Netherlands Institute
for Sustainable Packaging

Packaging and circularity

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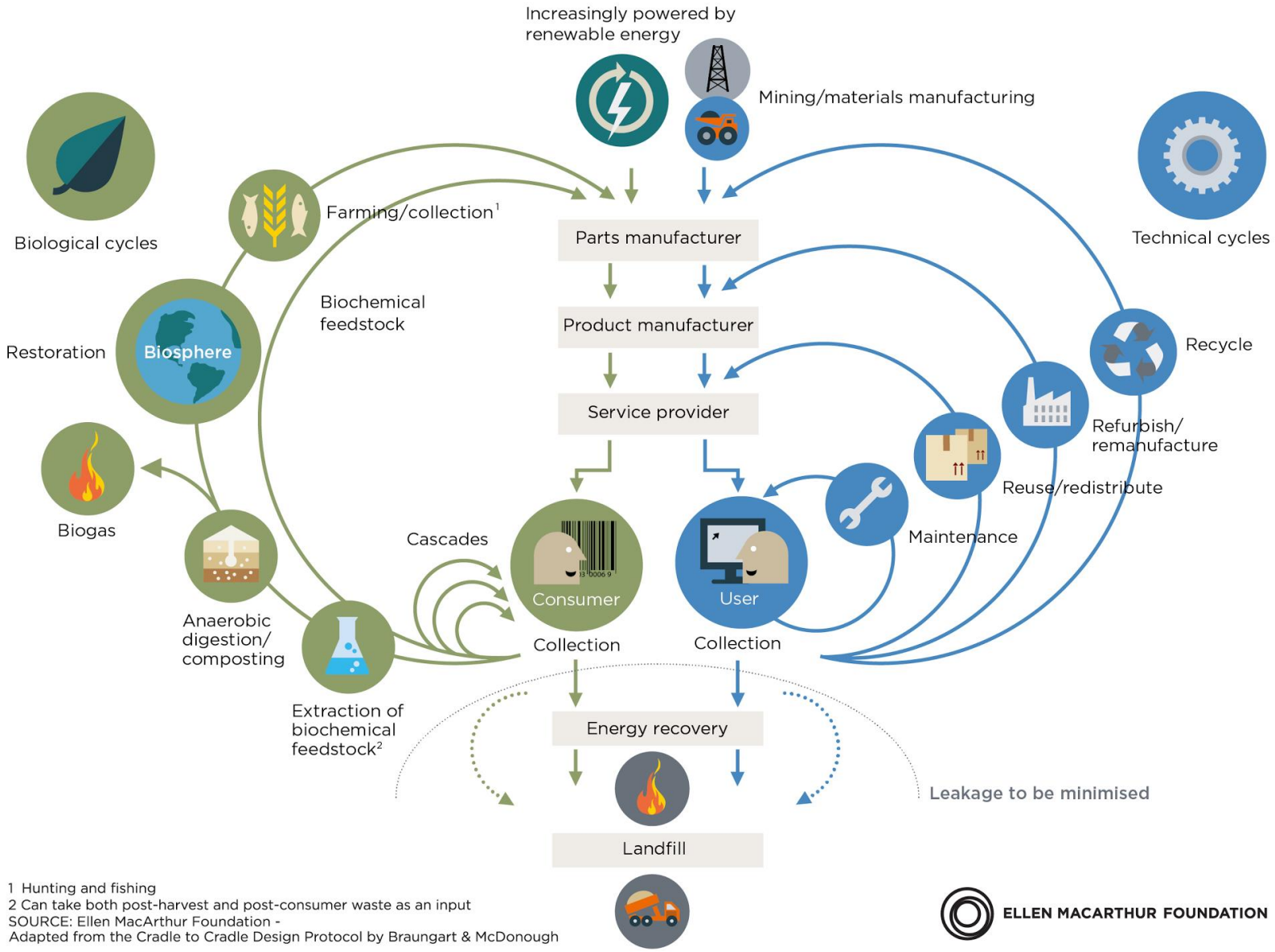
Kennisinstituut Duurzaam Verpakken

