented by the OECD/Eurostat Joint Questionnaire on the State of the Environment – their member states.
- **Waste statistics** – The tables cover the generation of waste, the generation and treatment of hazardous waste, and the generation, collection, treatment, and composition of municipal waste.
- **Water statistics** – The tables cover renewable freshwater resources, freshwater abstraction and use, water supply industry, wastewater generation and treatment, and population connected to wastewater treatment.

UNSD/UNEP Questionnaire on Environment Statistics

- UNSD/UNEP Questionnaire 2016 has been attracting attention of international agencies (e.g. FAO, UNHABITAT, WHO).
- UNSD is engaging in dialogue with international agencies on how best to utilise the Questionnaire for providing information on SDG indicators.
- The Questionnaire can serve as a valuable collection tool for primary source data for SDG indicator compilation.
- Since steady time series exist for some variables dating back to 1990, the Questionnaire's data are of great interest in SDG monitoring.

UNSD/UNEP Questionnaire on Environment Statistics

- To promote data quality assurance, UNSD carries out extensive data validation procedures that include built-in automated procedures, manual checks and cross-references to national sources of data.
- Communication is carried out with countries for clarification and validation of data.
- UNSD does not make any estimation or imputation for missing values so the number of data points provided are actual country data which are considered to be official statistics.
- Only data that are considered accurate or those confirmed by countries during the validation process are included in UNSD's environment statistics database and disseminated on UNSD's website.

UNSD/UNEP Questionnaire on Environment Statistics - Dissemination

UNSD disseminates data through:

- UNSD Environmental Indicators (Air and climate, Biodiversity, Energy and minerals, Forests, Governance, Inland water resources, Land and agriculture, Marine and coastal areas, Natural disasters, and Waste) (http://unstats.un.org/unsd/environment/qindicators.htm)
- Country Files (access to country files is restricted to countries and international organizations that participate in the data collection (http://unstats.un.org/unsd/environment/Questionnaires/index.asp)
- Country Snapshots (these include UNSD environmental indicators and other economic/demographic data (http://unstats.un.org/unsd/environment/Questionnaires/country_snapshots.htm)
- Environment statistics in UNData (http://data.un.org/)

UNSD/UNEP Questionnaire on Environment Statistics and its application to the SDGs

Report of the Secretary-General on Environment Statistics (E/CN.3/2016/27) for the 47th session of the Statistical Commission, along with its Background Document, provide a summary of the results of the international collections of environment statistics carried out by UNSD from 1999-2013.

http://unstats.un.org/unsd/statcom/47th-session/documents/2016-27-Environment-statistics-E.pdf

http://unstats.un.org/unsd/statcom/47th-session/documents/BG-2016-27-EnvironmentStats-E.pdf

UNSD/UNEP Questionnaire on Environment Statistics and its application to the SDGs

- **The table below shows the variables related to SDG indicator 6.3.1: Proportion of wastewater safely treated.**

Count of responses by selected variables with relevance to indicator 6.3.1							
Table W4: Wastewater Generation and Treatment	***2000***	***2007***	***2008***	***2009***	***2010***	***2011***	***2012***
Total wastewater generated	10	7	9	8	9	10	10
Wastewater treated in urban wastewater treatment plants	20	13	13	13	14	16	15
Of which: Primary treatment	3	7	9	9	9	10	10
Of which: Secondary treatment	3	9	10	10	10	12	11
Of which: Tertiary treatment	3	8	8	8	8	9	9
Wastewater treated in other wastewater treatment plants	7	4	5	5	5	5	5
Of which: Primary treatment	1	2	2	2	2	2	2
Of which: Secondary treatment	1	3	3	3	3	3	3
Of which: Tertiary treatment	1	2	3	3	3	3	3
Wastewater treated in independent wastewater treatment plants	8	1	2	2	2	2	3
Non-treated wastewater	15	12	10	9	7	6	7

Source: Table 3 (SG report on environment statistics (E/CN.3/2016/27); UNSD Envstats database also used as a source).

