



Introduction to waste accounts and possible integration with other SEEA

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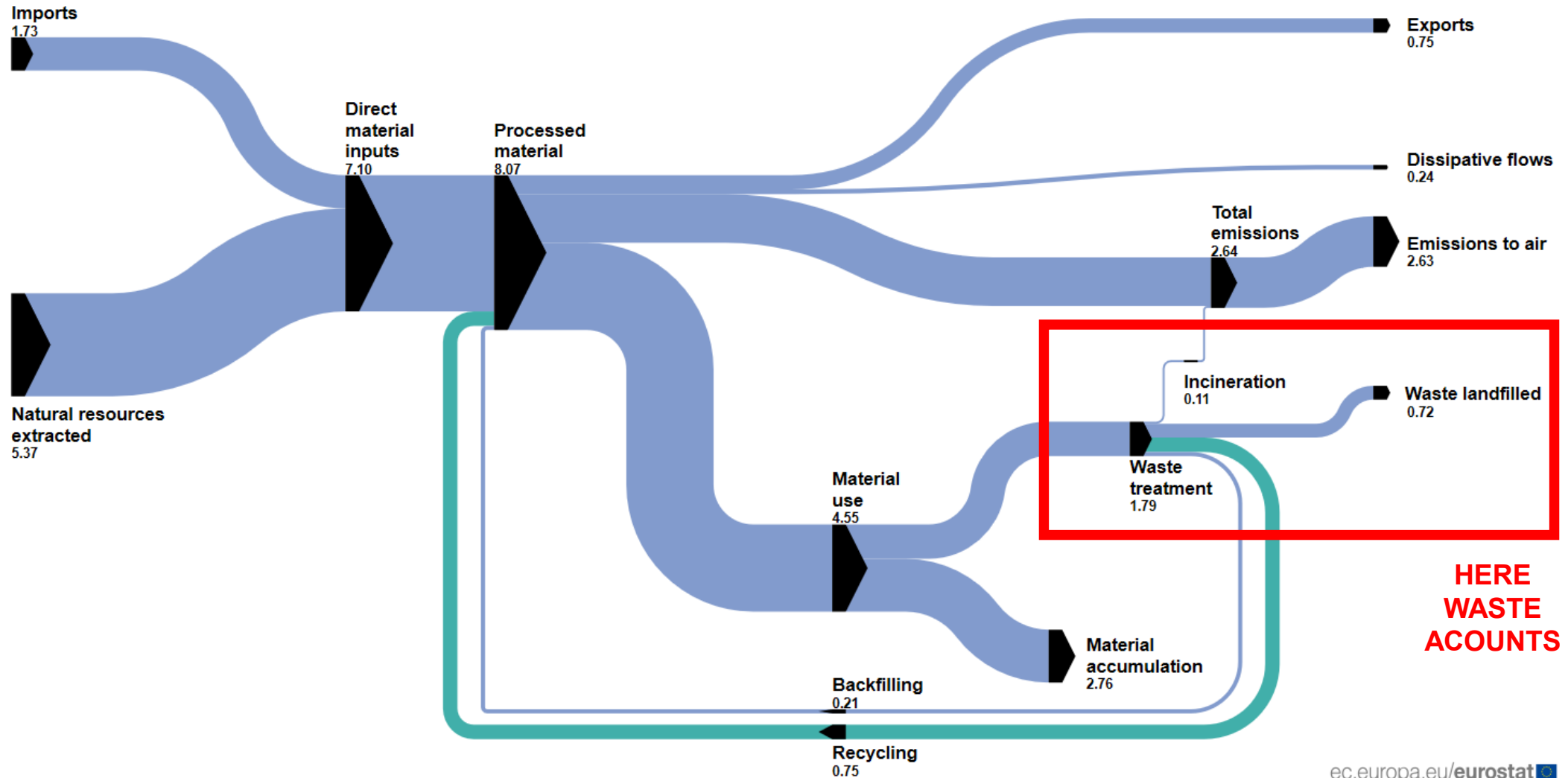
Eurostat, unit 'environmental statistics and accounts, sustainable development'

