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UNU-VIE SCYCLE
Sustainable Cycles Programme

Session 4: Municipal Waste Statistics

Perspectives from the Netherlands and
other countries in the region

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Societal characteristics of MSW

- MSW represents $\pm 10\%$ of total waste in EU
 - Or $\pm 30\%$ of non-mineral waste in EU
- Everyone is concerned
 - Household are main generators
 - Municipalities are main actors for collection and processing
- Data are needed for planning purposes and policy evaluation

MSW is highly policy relevant

- Household waste / municipal solid waste
- Circular economy
- EU Target
 - by 2020, the preparing for **re-use** and the **recycling of waste materials** such as at least **paper, metal, plastic** and **glass** from **households** and possibly from other origins as far as these waste streams are similar to waste from households, shall be increased to a minimum of overall **50 %** by weight.
- Targets in the Netherlands:
 - 75% separation of waste
 - max 100 kg/inhabitant unsorted residual waste

Legislation - Dutch Waste Monitoring

- Targets and Monitoring is formulated in a national waste management plan
- Sets general waste management targets
- Monitoring per waste stream
- Monitoring coordinated by Statistics Netherlands and Ministry of infrastructure and water
- Minimum waste treatment standards
- Enforcement of waste treatment standards by environmental inspection, municipalities and provinces

How to monitor?

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Dutch Waste Monitoring

- Long history of waste legislation since 1970
- Monitoring is historically grown
- Started small
- Nowadays, many different data sources
 - Slow statistics. In 2018, data for 2016 is compiled

Dutch Waste Monitoring

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- Stored in single database
 - Data needed for EU + national legislation is done from this database
 - For instance:
 - Battery Directive and Waste Statistics Regulation + National Monitoring for batteries are consistent
- EU-reporting and national reporting differs
 - Underlying data are consistent
- For instance:
 - Municipal waste does not exist in national monitoring, but data can be calculated for international purposes

Data collection MSW in the Netherlands

- Written questionnaire to all municipalities by Statistics Netherlands
- ±400 municipalities
 - Ask waste collection
 - Some mixing of non household origin ($\pm 7\%$)
 - Assume waste collection = waste generation
- Response >95%
- High quality
- Best downloaded / viewed environmental statistics on CBS

What do we survey?

- Waste collectors
 - Assume waste generation = waste treatment
- Type of waste
- Method of collection
- For mixed household and bulky waste:
 - First step of treatment
- Type of Waste:
 - Own classifications that makes sense to the people working at the municipalities
 - This is compatible to European List of Waste (LoW) codes and R/D codes

Type of waste

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- Mixed household waste
- Bulky household waste
- Renovation waste
- Organic, kitchen and garden waste,
- Textiles
- Paper and cardboard
- Container glass
- Plastic packaging
- Cartons for beverages, Metal packaging, Mixed packaging, Household hazardous waste, Diapers, Frying fat and oil, Mixed recyclables, Bulky garden waste,
- E-waste
- Furniture
- Plastics
- Carpeting
- Mattresses
- Rubble
- Wood, Preserved wood,
- Scrap metals, Flat glass, Bitumen roof covering materials, Gypsum, Waste containing asbestos, Uncontaminated soil, Used tyres, Expanded polystyrene, Gas cylinders and fire extinguishers, Carcasses, Other waste categories

Not only generated by households

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- Household waste collected by or on behalf of the municipality
- Street Cleansing Services