CIRCULAR ECONOMY - *an industrial system that is restorative by design*



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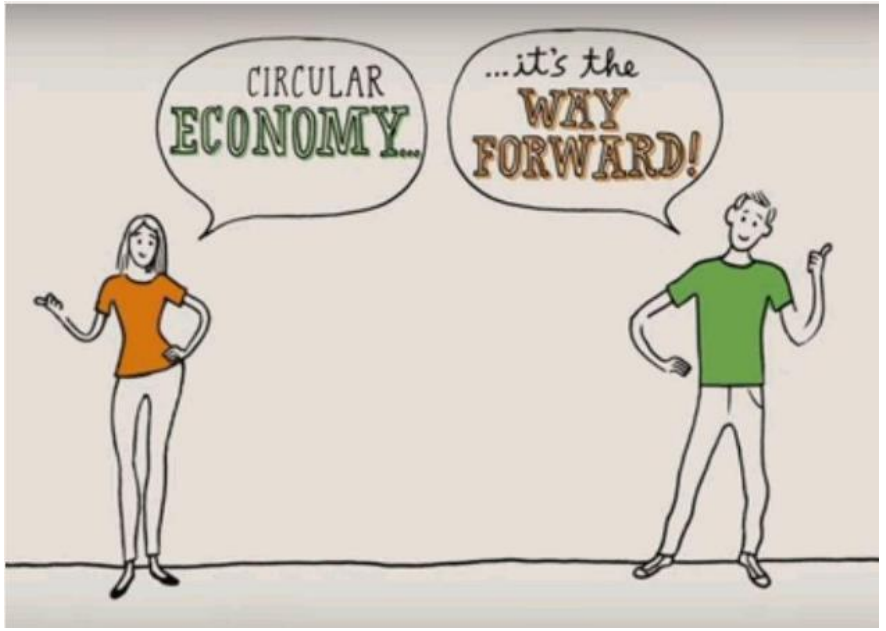
Packaging

- A European citizen opens on average 7 pieces of packaging a day.
- This adds up to 157 kilo packaging waste per person per year.
- Which is almost 40% of the total household waste.

The Circular Economy for packaging

Circular Economy Package 'Closing the loop'

- Stimulates a circular economy
- More than packaging alone
  - A circular model in which materials stay in the loop
  - Materials keep their value
  - Combine sustainability and economic growth



Circular economy package and packaging

- New goals for 2030
  - Recycling – 80%
  - Landfill – max 10%
- Reduce food waste with - 50%
- Ecodesign
- Plastic strategy

	European goals 31-12-2025	European goals 31-12-2030	Goals 2015 The Netherlands	Recycled in 2015 in The Netherlands
Plastics	55%	55%	45%	51%
Wood	60%	75%	31%	45%
Metal	75%	85%	85%	95%
Aluminium*	75%	85%		
Glass	75%	85%	90%	83%
Paper/cardboard	75%	85%	75%	85%