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Overview this presentation

1. Introduction to SEEA waste accounts
2. Pilot Eurostat waste accounts for the European Union

Waste in the overarching circular economy material flows



**HERE
WASTE
ACCOUNTS**

SEEA waste accounts

- They record: (1) waste generation; (2) waste treatment
- Structured in physical supply-use tables
 - ‘supply table’ is waste generation/origin
 - ‘use table’ is waste collection/treatment
- Breakdowns by
 - Waste categories (in rows)
 - Who generates/collects/treats waste: industries (classifications ISIC/NACE), households, imports/exports (in columns)
 - Types of waste treatment: recycling, incineration, landfill, etc. (in columns)

Examples waste categories

| |
|---------------------------------|
| Paper and cardboard |
| Glass |
| Plastics (incl. rubber) |
| Metals, ferrous |
| Metals, non-ferrous |
| Wood |
| Textiles |
| Organic (animal/vegetal origin) |
| Mineral |
| Sludge |
| Unspecified |

Examples waste treatment operations

| |
|--|
| Recovery - Recycling and backfilling (excluding energy recovery) |
| Energy recovery |
| Recovery - backfilling |
| Recovery recycling |
| Incineration without energy recovery |
| Disposal - landfill |
| Disposal - other |
| (Other groupings of categories) |

Waste categories vs materials

| Code | EWC-Stat label | MF1 biomass | MF2 Metal ores | MF3 Non- metallic minerals | MF4 Fossil energy carriers |
|----------------|---|----------------|-------------------|-------------------------------------|-------------------------------------|
| Total | Total Waste | 0% | 0% | 0% | 0% |
| W011 | Spent solvents | 0% | 0% | 0% | 100% |
| W012 | Acid, alkaline or saline wastes | 0% | 0% | 100% | 0% |
| W013 | Used oils | 0% | 0% | 0% | 100% |
| W02A | Chemical wastes (W014+W02+W031) | 7% | 16% | 18% | 59% |
| W032 | Industrial effluent sludges | 42% | 8% | 43% | 6% |
| W033 | Sludges and liquid wastes from waste treatment | 21% | 16% | 47% | 16% |
| W05 | Health care and biological wastes | 62% | 1% | 3% | 35% |
| W061 | Metal wastes, ferrous | 0% | 100% | 0% | 0% |
| W062 | Metal wastes, non-ferrous | 0% | 100% | 0% | 0% |
| W063 | Metal wastes, mixed ferrous and non-ferrous | 0% | 100% | 0% | 0% |
| W071 | Glass wastes | 0% | 0% | 100% | 0% |
| W072 | Paper and cardboard wastes | 100% | 0% | 0% | 0% |
| W073 | Rubber wastes | 0% | 0% | 0% | 100% |
| W074 | Plastic wastes | 0% | 0% | 0% | 100% |
| W075 | Wood wastes | 100% | 0% | 0% | 0% |
| W076 | Textile wastes | 30% | 0% | 0% | 70% |
| W077 | Waste containing PCB | 0% | 0% | 100% | 0% |
| W08A | Discarded equipment (W08 except W081, W0841) | 0% | 100% | 0% | 0% |
| W081 | Discarded vehicles | 0% | 100% | 0% | 0% |
| W0841 | Batteries and accumulators wastes | 0% | 100% | 0% | 0% |
| W091 | Animal and mixed food waste | 100% | 0% | 0% | 0% |
| W092 | Vegetal wastes | 100% | 0% | 0% | 0% |
| W093 | Animal faeces, urine and manure | 100% | 0% | 0% | 0% |
| W101 | Household and similar wastes | 64% | 7% | 12% | 16% |
| W102 | Mixed and undifferentiated materials | 31% | 11% | 9% | 48% |
| W103 | Sorting residues | 50% | 10% | 11% | 30% |
| W11 | Common sludges | 100% | 0% | 0% | 0% |
| W121 | Mineral waste from construction and demolition | 1% | 0% | 96% | 3% |
| W12B | Other mineral wastes (12.2, 12.3, 12.5) | 0% | 0% | 100% | 0% |
| W124 | Combustion wastes | 0% | 0% | 100% | 0% |
| W126 | Soils | 0% | 0% | 100% | 0% |
| W127 | Dredging spoils | 0% | 0% | 100% | 0% |
| W128_13 | Mineral wastes from waste treatment and stabilised wastes | 0% | 0% | 100% | 0% |

Supply table: waste generation/composition (simple layout)

| | Waste producer/origin | | |
|---|-----------------------|------------|---------|
| | Industries | Households | Imports |
| Waste category by waste category (municipal, construction, vehicles, chemicals,...) | | | |
| optional breakdowns: by waste material (paper, glass, metals, plastics,...) | | | |
| by primary/secondary waste | | | |
| by hazardousness (yes, no) | | | |

