

# Circular economy in the Netherlands

## More than recycling only !

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(Atelier Économie Circulaire, Quebec 4-5 August 2020)



Source: PBL

# Contents

- Dutch circular economy policy
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# Recycling rates in the Nlds & EU27

	Nlds	EU27
Packaging <sup>(1)</sup>	78%	68%
- Glass	86%	76%
- Metals	95%	81%
- Paper & cardboard	87%	86%
- Plastics	50%	41%
E-Waste <sup>(2)</sup>	42%	39%
Vehicles <sup>(3)</sup>	87%	88%
Construction & demolition <sup>(4)</sup>	100%	87%

(1) <https://ec.europa.eu/eurostat/databrowser/view/ten00063/default/table?lang=en>

(2) [https://ec.europa.eu/eurostat/databrowser/view/t2020\\_rt130/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/t2020_rt130/default/table?lang=en)

(3) Reuse & recycling; <https://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>

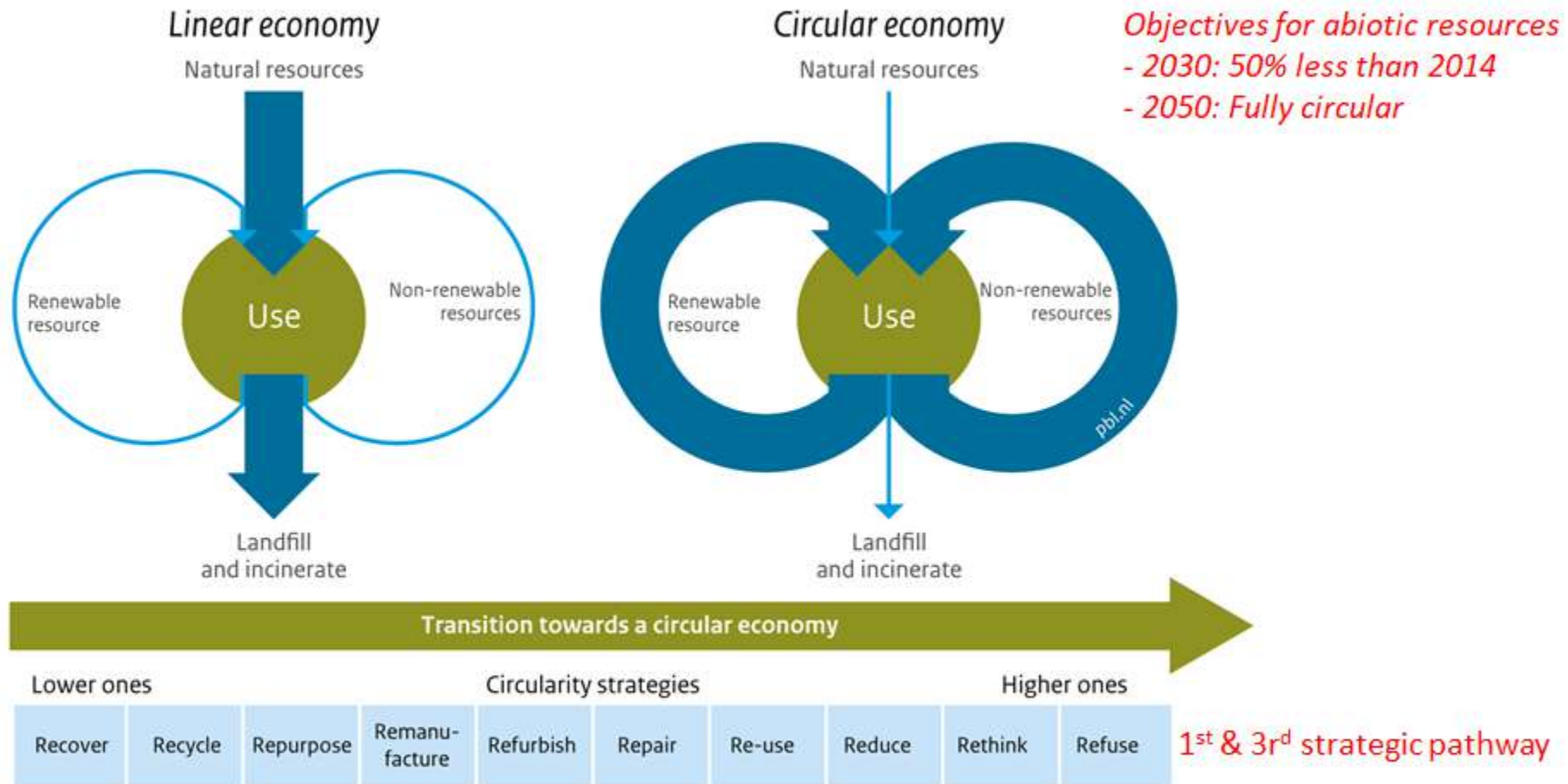
(4) Recovery; [https://ec.europa.eu/eurostat/databrowser/view/cei\\_wm040/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/cei_wm040/default/table?lang=en)

- Increase natural resource supply security
- Reduce environmental pressures
- Create socio-economic value

# Circular economy – Dutch policy plan

‘A circular economy in the NlDs by 2050’

## From a linear to a circular economy



Substitution of abiotic by sustainably extracted and generally available resources **2<sup>nd</sup> strategic pathway**



