UNSD/UNEP Questionnaire on Environment Statistics –waste; and data gaps. Cuestionario y lagunas de datos

Environment Statistics Section, Statistics Division, Department of Economic and Social Affairs

Prepared for: **Diálogo Centroamericano sobre Economía Circular. Sesión IX: Generando datos y evidencia desde nivel local a nacional**

Circularidad de recursos y gestión de residuos sólidos para acelerar los Objetivos de Desarrollo Sostenible
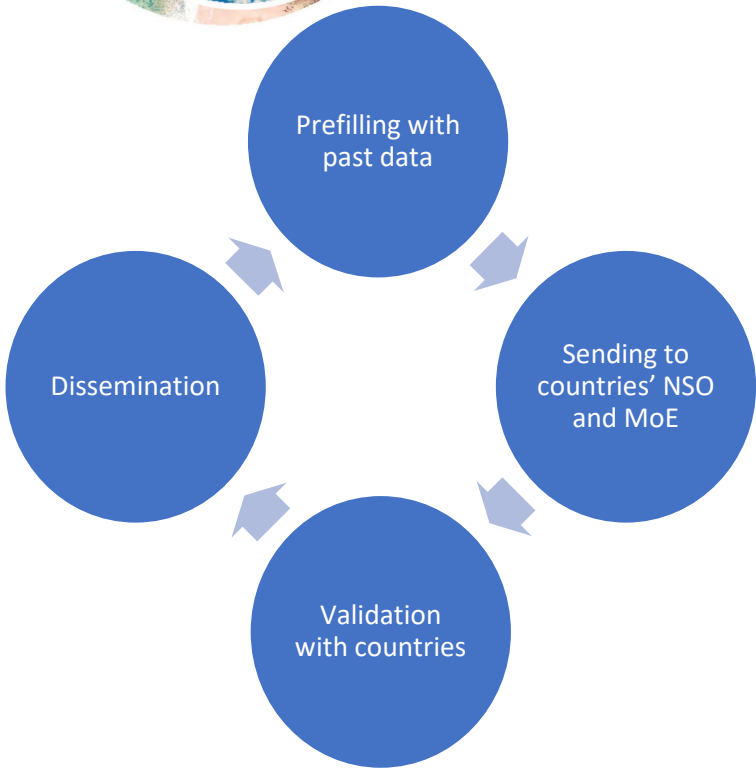
23-25 July, 2024

Outline

1. **Finer analysis of the UNSD/UNEP Questionnaire on Environment Statistics – waste section**

2. **Collaborations between local and national level to resolve data gaps**

1. UNSD/UNEP Questionnaire on Environment Statistics

- Since 1999, UNSD has completed 11 data collections on water and waste data (usually biennially) from about 160-170 UN member states. Mandated by UNSC 28th session (1995); reinforced at 34th session (2003).

- [Questionnaires](#) are sent to National Statistical Offices and Ministries of Environment.

- Questionnaires are not sent to Eurostat and OECD members and candidate members. 170+ member states in previous years; about 163 member states in the 2022 collection cycle

- Response rate typically hovers around 50% (2018: 52%; 2020: 46%; 2022: approx. 47%).

- No imputation, no estimation. No change in variables collected in 2022 compared to 2020. Instead, focus is more on boosting response rates, especially to those variables related to SDG indicators

- The next data collection (September, 2024) will be the 12th one. Looking forward to your collaboration once again!

Prefilling with past data

Sending to countries' NSO and MoE

Validation with countries

Dissemination

1. UNSD/UNEP Questionnaire on Environment Statistics: disseminated outputs

- **UNSD environmental indicators**: https://unstats.un.org/unsd/envstats/qindicators Time series, or most recently available data for selected variables provided by countries. Disseminated after completion of collection cycle.

- **Country files**: https://unstats.un.org/unsd/envstats/country_files Individual country data on water and waste. Disseminated periodically during collection cycle. Demand from key users to view Country files as soon as possible.

