



MANUAL ON THE BSES: GENERATION AND MANAGEMENT OF WASTE STATISTICS

Session One: Environment Statistics Toolbox

Fifth Meeting of the Expert Group on Environment Statistics, New York
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Component 3: Residuals

Sub-component 3.3: Generation and Management of Waste

| Statistics and Related Information (Bold Text - Core Set/Tier 1 ; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>) | Category of Measurement | Potential Aggregations and Scales | Methodological Guidance |
|--|---|---|---|
| Topic 3.3.1: Generation of waste | | | |
| a. | Amount of waste generated by source | Mass | <ul style="list-style-type: none"> ▪ By ISIC economic activity ▪ By households ▪ By tourists ▪ National ▪ Sub-national |
| b. | Amount of waste generated by waste category | Mass | <ul style="list-style-type: none"> ▪ By waste category (e.g., chemical waste, municipal waste, food waste, combustion waste) ▪ National ▪ Sub-national |
| c. | Amount of hazardous waste generated | Mass | <ul style="list-style-type: none"> ▪ By ISIC economic activity ▪ National ▪ Sub-national |



| Topic 3.3.2: Management of waste | | | |
|----------------------------------|---|--------|---|
| a. | Municipal waste | | <ul style="list-style-type: none"> ▪ By type of treatment and disposal (e.g., reuse, recycling, composting, incineration, landfilling, other) ▪ By type of waste, when possible ▪ National ▪ Sub-national <ul style="list-style-type: none"> ▪ Eurostat: Environmental Data Centre on Waste ▪ Eurostat metadata: Organisation for Economic Co-operation and Development (OECD)/Eurostat definition of municipal waste ▪ UNSD: Environment Statistics Section-Waste Questionnaire ▪ Basel Convention: Waste categories and hazardous characteristics ▪ Eurostat: EWC-Stat, version 4 (Waste categories) ▪ European Commission: European Waste Framework Directive (Waste treatment operations) ▪ Eurostat: Manual on Waste Statistics ▪ Eurostat: Guidance on classification of waste according to EWC-Stat categories ▪ Rotterdam Convention |
| | 1. Total municipal waste collected | Mass | |
| | 2. Amount of municipal waste treated by type of treatment and disposal | Mass | |
| | 3. Number of municipal waste treatment and disposal facilities | Number | |
| | 4. Capacity of municipal waste treatment and disposal facilities | Volume | |
| b. | Hazardous waste | | |
| | 1. Total hazardous waste collected | Mass | |
| | 2. Amount of hazardous waste treated by type of treatment and disposal | Mass | |
| | 3. Number of hazardous waste treatment and disposal facilities | Number | |
| | 4. Capacity of hazardous waste treatment and disposal facilities | Volume | |
| c. | Other/industrial waste | | |
| | 1. Total other/industrial waste collected | Mass | |
| | 2. Amount of other/industrial waste treated by type of treatment and disposal | Mass | |
| | 3. Number of other/industrial waste treatment and disposal facilities | Number | |
| | 4. Capacity of other/industrial waste treatment and disposal facilities | Volume | |



| | | | |
|----|--------------------------|------|---|
| d. | Amount of recycled waste | Mass | <ul style="list-style-type: none"> ▪ By specific waste streams (e.g., e-waste, packaging waste, end of life vehicles) ▪ By waste category <ul style="list-style-type: none"> ▪ National ▪ Sub-national |
| e. | Imports of waste | Mass | <ul style="list-style-type: none"> ▪ By waste category |

4



| | | | |
|----|----------------------------|------|---|
| f. | Exports of waste | Mass | (e.g., chemical waste, municipal waste, combustion waste) |
| g. | Imports of hazardous waste | Mass | |
| h. | Exports of hazardous waste | Mass | |