Method of collection

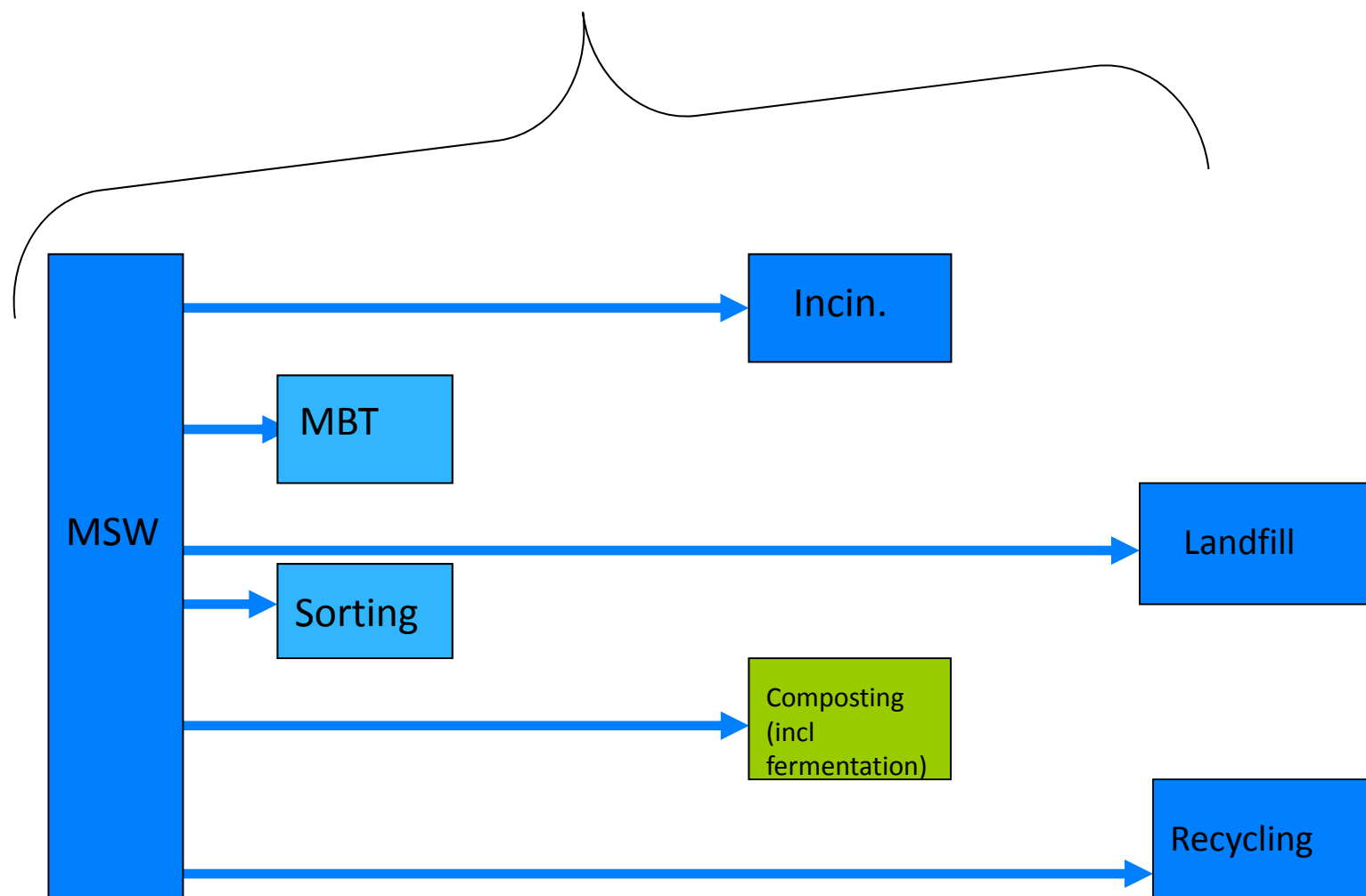
- Kerbside collection
- Bring / drop off
- Publish the data online
- Don't allow unrealistic options, such as "kerbside collection of gas cylinders"

First Treatment Step

- Recycling/reuse
- Separation afterwards
- Composting
- Incineration
- Landfilling