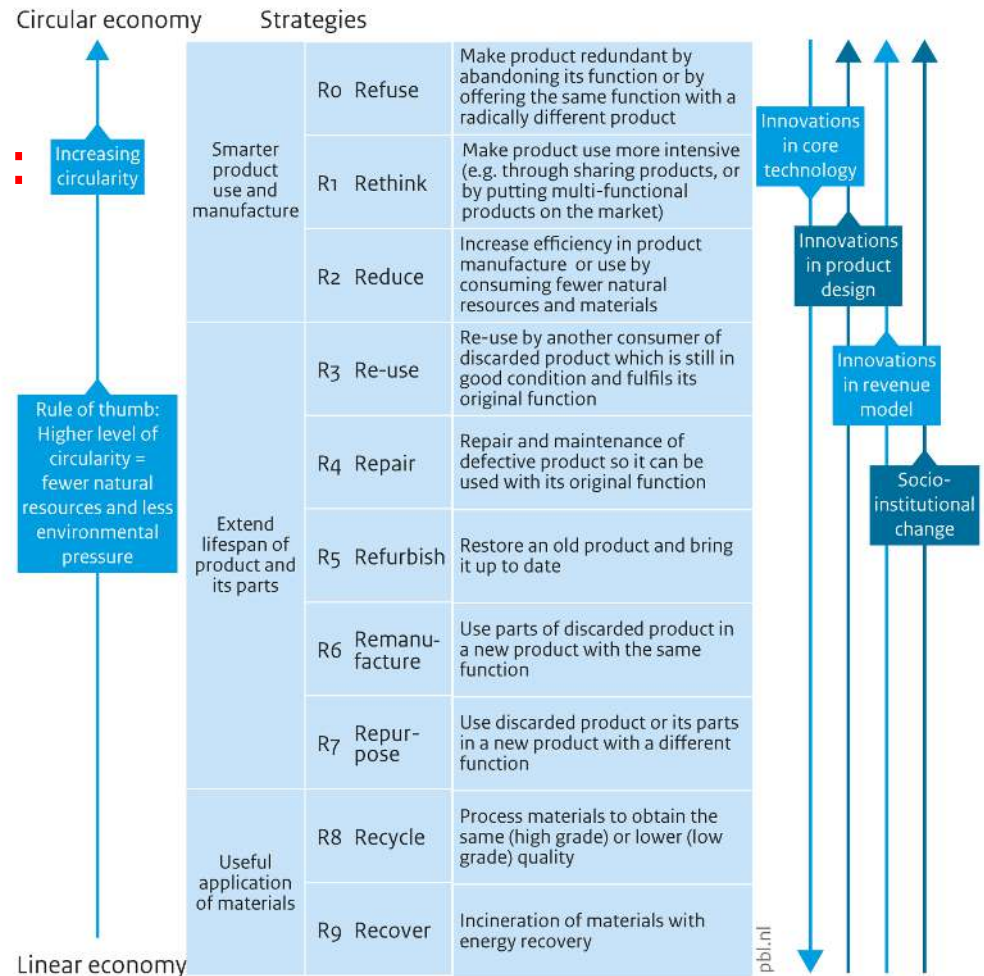
# Circularity ladder & innovations

Product **functions** central:

I don't need a drill.  
I need a hole in the wall



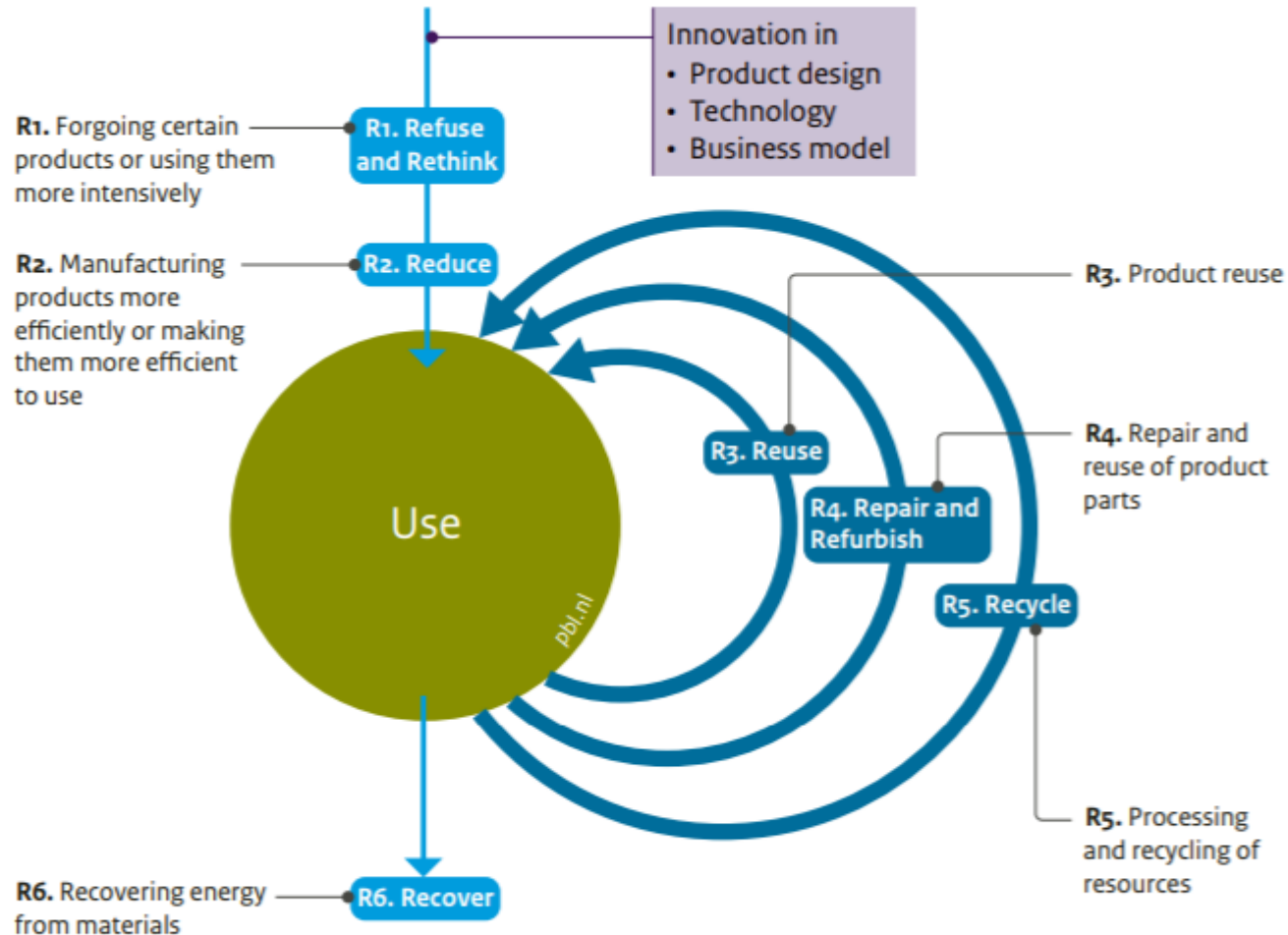
Circularity strategies within the production chain, in order of priority