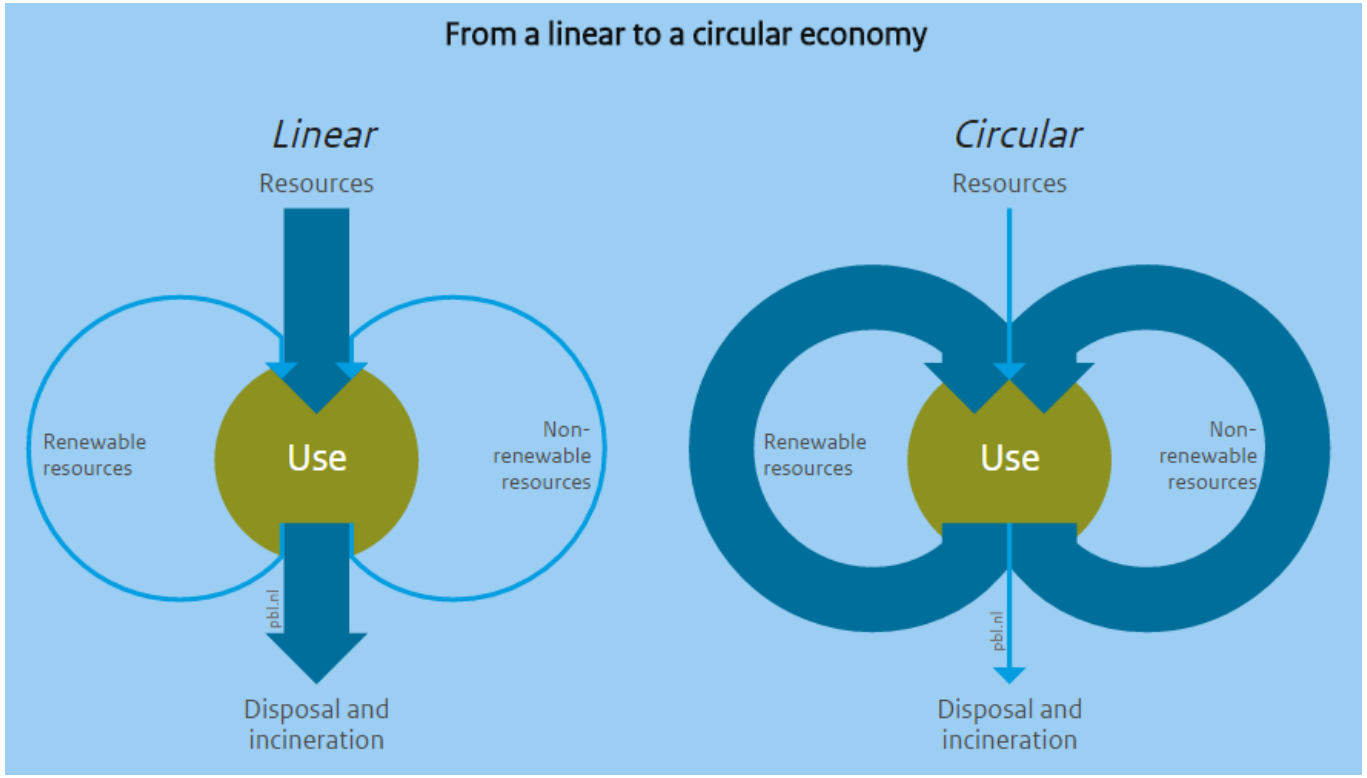
Dutch ambitions

- A Circular Economy in the Netherlands by 2050
  - The government-wide program for a circular economy
  - National raw materials agreement
- Priorities – agenda's
  - Biomass and food
  - Plastics
  - The manufacturing industry
  - Construction sector
  - Consumer goods

Definition of circular economy

A circular economy is an

- economic system which
- preserves the value or arises by
- reusing products and raw materials and
- minimalize the destroying of resources.