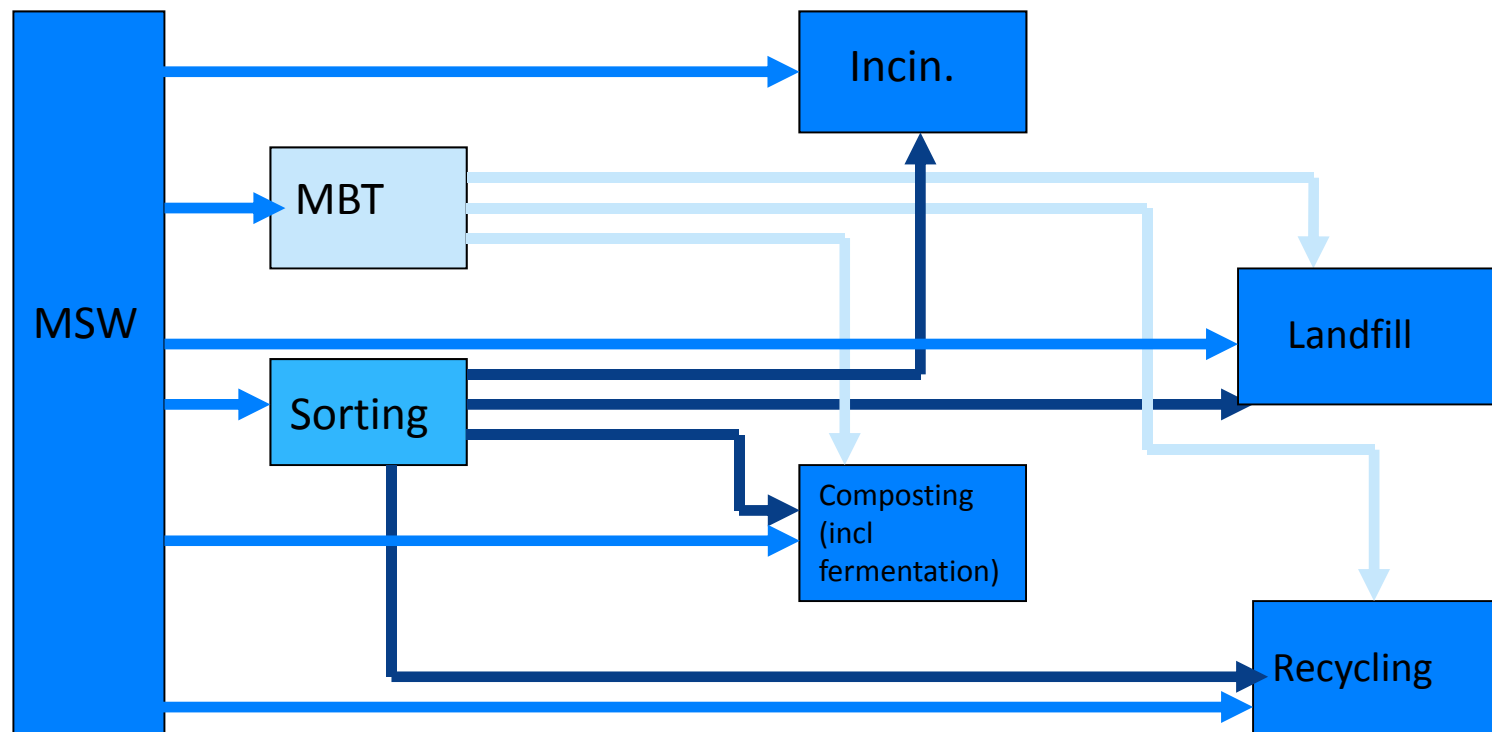
Questionnaire

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In Netherlands, we try to trace all flows of MSW

Detailed mass balances are needed of the individual installations that sort mixed household waste or bulky waste



