



How can SEEA be used to measure the circular economy?

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Outline

1. Policy questions regarding the circular economy
2. Sankey of material flows
3. Material Flow Monitor (MFM)
4. CE indicators (derived from the MFM and Sankey)
5. Conclusion



Policy questions regarding circular economy

European policy regarding resources:

Flagship initiative “A resource efficient Europe”

EU action plan for the Circular Economy & EU Green Deal

Focuses not only on energy but also on materials

Sustainable Development Goals (SDGs):

08 Decent Work and Economic Growth
(resource efficiency; decoupling)

12 Responsible Consumption and Production
(use of resources; waste recycling)



Dutch policy regarding circular economy (1)

Transition towards a circular economy.

- 2030: 50% reduction of use of primary abiotic raw materials (i.e. minerals, metals and fossil energy carriers extracted from nature)
- 2050: An economy without waste
The Netherlands wants to be a circular economy by 2050. An economy without waste, where everything runs on reusable resources

How to measure these 'generally formulated' goals?



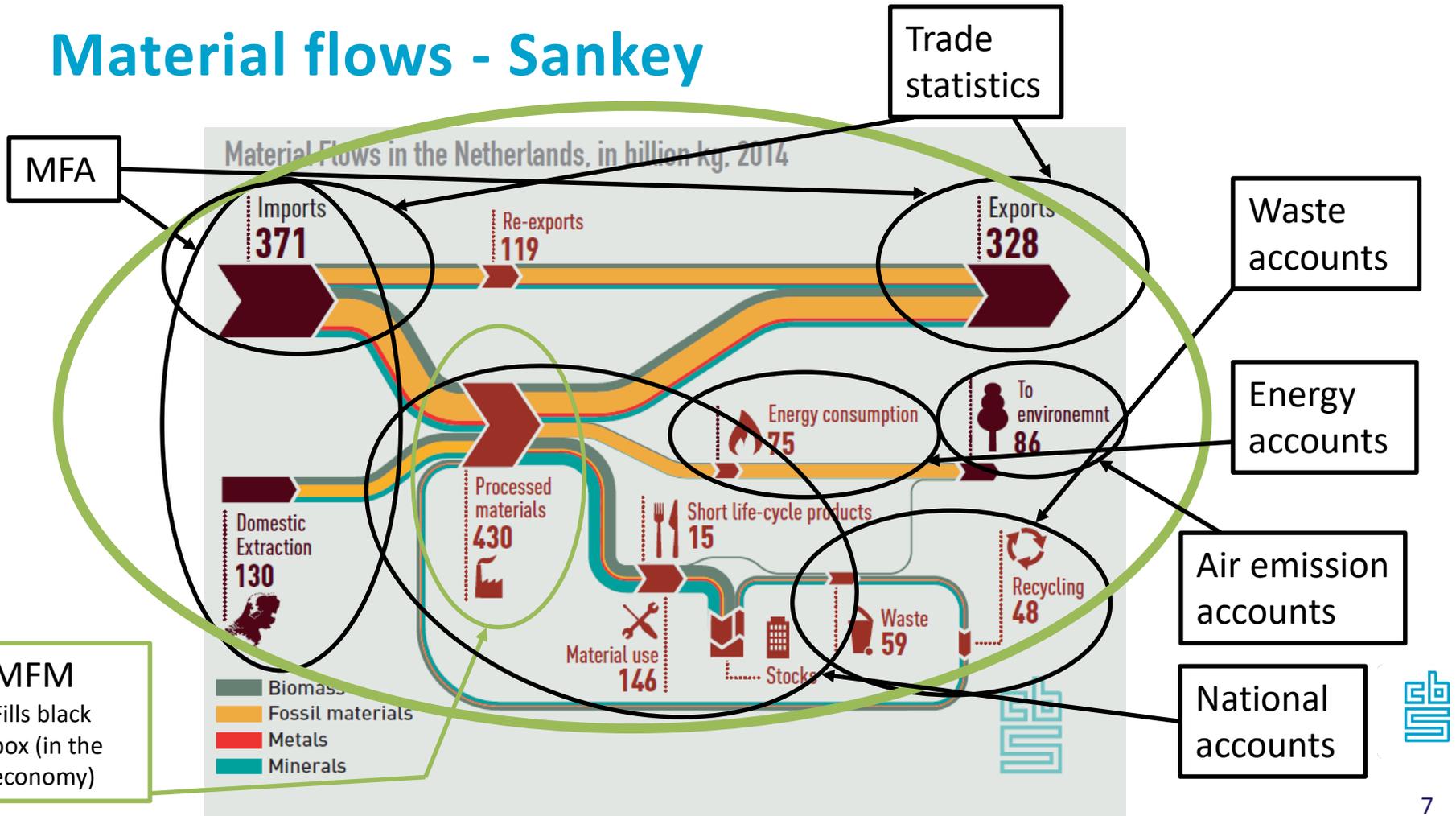
Dutch policy regarding circular economy (2)

Reducing the input of raw materials in the economy is not an end in itself.