Source: RLI 2015; edited by PBL

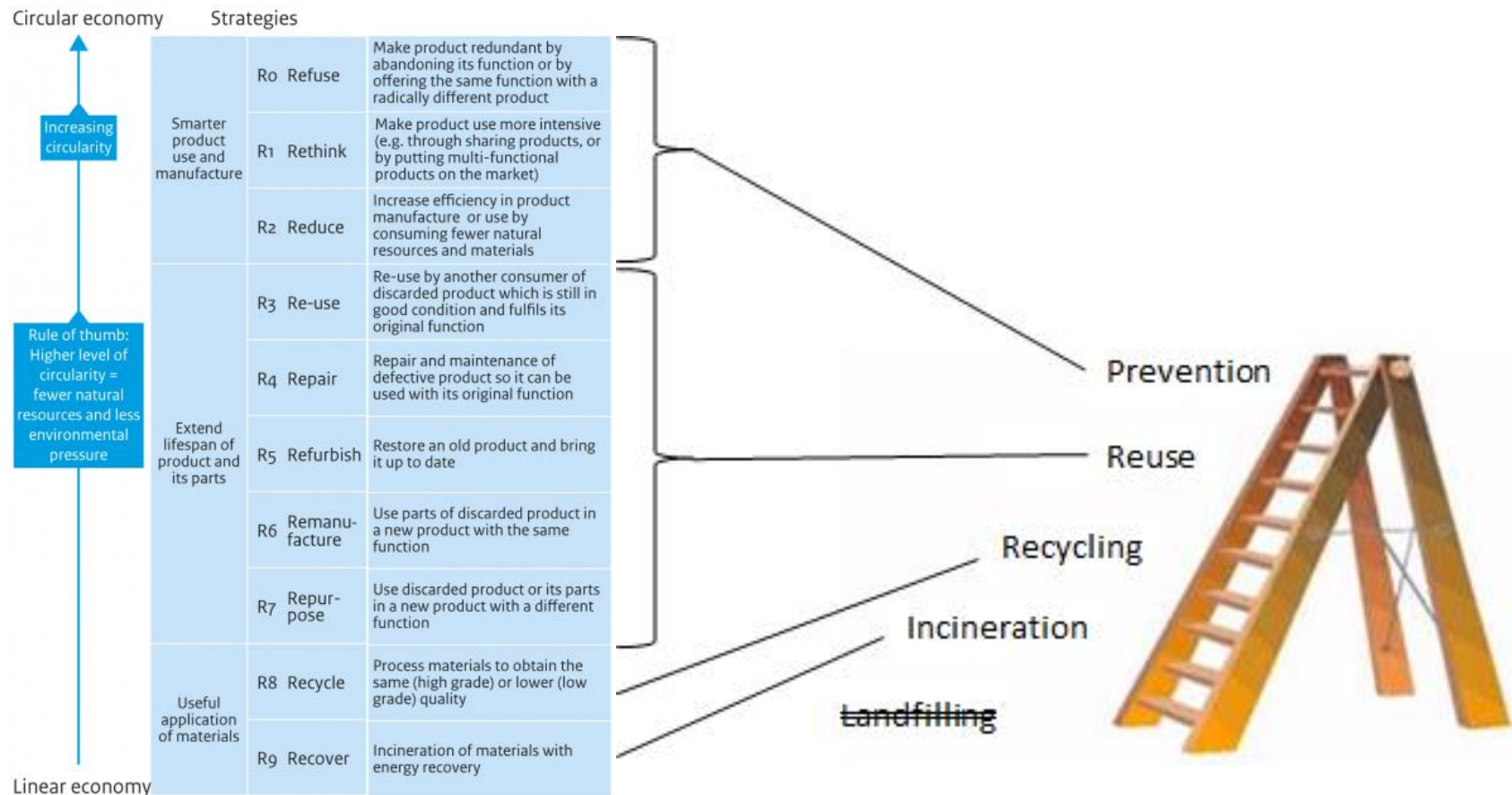
www.pbl.nl

# R-ladder with CE-strategies



# Circular economy

Resource management ← waste management





# Circular economy & other policies

Circular economy policy primarily builds on:

- 'From waste to resources' (VANG) programme  
(taking waste policy to next step)
- 'Green growth' (GG) programme  
(transition from fossil to biobased resources)

Links with (amongst others):

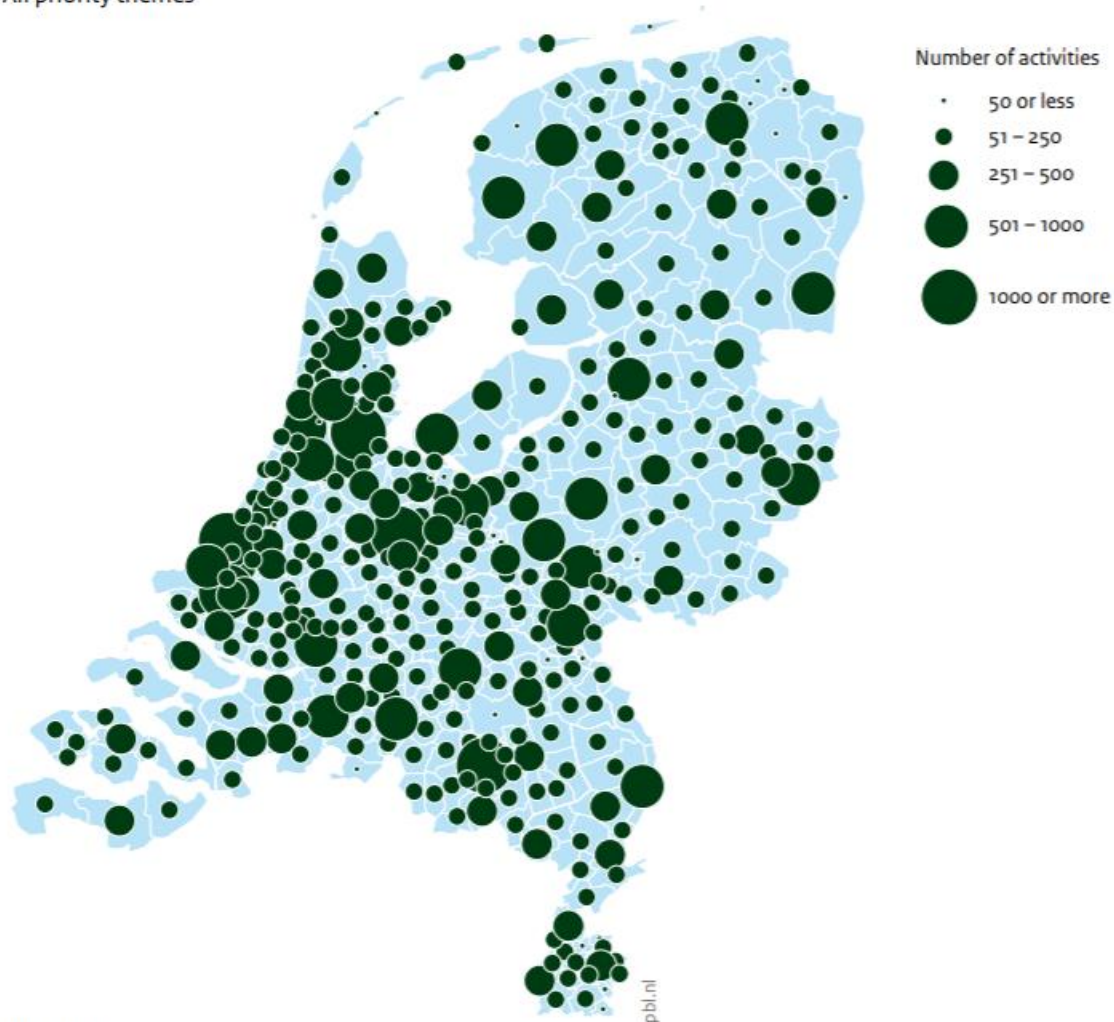
- Environmental policies (including climate change)
- Food & agricultural production
- Economy & finances
- .....



