UNSD/UNEP Questionnaire on Environment Statistics – waste section

Sixth Meeting of the Expert Group on Environment Statistics
New York, United States of America
21-23 May 2019
Outline

• Introduction to UNSD/UNEP Questionnaire on Environment Statistics

• Waste section of the Questionnaire

• Variables collected for the first time in 2018

• Selected SDG indicators related to the waste section of the Questionnaire
Introduction

• Waste management is a key concern for the environment and the sustainable management of natural resources. The primary targets of waste management are:
  ▪ Reducing toxicity and volume of waste generated in the different production and consumption processes;
  ▪ Increasing the share of recovered waste materials;
  ▪ Sound environmental management of waste for disposal

• The UNSD/United Nations Environment Programme Questionnaire on Environment Statistics is complemented by the OECD/Eurostat Joint Questionnaire on the State of the Environment – their member states. Close collaboration is maintained on conceptual issues, validation procedures and data validation.

• 2018 was the 9th collection round since 1999. Questionnaires were sent in September, 2018. Data dissemination is expected to be completed late 2019.
Purpose/Objective

• Purpose: To provide consistent data to draw reliable information and trends on:
  • the share of economic activities and households in the generation of waste;
  • the generation and treatment of hazardous waste;
  • the generation, collection, treatment and composition of municipal waste;
  • the generation and collection of electronic waste (e-waste).

• Objective: To provide internationally comparable statistics on environmental issues based on standard questionnaires and methodology.
2018 UNSD/UNEP Questionnaire Timeline

- July 2018: Questionnaire announced to countries
- September 2018: Questionnaire sent to countries
- October 2018: Responses commence arriving
- Q4, 2018 to Q3, 2019: Validate responses and disseminate data
From which regions does UNSD collect data?

- Africa: 33%
- Americas: 24%
- Asia: 27%
- Europe: 7%
- Oceania: 10%
% response rate by region from 2008 collection round and onward

[Chart showing response rate by region from 2008 collection round and onward]
2018 collection round % response rates by M49 sub-region

Source: M49 (https://unstats.un.org/unsd/methodology/m49/overview/)
• 2016: N = 171

• 2018: N = 168 (... and now within Eurostat's scope)

• “Candidate countries” and “potential candidates” to the European Union typically move into Eurostat’s collection

• Countries who ratify the convention of the OECD move into OECD’s scope.

• Such countries have typically been responding to the UNSD/UNEP Questionnaire for several years which adds to UNSD’s challenge to maintain response rates as high as possible. To date, we received 66 responses and we should expect a minimum of 80-90 responses upon completion.
UNSD/UNEP Waste Questionnaire

- Table R1: Generation of Waste by Source
- Table R2: Management of Hazardous Waste
- Table R3: Management of Municipal Waste
  - (Municipal waste generated variable added per SDG demand)
- Table R4: Composition of Municipal Waste
- Table R5: Management of Municipal Waste — City Data (new variable being added)
  - (Municipal waste generated variable being added per SDG demand)
- Table R6: Electronic waste generation and collection
  - (Completely NEW in 2018)
- Table R7: Supplementary Information Sheet
Table R1: Generation of Waste by Source
(number of records per variable in UNSD database)

<table>
<thead>
<tr>
<th>Source</th>
<th>Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining and quarrying</td>
<td>300</td>
</tr>
<tr>
<td>Electricity, gas, steam and air conditioning supply</td>
<td>600</td>
</tr>
<tr>
<td>Agriculture, forestry and fishing</td>
<td>900</td>
</tr>
<tr>
<td>Other economic activities excluding ISIC 38</td>
<td>1200</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>0</td>
</tr>
<tr>
<td>Construction</td>
<td>0</td>
</tr>
<tr>
<td>Total waste generation</td>
<td>0</td>
</tr>
<tr>
<td>Households</td>
<td>0</td>
</tr>
</tbody>
</table>

= variable relevant to SDG indicator 12.5.1
Source = source industry per International Standard Industrial Classification of All Economic Activities (ISIC)
<table>
<thead>
<tr>
<th>Variable</th>
<th>UNSD Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous waste generated</td>
<td>1200</td>
</tr>
<tr>
<td>Hazardous waste treated or disposed of</td>
<td>900</td>
</tr>
<tr>
<td>Hazardous waste exported</td>
<td>600</td>
</tr>
<tr>
<td>Hazardous waste imported</td>
<td>300</td>
</tr>
<tr>
<td>Amount recycled</td>
<td>0</td>
</tr>
<tr>
<td>Amount incinerated</td>
<td>0</td>
</tr>
<tr>
<td>Amount landfilled</td>
<td>0</td>
</tr>
<tr>
<td>Hazardous waste treated or disposed of</td>
<td>0</td>
</tr>
</tbody>
</table>