Supply table: waste generation/composition (advanced layout)

| | | Waste origin | | | | | | | | | | | | |
|---|--|--------------|---|-----|---|--------------|-------------|---------|--------------------------------------|--------------|--------------------------------|--------------------|------------------------|-------|
| | | Industries | | | | | House holds | Imports | Recovered residuals from environment | Total supply | | | | |
| | | 1 | 2 | ... | N | industry E38 | | | | | | | | |
| | | | | | | Recycling | | | | | Incineration - energy recovery | Other incineration | Disposal - landfilling | Other |
| Generation waste residuals e.g. municipal, construction, vehicles,... (breakdown by waste categories) | | 1 | | | | | | | | | | | | |
| | | ... | | | | | | | | | | | | |
| | | M | | | | | | | | | | | | |
| Generation of waste products e.g. secondary raw materials, scrap metals,... (breakdown by products/materials) | | 1 | | | | | | | | | | | | |
| | | ... | | | | | | | | | | | | |
| | | M' | | | | | | | | | | | | |



Use table: waste treatment/destination (advanced layout)

| | | Waste destination | | | | | | | | | | | |
|--|-----|-------------------|---|-----|---|--------------|--------------------------------|--------------------|------------------------|-------------|---------|----------------------|-----------|
| | | Industries | | | | | | | | House holds | Exports | Flows to environment | Total use |
| | | 1 | 2 | ... | N | industry E38 | | | | | | | |
| | | | | | | Recycling | Incineration - energy recovery | Other incineration | Disposal - landfilling | Other | | | |
| Collection & disposal waste residuals (breakdown by waste categories) | 1 | | | | | | | | | | | | |
| | ... | | | | | | | | | | | | |
| | M | | | | | | | | | | | | |
| Use of waste products (breakdown by products/materials) | 1 | | | | | | | | | | | | |
| | ... | | | | | | | | | | | | |
| | M' | | | | | | | | | | | | |



What is Eurostat doing about waste accounts

- We have waste statistics in the European Union, not waste accounts
- Eurostat is running a study to derive waste accounts
- We may improve the waste statistics data collection with the findings
- Eurostat intends to ‘plug’ the waste accounts into the Sankey diagram of material flows.
 - Improved quality and detail by material and industry.

Waste statistics in the European Union

Pros



- +30 European countries participating
- Established & harmonised by EU legislation (EU Regulation 2150/2002)
- Data every second year
- Collects waste generation in the country, waste treatment, number of treatment facilities
- Breakdowns by 51 waste categories, 18 industries (NACE) plus households, 8 waste treatment operations

Cons



- Not full waste accounts: waste generation and treatment are disconnected. No imports/exports, water evaporation and other losses needed for balancing
- Gaps in some wastes
 - (waste definitions from regulatory legislation): mining, nuclear waste
 - (definitional issues): agricultural waste
 - Most important: missing identification of secondary waste, recycling/reuse inside the same establishment
- Missing information to map mixed waste categories into waste materials

Eurostat project for EU waste accounts

- Goal: produce EU-wide waste accounts, reference year 2016
 - Countries not involved (yet)
- Project duration 2020-2021. Work in progress
- Based on waste statistics reported by countries
 - mapping waste statistics into a supply-use table
 - filling gaps, modelling, etc. (see next slide)
- ‘Enhanced waste accounts’: more information than SEEA waste accounts
 - including natural inputs, air emissions, other residuals than waste and products other than waste products
 - material flows breakdowns aligned to material flow accounts (MFA)
 - useful for circular economy and integration with other SEEA

Eurostat project: estimation and modelling aspects

1. Estimating domestic primary waste generation (= total – secondary)
2. Balancing primary waste generated and primary waste treated (= primary waste that undergoes pre-treatment operations)
3. Modelling waste treatment operations by waste category
4. Calculating waste imports and exports (from external trade statistics)
5. Completing the supply and use of by-products not covered in EU waste statistics
6. Calculating emissions and natural inputs (as mass difference inputs – outputs treatment operations)

