



UNSD data collections on waste statistics:

UNSD/UNEP Questionnaire on Environment Statistics
[Вопросник по статистике окружающей среды]

Pilot Questionnaire 2017 on Electronic Waste

Joint Task Force on Environment Statistics and Indicators

Geneva, Switzerland

29-30 June 2017



UNSD/UNEP Questionnaire on Environment Statistics

- Objective: to provide internationally comparable statistics on environmental issues based on standard questionnaires and methodology.
- About 170 member states and areas in 5 languages.
- Complemented by the OECD/Eurostat Joint Questionnaire on the State of the Environment – their member states.
- 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/UNEP Questionnaire on Environment Statistics

- Collaboration is also maintained with, inter alia, FAO/Aquastat (water statistics), the Basel Convention (hazardous waste), UN Regional Commissions on similar issues, including translation.
- UNSD/UNEP Questionnaire on Environment Statistics is sent 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 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
 - Better alignment with the System of National Accounts, System of Environmental-Economic Accounting through the use of ISIC.
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Waste Questionnaire

Waste

R1: Generation of Waste by Source

R2: Management of Hazardous Waste (SDG-related)

R3: Management of Municipal Waste (SDG-related)

R4: Composition of Municipal Waste

R5: Management of Municipal Waste – City Data (SDG-related)

R6: Supplementary information sheet

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

Table R1: Generation of Waste by Source

Line	Category	Unit	Категория
1	Agriculture, forestry and fishing (ISIC 01-03)	1000 t	Сельское хозяйство, лесоводство и рыболовство (МСОК 01-03)
2	Mining and quarrying (ISIC 05-09)		Горнодобывающая промышленность и разработка карьеров (МСОК 05 -09)
3	Manufacturing (ISIC 10-33)		Обрабатывающая промышленность (МСОК 10-33)
4	Electricity, gas, steam and air conditioning supply (ISIC 35)		Снабжение электричеством, газом, паром и кондиционированным воздухом (МСОК 35)
5	Construction (ISIC 41-43)		Строительство (МСОК 41-43)
6	Other economic activities excluding ISIC 38		Другие виды экономической деятельности, за исключением МСОК 38
7	Households		Домашние хозяйства
8	Total waste generation (8=1+...+7)		Общий объем образующихся отходов (8 = 1+...+7)

Table R2: Management of Hazardous Waste

Line	Category	Unit
1	Stock of hazardous waste at the beginning of the year	tonnes
2	Hazardous waste generated during the year	
3	Hazardous waste imported during the year	
4	Hazardous waste exported during the year	
5	Hazardous waste treated or disposed of during the year (=6+7+9+10)	
6	<i>Amounts going to:</i> Recycling	
7	Incineration	
8	<i>of which:</i> with energy recovery	
9	Landfilling	
10	Other, please specify in the footnote	
11	Stock of hazardous waste at the end of the year (=1+2+3-4-5)	

Those variables highlighted in yellow of interest to SDG monitoring.



12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



Ensure sustainable consumption and production patterns

- Target 12.4: By 2030, 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.

=> Indicator 12.4.2: Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment

=> Indicator 12.5.1: National recycling rate, tons of material recycled

Table R3: Management of Municipal Waste

Line	Category	Unit
1	Municipal waste collected from households	1000 t
2	Municipal waste collected from other origins	
3	Total amount of municipal waste collected (=1+2)	
4	Municipal waste imported for treatment/disposal	
5	Municipal waste exported for treatment/disposal	
6	Municipal waste managed in the country (=3+4-5)	
7	<i>Amounts going to:</i> Recycling	
8	Composting	
9	Incineration	
10	<i>of which:</i> with energy recovery	
11	Landfilling	
12	<i>of which:</i> controlled landfilling	
13	Other, please specify in the footnote	
14	Total population served by municipal waste collection	%
15	Urban population served by municipal waste collection	
16	Rural population served by municipal waste collection	

Table R4: Composition of Municipal Waste

Line	Category	Unit
1	Paper, paperboard	%
2	Textiles	
3	Plastics	
4	Glass	
5	Metals	
6	Other inorganic material	
7	Organic material	
8	of which: food and garden waste	

Table R5: Management of Municipal Waste – City Data

Line	Category	Unit
1	Total population of the city	1000 inh.
2	Percentage of city population served by municipal waste collection	%
3	Municipal waste collected from households	1000 t
4	Municipal waste collected from other origins	
5	Total amount of municipal waste collected (=3+4)	
6	<i>Amounts going to:</i> Recycling	
7	Composting	
8	Incineration	
9	<i>of which:</i> with energy recovery	
10	Landfilling	
11	<i>of which:</i> controlled landfilling	
12	Other, please specify in the footnote	



11 SUSTAINABLE CITIES
AND COMMUNITIES



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.