# Circular activities in the Nlds – 1

Circular economy activities per municipality, 2018

All priority themes



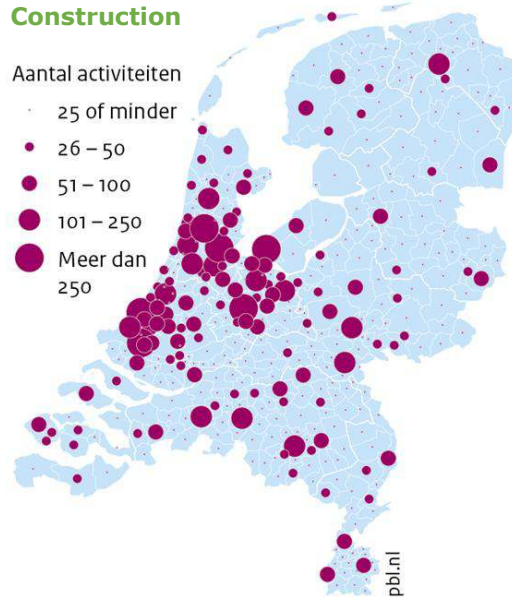
Source: PBL

# Circular activities in the NIs – 2

## Construction

Aantal activiteiten

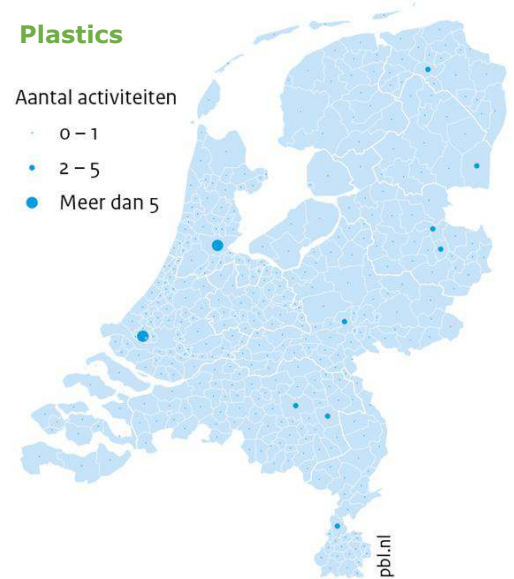
- 25 of minder
- 26 – 50
- 51 – 100
- 101 – 250
- Meer dan 250



## Plastics

Aantal activiteiten

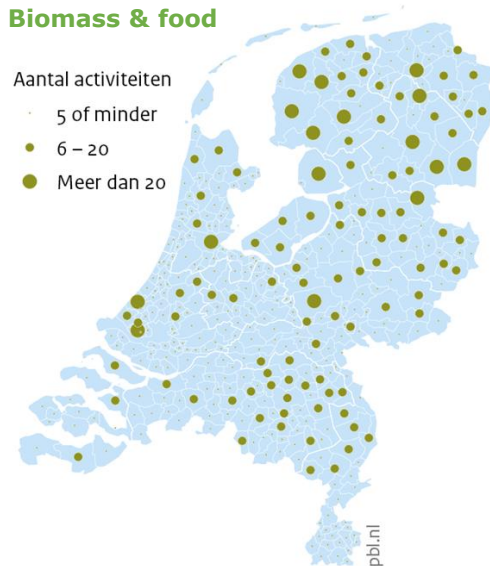
- 0 – 1
- 2 – 5
- Meer dan 5



## Biomass & food

Aantal activiteiten

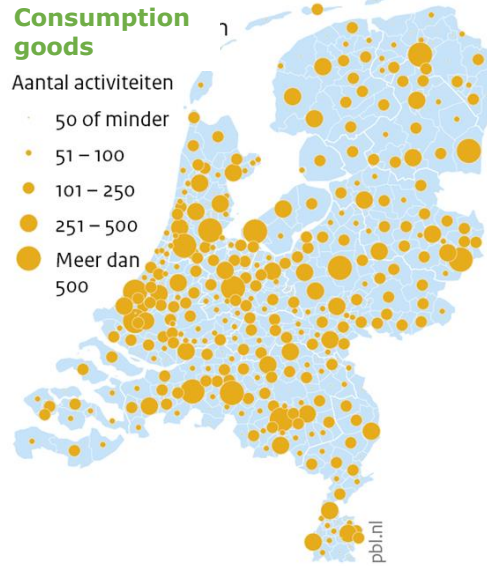
- 5 of minder
- 6 – 20
- Meer dan 20



## Consumption goods

Aantal activiteiten

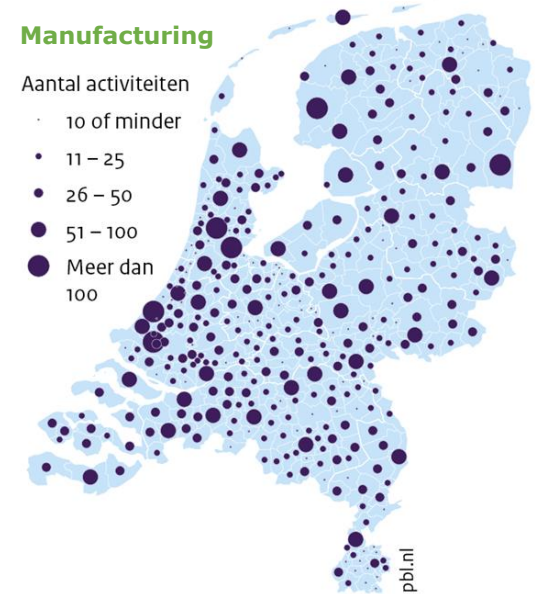
- 50 of minder
- 51 – 100
- 101 – 250
- 251 – 500
- Meer dan 500



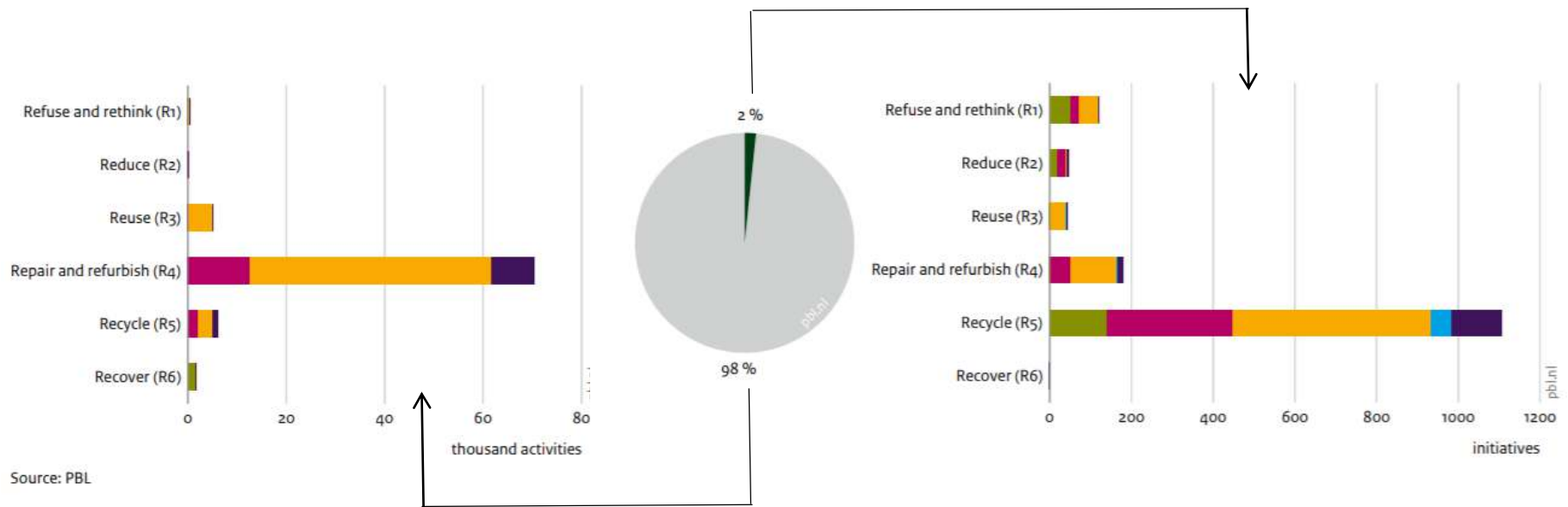
## Manufacturing

Aantal activiteiten

- 10 of minder
- 11 – 25
- 26 – 50
- 51 – 100
- Meer dan 100



# Circular activities in the NIs – 3



Source: PBL



# Some innovative examples



"We sell subscriptions for mobility services rather than to bicycles."  
Richard Burger,  
Swapfiets



"We offer modular headphones as a service. Why as a service? Well, to provide our customers with worry-free enjoyment of their headphones. Moreover, it enables us to develop headphones that break less often and can be repaired more easily, and so that we can reclaim and recycle them. We firmly believe that this is the new way of product development."

