



Technologies, tools and strategies for optimized material recycling

Oslo

March 3rd 2020



Our common future (1987)

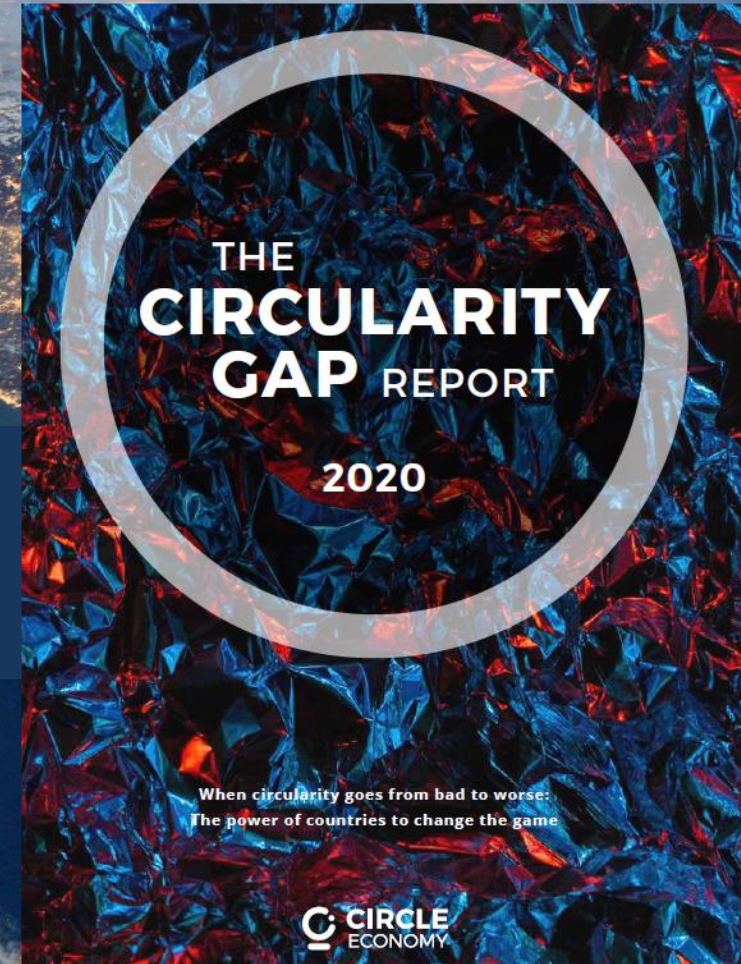
"Sustainable development is the kind of development that meets the needs of the present without compromising the ability of future generations to meet their own needs. "