UNSD/UNEP Questionnaire on Environment Statistics and its application to the SDGs

- **The table below shows the variables related to SDG indicator 6.4.1: Change in water-use efficiency over time.**

Count of responses by selected variables with relevance to indicator 6.4.1							
Table W2: Freshwater Abstraction and Use	***2000***	***2007***	***2008***	***2009***	***2010***	***2011***	***2012***
Freshwater abstracted by water supply industry (ISIC 36)	23	36	35	34	23	20	22
Freshwater abstracted by households	9	18	16	15	11	9	10
Freshwater abstracted by agriculture, forestry and fishing (ISIC 01-03)	21	32	29	28	19	17	19
Freshwater abstracted by manufacturing (ISIC 10-33)	18	29	30	30	22	20	21
Freshwater abstracted by electricity industry (ISIC 351)	12	23	21	21	15	16	17
Freshwater abstracted by other economic activities	13	26	28	29	21	20	20
Total freshwater available for use	29	41	40	36	28	26	29
Total freshwater use	18	29	31	29	27	27	29
Total freshwater used by households	36	44	39	36	26	24	26
Total freshwater used by agriculture, forestry and fishing (ISIC 01-03)	29	34	31	29	22	19	22
Total freshwater used by manufacturing (ISIC 10-33)	34	39	36	35	24	23	23
Total freshwater used by electricity industry (ISIC 351)	20	22	20	18	15	16	17

Source: Table 3 (SG report on environment statistics (E/CN.3/2016/27); UNSD Envstats database also used as a source).

UNSD/UNEP Questionnaire on Environment Statistics and its application to the SDGs

- **The table below shows the variables related to SDG indicator 6.4.2: Level of water stress: freshwater withdrawal as a proportion of available freshwater resources.**

Count of responses by selected variables with relevance to indicator 6.4.2							
Table W1: Renewable Freshwater Resources and Table W2: Freshwater Abstraction and Use	***2000***	***2007***	***2008***	***2009***	***2010***	***2011***	***2012***
Precipitation	54	55	46	46	33	35	32
Actual evapotranspiration	27	31	24	24	18	19	18
Internal flow	32	36	29	28	19	21	19
Inflow of surface and groundwaters from neighbouring countries	25	29	24	22	17	18	19
Renewable freshwater resources	26	31	25	24	17	19	17
Fresh surface water abstracted	40	47	43	39	28	26	33
Fresh groundwater abstracted	39	46	43	40	29	26	33
Freshwater abstracted	41	50	47	43	31	29	35

Source: Table 3 (SG report on environment statistics (E/CN.3/2016/27); UNSD Envstats database also used as a source).

UNSD/UNEP Questionnaire on Environment Statistics and its application to the SDGs

- **The table below shows the variables related to SDG indicator 11.6.1: Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities.**

Count of responses by selected variables with relevance to indicator 11.6.1							
Table R5: Management of municipal waste – city data	***2000***	***2007***	***2008***	***2009***	***2010***	***2011***	***2012***
Percentage of city population served by municipal waste collection	22	51	42	46	39	31	54
Municipal waste collected from households	24	56	54	54	35	43	54
Municipal waste collected from other origins	13	38	33	34	22	25	42
Total amount of municipal waste collected	43	92	87	89	63	67	89
Amounts going to: Recycling	18	34	30	31	18	21	28
Amounts going to: Composting	11	29	25	25	18	19	23
Amounts going to: Incineration	14	29	26	26	17	17	24
Amounts going to: Incineration, of which: with energy recovery	9	14	12	12	7	7	9
Amounts going to: Landfilling	30	58	53	56	38	40	49
Amounts going to: Landfilling, of which: controlled landfilling	17	49	50	51	40	41	47
Amounts going to: Other	10	16	15	16	11	11	18

Source: Table 3 (SG report on environment statistics (E/CN.3/2016/27); UNSD Envstats database also used as a source).

UNSD/UNEP Questionnaire on Environment Statistics and its application to the SDGs

- **The table below shows the variables related to indicator 12.4.2: Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment.**

Count of responses by selected variables with relevance to indicator 12.4.2							
Table R2: Management of Hazardous Waste	***2000***	***2007***	***2008***	***2009***	***2010***	***2011***	***2012***
Stock of hazardous waste at the beginning of the year	4	7	7	7	8	9	10
Hazardous waste generated during the year	30	37	33	30	25	21	23
Hazardous waste imported during the year	21	18	18	18	14	14	18
Hazardous waste exported during the year	18	22	24	22	16	15	18
Hazardous waste treated or disposed of during the year	20	23	27	22	22	17	19
Amounts going to:							
Recycling	16	22	26	23	20	18	19
Incineration	16	25	26	21	20	16	18
of which: with energy recovery		2	4	2	9	4	8
Landfilling	18	25	27	22	21	18	18
Other, please specify in the footnote	12	13	16	12	13	11	12
Stock of hazardous waste at the end of the year	7	12	11	12	11	12	13

Source: Table 3 (SG report on environment statistics (E/CN.3/2016/27); UNSD Envstats database also used as a source).