Separation of mixed household wastes

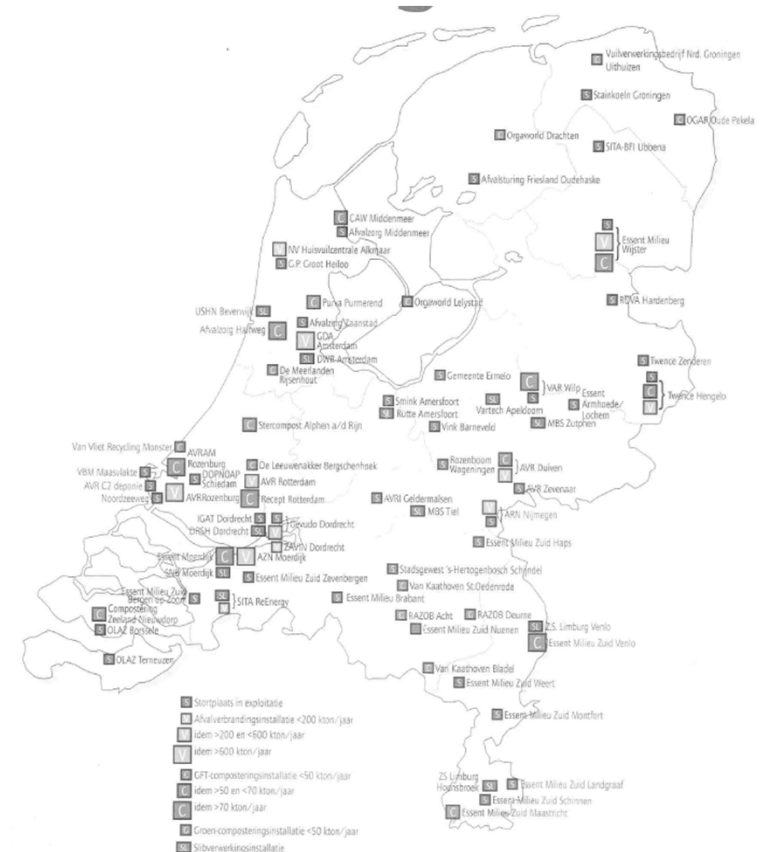
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- Some municipalities don't do source separation, but separation afterward
- They are accounted for in statistics separately, and published online
- Reason: Heavy political debate, and target

First treatment

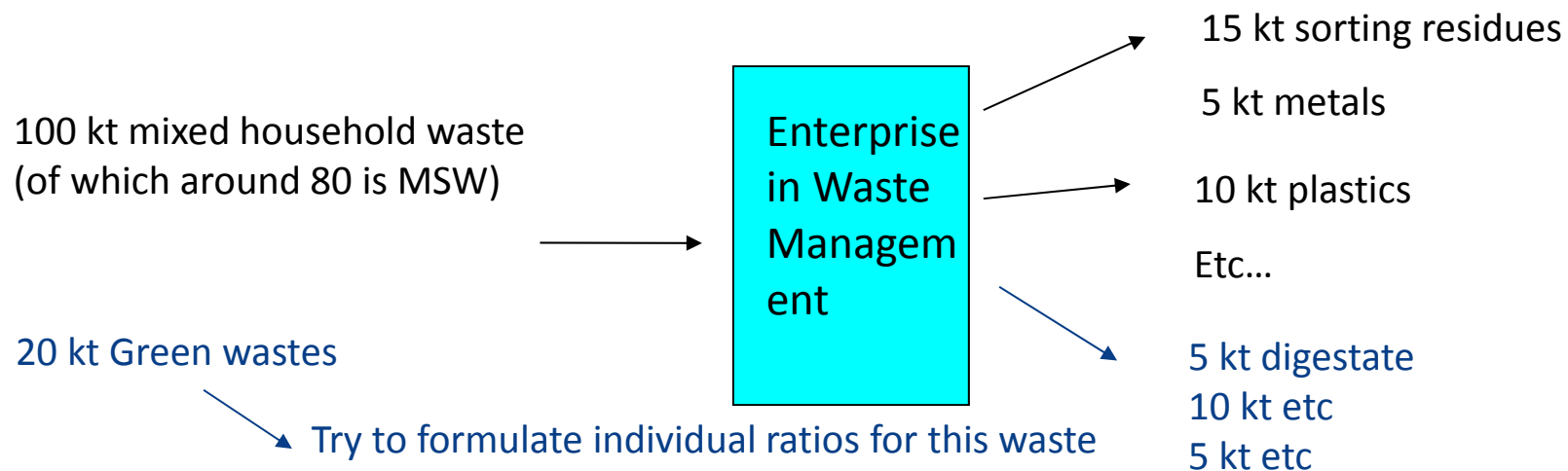
- First treatment is known from questionnaire
- Global idea of waste management steps
- Regiospecific knowledge
 - Sometimes mixed household waste is traded
 - Other region has fixed contracts to sorting facilities, incineration plants, etc
- **Assumptions / knowledge**
 - All glass and metal waste goes to recycling
 - Green wastes are composted, etc
 - Etc.