- **Country snapshots**: https://unstats.un.org/unsd/envstats/snapshots/ Individual country data spanning many environmental themes.

- **Tailored queries**: Per solicitation from key users (often World Health Organization, UN Environment Programme, UN-HABITAT, academia).

- **United Nations Sustainable Development Goals Database**: https://unstats.un.org/sdgs/dataportal Country data sourced from the Questionnaire published alongside country data from other sources.

Waste section

United Nations Statistics Division (UNSD) and United Nations Environment Programme

QUESTIONNAIRE 2022 ON ENVIRONMENT STATISTICS

Section: WASTE

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UNSD/UNEP Questionnaire on Environment Statistics (waste section) – Table R1: Generation of Waste by Source [Generación de desechos por fuente]

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

Línea	Categoría	Unidad
1	Agricultura, ganadería, silvicultura y pesca (CIIU 01-03)	1000 t
2	Minas y canteras (CIIU 05-09)	1000 t
3	Industrias Manufactureras (CIIU 10-33)	1000 t
4	Suministro de electricidad, gas, vapor y aire acondicionado (CIIU 35)	1000 t
5	Construcción (CIIU 41-43)	1000 t
6	Otras actividades económicas excepto las de la división 38 de la CIIU	1000 t
7	Hogares	1000 t
8	**Total generación de desechos (=1+2+3+4+5+6+7)**	1000 t

Strongest responses (in order): #8, followed by #3 and #6

Hypothesis from UNSD:

   1. Totals easier to calculate than breakdowns.
   2. Manufacturing is often the only industry for which data are reported. It's as though manufacturing is considered as, "industry".
   3. Data often provided to "other economic activities" when breakdowns are unavailable.

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Line	Category	Unit
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3	Manufacturing (ISIC 10-33)	1000 t
4	Electricity, gas, steam and air conditioning supply (ISIC 35)	1000 t
5	Construction (ISIC 41-43)	1000 t
6	Other economic activities excluding ISIC 38	1000 t
7	Households	1000 t
8	**Total waste generation (=1+2+3+4+5+6+7)**	1000 t

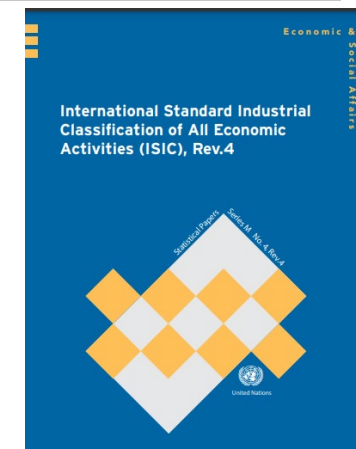| Línea	Categoría	Unidad
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4	Suministro de electricidad, gas, vapor y aire acondicionado (CIIU 35)	1000 t
5	Construcción (CIIU 41-43)	1000 t
6	Otras actividades económicas excepto las de la división 38 de la CIIU	1000 t
7	Hogares	1000 t
8	**Total generación de desechos (=1+2+3+4+5+6+7)**	1000 t

Possibilities to improve data availability:
1. Could a closer application of ISIC be possible?
2. Is it clear that collaboration with economic statisticians or compilers of GDP is required to provide data?

https://unstats.un.org/unsd/publication/seriesm/seriesm_4rev4e.pdf
https://unstats.un.org/unsd/classifications/Econ/Download/In%20Text/ISIC_Rev_4_publication_Spanish.pdf

International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4

UNSD/UNEP Questionnaire on Environment Statistics (waste section) – Table R1: Generation of Waste by Source [Generación de desechos por fuente]. Example of raw data prepared for this table…

Administrative data set shared with UNSD by a member state…

	2012	
Waste Delivered (on weigh days)	Total	
Commercial	5,543.62	1
Construction, Demolition and Site Clearing	4,926.70	1
Green	666.75	
Household	20,809.75	6
Industrial	773.25	
Institutional	1,033.10	
Ship	151.75	
2012 Weighed Total (short tons)	33,904.92	1

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

Possibilities treatment of the administrative data set…
1. Identify if this data set is relevant and useful.
2. Convert "short tons" to "metric tonnes" (1 short ton = 2,000 pounds = 907 kgs. Divide by 1.102 to get to metric tonnes, then divide by 1000 to get to "1000 t".
3. Categorise, or apply ISIC as possible.