Marrit van Nattern, Gerrard Street

Source: PBL

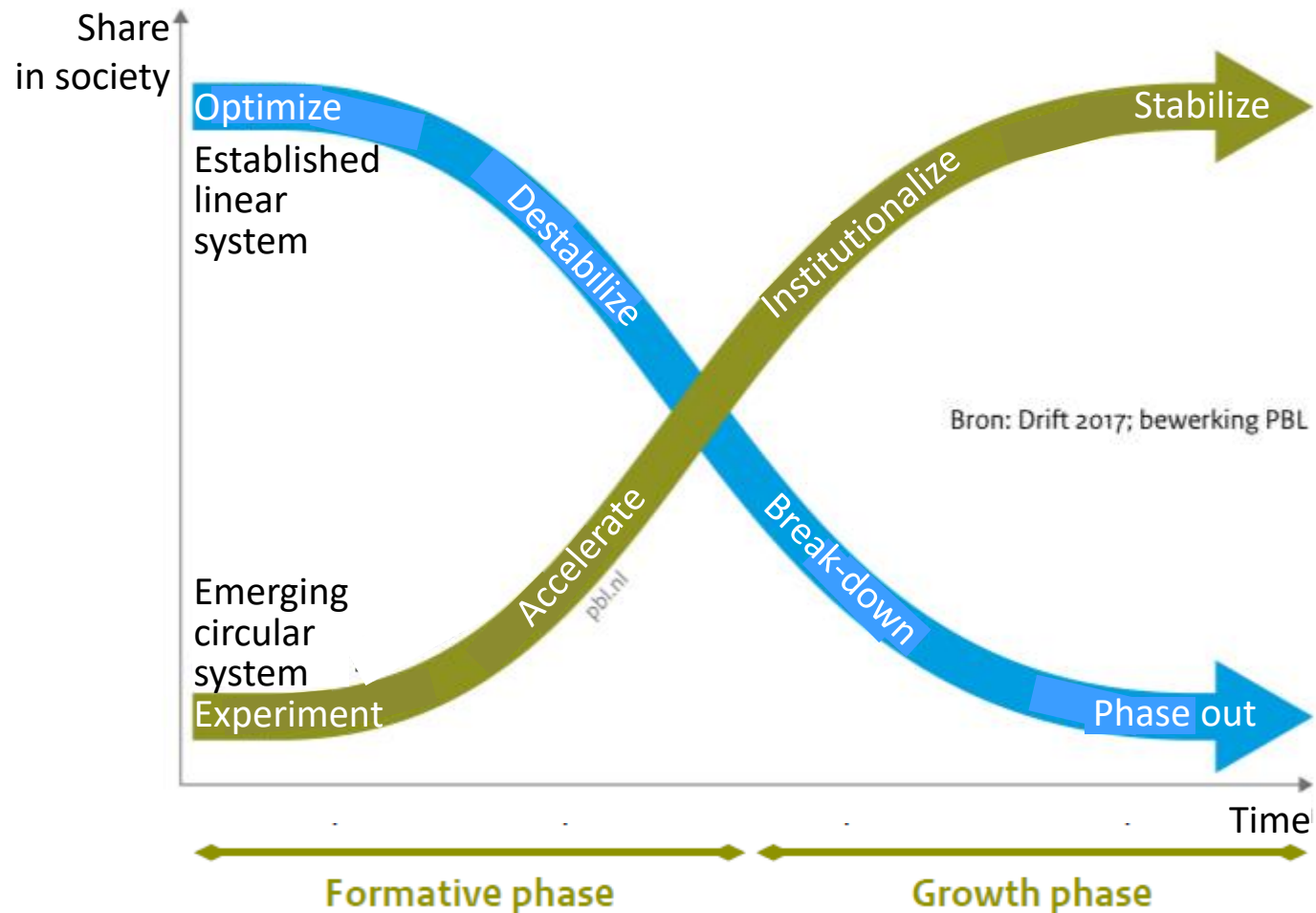


"A certain amount of good quality food is being wasted, each year. A large share of this food cannot be sold, because it consists of undersized or misshapen fruits and vegetables, heels and stalks. 'The Surplus Food Factory' (De Verspillingsfabriek) 'rescues' a share of this fresh produce and turns it into soups and sauces, which are prepared by people with a distance to the labour market. Because also talent should not be wasted."