Gro Harlem
Brundtland

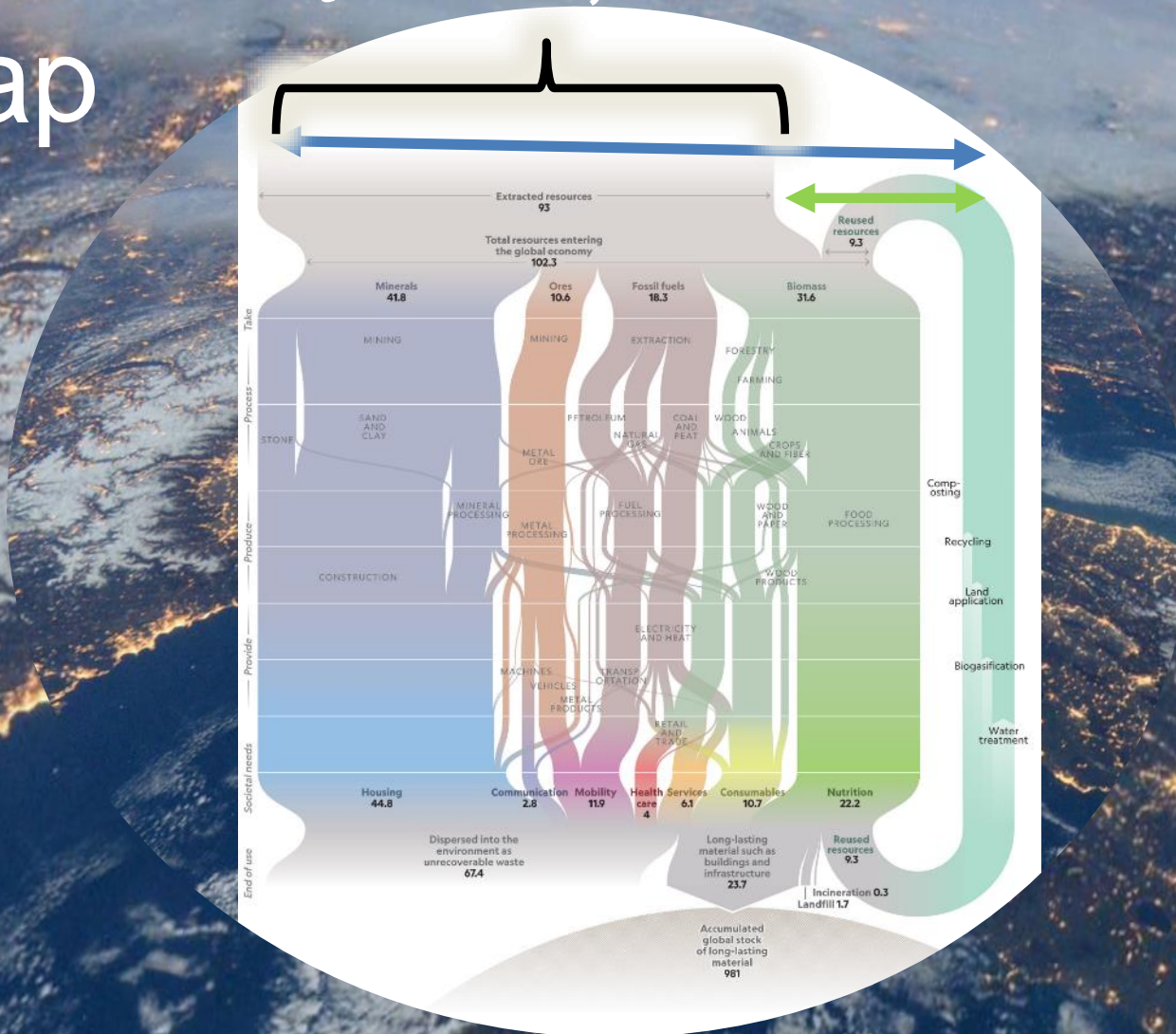
For the first time in history, more than 100 billion tonnes of materials are entering the global economy every year.

Coming Soon: Netherlands and Norway
In 2020 Circle Economy will launch
Circularity Gap Reports for the Netherlands
and Norway.



Circularity 91,4%

Gap



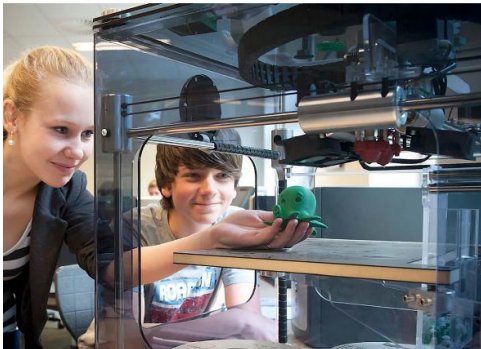
Global resources, 2015
in billions of tons



New Circular Economy Action Plan



A Circular Economy in the Netherlands by 2050



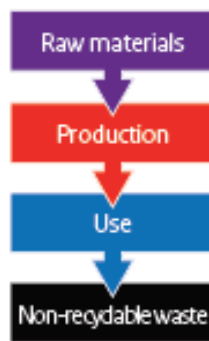
Aims Dutch government in her wide programme for Circular Economy:

- Developing a circular economy in the Netherlands by 2050
- An interim objective of a 50% reduction in the use of primary raw materials (minerals, fossils end metals) by 2030

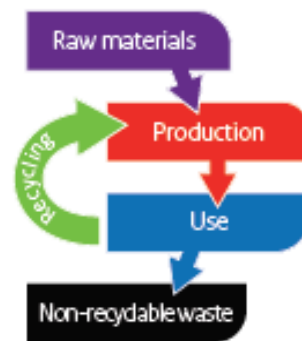
www.government.nl/topics/circular-economy/documents/policy-notes/2016/09/14/a-circular-economy-in-the-netherlands-by-2050



Linear economy



Reuse economy



Circular economy



From linear to circular

Municipal waste regulations in the Netherlands

- Municipality is responsible (by law) for the collection of residual and specific resources from households.
- Households pay waste tax to the municipality, no higher than 100% of the collection and treatment costs
- Combustible waste in landfill is charged with landfill tax by the state.
- Incineration tax recently increased to € 32,12 per ton

Who are we?