UNSD/UNEP Questionnaire on Environment Statistics and its application to the SDGs

- **The table below shows the variables related to indicator 12.5.1: National recycling rate, tons of material recycled.**

Count of responses by selected variables with relevance to indicator 12.5.1							
Table R3: Management of Municipal Waste	***2000***	***2007***	***2008***	***2009***	***2010***	***2011***	***2012***
Municipal waste collected from households	11	20	24	23	19	20	22
Municipal waste collected from other origins	8	18	22	21	17	17	17
Total amount of municipal waste collected	38	48	47	49	37	37	40
Municipal waste imported for treatment/disposal	16	15	17	17	13	13	16
Municipal waste exported for treatment/disposal	17	15	16	16	14	14	16
Municipal waste managed in the country	26	28	31	28	21	21	23
Amounts going to:							
Recycling	15	25	26	23	17	17	18
Composting	12	18	19	17	14	14	20
Incineration	14	21	24	21	18	19	20
of which: with energy recovery	7	15	17	14	11	11	13
Landfilling	23	27	30	28	26	26	29
of which: controlled landfilling	18	20	21	22	21	19	19
Other, please specify in the footnote	8	16	15	14	12	13	14

Source: Table 3 (SG report on environment statistics (E/CN.3/2016/27); UNSD Envstats database also used as a source).

UNSD/UNEP Questionnaire on Environment Statistics

- Whilst the Questionnaire is attracting attention from agencies, countries are also contacting UNSD requesting assistance in understanding metadata, clarifying definitions. For example:
  - definitions of “hazardous waste”
  - calculation methods for volume of precipitation
  - whether to include as “wastewater independently treated” that wastewater which is transported by trucks to a treatment facility, etc.
  - Clarifying distinction between “incineration”, “incineration with energy recovery” and “open burning”
  - Correct application of International Standard Industrial Classification (ISIC) Rev. 4 for industry aggregations and household data
- UNSD continues to advise countries when such queries arise, and to address these queries as part of its regular capacity building work.

UNSD/UNEP Questionnaire and indicator 6.3.1

(Percentage of wastewater safely treated)

- Table below extracted from **Table W4: Wastewater Generation and Treatment** of the Questionnaire.
- Data from these four variables could be used to produce this indicator.
- Issues raised in discussions include definition of “treatment”. A definition within the International Recommendations for Water Statistics (United Nations, 2012) is being considered.

Line	Category	Unit
1	Total wastewater generated	1000 m^3/d
7	Wastewater treated in urban wastewater treatment plants	
11	Wastewater treated in other treatment plants	
15	Wastewater treated in independent treatment facilities	

Indicator = (Lines 7 + 11 + 15)/Line 1

UNSD/UNEP Questionnaire and indicator 6.4.1

(Change in water-use efficiency over time)

- Table below extracted from Table W2: Freshwater Abstraction and Use of the Questionnaire.
- Data from these variables could be used to produce this indicator.
- Issues raised in discussions include definition of “abstraction” as opposed to “use”. Per the Questionnaire, “Total freshwater available for use” is equal to “Freshwater abstracted” + “Desalinated water” + “Reused water” + “Imports of water” – “Exports of water”.
- Abstraction is known to be used as a proxy for Use.

