


UNSD's Environment Statistics Data Collection, Response Rates and Data Quality



Joint Task Force on Environmental Indicators and Statistics
(Geneva, 30 June- 1 July 2016)

Environment Statistics Section, United Nations Statistics Division

UNSD data collection in environment statistics

- Objective: to provide internationally comparable statistics on environmental issues based on standard questionnaires and methodology.
 - UNSD/UNEP Questionnaire on Environment Statistics – about 172 member states and areas in 5 languages
 - OECD/Eurostat Joint Questionnaire on the State of the Environment – their member states
- Environment Statistics Section, UNSD is responsible for the collection of environment statistics from all non-OECD/Eurostat member states upon the request of the Statistical Commission in 1999.
- UNSD/UNEP Questionnaire is consistent and harmonized with the OECD/Eurostat Questionnaire. Close collaboration is maintained on conceptual issues, validation procedures and data validation.

UNSD data collection in environment statistics (cont)

- Collaboration is also maintained with, inter alia, FAO/Aquastat (water statistics), the Basel Convention (hazardous waste), ECE and ESCWA on similar issues, including translation.
- UNSD conducted its first data collection in 1999, requesting data from 168 countries and areas. Six subsequent data collection rounds have taken place, with the most recent one in 2013 requesting data from 173 countries and areas. The next round will take place in 2016.
- UNSD/UNEP Questionnaire on Environment Statistics is sent biennially to National Statistical Offices and Ministries of Environment. The Questionnaire started with just UNSD but since 2004 it has been conducted jointly with UNEP.
- Those indicators already being collected by other UN agencies or other international institutions were excluded from the UNSD/UNEP Questionnaire on Environment Statistics, wherever possible.
- In the 1999, 2001 and 2004 data collection rounds, UNSD obtained data on air, land, waste and water, but in harmonizing with other international collections, as of 2006, UNSD has solely collected data on waste and water.

UNSD/UNEP Questionnaire on environment statistics

- UNSD/UNEP Questionnaire 2013 on Environment Statistics – 7th round sent out in 2014 (water and waste statistics)
- **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 waste water treatment.
- UNSD/UNEP Questionnaire is linked to economic statistics through the use of ISIC Rev. 4 in several tables, and contains:
 - time series tables
 - detailed guidance section as well as relevant definitions to assist the user to complete the Questionnaire
 - extensive built-in validation procedures
 - notes section for footnotes or other references
 - supplementary sheets for additional information

Waste Questionnaire

R1: Generation of Waste by Source	R1: Образование отходов по источникам
R2: Management of Hazardous Waste	R2: Обращение с опасными отходами
R3: Management of Municipal Waste	R3: Обращение с муниципальными отходами
R4: Composition of Municipal Waste	R4: Состав муниципальных отходов
R5: Management of Municipal Waste – City Data	R5: Обращение с муниципальными отходами —
R6: Supplementary information sheet	Данные по городам R6: Дополнительная информационная таблица

Table R1 is linked to economic statistics through the use of ISIC Rev. 4
<http://unstats.un.org/unsd/environment/questionnaire.htm>

Water Questionnaire

W1 Renewable Freshwater Resources
W2 Freshwater Abstraction and Use
W3 Water Supply Industry (ISIC 36)
W4 Wastewater Generation and Treatment
W5 Population Connected to Wastewater Treatment
W6 Supplementary information sheet
W1 Возобновляемые пресноводные ресурсы
W2 Забор и использование пресной воды
W3 Предприятия водоснабжения (МСОК 36)
W4 Образование и очистка сточных вод
W5 Население, обеспеченное системами очистки сточных вод
W6 Дополнительный информационный листок

Tables W2, W3 and W4 are linked to economic statistics through the use of ISIC Rev. 4

<http://unstats.un.org/unsd/environment/questionnaire.htm>

UNSD data collection

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 data collection – responses

Year:	1999	2001	2004	2006	2008	2010	2013
Count of countries sent questionnaire:	168	177	158	163	171	172	172
Number of responses (water and/or waste):	49	62	68	78	83	83	81

- Responses refer to the number of countries that provided data, either in water or waste, or both.
- The gap between data points collected and validated against total potential data points reflects the relatively emerging nature of environment statistics, particularly in developing countries.
- Substantial differences can be observed in the development and availability of environment statistics when the questionnaire results are analysed at the regional level.