Have to stay up to date!



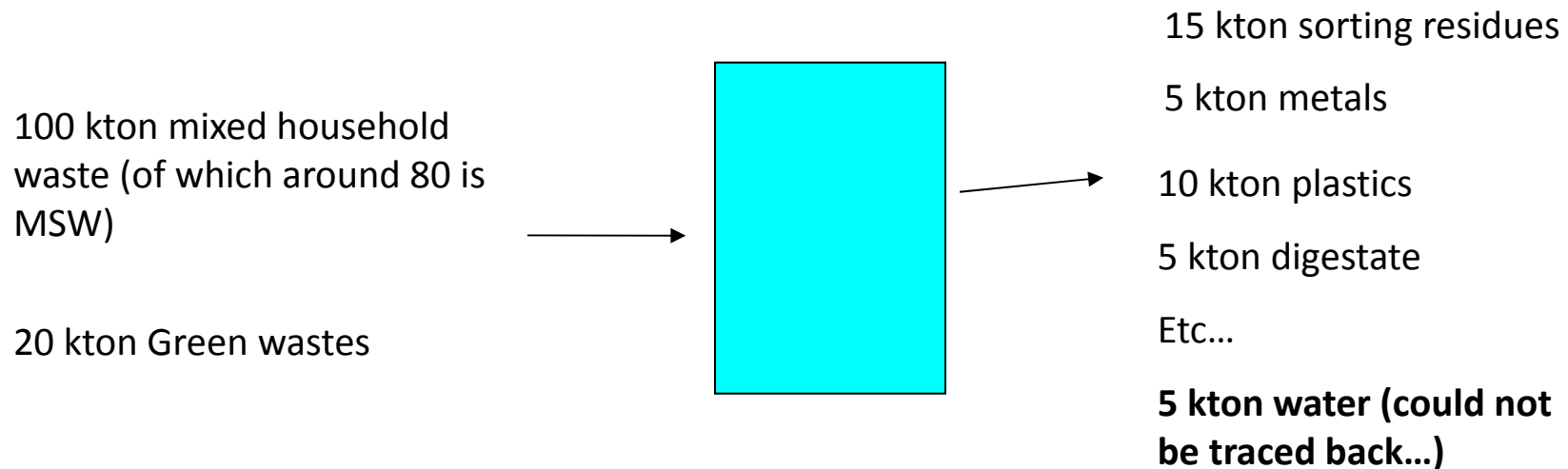
Mass balances of sorting and MBT

- Make mass balances for most important installations
 - mixed household type waste
 - bulky household waste
- European Pollutant Release Transfer Register (E-PRTR)
- Registry of waste transports
- Questionnaire developed with sector organisation