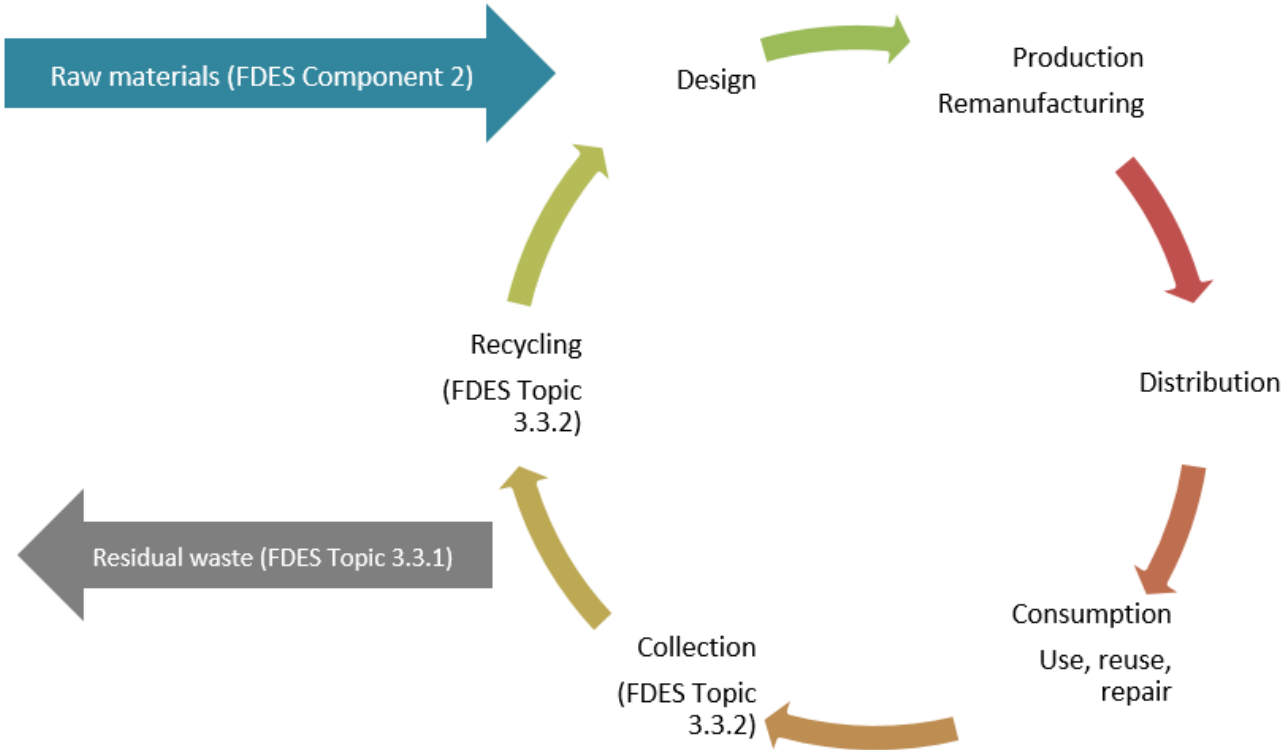
2. Introduction: Concepts informing the manual

- ECE Waste Task Force - conceptual framework on waste statistics and draft a glossary of the most important terms and definitions in waste statistics in relation to the ECE region
- Manual links to this broader conceptual framework which covers waste in a circular economy, including waste reduction, recycling and reuse
- Methodology sheets use international concepts from the lead agency in the area
 - However, state of waste statistics internationally: no international consensus on best practices or single agreed definition
 - Clearer to list all alternatives as there is no consensus



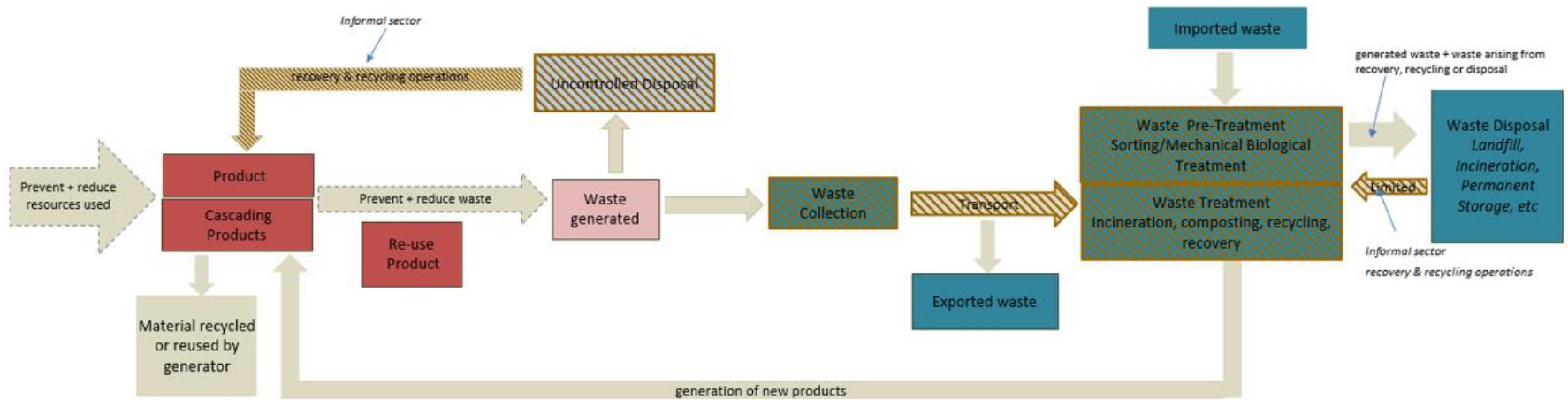
2. Introduction: Concepts informing the manual

Figure 2.1 Circular economy



2. Introduction: Concepts informing the manual

Figure 2.2 Product lifecycle in a circular economy (Life Cycle Thinking) and relation to waste



LEGEND

Waste Management

Note: by definition uncontrolled waste is not managed.¹

¹UNEP (2015) *Global Waste Management Outlook*, <http://web.unep.org/ourplanet/september-2015/unep-publications/global-waste-management-outlook>