UNSD/UNEP Questionnaire on Environment Statistics (waste section) – Table R1: Generation of Waste by Source [Generación de desechos por fuente]. Example of raw data prepared for this table…

Conversions made to "1000 t"

A	N 2012 Total	P 2012 Tonnes	Q 2012 tonnes (thousands)
1			
2 Waste Delivered (on weigh days)			
3 Commercial	5,543.62	5029.092	5.0291
4 Construction, Demolition and Site Clearing	4,926.70	4469.432	4.4694
5 Green	666.75	604.8615	0.6049
6 Household	20,809.75	18878.3	18.8783
7 Industrial	773.25	701.4763	0.7015
8 Institutional	1,033.10	937.2128	0.9372
9 Ship	151.75	137.6653	0.1377
10 2012 Weighed Total (short tons)	33,904.92	30758.04	30.7580

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

Remaining categories (Commercial, Green, Industrial, Institutional, Ship) placed into "Other economic activities excluding ISIC 38")

Summation of all categories placed as "Total waste generation"

UNSD/UNEP Questionnaire on Environment Statistics (waste section) – Table R1: Generation of Waste by Source [Generación de desechos por fuente]. Example of raw data prepared for this table...

The result...

Line	Category	Unit	2012	
1	Agriculture, forestry and fishing (ISIC 01-03)	1000 t		
2	Mining and quarrying (ISIC 05-09)	1000 t		
3	Manufacturing (ISIC 10-33)	1000 t		
4	Electricity, gas, steam and air conditioning supply (ISIC 35)	1000 t		
5	Construction (ISIC 41-43)	1000 t	4.4694	
6	Other economic activities excluding ISIC 38	1000 t	7.4104	A
7	Households	1000 t	18.8783	
8	Total waste generation (=1+2+3+4+5+6+7)	1000 t	30.7581	

Code	Footnote text
A	Estimate may include waste from agriculture, forestry and fishing (ISIC 01-03), Mining and quarrying (ISIC 05-09), Manufacturing (ISIC 10-33), and Electricity, gas, steam and air conditioning (ISIC 35)

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

UNSD/UNEP Questionnaire on Environment Statistics (waste section) – Table R2: Management of Hazardous Waste [Gestión de desechos peligrosos]

Line	Category	Línea	Categoría
1	Stock of hazardous waste at the beginning of the year	1	Stocks de desechos peligrosos al principio del año
2	Hazardous waste generated during the year	2	Desechos peligrosos generados durante el año
3	Hazardous waste imported during the year	3	Desechos peligrosos importados durante el año
4	Hazardous waste exported during the year	4	Desechos peligrosos exportados durante el año
5	**Hazardous waste treated or disposed of during the year (=6+7+9+10)**	5	**Desechos peligrosos tratados o eliminados durante el año (=6+7+9+10)**
6	*Amounts going to:* Recycling	6	*Cantidades destinadas a:* Reciclaje
7	Incineration	7	Incineración
8	*of which:* with energy recovery	8	*de la cual* : con recuperación de energía
9	Landfilling	9	Disiposición en vertederos
10	Other, please specify in the footnote	10	Otros, sírvase especificar en una nota de pie de página
11	Stock of hazardous waste at the end of the year (=1+2+3-4-5)	11	Stocks de desechos peligrosos al final del año (=1+2+3-4-5)

Strongest responses to #2 and #5. Followed by #9, #7, #6.

Possibilities to improve…
1. Involvement of Basel Convention focal point. Ref: https://www.basel.int/Countries/CountryContacts/tabid/1342/Default.aspx

Possible limitations…
Basel Convention requirements differ to those in this Questionnaire. Basel Convention is more concerned with transboundary movements.