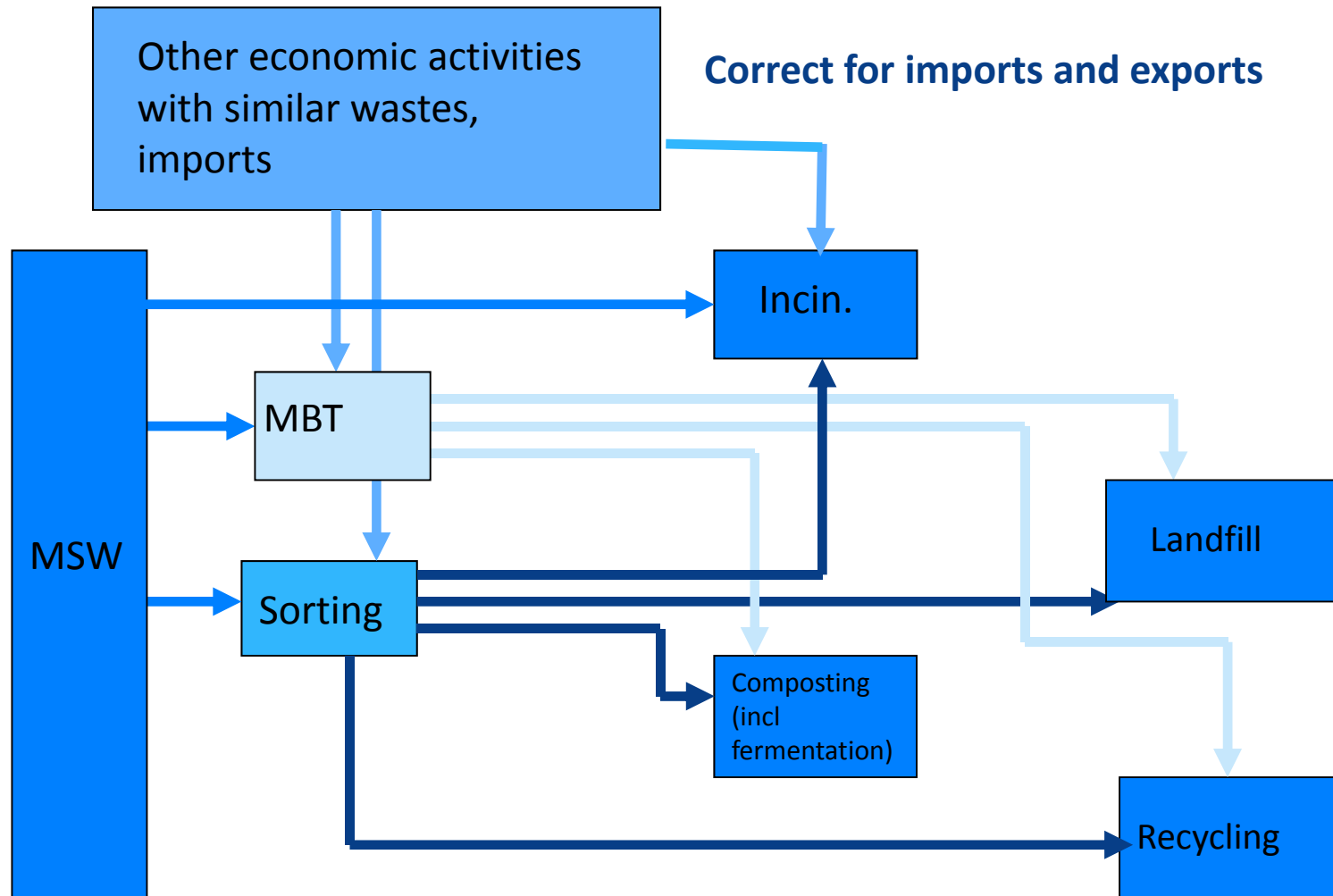
Water balance...