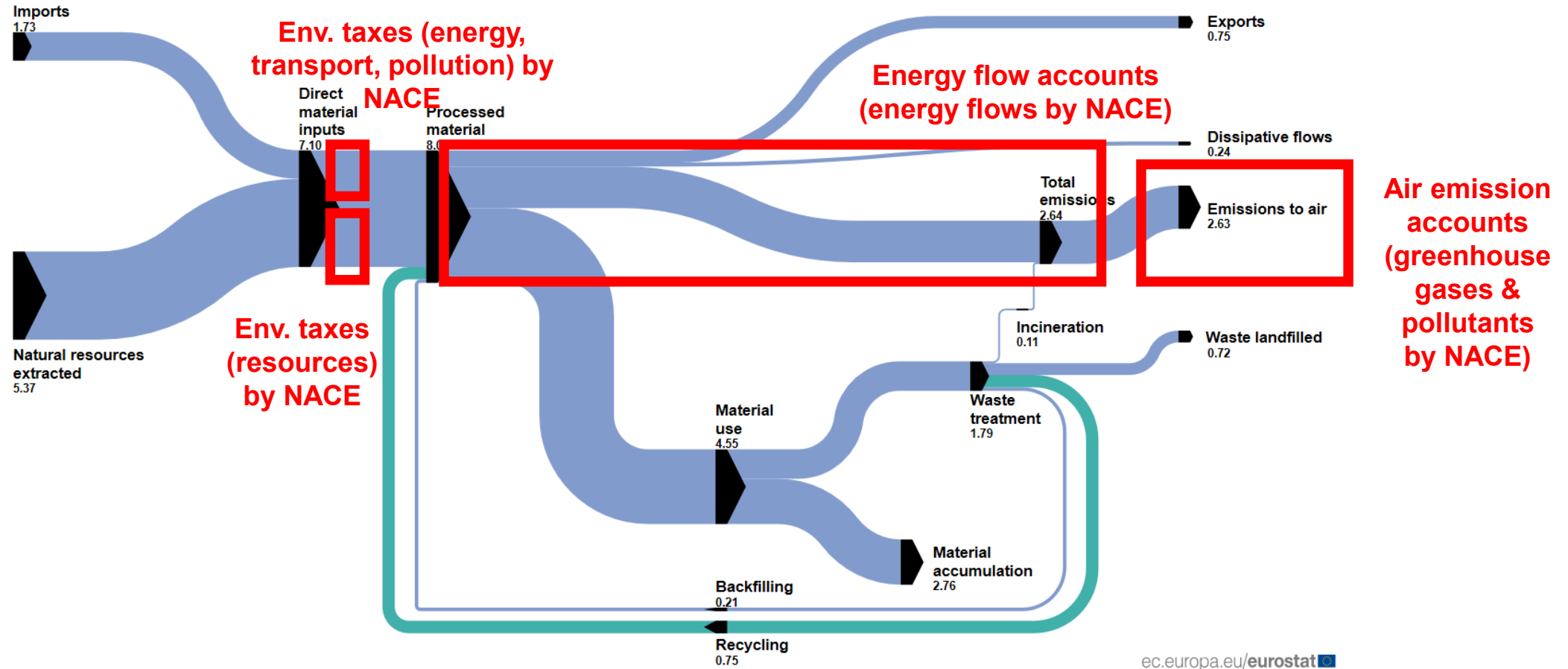
Using waste accounts with other SEEA

Links with climate change, pollution, biodiversity...

Integrating [waste accounts + material flow accounts] with:

- Air emission accounts
- Energy accounts
- Environmental taxes/subsidies
- Other SEEA monetary accounts: EGSS (for circular economy sector jobs, value added), investment, etc.

Links circular economy, climate change, pollution



Conclusions

1. Waste accounts organise a part (very important) of the circular economy physical flows
2. Integration of waste accounts and material flow accounts is essential for the overarching picture of circular economy physical flows
 - No full waste accounts are needed, you can start with what you have
 - [MFA+ waste accounts] give good global picture but less good as you go deeper in detail by product and industry. Requires modelling
3. Integration with other SEEA accounts is the next step for links circular economy with climate change, etc.

To know more...

- Ongoing study on EU waste accounts (available on request – contact me)
- [Eurostat dedicated section circular economy](#)
- [Eurostat dedicated section waste](#)
- [Sankey diagram material flows](#) and [article explaining it](#)
- [Metadata COMEXT-based waste exports/imports indicator](#) and [list of CN codes used](#)

Thank you

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