**A service company
for a sustainable environment**

- In 9 municipalities**
- For 458,000 residents**
- With 279 employees**
- Based in 7 locations**





Deventer



Apeldoorn



Zutphen



Doesburg

Strategy: Value creation in two transitions



Our four regional goals

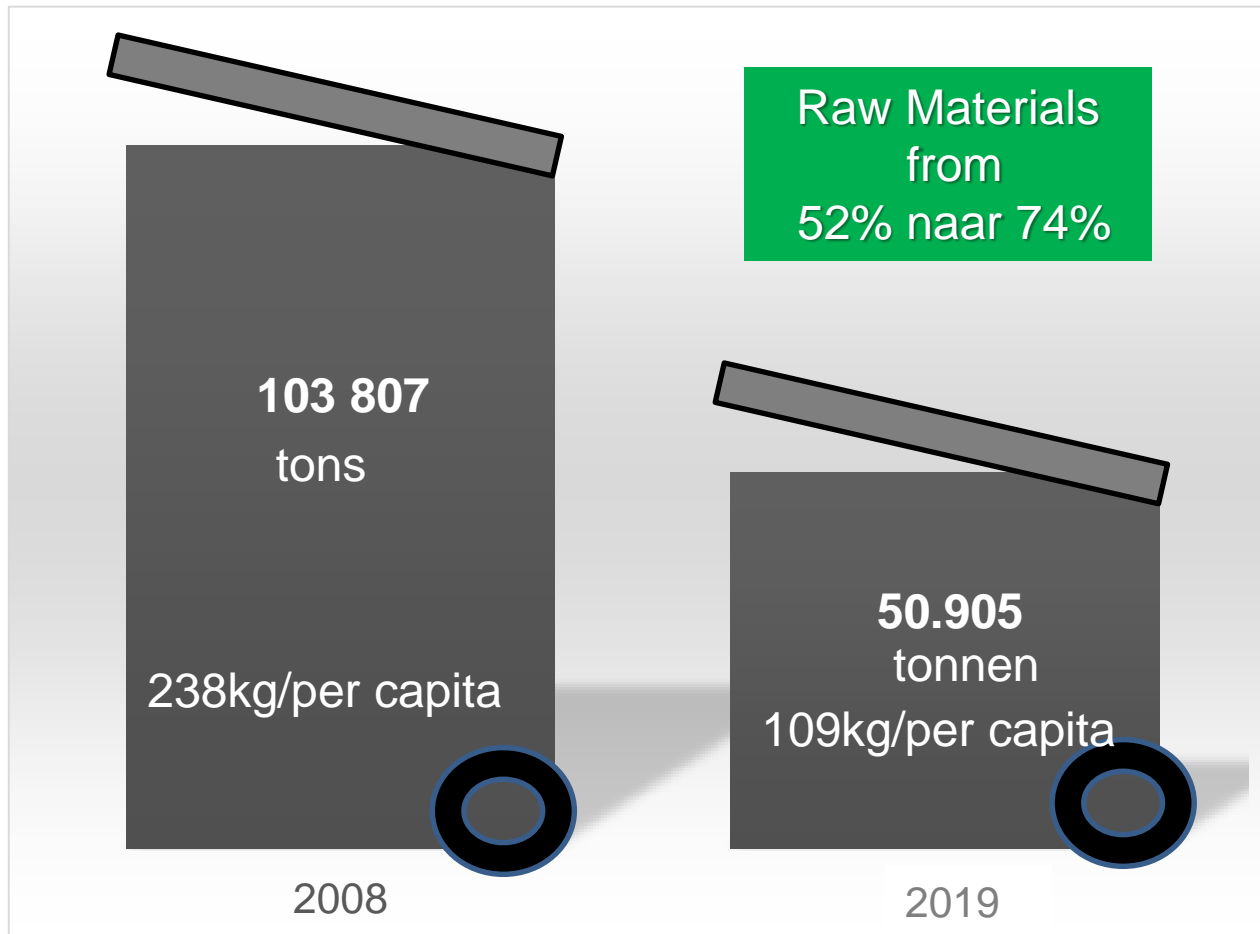
- A waste free region in 2030; 10 kilogram municipal and bulky waste per resident per year.
- Re-Use and Recycling (nearby) Closing loops in a more circular region
- Strengthen regional socio-economic structure with particular attention to people who have a certain distance to the labor market.
- Stimulate citizen participation in a more sustainable lifestyle