Line	Category	Unit
W2, 4	Freshwater abstracted by water supply industry (ISIC 36)	millions m^3/y
W2, 5	Freshwater abstracted by households	
W2, 6	Freshwater abstracted by agriculture, forestry and fishing (ISIC 01-03)	
W2, 7	Freshwater abstracted by manufacturing (ISIC 10-33)	
W2, 8	Freshwater abstracted by electricity industry (ISIC 351)	
W2, 9	Freshwater abstracted by other economic activities	
W2,14	Total freshwater available for use	
W2,16	Total freshwater use	
W2,17	Total freshwater used by households	
W2,18	Total freshwater used by agriculture, forestry and fishing (ISIC 01-03)	
W2,10	Total freshwater used by manufacturing (ISIC 10-33)	
W2,21	Total freshwater used by electricity industry (ISIC 351)	

UNSD/UNEP Questionnaire and indicator 6.4.2

(Level of water stress: freshwater withdrawal as a proportion of available freshwater resources)

- Table below extracted from **Tables W1: Renewable Freshwater Resources, and W2: Freshwater Abstraction and Use** of the Questionnaire.
- Using the two variables (Freshwater abstracted and Renewable freshwater resources) and/or all variables below, this indicator could be derived.

Line	Category	Unit
W1,1	Precipitation	millions m^3/y
W1,2	Actual evapotranspiration	
W1,3	Internal flow	
W1,4	Inflow of surface and groundwaters from neighbouring countries	
W1,5	Renewable freshwater resources	
W2,1	Fresh surface water abstracted	
W2,2	Fresh groundwater abstracted	
W2,3	Freshwater abstracted	

UNSD/UNEP Questionnaire and indicator 11.6.1: (Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities)

- Table below extracted from Table R5: Management of Municipal Waste – City Data of the Questionnaire.
- Data from these four variables could be used to produce this indicator.
- Questions arise, for example, what is the definition of urban solid waste (municipal waste can be used as a proxy), whether the denominator should be waste “collected” or “generated”, and the definition of a city and how many cities should be included.
- Time series exist for waste “collected” in the UNSD/UNEP Questionnaire at the city level.

Indicator = (Lines 6 + 7 + 9)/Line 5

Line	Category	Unit
5	Total amount of municipal waste collected	1000 t
6	Recycling	
7	Composting	
9	Incineration with energy recovery	

UNSD/UNEP Questionnaire and indicator 12.4.2: (Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment)

- Table below extracted from Table R2: Management of Hazardous Waste of the Questionnaire.
- Data from these four variables could be used to produce this indicator.
- Questions arise with respect to in(ex)cluding imports/exports in the denominator. “Hazardous waste treated or disposed of” includes imports/exports.

Indicator = Line 2/Population

Indicator = Line 6/Line 5

Indicator = Line 7/Line 5

Line	Category	Unit
2	Hazardous waste generated during the year	tonnes
5	Hazardous waste treated or disposed of during the year	
6	Recycling	
7	Incineration	

UNSD/UNEP Questionnaire and indicator 12.5.1: (National recycling rate, tons of material recycled)

- Table below extracted from Table R3: Management of Municipal Waste of the Questionnaire.
- Data from two of the three variables could be used to produce this indicator.
- Discussion with respect to municipal waste “collected” as opposed to municipal waste “generated” is also a feature (as in indicator 11.6.1).
- Questions arise with respect to in(ex)cluding imports/exports in the denominator. Managed takes into consideration imports/exports.