Bob Hutten, De Verspillingsfabriek

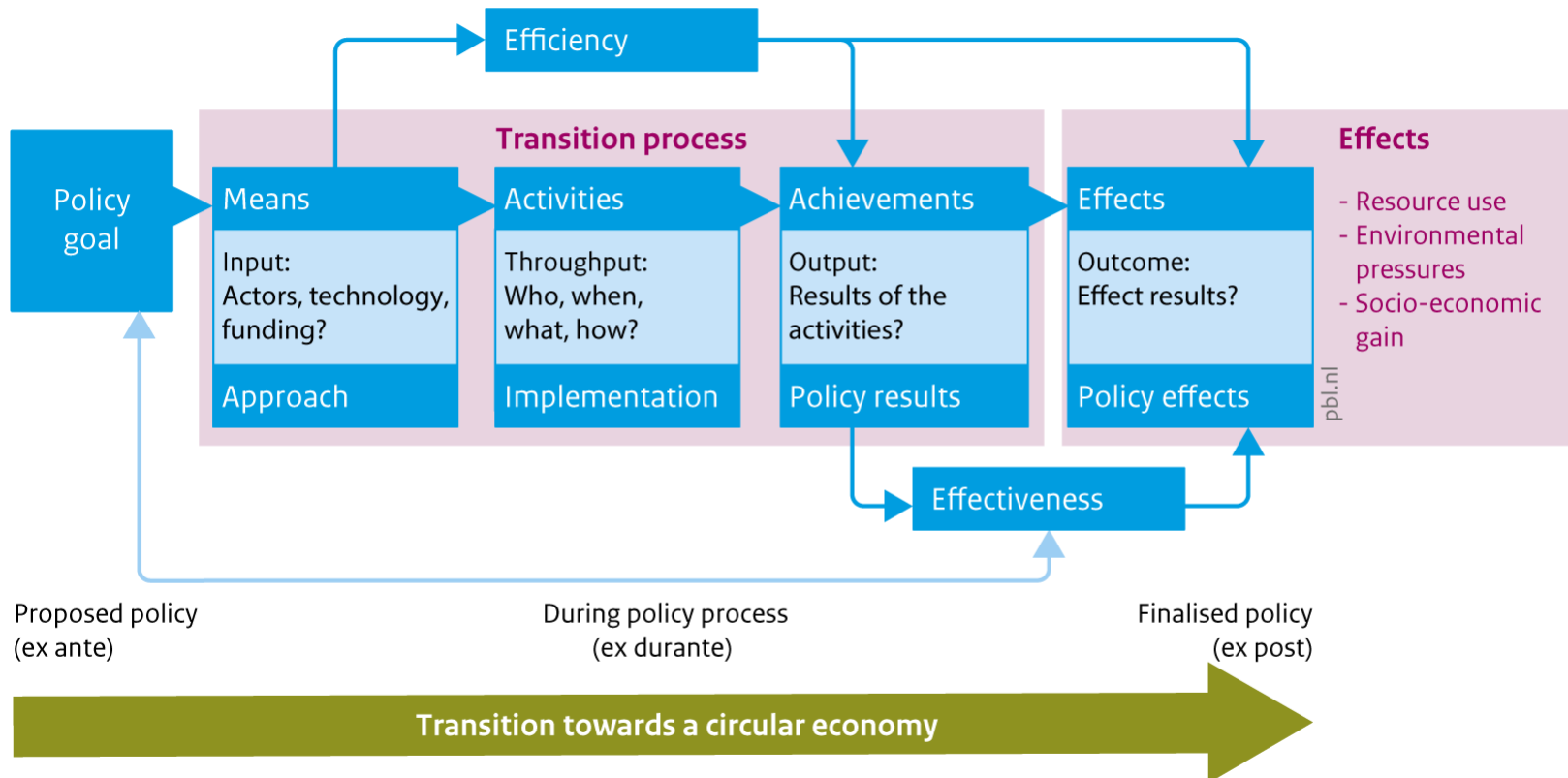


# Transition to circular economy

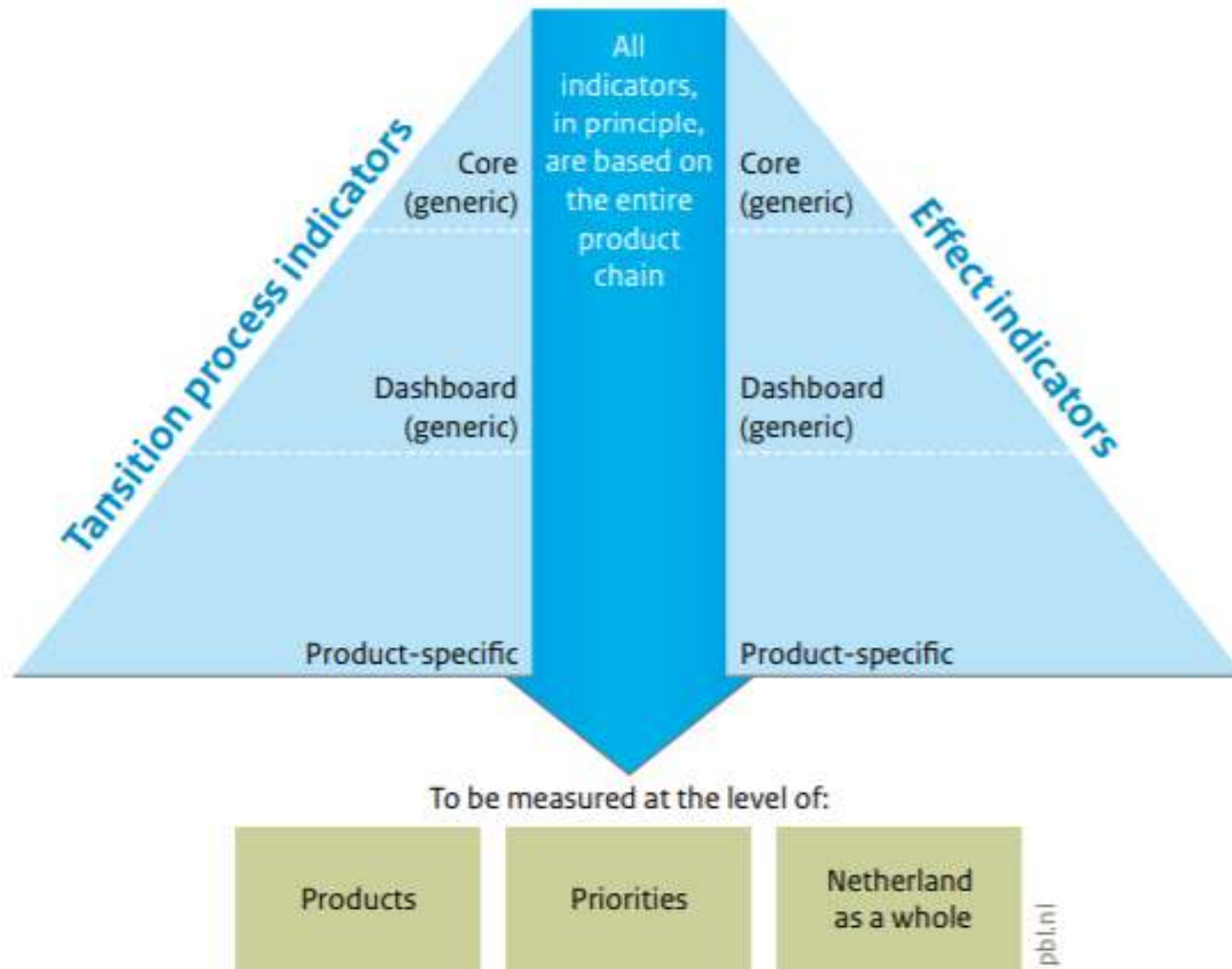


# Dutch monitoring framework

Policy assessment framework for measuring the progress of the transition towards a circular economy