Bron: PBL 2016

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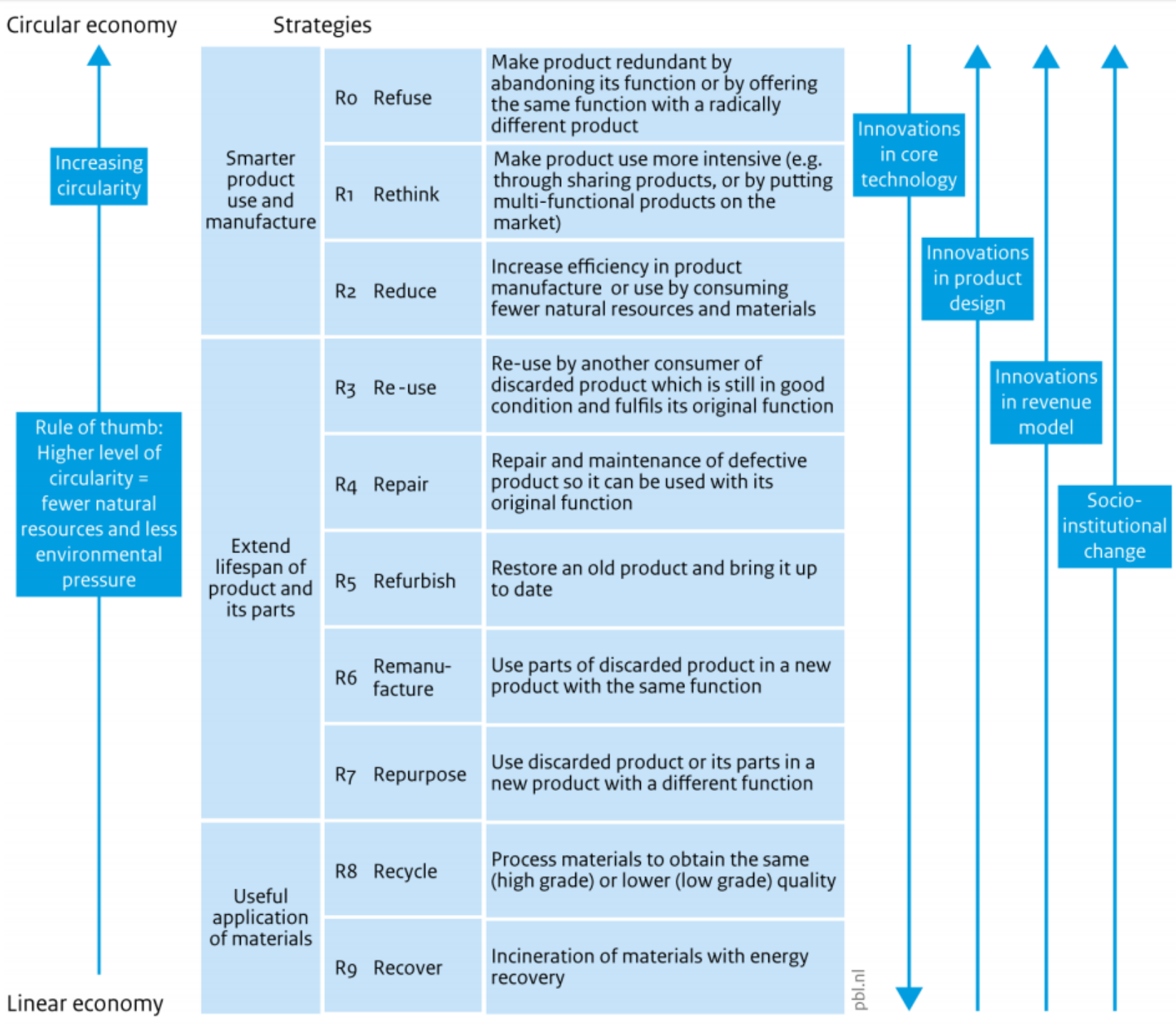