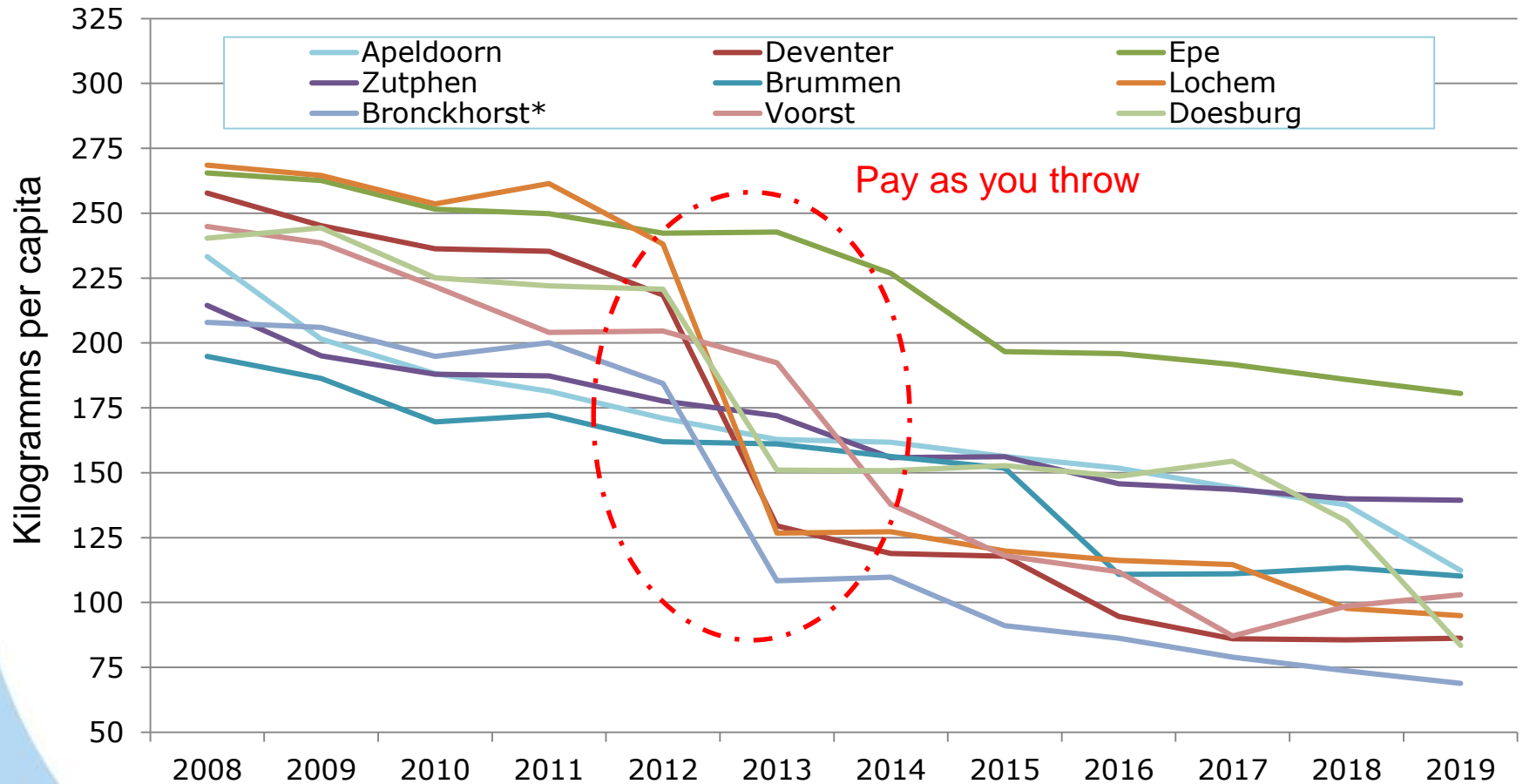
Indicators result agreement with municipalities

- **Cost efficiency (national benchmark)**
- **Kilogramme residual waste per capita**
- **Service for citizens and citizen participation (survey)**
- **Regional jobs**

Result: -51% residual waste in last 12 years (incl. bulky waste)