= variable relevant to an SDG indicator 12.4.2
Table R3: Management of Municipal Waste
(number of records per variable in UNSD database)

- Of amount landfilled, controlled landfill
- Urban population served by municipal waste collection
- Amount recycled
- Total population served by municipal waste collection
- Municipal waste managed in the country
- Amount landfilled
- Total amount of municipal waste collected

= variable relevant to an SDG indicator 12.5.1
Table R4: Composition of Municipal Waste
(number of records per variable in UNSD database)

<table>
<thead>
<tr>
<th>Material</th>
<th>Number of Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>Textiles</td>
<td>300</td>
</tr>
<tr>
<td>Other inorganic material</td>
<td>300</td>
</tr>
<tr>
<td>Organic material</td>
<td>300</td>
</tr>
<tr>
<td>Metals</td>
<td>300</td>
</tr>
<tr>
<td>Glass</td>
<td>300</td>
</tr>
<tr>
<td>Plastics</td>
<td>300</td>
</tr>
<tr>
<td>Paper, paperboard</td>
<td>300</td>
</tr>
</tbody>
</table>
Table R5: Management of Municipal Waste — City Data
(number of records per variable in UNSD database)

- Amount incinerated with energy recovery
- Amount composted
- Amount recycled
- Of amount landfilled, controlled landfill
- Municipal waste collected from households
- Amount landfilled
- Total amount of municipal waste collected

= variable relevant to an SDG indicator 11.6.1
Variables collected for the first time in 2018

There are four:

• Total amount of municipal waste generated (R3)
• Total amount of municipal waste generated (city level) (R5)
• Total e-waste generated (R6)
• Total e-waste collected (R6)
Total amount of municipal waste generated
(national and city levels)

• ...is defined as: “...the sum of the amount of municipal waste collected plus the estimated amount of municipal waste from areas not served by a municipal waste collection service.”

• Not to be confused with the definition of “municipal waste collected”, which is: “Municipal waste collected by or on behalf of municipalities, as well as municipal waste collected by the private sector. It includes mixed waste, and fractions collected separately for recovery operations (through door-to-door collection and/or through voluntary deposits).”

• However, per questionnaire responses received, these two definitions probably are being confused.

• “MW generated” requires application of an estimation method.
Total amount of municipal waste generated
(national and city levels)

• “MW collected” may be conventionally sourced from (an aggregation of) waste treatment plant(s).

• “MW collected” typically covers whole of population in developed countries. This is often not so in developing countries where waste collection may be restricted to urban areas.

• Therefore, there is perhaps a stronger demand for collecting “municipal waste generated” in developing countries.

• To help in this regard, UNSD/UNEP Questionnaire does request for % of (i) total, (ii) urban and (iii) rural population served by municipal waste collection.

Credit to Sarah Miet of OECD and Karin Blumenthal of Eurostat, both of whom contributed to ideas and substance concerning the issue of municipal waste collected/generated.
**Hypothetical** example of distinction between municipal waste collected and municipal waste generated

- = municipal waste collected
- = distinction between MW collected and MW generated
- + = municipal waste generated

Case of a country with a very high % of population served by municipal waste collection

Case of a country with a moderate % of population served by municipal waste collection
Total e-waste generated and collected

- E-waste defined as: “Electronic waste, or e-waste, refers to all items of electrical and electronic equipment (EEE) and its parts that have been discarded by its owner as waste without the intent of re-use.” This definition agrees with that used by key stakeholders, United Nations University and the International Solid Waste Association.

- Following a pilot data collection on e-waste conducted by UNSD in 2017 which included some 16 variables, only two variables were selected for inclusion in the regular data collection (mostly because of data availability and user demand).

Total e-waste generated and collected

• These are brand new time series, so cross-checking against other sources is important, especially to ensure order of magnitude of data is accurate.

• Therefore, UNSD is cross-checking against the Global Statistics E-waste Statistics Partnership’s country sheets (International Telecommunication Union, United Nations University and the International Solid Waste Association) which have estimates for total e-waste generated.