UNSD/UNEP Questionnaire on Environment Statistics (waste section) – Table R3: Management of Municipal Waste [Gestión de desechos municipales]

Line	Category
1	Total amount of municipal waste generated
2	Municipal waste collected from households
3	Municipal waste collected from other origins
4	**Total amount of municipal waste collected (=2+3)**
5	Municipal waste imported for treatment/disposal
6	Municipal waste exported for treatment/disposal
7	**Municipal waste managed in the country (=4+5-6)**
8	*Amounts going to:* Recycling
9	Composting
10	Incineration
11	*of which:* with energy recovery
12	Landfilling
13	*of which:* controlled landfilling
14	Other, please specify in the footnote

Línea	Categoría
1	Cantidad total de desechos municipales generados
2	Desechos urbanos recogidos en los hogares
3	Desechos urbanos recogidos de otro origen
4	**Cantidad total de desechos municipales recogidos (=2+3)**
5	Desechos urbanos importados para su tratamiento/eliminación
6	Desechos urbanos exportados para su tratamiento/eliminación
7	**Desechos municipales gestionados en el país (=4+5-6)**
8	*Cantidades destinadas a:* Reciclaje
9	Producción de abonos
10	Incineración
11	*de la cual:* con recuperación de energía
12	Disposición en vertederos
13	*del cual:* disposición controlada
14	Otros, sírvase especificar en una nota de pie de página

Strongest responses (in order) to #4, #12, #7, #8.

Possibilities to improve…

1. Use of administrative records.
2. Collaboration between national and municipal levels.
3. Aggregation of multiple municipalities' data required.
4. Standardisation of the use and application of treatment terms (lines 8-14). As they stand, the treatment terms are mutually exclusive and comprehensive.

UNSD/UNEP Questionnaire on Environment Statistics (waste section) – Table R3: Management of Municipal Waste [Gestión de desechos municipales]

15	Total population served by municipal waste collection	%
16	Urban population served by municipal waste collection	%
17	Rural population served by municipal waste collection	%

15	Población total con servicio urbano de recogida de basura	%
16	Población urbana con servicio urbano de recogida de basura	%
17	Población rural con servicio urbano de recogida de basura	%

Strongest responses (in order) to #15, #16, #17.

Possibilities to improve…
1. Is the source a Population and Housing Census? Is frequency an issue? Or are more frequent administrative records or other sources available?
2. Is the work required completely contained to within the National Statistical Office? Is there good rapport between colleagues replying to the Questionnaire and colleagues working on social statistics?

UNSD/UNEP Questionnaire on Environment Statistics (waste section) – Table R4: Composition of Municipal Waste [Composición de desechos municipales]

Line	Category	Línea	Categoría
1	Paper, paperboard	1	Papel, cartón
2	Textiles	2	Textiles
3	Plastics	3	Plásticos
4	Glass	4	Vidrio
5	Metals	5	Metales
6	Other inorganic material	6	Otro material inorgánico
7	Organic material	7	Material orgánico
8	*of which*: food waste and garden waste	8	*del cual:* de alimentos y de jardín

Possibilities to improve…
1. Frequency and availability of studies of waste composition?
2. Categories listed seem quite standardized per graphs and charts available via other sources.

UNSD/UNEP Questionnaire on Environment Statistics (waste section) – Table R5: Management of Municipal Waste [Gestión de desechos municipales]