# Proposed monitoring structure



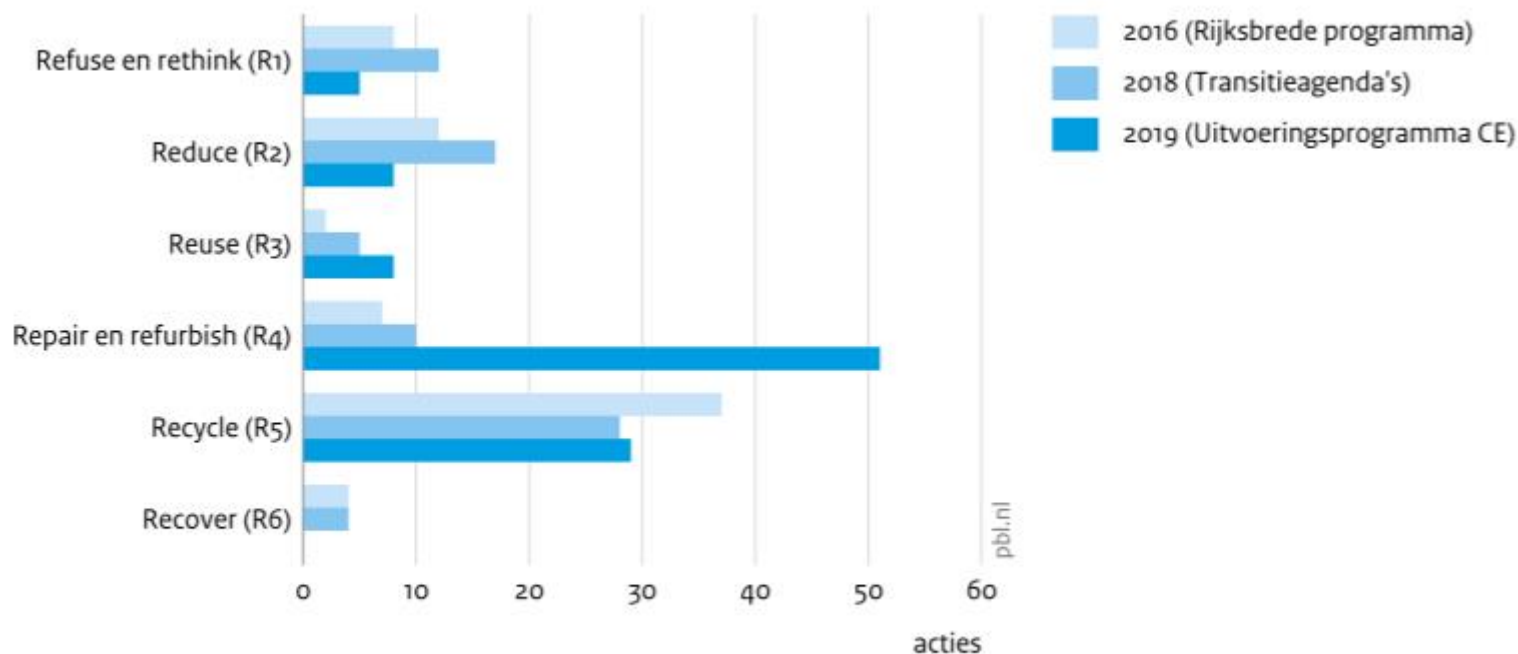
# Adjustments to halving target

Final aim is lower environmental impact in supply chain & lower supply risk for critical materials

Need for specifying targets:

- Per materials based on criticality, environmental impact & economic value
- Per transition agenda & materials
- Relating to input, use & output