• Whenever data are received for these two variables, UNSD is specifically asking for footnote explanations on (i) source; (ii) content of e-waste (e.g. large equipment; screens, monitors and equipment containing screens; temperature exchange equipment); (iii) scope of coverage (e.g. whole country, specific provinces/cities only
Observations on (unvalidated) e-waste data collected so far in 2018

• Seven countries have provided data on e-waste generated.
• 15 countries have provided data on e-waste collected.
• In all cases, country data is significantly less than estimates for e-waste generated by Global E-waste Statistics Partnership. This is a concern for UNSD’s e-waste generated data. Not so much of a concern for e-waste collected.
• Possible explanations lie in footnotes provided by countries:
  ➢ “...records of e-waste surrendered by government agencies... does not include e-waste collected by households/scrap dealers/businesses.”
  ➢ “Waste electrical and electronic equipment (WEEE) from households, and of commercial, industrial, institutional and other origins which, because of their nature, are similar to households.”
  ➢ “Scrap non-ferrous metals household electronic equipment.”
• One country asked why UNSD is not requesting breakdowns of e-waste content (e.g. large equipment, temperature exchange equipment, etc.)
Selected SDG indicators related to the UNSD/UNEP Questionnaire on Environment Statistics (waste section) – indicators 11.6.1, 12.4.2, 12.5.1

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 (tier II)

- Custodian Agencies: UN-Habitat and UNSD; partner agencies: UN Environment
- Using the four variables, a prospective estimate of the indicator can be derived.
- Adequate final discharge: Recycling, composting and incineration with energy recovery.

<table>
<thead>
<tr>
<th>Table R5, line:</th>
<th>Category</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total amount of municipal waste generated</td>
<td>1000 t</td>
</tr>
<tr>
<td>6</td>
<td>Recycling</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Composting</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Incineration with energy recovery</td>
<td></td>
</tr>
</tbody>
</table>

Indicator = (Lines 6 + 7 + 9)/Line 5
**Indicator 12.4.2: Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment (tier III)**

- Custodian Agencies: UN Environment (more specifically the BRS Secretariat) and UNSD; partner agencies: OECD and Eurostat
- Work plan available here: [https://unstats.un.org/sdgs/tierIII-indicators/files/Tier3-12-04-02.pdf](https://unstats.un.org/sdgs/tierIII-indicators/files/Tier3-12-04-02.pdf) which references the UNSD/UNEP Questionnaire and OECD/Eurostat data collections
- Both data from international data collections and the national reports under the Basel Convention should be viewed as complementary and are used for quality checks.

<table>
<thead>
<tr>
<th>Table R2, line:</th>
<th>Category</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Hazardous waste generated during the year</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Hazardous waste treated or disposed of during the year</td>
<td>tonnes</td>
</tr>
<tr>
<td>6</td>
<td>Recycling</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Incineration</td>
<td></td>
</tr>
</tbody>
</table>
**Indicator 12.5.1: National recycling rate, tons of material recycled (tier III)**

- Custodian Agencies: UN Environment and UNSD; partner agencies: OECD and Eurostat
- Work plan available here: [https://unstats.un.org/sdgs/tierIII-indicators/files/Tier3-12-05-01.pdf](https://unstats.un.org/sdgs/tierIII-indicators/files/Tier3-12-05-01.pdf) which references the UNSD/UNEP Questionnaire and OECD/Eurostat data collections
- Difficult to have a statistics representing all waste, and other types of waste (hazardous waste) already monitored by other indicators => use of municipal waste as a proxy.

<table>
<thead>
<tr>
<th>Table R3, line:</th>
<th>Category</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total amount of municipal waste generated (NEW!)</td>
<td>1000 t</td>
</tr>
<tr>
<td>7</td>
<td>Municipal waste managed in the country</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Recycling</td>
<td></td>
</tr>
</tbody>
</table>

Indicator = Line 8/Line 7; or Indicator = Line 8/Line 1
Questions for discussion...

• What have countries’ experiences been in compiling “municipal waste generated” data, as opposed to “municipal waste collected” data?

• What methodology can countries share regarding estimating waste generated by people or households which are not served by a municipal waste collection service?

• What are the main impediments to collecting data on e-waste?

• How are countries establishing regular data dissemination of e-waste data?

• What issues are countries facing in data aggregation from city to national level?