- Mass losses mainly occur for water (drying, etc)
- This is currently the final step to finalize the mass balance (in other words → no other explanation possible)
- Difficult



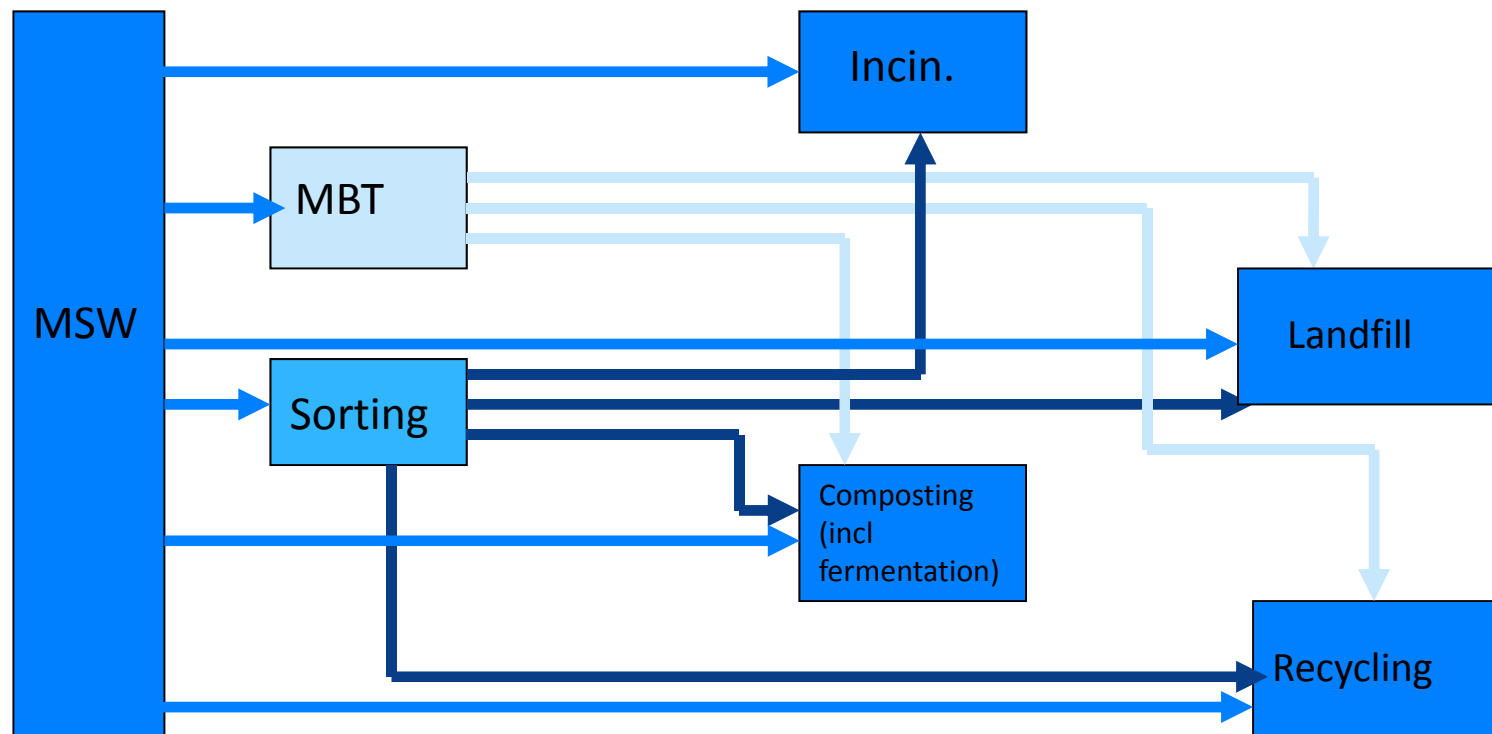
Flows of MSW

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In Netherlands, we try to trace all flows of MSW