=> 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



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.
- 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.

UNSD data validation - examples

Table R1: Generation of Waste by Source

• If the value turns red, please check if it is correct.

Line	Category	Unit	2014	2015
1	Agriculture, forestry and fishing (ISIC 01-03)	1000 t	6	7
2	Mining and quarrying (ISIC 05-09)	1000 t	6	7
3	Manufacturing (ISIC 10-33)	1000 t	6	7
4	Electricity, gas, steam and air conditioning supply (ISIC 35)	1000 t	6	7
5	Construction (ISIC 41-43)	1000 t	6	7
6	Other economic activities excluding ISIC 38	1000 t	6	7
7	Households	1000 t	6	7
8	Total waste generation (=1+2+3+4+5+6+7)	1000 t	42	

UNSD data validation – examples: coherence

Table R1: Generation of Waste by Source

• If the value turns red, please check if it is correct.

Line	Category	Unit	2014	2015
1	Agriculture, forestry and fishing (ISIC 01-03)	1000 t	6	7
2	Mining and quarrying (ISIC 05-09)	1000 t	6	7
3	Manufacturing (ISIC 10-33)	1000 t	6	7
4	Electricity, gas, steam and air conditioning supply (ISIC 35)	1000 t	6	7
5	Construction (ISIC 41-43)	1000 t	6	7
6	Other economic activities excluding ISIC 38	1000 t	6	7
7	Households	1000 t	6	7
8	Total waste generation (=1+2+3+4+5+6+7)	1000 t	42	48

Incoherent
with other
data in 2015
column

UNSD data validation – examples: time series

Table R1: Generation of Waste by Source

• If the value turns red, please check if it is correct.

Line	Category	Unit	2014	2015
1	Agriculture, forestry and fishing (ISIC 01-03)	1000 t	6	7
2	Mining and quarrying (ISIC 05-09)	1000 t	6	7
3	Manufacturing (ISIC 10-33)	1000 t	6	7
4	Electricity, gas, steam and air conditioning supply (ISIC 35)	1000 t	6	7
5	Construction (ISIC 41-43)	1000 t	6	7
6	Other economic activities excluding ISIC 38	1000 t	6	7
7	Households	1000 t	6	9
8	Total waste generation (=1+2+3+4+5+6+7)	1000 t	42	51

Annual increase greater than 25%

UNSD data validation – examples: tonnes of waste per national GDP

Таблица R1: Образование отходов по источникам

№ строки	Категория	Единица измерения	2014	2015
8	Общий объем образующихся отходов Total waste generation (=1+2+3+4+5+6+7)	1000 т	348	399
		US\$	7,012,571,136	7,877,767,680

Coherence validation: check of coherence between variables within the que

Line	Category	Unit	2014	2015
8	Total waste generation (=1+2+3+4+5+6+7)	1000 t	348	399
✓	Line 8= 9		NA	NA
10	Total waste per \$1000 GDP	т/\$1000	0.0496	0.0506
✓	.05<Total waste per \$1000 GDP<10		<>	ok

UNSD data validation – examples: tonnes of waste per capita

Table R3: Management of Municipal Waste

Line	Category	Unit	2015	
1	Municipal waste collected from households	1000 t	725	
2	Municipal waste collected from other origins	1000 t	134	
3	Total amount of municipal waste collected (=1+2)	1000 t	859	A

Coherence validation: check of coherence between va

Line	Category	Unit	2014
3	Total amount of municipal waste collected (=1+2)	1000 t	859
18	Municipal waste collected per person	kg/ind.	386.95
✓	100 < Line 18 < 1000		ok

Justification for validation check: Per experience in data collection of the section; observations of credible international sources (e.g. World Bank's What a Waste publication).



UNSD data collection – responses

Year:	1999	2001	2004	2006	2008	2010	2013	2016
Count of countries sent questionnaire:	168	177	158	163	171	172	172	170
Number of responses (water and/or waste):	49	62	68	78	83	83	81	74 and counting

- Responses refer to the number of countries that provided data, either in water or waste, or both.
- Although there has been a trend in more data and more countries responding, it is still insufficient given the growing demand for environment statistics.
- 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.