Uncontrolled disposal

Informal sector carries out recovery and recycling operations on uncontrolled waste

Informal sector

The informal sector operates at all stages, e.g.,

- waste collection: includes itinerant waste buyers, street waste picking from bins or collection containers, municipal waste collection crew collecting from vehicles transporting to landfills etc.
- waste treatment: includes sorting operations by informal sector
- disposal: waste pickers collection of materials from landfills



3.0 Concepts in Waste Statistics

- Concepts have been placed in separate section.
- Concepts and definitions do not attempt to synthesize among those used internationally as there is no clear international agreement

3A. Issues in waste statistics

- Lack of national data
- Difficult to apply international definitions to widely varying waste systems
- Geographic variation in waste management services : urban vs rural
- Numerous players – government, informal sector and private sector waste management – difficult to coordinate statistics
- Special waste streams



3.0 Concepts in Waste Statistics

3B. Waste: defined as per UNSD/UNEP Questionnaire

- OECD/Eurostat questionnaire definition also mentioned

3C. Groupings of waste (mentioned in the FDES)

- Waste Stream: defines and provides example from OECD/Eurostat Questionnaire
- Aggregates of waste – European List of Wastes

3D. Composition of Waste – as given in:

- UNSD/UNEP Questionnaire
- OECD/Eurostat Questionnaire

3E. Waste treatment and disposal – as given in:

- UNSD/UNEP Questionnaire
- OECD/Eurostat Questionnaire
- EU Directive 2008/98/EC (to be replaced soon with a new directive)



3.0 Concepts in Waste Statistics

3F. Hazardous waste treatment

- Explains the guidance provided by the Basel Convention

3G. Imports and exports of waste

- Addresses how they are treated in waste generated, and in waste collected and waste treated (from Eurostat guidance)
- SEEA Guidance



4.0 Definitions and description of the statistics

4A. Generation of waste (Topic 3.3.1)

Amount of waste generated by source (FDES 3.3.1.a)

- As per UNSD/UNEP Questionnaire

Amount of waste generated by waste category (FDES 3.3.1.b)

The amount of waste expressed in unit of weight that is generated before any collection or treatment is applied, by waste category.

Amount of hazardous waste generated (FDES 3.3.1.c)

The amount of hazardous waste (expressed in unit of weight) generated before any collection or treatment is applied.

- Fairly uncontroversial definitions
- Concepts for waste, waste category and hazardous waste are discussed in 3C.



4.0 Definitions and description of the statistics

4B. Management of waste: municipal waste (Topic 3.3.2)

Municipal waste definitions as per

UNSD/UNEP Questionnaire

OECD/Eurostat Questionnaire

EU Directive – to be discussed as it is broader than the OECD/Eurostat definition and is not yet final

4B4. Municipal waste: definitions

(Management of) Municipal waste (FDES 3.3.2.a)

Total municipal waste collected (FDES 3.3.2.a.1)

- The amount of waste (by weight) collected by or on behalf of municipalities or other local authorities, by public or private enterprises.



5. International sources and recommendations

- Waste generated: classified by ISIC Rev.4
- UNECE Standard Statistical Classification of Wastes 1993 (draft)
- European Waste Classification for Statistics (EWC-Stat)
 - More a list of waste than a classification
- Hazardous waste as defined by Basel Convention



5. International sources and recommendations

5B. Reference to international recommendations, frameworks and standards

- United Nations Statistics Division/United Nations Environment Programme Questionnaire 2016 on Environment Statistics
- Basel Convention controlling transboundary movements of hazardous waste and their disposal
- Joint OECD/Eurostat Questionnaire on the State of the Environment
- European Union and Eurostat - Eurostat provides guidance to European Union countries for reporting on waste statistics which is governed by the EU regulations No. 2150/2002, 574/2004, 783/2005, 782/2005 and 1445/2005.



5. International sources and recommendations

5C. Sources of global and regional environment statistics and indicators series

- United Nations Statistics Division Environmental Statistics and Indicators
- OECD Environment Directorate statistics
- European Union EU has compiled data on waste starting in 2004, reference year 2003. Data are published at the Waste Data Centre at Eurostat



6. Data collection and sources of data

- Many issues in this area...leading to
- Large proportion of waste is not managed in countries...therefore cannot be measured
- What is managed is often not monitored, e.g., informal waste recycling
- National level data: difficulty to aggregate from cities; from wide variety of waste management/treatment operators, e.g., private collectors etc.
- Lack of coherence of data among countries: scope/definitions differ
- Manual covers specific issues facing countries for generation, treatment, management, recycling etc.



7. Uses and dissemination

- **Graphs:**
- Most example from Europe – reporting to EU Directive
- Solicitation for examples from other regions?

- **Indicators** mostly waste but linked to circular economy
 - Material Flow accounts, recycling
 - Component 2 Manuals