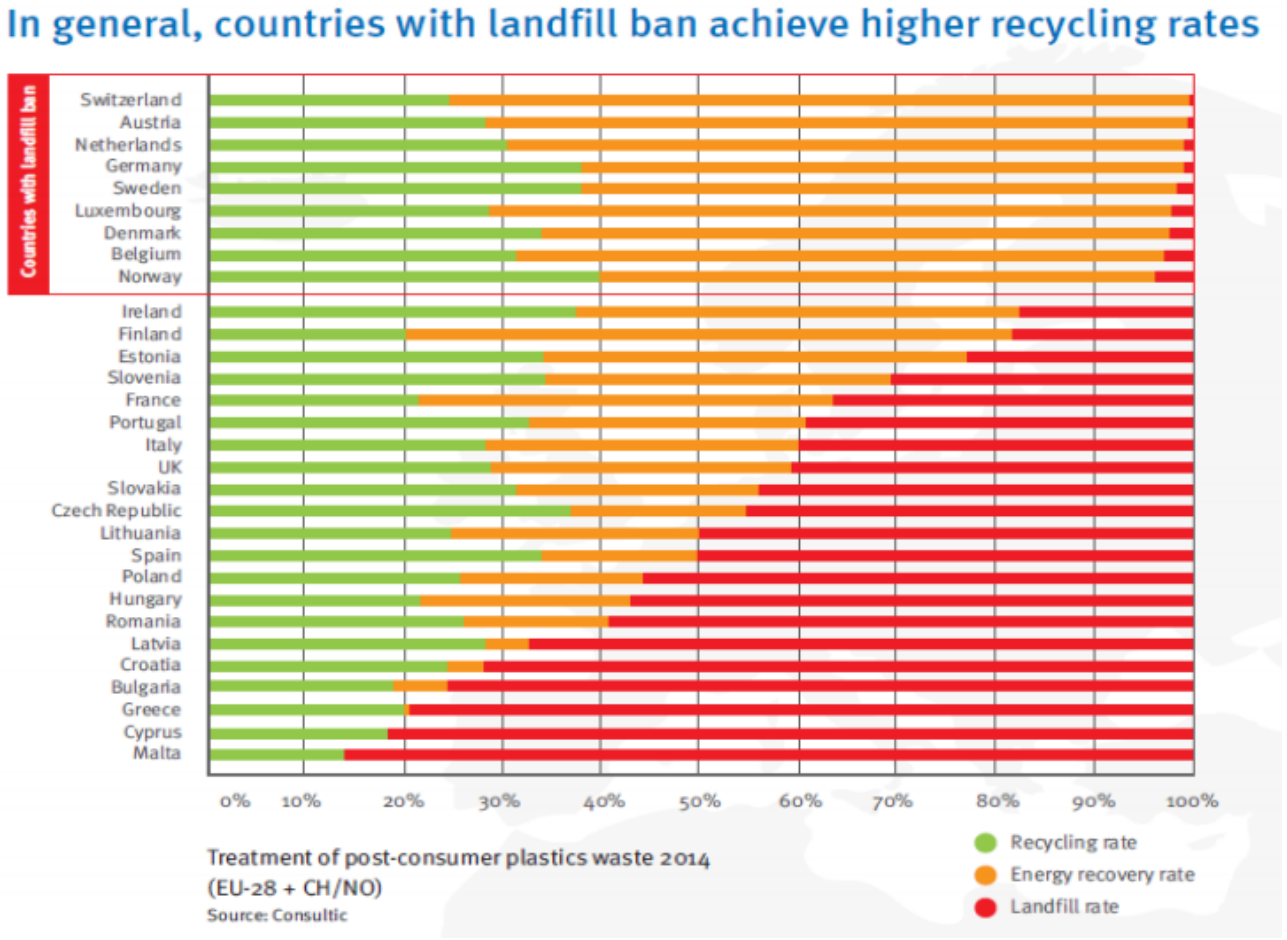
Circularity strategies within the production chain