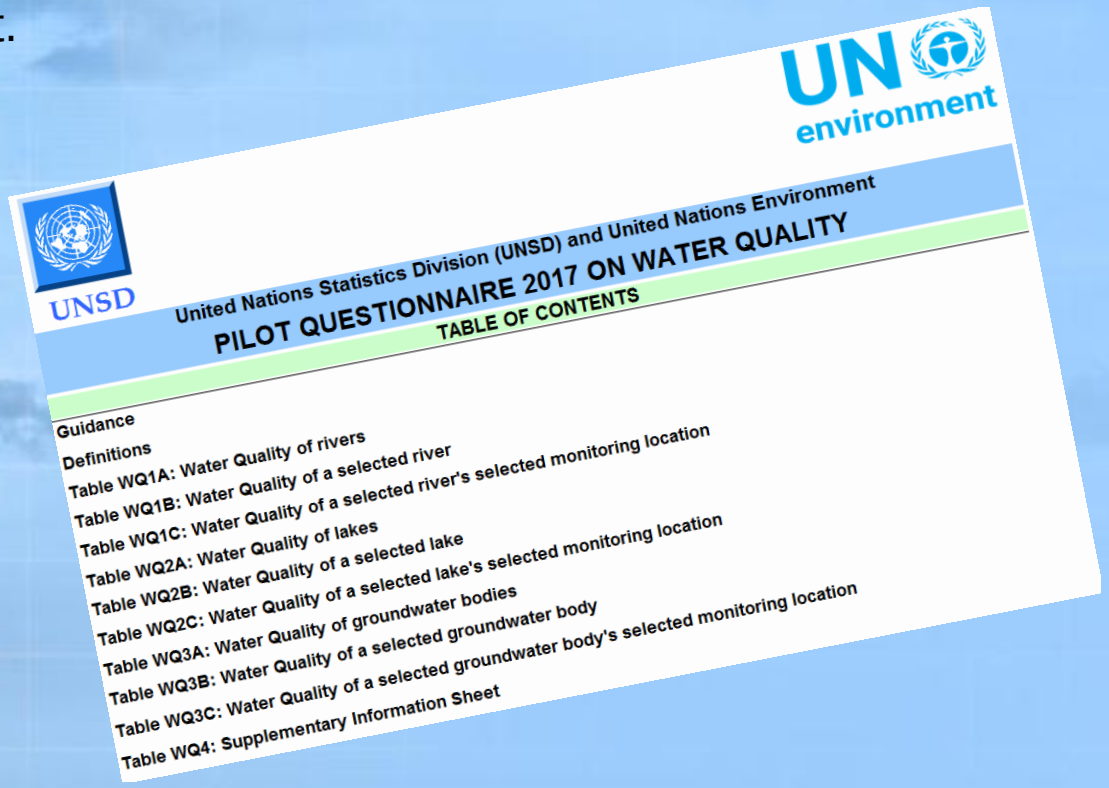
Indicator = Line 7/Line 6; or

Indicator = Line 7/Line 3

Line	Category	Unit
3	Total amount of municipal waste collected	1000 t
6	Municipal waste managed in the country	
7	Recycling	

UNSD/UNE Pilot Questionnaire and indicator 6.3.2: (Proportion of bodies of water with good ambient water quality)

- UNSD is collaborating with UN Environment and is conducting a 2017 Pilot Questionnaire on water quality.
- 40 countries have been selected for this pilot.
- Results shall be analysed in 2017, and based upon these results, strategy and direction of future endeavours shall be considered.
- Methodology for this Tier III indicator shall be developed and better informed via this pilot.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United Nations Statistics Division (UNSD) and United Nations Environment

PILOT QUESTIONNAIRE 2017 ON WATER QUALITY

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Climate change statistics and official statistics

- UNSD started work in this area in 2008. The Statistical Commission, at its 40th session, in 2009, launched a programme review on climate change and official statistics carried out by the Australian Bureau of Statistics. The objective of the review was to specify how official statistics may be used for climate change measurement and analysis and to identify recommendations and actions to mainstream the climate change aspect in official statistics.
- The Commission took into consideration the recommendations of the two conferences organized by UNSD on climate change and official statistics.
  - Oslo, 14-16 April 2008 (http://unstats.un.org/unsd/climate_change/default.htm)
  - Seoul, 11- 12 December 2008 (http://unstats.un.org/unsd/climate_change/Korea/default.htm)
- UNECE has since been working on this subject focusing on Recommendations on Climate Change-related Statistics. A Task Force was set up to develop a Set of Key Climate Change-related Statistics and Indicators.

Climate change statistics and official statistics

- To bring this work to the international level, a report of the Secretary-General, which summarized the work done on climate change statistics, was presented by UNSD at the 47th session of the Statistical Commission in 2016.
- The Commission, inter alia,
  - recommended that countries use the FDES 2013 to guide the development of climate change statistics and indicators, given the close interrelationship between environment statistics and climate change statistics; and
  - expressed its appreciation for the work undertaken by the Conference of European Statisticians (CES) Task Force on Climate Change-related Statistics and Indicators, in particular their efforts to develop a set of climate change-related statistics and indicators, and requested UNSD to review and consider it as a basis for developing a global set of climate change statistics and indicators, applicable to countries at various stages of development.

Climate change statistics and official statistics

- Given that the work of the UN-ECE is still underway and that the set of indicators is still to be submitted to the CES plenary session in June 2017 for endorsement, UNSD is in the process of starting to pilot test the set of climate change-related statistics and indicators in various fora to assess its applicability for the majority of developing countries. UNSD will subsequently launch a global consultation to fulfil the request mandated by the Statistical Commission.

Thank you for your attention!

Please contact us:
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