Make the extraction we need

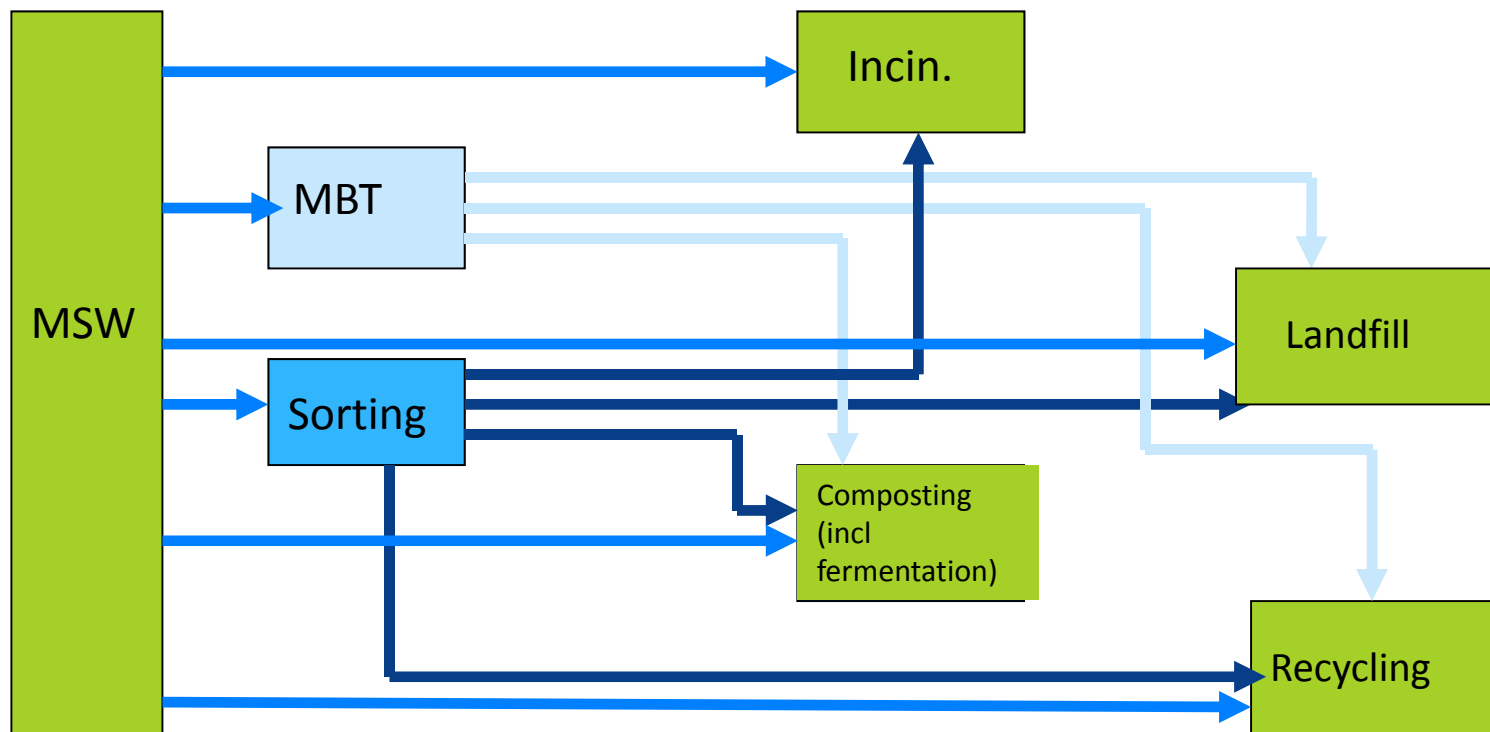


Data needs

- National and international data needs differ
- Compatibly stored in one database / data center
- Make the best extraction for each data client

Scoping of MSW in EU and OECD

Green needs to be reported



Conclusion

- Generation, type of waste and first treatment from questionnaire
- Global idea of Waste management structure per type of waste
 - Easy: recyclables (glass, metals, etc)
 - More difficult: household waste, bulky waste, and construction and demolition waste
 - Follow main market developments
- Mass balances of the most important sorting, MBT installations
 - Waste in those installations is of different origin
 - Not a big problem, but results are less accurate