More circularity =
less raw materials and
less environmental impact.



No more landfill

- Banning landfill enhances recycling
- Nl started in the mid ‘90’s



R0	Refuse
R1	Rethink
R2	Reduce
R3	Re-use
R4	Repair
R5	Refurbish
R6	Remanufacture
R7	Repurpose
R8	Recycle
R9	Recover

Incineration with energy recovery

- Invested in incineration
- Now overcapacity
- Not only Dutch waste, but also English and Italian waste

R0 Refuse
R1 Rethink
R2 Reduce
R3 Re-use
R4 Repair
R5 Refurbish
R6 Remanufacture
R7 Repurpose
R8 Recycle
R9 Recover

Recycling

- Now mainly mechanical recycling
- In the future chemical recycling as addition

R0 Refuse
R1 Rethink
R2 Reduce
R3 Re-use
R4 Repair
R5 Refurbish
R6 Remanufacture
R7 Repurpose
R8 Recycle
R9 Recover

Repurpose

Discarded product or parts thereof will be used in new product with a different function.

Remanufacture

Parts of discarded product will be used in a new product with the same function.

Refurbish

Refurbishing and modernizing an old product.

- R0 Refuse
- R1 Rethink
- R2 Reduce
- R3 Re-use
- R4 Repair
- **R5 Refurbish**
- **R6 Remanufacture**
- **R7 Repurpose**
- R8 Recycle
- R9 Recover

Repair

- R0 Refuse
- R1 Rethink
- R2 Reduce
- R3 Re-use
- **R4 Repair**
- R5 Refurbish
- R6 Remanufacture
- R7 Repurpose
- R8 Recycle
- R9 Recover

Re-use

- R0 Refuse
- R1 Rethink
- R2 Reduce
- **R3 Re-use**
- R4 Repair
- R5 Refurbish
- R6 Remanufacture
- R7 Repurpose
- R8 Recycle
- R9 Recover

Reduce

Active programs
sinds the ‘90’s

- Paper and board:
  12% in 10 years
- Glass:
  40% in 30 years
- Plastic:
  28% in 10 years
- Metal:
  30% in 25 years

R0 Refuse
R1 Rethink
R2 Reduce
R3 Re-use
R4 Repair
R5 Refurbish
R6 Remanufacture
R7 Repurpose
R8 Recycle
R9 Recover

Rethink and Refuse

- R0 Refuse
- R1 Rethink
- R2 Reduce
- R3 Re-use
- R4 Repair
- R5 Refurbish
- R6 Remanufacture
- R7 Repurpose
- R8 Recycle
- R9 Recover