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

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

The Background Document to the Statistical Commission contains detailed tables (pgs. 6-15) 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.



What's different this collection round?

- Eurostat added tables to the waste collection for six countries who are implementing the Shared Environmental Information System (SEIS) in close collaboration with UNSD
- UNSD's periodic dissemination of data when finalized
- UNSD and several key users (institutional: [UNEP, UN-HABITAT, World Bank]; academia) of this data collection have been liaising with one another on new (often SDG-related) issues.



UNSD data 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– Conclusion

- Data completeness and data quality remain a challenge (in particular for developing countries).
 - Challenges: national capacity constraints (financial, human, technical), inadequate institutional set-up and collaboration within countries in environment statistics.
 - Measures to address challenges: Environment Statistics Section of UNSD, in collaboration with key partners, is assisting countries in strengthening their statistical capacity through training workshops and direct country assistance.
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Electronic waste pilot

- Demand driven (rapid technological innovation, ever-shortening product lifespans, fast growing stockpiles of e-waste worldwide)
- Per dialogue between UNSD, UN University, Eurostat, OECD and UNECE
- UNSD has been aware of the issue of e-waste for some time and when approached was open to collaboration
 - Per discussion at capacity building exercises with countries: regulation without enforcement can be a problem.
 - Putting onus on manufacturers and importers of e-waste is important.



Electronic waste pilot

- Pilot contained pre-filled data based upon best estimation methods of the UN University using UN Comtrade statistics and UNU-KEYS (a correspondence to e-waste categories).
- Data requested for e-waste generation and collection; e-waste legislation, management and miscellaneous.
- This pilot followed an OECD e-waste pilot, and used that pilot as a model.



Electronic waste pilot

Guidance

Table EW1: E-waste Generated and Collected

Table EW2: Electronic Waste legislation, management and miscellaneous

Table EW3: Supplementary Information Sheet

United Nations University (UNU)-KEY correspondence

Table EW1: E-Waste Generated and Collected

Line	Category	Unit
1	Total E-waste generated (=2+3+4+5)	1000 t
2	Amounts going to: Large Equipment	1000 t
3	Screens, monitors, and equipment containing screens (...)	1000 t
4	Temperature exchange equipment (Cooling and Freezing Equipment)	1000 t
5	Small E-waste (=6+7+8)	1000 t
6	<i>of which: Lamps</i>	1000 t
7	<i>of which: Small Equipment</i>	1000 t
8	<i>of which: Small IT and telecommunication equipment</i>	1000 t
9	Total E-waste collected (=10+11+12+13)	1000 t
10	Amounts going to: Large Equipment	1000 t
11	Screens, monitors, and equipment containing screens (...)	1000 t
12	Temperature exchange equipment (Cooling and Freezing Equipment)	1000 t
13	Small E-waste (=14+15+16)	1000 t
14	<i>of which: Lamps</i>	1000 t
15	<i>of which: Small Equipment</i>	1000 t
16	<i>of which: Small IT and telecommunication equipment</i>	1000 t



Feedback from countries on e-waste

- “No data on solid waste is captured by relevant authorities.”
- “No waste separation is carried out,” therefore no data are available for e-waste.
- “By 2018 we plan to generate data published by NACE-rev2 code.”
- “estimates already included in the questionnaire will prove difficult to confirm or adjust without technical background to the methodology used”
- “Coordinating with line ministries is taking time...”
- “Estimated annual generation of e-waste is 1.4% of total waste generation.”
- “Obligation for gradual source separation of e-waste will enter into force in 2019.”
- “(Line ministry) currently embarking on a project to collect data on e-waste... in order to draft a national policy on e-waste.”
- “We have formed a national voluntary partnership for e-waste recycling with interested stakeholders.”
- “...policy states that the management of e-waste will be addressed through partnership programmes where importers, manufacturers and assemblers will be regulated to conduct buy-back programmes.”



Conclusions and outputs of e-waste pilot

- Purpose of pilot is to better inform decisions regarding methodology.
- We learned/can conclude that many countries don't differentiate for e-waste.
- May be some confusion delineating between e-waste and hazardous waste.
- Several countries informed that Ministries of Environment or equivalent are drafting e-waste policies.
- Comments provided by countries regarding e-waste legislation, management will be very helpful.
- Further methodological development, capacity building, and strengthened inter-institutional collaboration are required to address the issue of e-waste data collection.
- **Possible addition of some variables regarding e-waste generation or e-waste collection to the UNSD/UNE Questionnaire on Environment Statistics.**