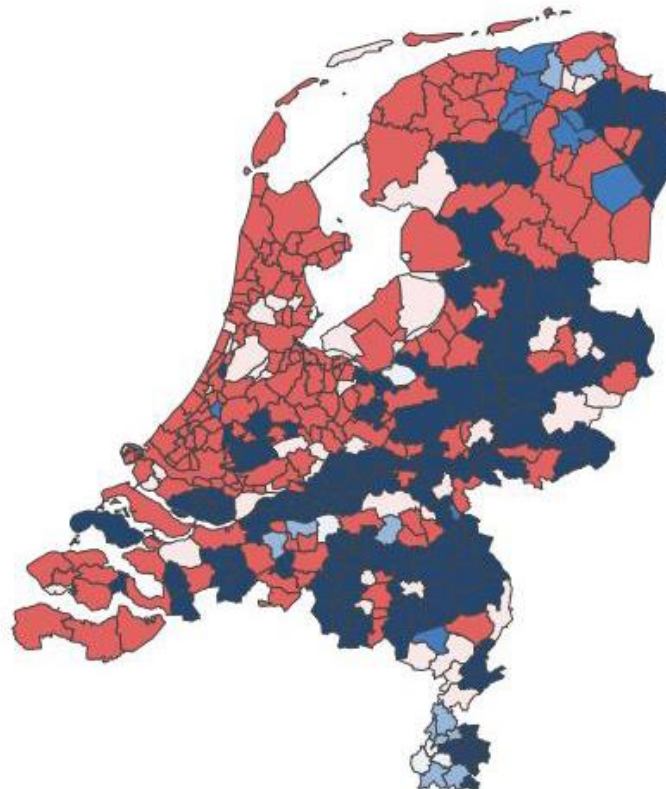


Development residual waste Circulus-Berkel

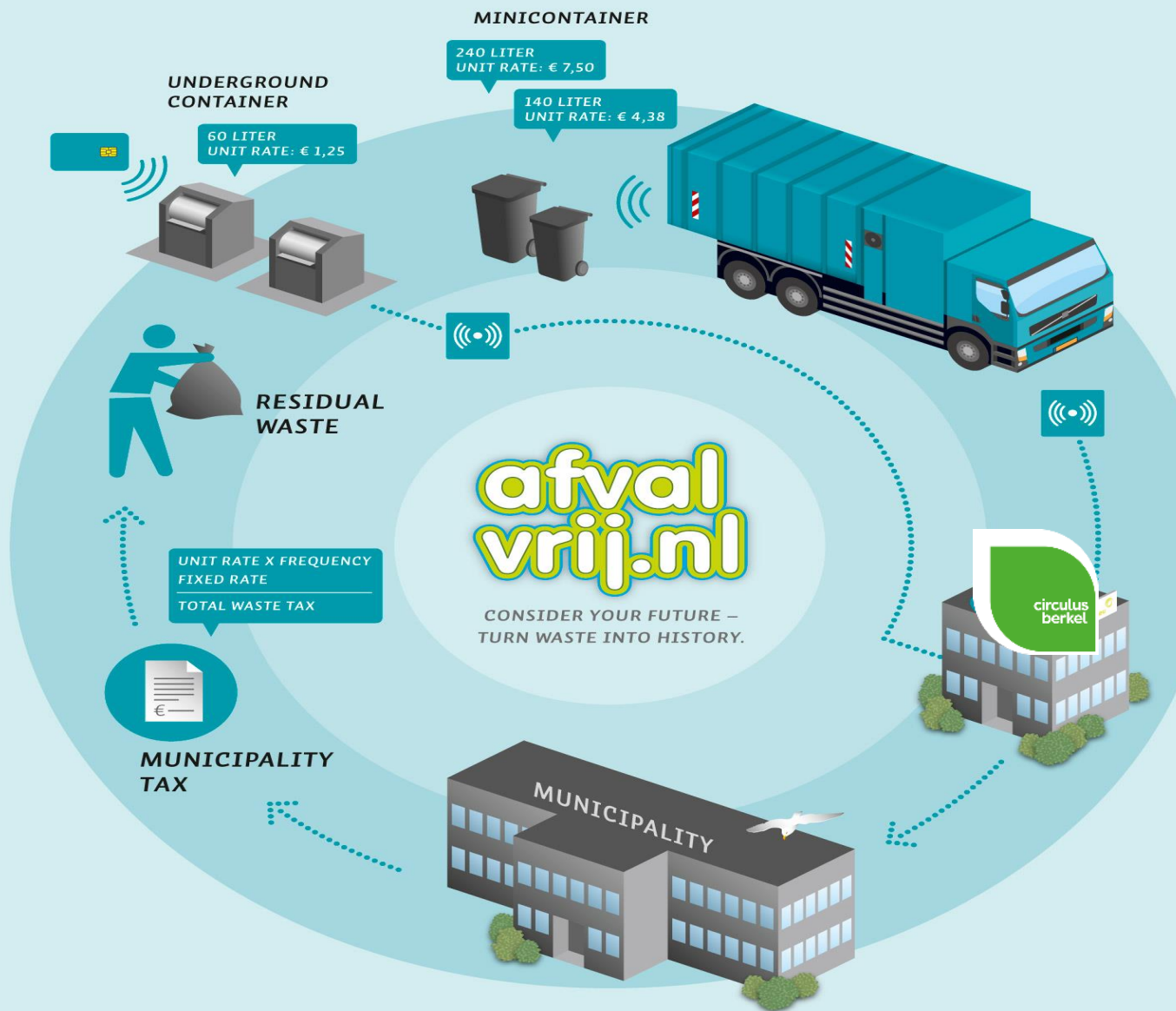


Pay as you throw (Diftar) system in 40% of municipalities in the Netherlands in 2018