It is a means by which the government wants to reduce the environmental pressure and the risks to security supply of raw materials, and simultaneously aims to create jobs and generate value added.



Material flows - Sankey



Material Flow Monitor (MFM)



- MFM describes **physical** material flows to, from and within the economy
- **Integrated system** based on statistics/accounts reported to Eurostat
- **Concepts and definitions** according to international standard (SNA and SEEA)
- Interaction between economy and environment
- MFM recorded as supply and use tables (NL: 400 products, 130 sectors)



Indicators derived from MFA

How many and what kind of materials are used as input in our economy?

Direct Material Input (DMI) = Domestic Extraction (DE) + Imports

Are we a net importer or exporter of materials?

Physical Trade Balance = Imports – Exports

For what materials are we self-sufficient or dependent on other countries?

Self-sufficiency = DMC/DE

Dependency = $Import / DE$

How high is the materials consumption (per habitant)?

Direct Material Consumption (DMC) = DMI – Exports

Are we becoming more resource efficient over time?

Resource productivity = GDP/DMC



Indicators derived from MFM and Sankey (1)

- MFM shows material flows within the economy:
 - Breakdown of indicators by sector and product. For instance, material productivity by sector
- Substitution of fossil fuels by biomass
- Efficiency indicators:
 - Kilograms of product produced by kilogram of waste produced
- Shows what materials are lost and what goes into the stocks and can potentially be recovered later

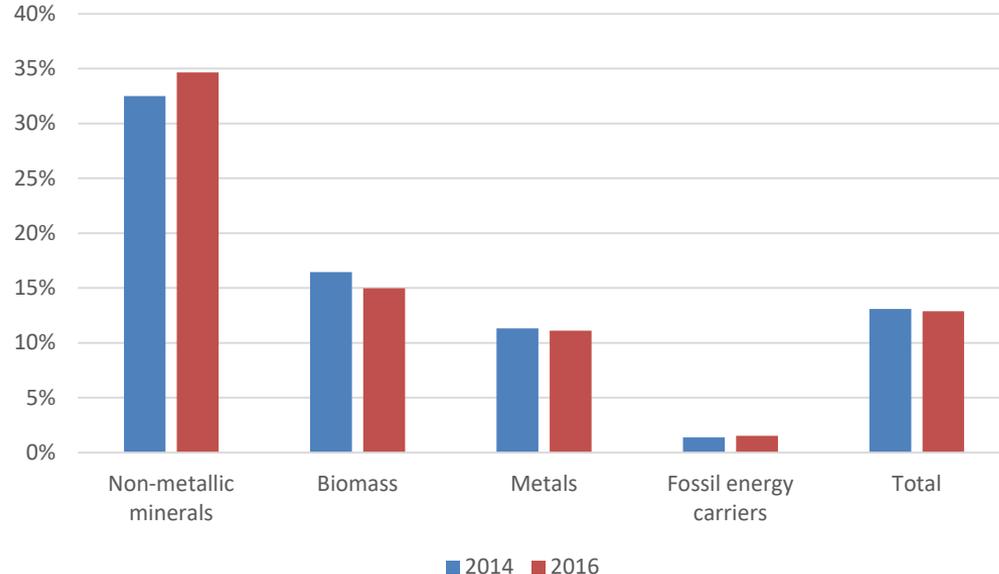


Indicators derived from MFM and Sankey (2)

Circular material use rate:

- Use of primary input of materials (DMI) versus secondary input of materials

Secondary input includes recycled materials, residual flows, such as food residuals used as animal feed, and imported waste



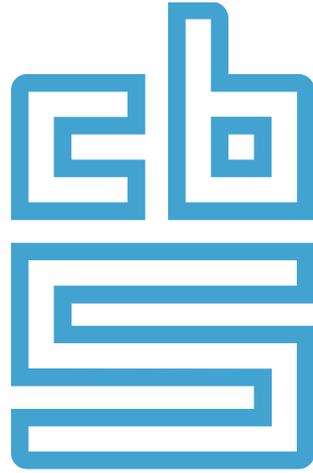
Conclusion

- Individual SEEA modules (such as MFA) provide useful information/indicators to measure the circular economy
- However, combining information from multiple SEEA modules and the SNA (such as in the MFM) provides a more comprehensive picture of the CE. It allows for more detailed analyses of the material flows to, from and within the economy
- Furthermore, it provides more information on the underlying CE goals, such as reducing environmental pressures (e.g. reducing greenhouse gas emissions)



Any questions?





Facts that matter