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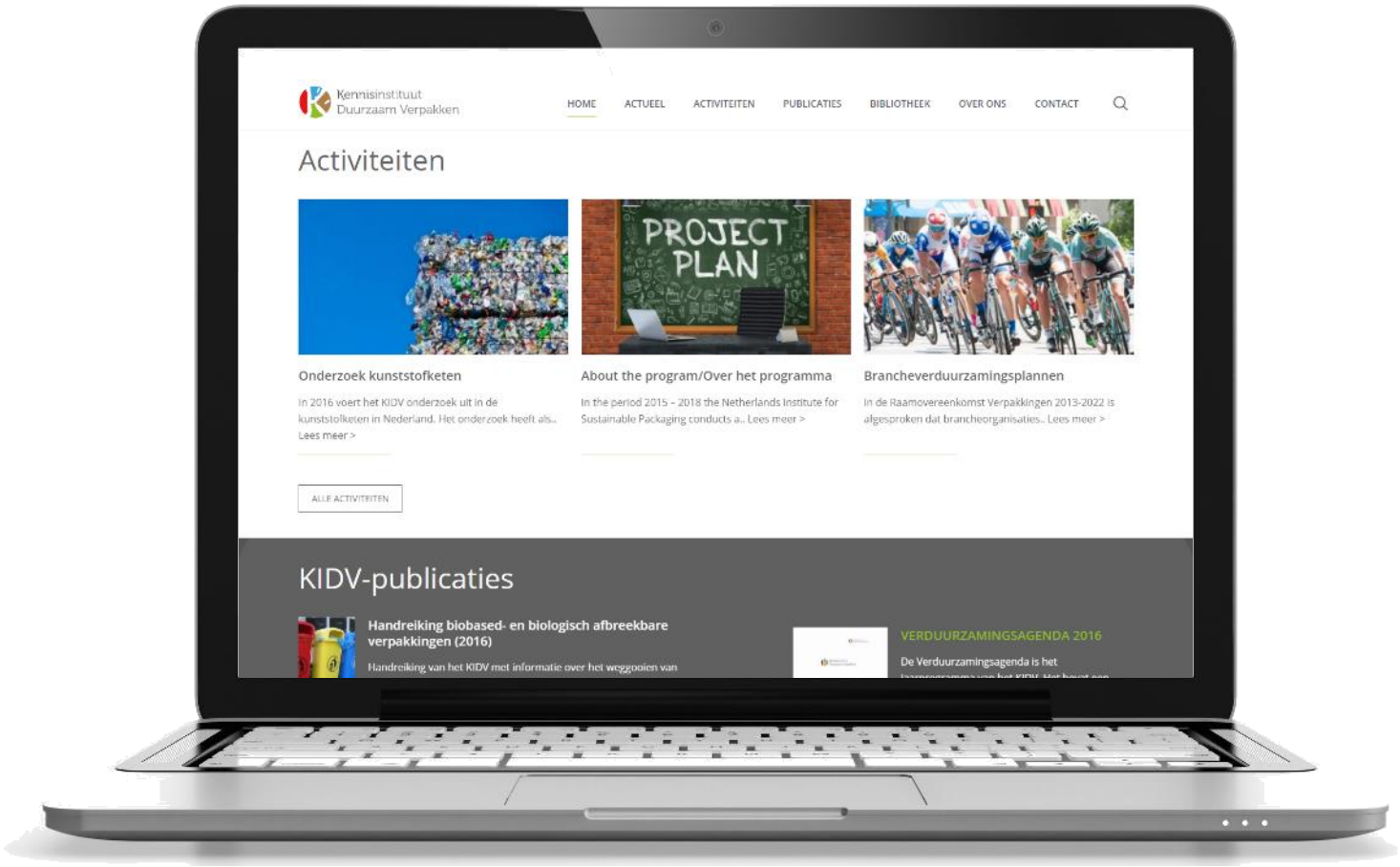
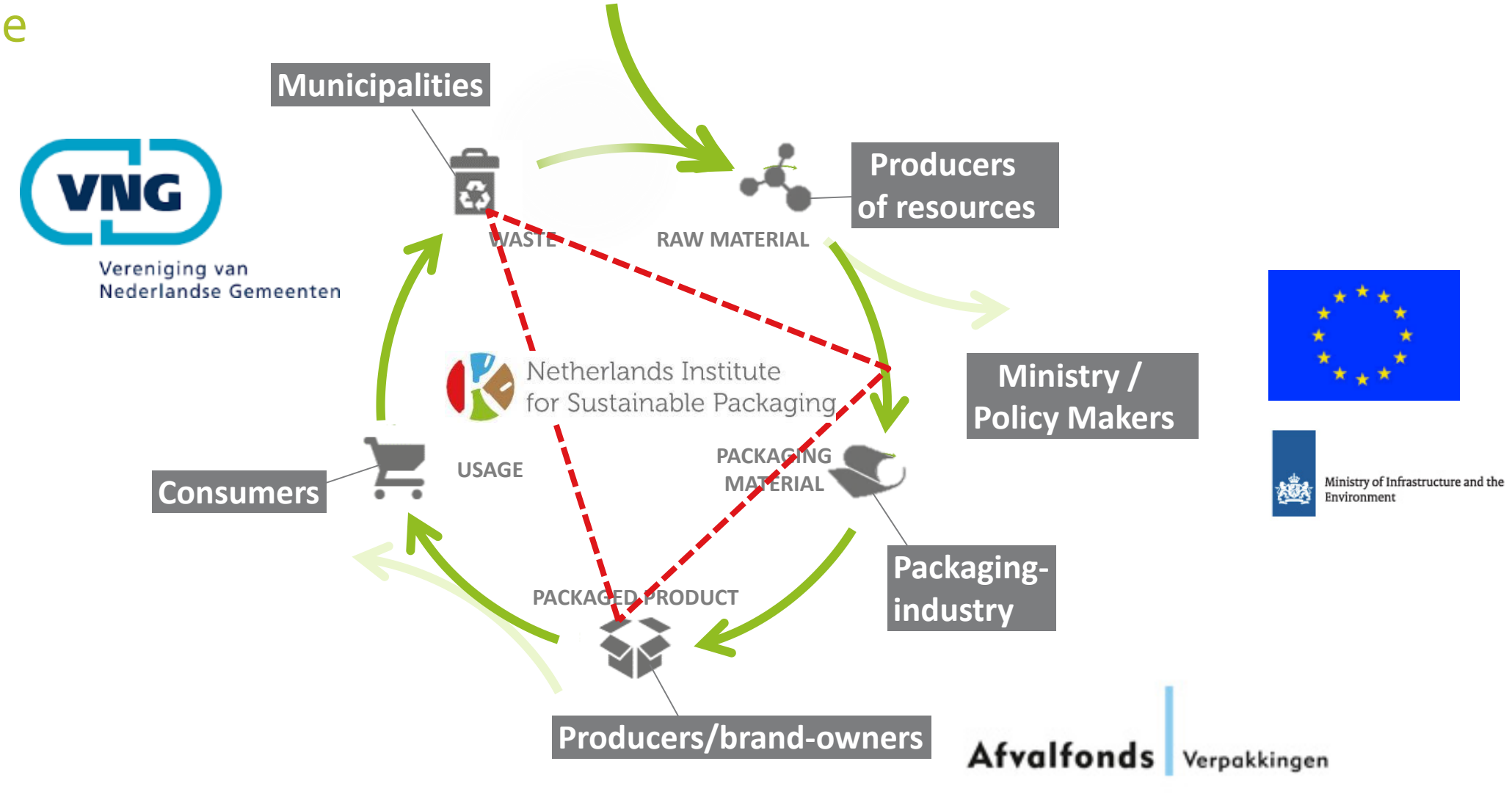
The need for knowledge