UNSD data collection – responses

Table 2 (SG report on environment statistics - (E/CN.3/2016/27))

Number of responses and percentage of response rates by geographical region and year of data collection

	1999		2001		2004		2006		2008		2010		2013	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Africa	8	14	13	23	22	39	16	28	21	37	23	40	21	37
Asia	19	41	21	46	20	43	24	52	27	59	25	54	22	48
Europe	10	71	9	64	7	50	11	79	11	79	10	71	11	79
Latin America and the Caribbean	11	28	18	45	19	48	27	68	23	58	25	63	27	68
Oceania	1	7	1	7	–	–	–	–	1	7	–	–	–	–
Total	49	29	62	35	68	43	78	48	83	49	83	48	81	47

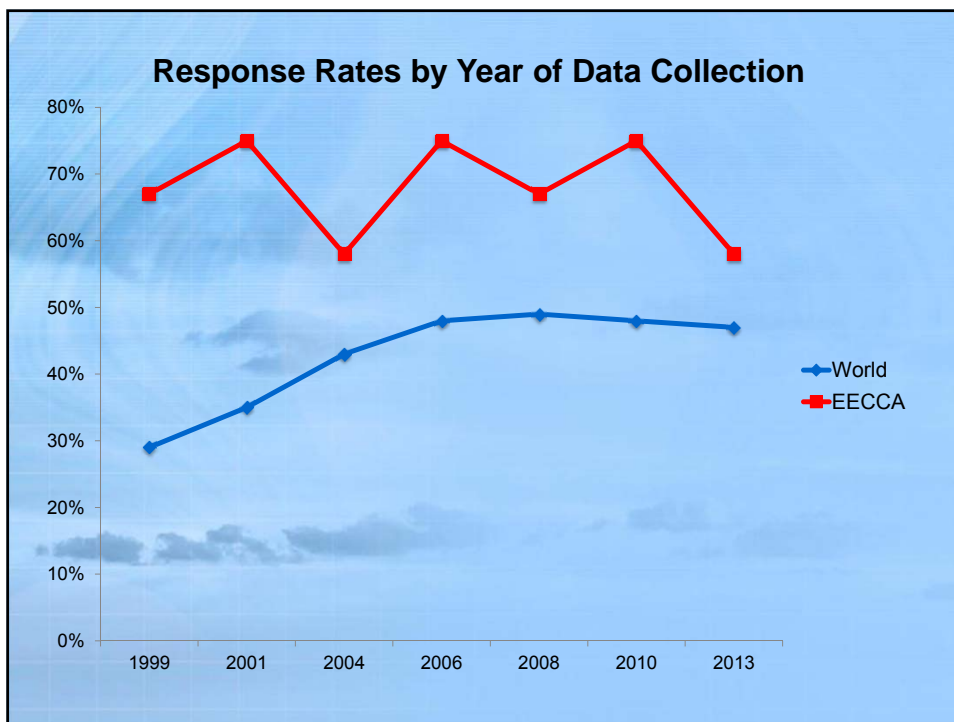
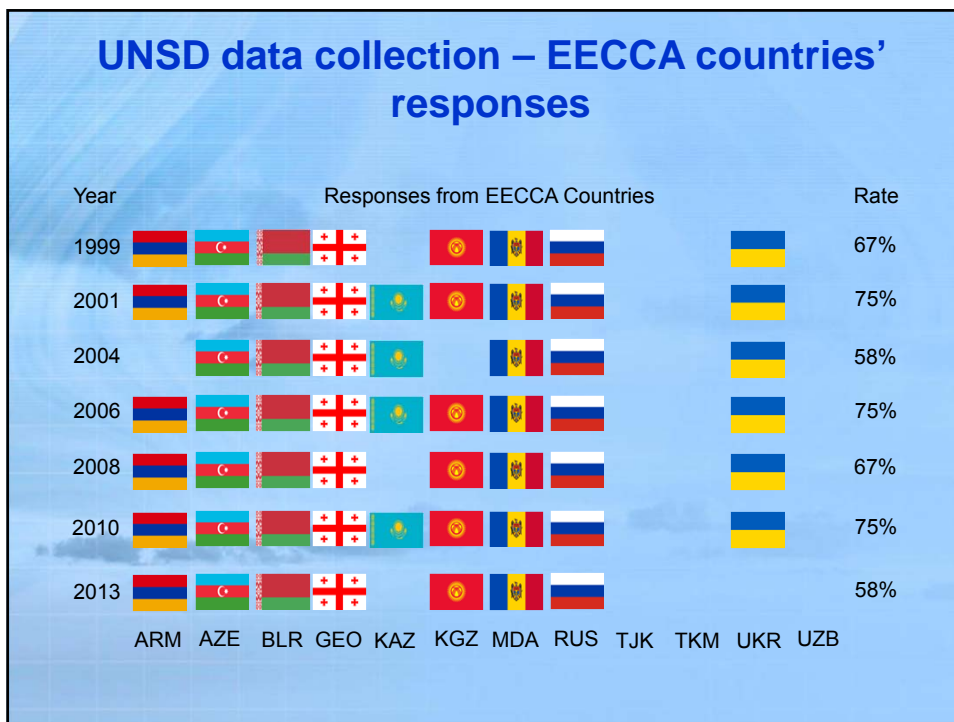
	1999	2001	2004	2006	2008	2010	2013
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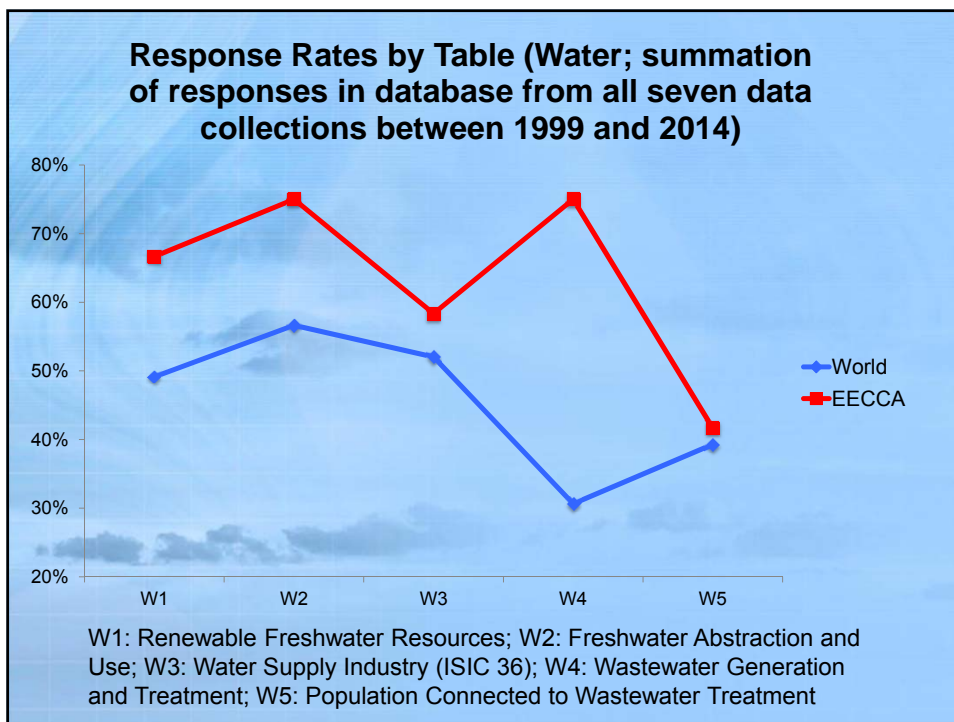
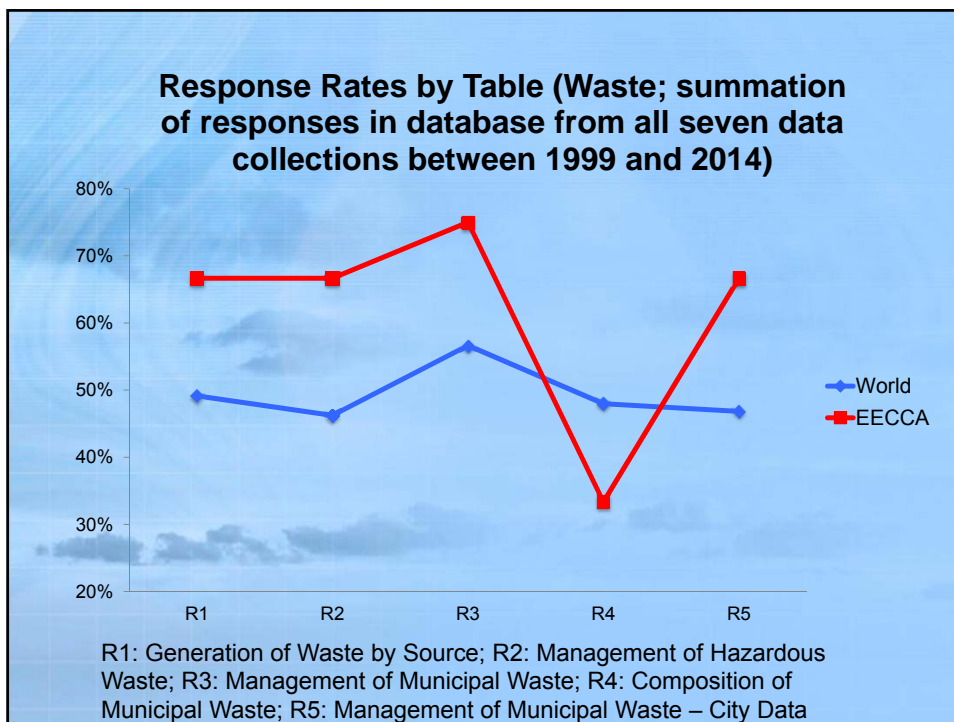
The Background Document to the Statistical Commission contains detailed tables that present the number of responses to all variables in the latest data collection round (the 2013 collection round) for the years 2000 to 2012 for both water and waste respectively.