- Vast tarief, obv huishoudengrootte
- Vast tarief
- Diftar, per lediging
- Diftar, per kilo
- Diftar, per lediging en per kilo
- Diftar, per afvalzak

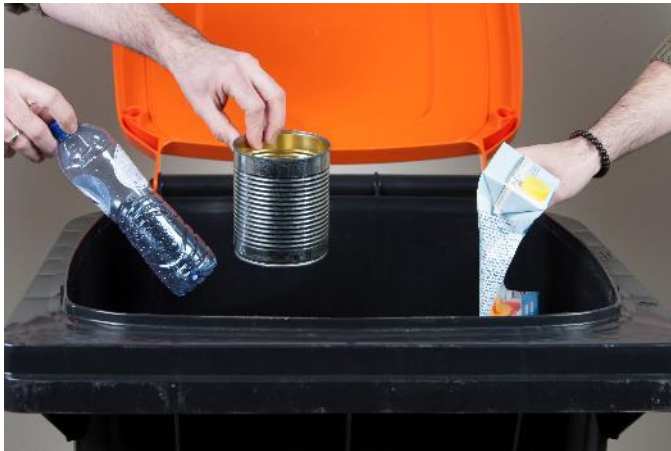


PAY-AS-YOU-THROW SCHEME

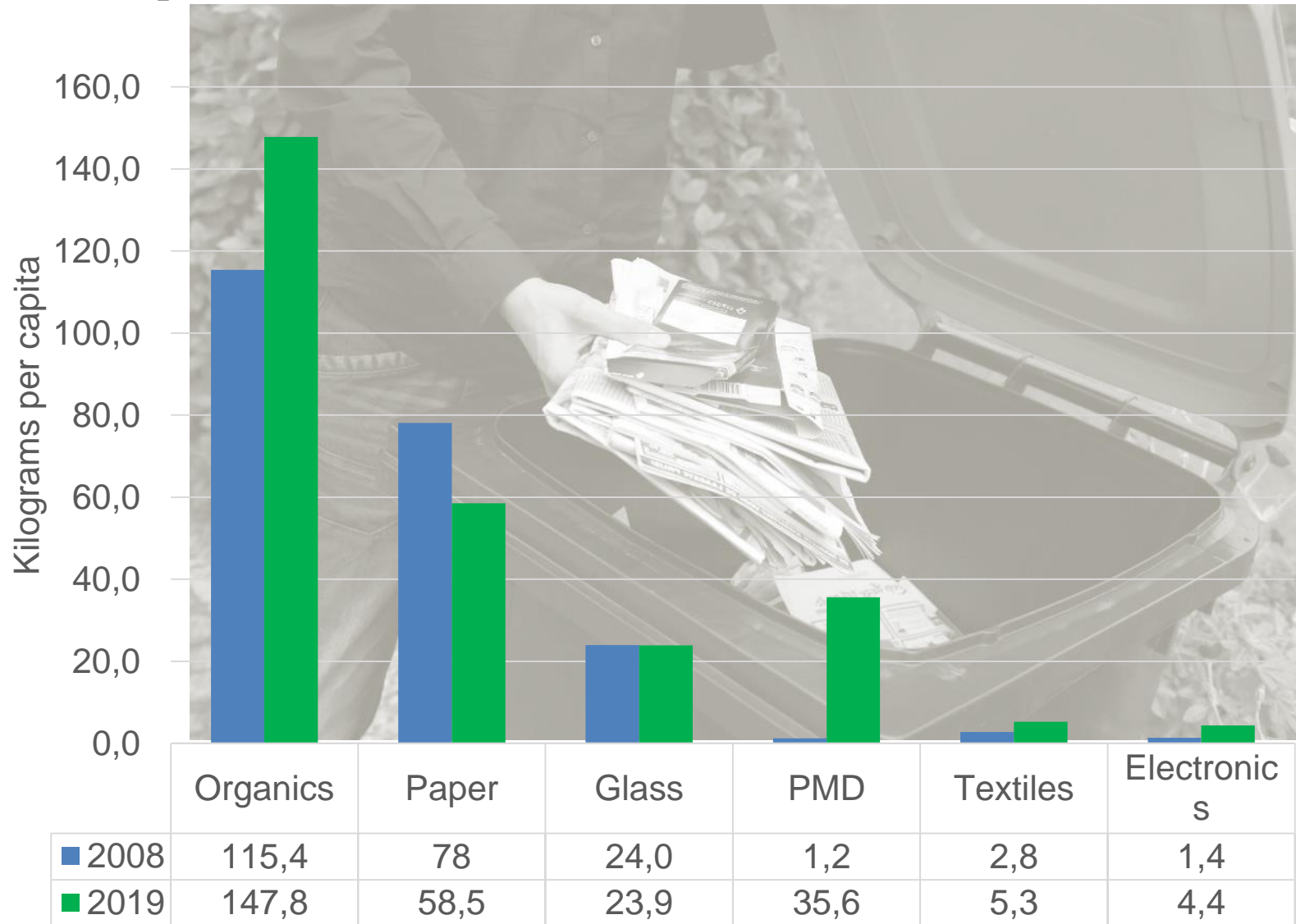


“Free” curbside collection for the separation of:

- Kitchen and garden organic waste
- Paper and cartons
- Plastics, liquid cartons and metal cans



More separated resources



The BEST bag collection and reuse/recycling :

- Curb-side collection 6 X a year
Books, Electronics, Toys and Textiles.
- These bags are separated in 3 reuse centres in reusables and recyclables
- Collection and sorting Best bag is done by social labour
- Part of reusable textile is sold in the reuse center itself the rest will be further sorted in textile sortingcenter.