The Netherlands Institute for Sustainable Packaging

- Founded on January 2013: part of the Framework Agreement for packaging 2013 – 2022
- Reduce the environmental impact of packaging
- Creating knowledge to close the loop for packaging materials and contribute to a circular economy
- Board and advisory board
- Cooperation with scientists, expert committees an (inter)national reviews



Governance



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Research

Reducing climate change

- Circular economy an instrument for reducing climate change.
- Increased recycling of 2/3 of municipal solid waste can:
  - Reduce the annual global greenhouse gas emissions by 6%
  - Europe's greenhouse gas emissions could annually be reduced by 4%
- Municipal solid waste makes up 10% of all waste generated.
- The potential reduction of greenhouse gases could be much higher, if other waste fractions were also taken into account.

Reducing plastic bags

- ‘Reducing the environmental impact of (plastic) carrier bags in the retail channel'
  - Pilot project: ‘Can’t we use fewer bags?’
  - Study of the environmental impact of carrier bags
- 1 January 2016: New legislation in the Netherlands
- 70% less bags – shift to paper

Separate collection of beverage cartons

- 85% of the Dutch municipalities

Scientific research program

Work packages:

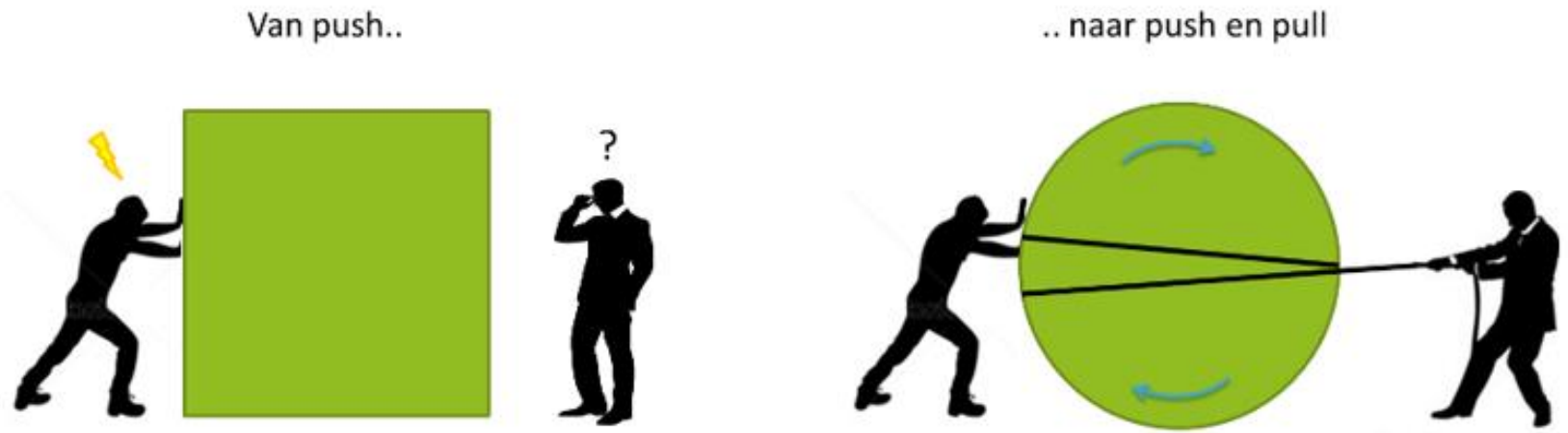
- Environmental Impact Assessment.
  - Inclusion of product loss
- Design tools (packaging)materials.
  - Include sustainable packaging in the design process
- Collecting & Recycling Efficiency.
  - Behaviour of consumers and citizens
- Optimizing Plastic Packaging Loop.
  - Strategic redesign

Closing the loop for plastics

- Collection and recycling of plastic packaging waste is on the increase
- In The Netherlands: 16 kton in 2009 and 129 kton in 2014
- To market recycled plastic is a growing challenge, financial and technical
- From a supply to demand economy
- It is time to meet the quality standards for new products

Closing the loop for plastics

From a push to a push and pull market



Seven steps towards a push and pull market

1. Specifications recycled same as virgin
2. Optimising proportion virgin vs. recyclate
3. Create a market for recycled materials
4. Design-for-recycling
5. The role of citizens
6. Collection and sorting on quality
7. Innovation of processing technique

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Implementation

Sector innovation plans for sustainable packaging

- Result of the three party agreement
- All companies, not only frontrunners
- Plans made by sectors, with their (international) members
- Assessment by KIDV
- More awareness of the circular economy in all levels of companies

Expected results in 2018

longer shelf life
with thinner film

5% lighter (i.p.v. 2%)

80% - 100% sustainably harvested
cardboard fiber

10% weight reduction

15% reduction aluminium

increase the use of crates
instead of cardboard

from 0 naar 20% recycled PET

phasing out skin packaging

use of recycled plastic
and compaction of product

reduction blisters
in distribution

non-printed shrink and stretch films
for better recycling

37% recycled PET

Design for circularity

- Started in February 2017
- A research and education program about design for circularity
- Universities and professionals

International packaging platform

- International knowledge exchange amongst professionals
- Sustainable packaging
- Reports, factsheets and articles
- Multiple contributors

Design guidelines to improve the recyclability of packaging

Functionality first

- No toxics
- Minimize
- Mono
- Recycled – renewable content
- Communicate

Conclusion

We have to work together to achieve a more sustainable world.

For this we have to work on:

- Materials
- Product-packaging combinations
- Systems

This gives benefits on three levels:

- Competition
- Environment
- Resources

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Thank you for your attention

www.kidv.nl

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