Línea	Categoría	Unidad	Line	Category	Unit
1	Población total de la ciudad	1000 hab.	1	Total population of the city	1000 inh.
2	Cantidad total de residuos municipales generados	1000 t	2	Total amount of municipal waste generated	1000 t
3	Porcentaje de la población de la ciudad con servicio de recogida de basura	%	3	Percentage of city population served by municipal waste collection	%
4	Desechos urbanos recogidos de hogares	1000 t	4	Municipal waste collected from households	1000 t
5	Desechos urbanos de otro origen	1000 t	5	Municipal waste collected from other origins	1000 t
6	**Cantidad total de desechos municipales recogidos (=4+5)**	1000 t	6	**Total amount of municipal waste collected (=4+5)**	1000 t
7	*Cantidades destinadas a:* Reciclaje	1000 t	7	*Amounts going to:* Recycling	1000 t
8	Producción de abonos	1000 t	8	Composting	1000 t
9	Incineración	1000 t	9	Incineration	1000 t
10	*de la cual:* con recuperación de energía	1000 t	10	*of which:* with energy recovery	1000 t
11	Disiposición en vertederos	1000 t	11	Landfilling	1000 t
12	*del cual:* disposición controlada	1000 t	12	*of which:* controlled landfilling	1000 t
13	Otros, sírvase especificar en una nota de pie de página	1000 t	13	Other, please specify in the footnote	1000 t

UNSD/UNEP Questionnaire on Environment Statistics (waste section) – Table R5: Management of Municipal Waste [Gestión de desechos municipales]

Strongest response rates in order to: #1 (total population of city), #6 (total amount of municipal waste collected), #4 (municipal waste collected from households), #11 (landfilled).

Possibilities to improve…

1. Consultation between National Statistical Office (or other federal agency) and local/municipal government required.

One significant advantage:

1. Absolutely no aggregation of city data required to complete this table.

UNSD/UNEP Questionnaire on Environment Statistics (waste section) – Table R6: Management of Municipal Waste [Gestión de desechos municipales]

Line	Category	Unit
1	**Total E-waste Generated**	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	*of which:* lamps	1000 t
7	*of which:* small equipment	1000 t
8	*of which:* small IT and telecommunication equipment	1000 t
9	**Total E-waste collected**	1000 t

Línea	Categoría	Unidad
1	**Total de residuos electrónicos generados**	1000 t
2	*Cantidades destinadas a:* Grandes aparatos	1000 t
3	Monitores, pantallas, y aparatos con pantallas de superficie superior a los 100 cm2	1000 t
4	Aparatos de intercambio de temperatura	1000 t
5	Pequeños residuos electrónicos	1000 t
6	*de la cual:* Lámparas	1000 t
7	*de la cual:* Pequeños aparatos	1000 t
8	*de la cual:* Equipos de informática y telecomunicaciones pequeños	1000 t
9	**Total de residuos electrónicos recolectados**	1000 t

Strongest response rates in order to: #1 then #9.

Possibilities to improve…

1. Consideration of method advocated by United Naitons Institute for Training and Research (UNITAR). Method includes applying COMTRADE data, average lifespans of electronic goods, etc.
2. To be sure, categorisations of e-waste are mutually exclusive and comprehensive (per dialogue with UNITAR.)

UNSD/UNEP Questionnaire on Environment Statistics (waste section)

General comments:

1. Ordinarily, one would always advocate for a DEMAND-DRIVEN approach. But in certain circumstances (definitely NOT all circumstances), can a SUPPLY-DRIVEN approach be suitable? Is it OK to advocate building upon what limited data sets are now supplied, for a period of time, before adopting the ideal-world scenario of a demand-driven approach?

2. Cross-institutional collaboration is required across multiple levels of government. Certain intelligence may sit in different institutions. For this reason, the response time allowed is usually two months. Late responses are received beyond the two-month deadline.

3. The response burden put upon countries is seriously considered by UNSD and UNEP. Addition of new variables or new tables is carefully discussed and typically follows strong demand from a key stakeholder or a mandate. E.g. Electronic waste added in 2018; food waste considered for addition in future due to pressing demand (Sustainable Development Goal indicator 12.3.1).

4. To be sure, the idea is that those variables which countries are burdened to report internationally should be or are very likely to be, of interest for domestic policies, demands, etc.

5. **Getting good quality, comprehensive COUNTRY-OWNED data can be a struggle. But it is worth the effort!** In the absence of country-owned data, there is an abundance of third-parties willing to apply estimation techniques. We always advocate citation of source (this is academic), but it is beyond our control to manage and monitor correct citation of source.

Thank You!

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