UNSD data collection – responses

(indicator number in parentheses)

	2000	2007	2008	2009	2010	2011	2012
Water							
Renewable freshwater resources (Indicator 6.4.2)	26	31	25	24	17	19	17
Freshwater abstracted (Indicator 6.4.1)	41	50	47	43	31	29	25
Total freshwater use (Indicators 6.4.1, 6.4.2)	18	29	31	29	27	27	29
Total population supplied by water supply industry (Indicator 6.1.1)	27	34	35	35	27	28	27
Total wastewater generated (Indicator 6.3.1)	10	7	9	8	9	10	10
Wastewater treated in urban wastewater treatment plants (Indicator 6.3.1)	20	13	13	13	14	16	15
Wastewater treated in other treatment plants (Indicator 6.3.1)	7	4	5	5	5	5	5
Wastewater treated in independent treatment facilities (Indicator 6.3.1)	8	1	2	2	2	2	3
Waste							
Total amount of municipal waste collected (Indicators 11.6.1, 12.5.1)	38	48	47	49	37	37	40
Municipal waste managed in country (Indicator 11.6.1)	26	28	31	28	21	21	23
Municipal waste managed in country (recycled) (Indicators 11.6.1, 12.5.1)	15	25	26	23	17	17	18
Municipal waste managed in country (composted) (Indicator 11.6.1)	12	18	19	17	14	14	20
Municipal waste managed in country (incinerated) (Indicator 11.6.1)	14	21	24	21	18	19	20
Municipal waste managed in country (landfilled) (Indicator 11.6.1)	23	27	30	28	26	26	29





UNSD data validation

- 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. (e.g. checks for 25% annual movements, checks for 10% annual movements)
- 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.
- 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.

Measures taken to address data quality

- Reading and keeping abreast of information on waste statistics
 - Learning about conversion factors (m^3 to tonnes) and how these vary greatly across countries
 - Measurement issues of weighing waste wet or dry
 - Analysis of suitable acceptable maximum (minimum) values for tonnes of waste per capita
 - Discussing with country respondent how to classify raw data from a waste treatment plant to agree with ISIC rev. 4.
- Cross-referencing with country sources.
- Extensive documentation of procedures. 100+ page internal document describing our cyclical processes and which addresses data validation and data quality assurance.

Measures taken to address data quality: some references used

- Data Quality Framework, Statistics New Zealand
http://unstats.un.org/unsd/environment/FDES/EGES3/4New%20Zealand_Assessing%20data%20quality%20in%20official%20environmental%20statistics.pdf
- Quality Management of Statistical Processes Using Quality Gates, Australian Bureau of Statistics
[http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/8E7492ABC0FEC886CA257801000E50D3/\\$File/15400Dec%202010.pdf](http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/8E7492ABC0FEC886CA257801000E50D3/$File/15400Dec%202010.pdf)
- What a Waste: A Global Review of Solid Waste Management, the World Bank
<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTURBANDEVELOPMENT/0,,contentMDK:23172887~pagePK:210058~piPK:210062~theSitePK:337178,00.html>



UNSD data collection – Conclusion

- Data completeness and data quality remain a challenge (in particular for developing countries).
- National capacity constraints (financial, human, technical) continue to be a concern for many countries.
- There still remains inadequate institutional set-up and collaboration in environment statistics.
- Capacity building is key to improving environment statistics and the Environment Statistics Section of UNSD is assisting countries in strengthening their statistical capacity through training workshops and direct country assistance.
- Given the importance of producing national data on water and waste for quality and informed decision-making, and that these data are extremely pertinent to monitoring the SDGs, it is critical to improve the production of environment statistics.

Thank you for your attention!



Please contact us:
Environment Statistics Section of the United Nations Statistics Division
E-mail: envstats@un.org
website: <http://unstats.un.org/unsd/environment/default.htm>