Local policy towards less residual waste

Pay as you throw

More financial incentives

Flat rate

Less service for residual waste

Curbside collection residual waste every 14 days

Curbside collection residual waste every 21 days

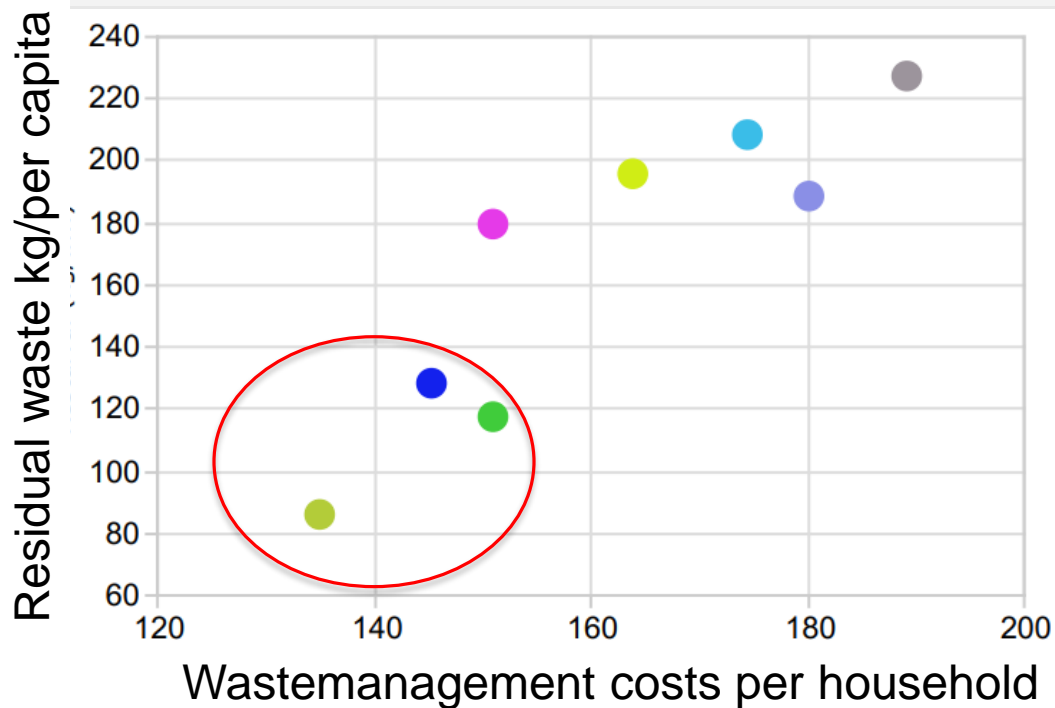


More separation per capita



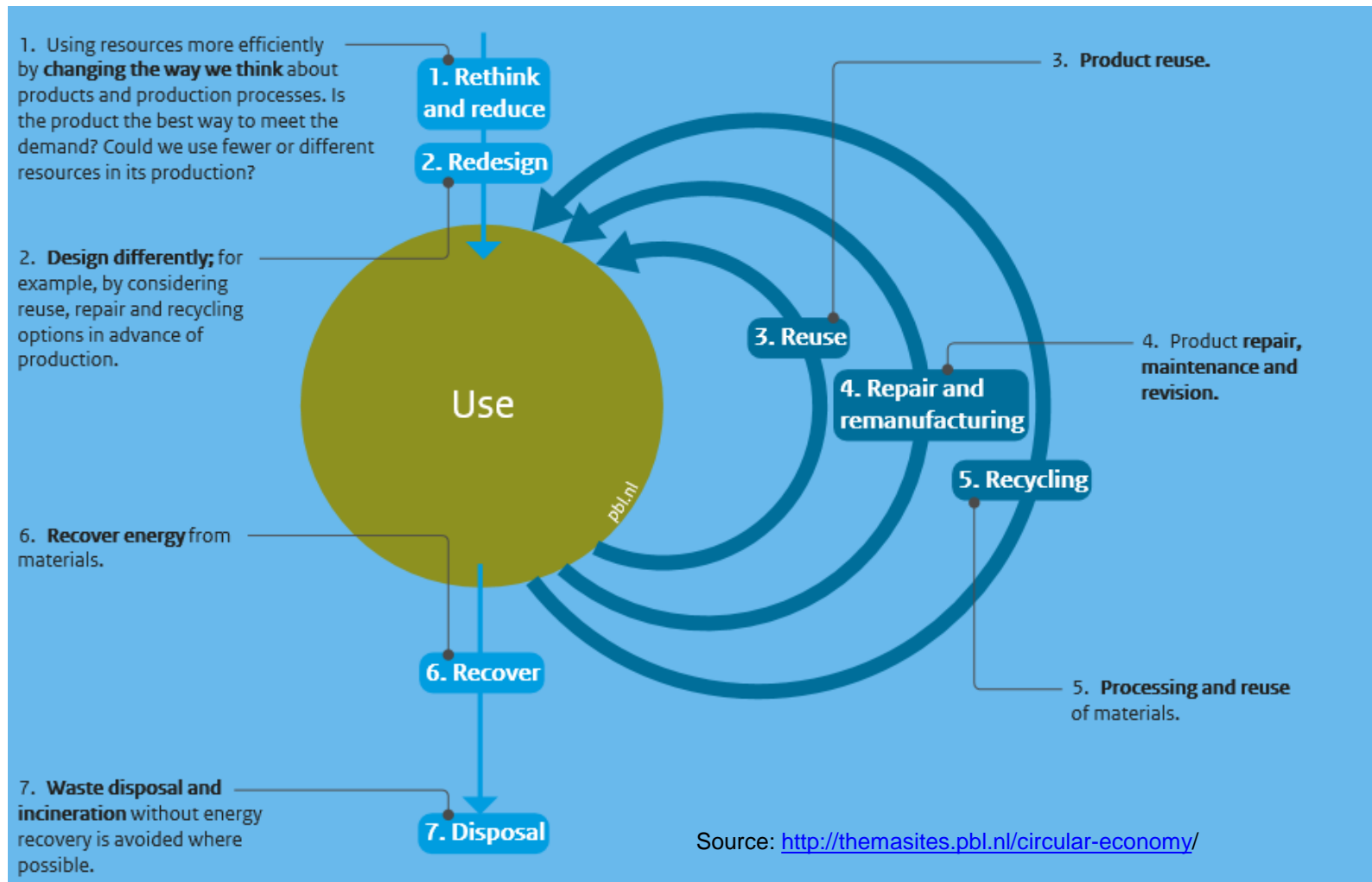
More service for resources

Residual waste versus wastemanagement costs (collection and treatment) 2017



- Diftar en freq verlaging
- Diftar en omgekeerd inz
- Omgekeerd inz en freq verlaging
- Diftar
- Freq verlaging
- Omgekeerd inz
- Nascheiding PMD ipv bronscheiding PMD
- Geen strategie

Circular economy is more than recycling



Change in focus (1)

From less residual waste for inceneration

To more (up)cycling of resources

More cooperation needed with

- Other collectors
- Recyclers
- End users
- Research centers
- Government, EU



To achieve:

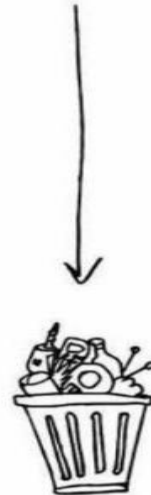
Expertise
Scale
Innovation
New businesses
General quality requirements
Financing

Change in focus(2)

LINEAR ECONOMY

RECYCLING ECONOMY

CIRCULAR ECONOMY



Focus in waste management	Efficiency	Effectiveness	Circular Impact
Performance Indicator	Collection costs	Residual waste per capita	Circular material use and CO2
Organisation	Single	Integrated	Network

Thank you for your attention.



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