# Circularity actions in policy plan



Bron: RIVM 2020



# Potential to avoid CO<sub>2</sub> by circular procurement

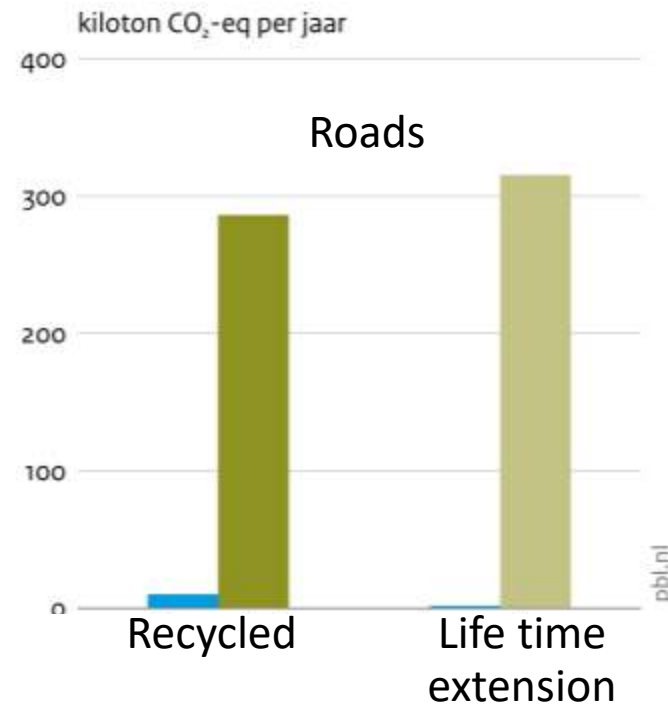


Aanbestedingen in 2017 - 2018

Potentieel

Alle aanbestedingen 10% refurbished

Alle aanbestedingen met levensduurverlengende maatregelen



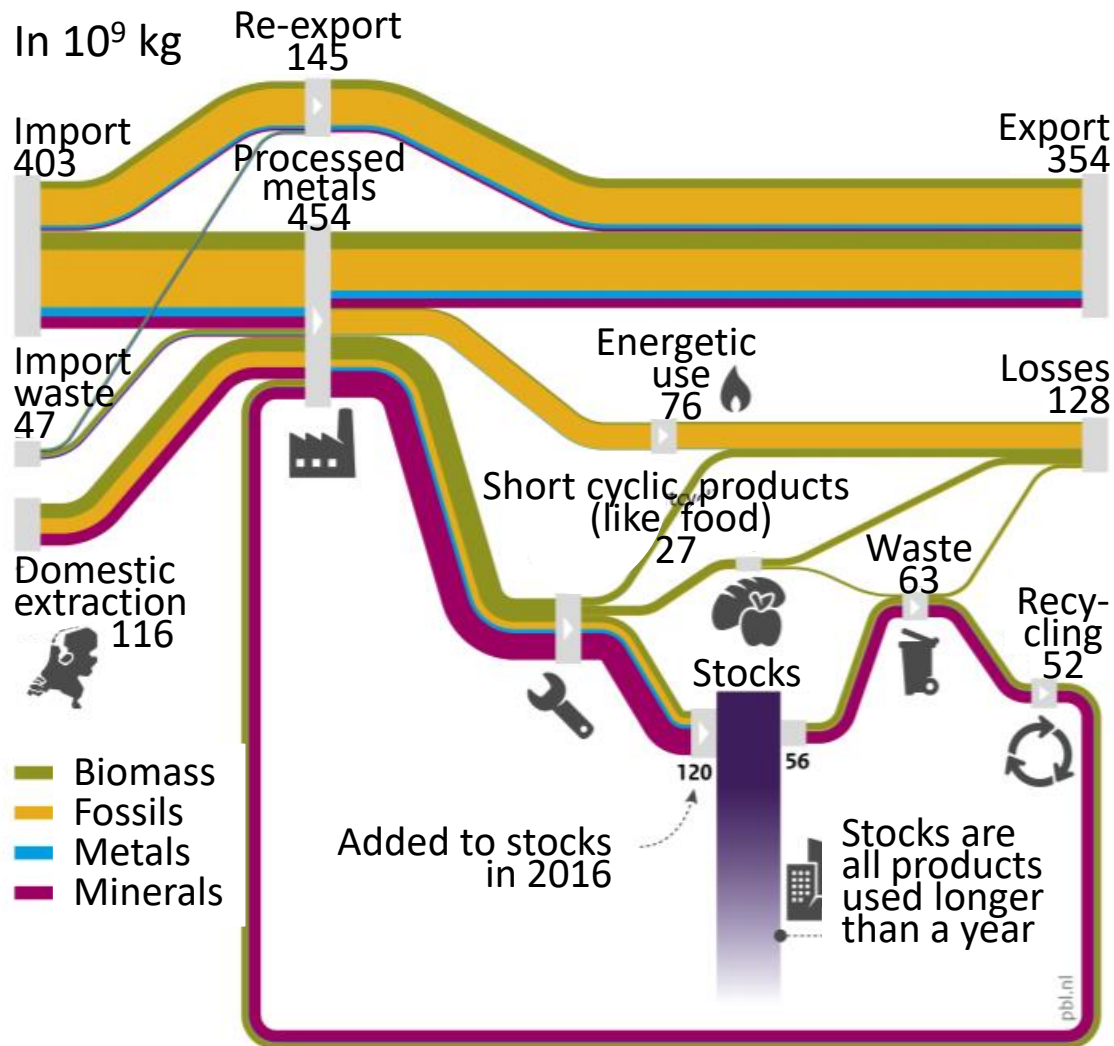
Aanbestedingen in 2017 - 2018

Potentieel

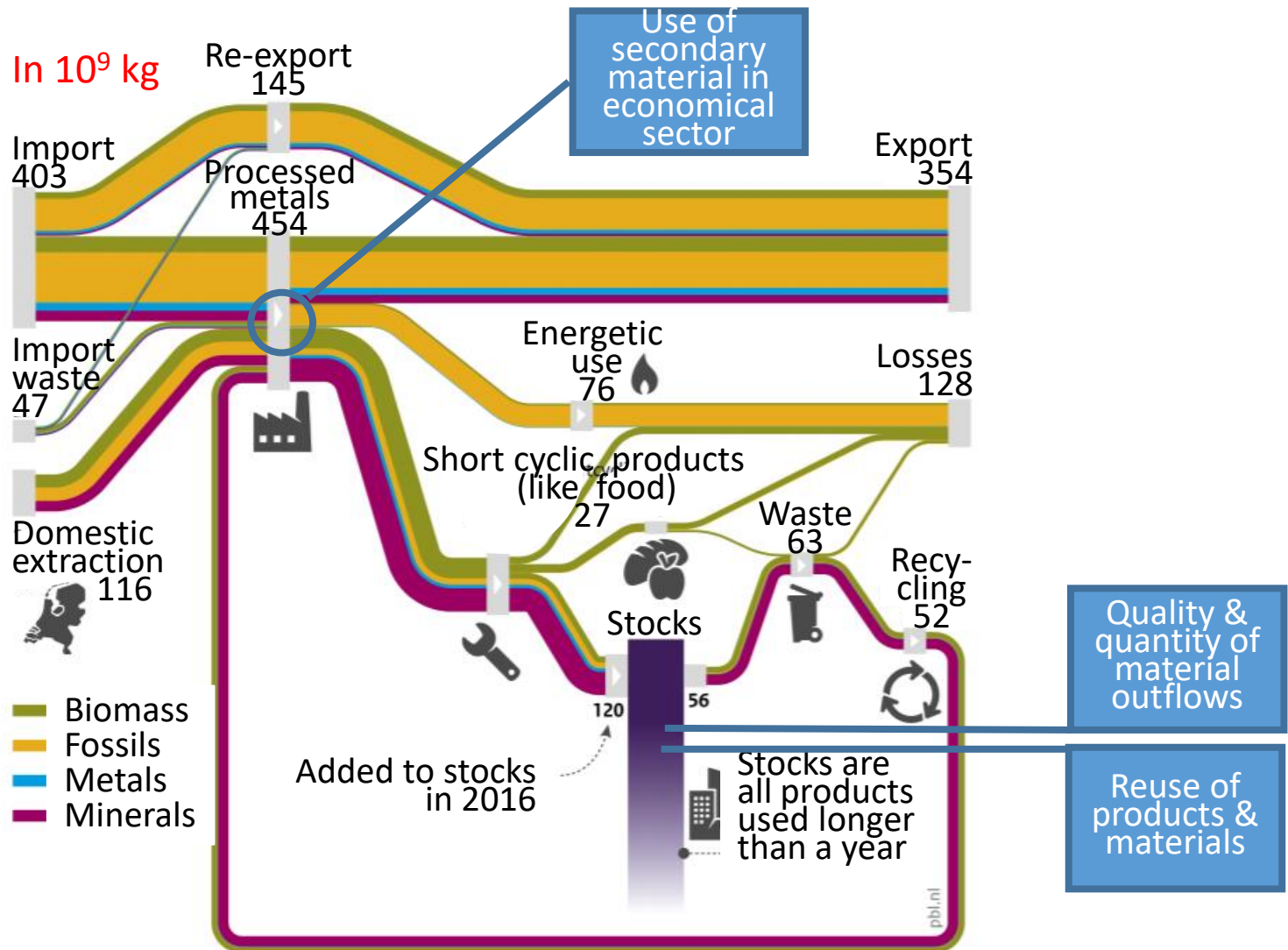
Alle aanbestedingen 50% gerecycled materiaal in toplaag

Alle aanbestedingen met levensduurverlengende maatregelen

# Material flows in Dutch economy



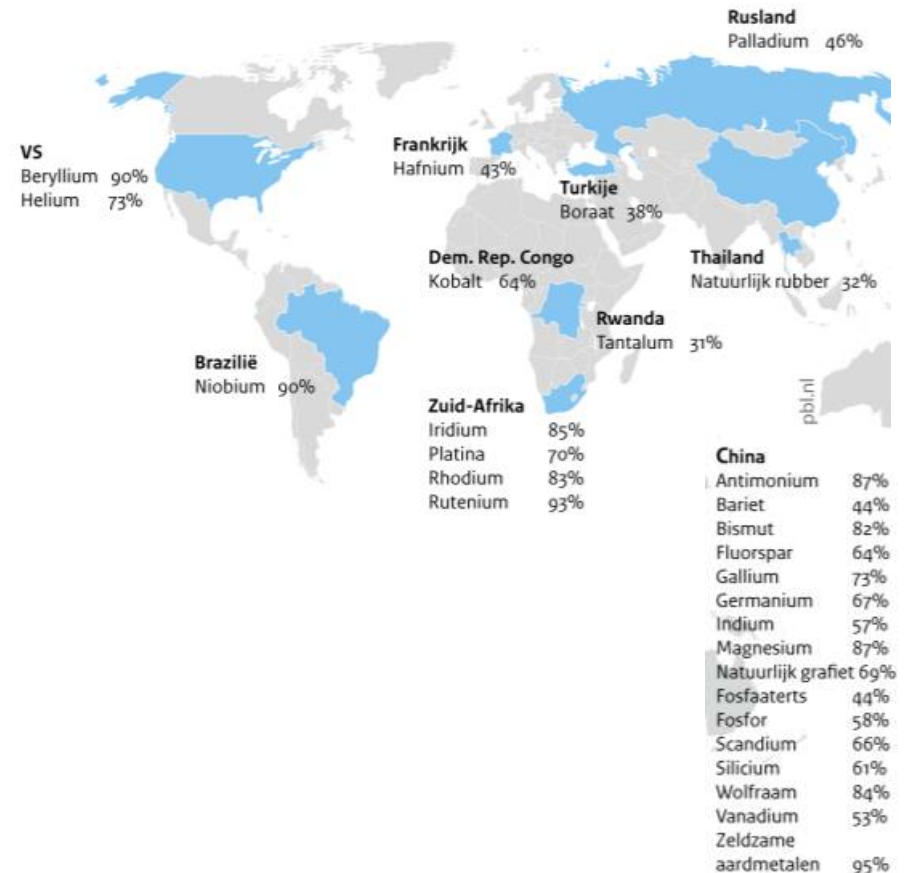
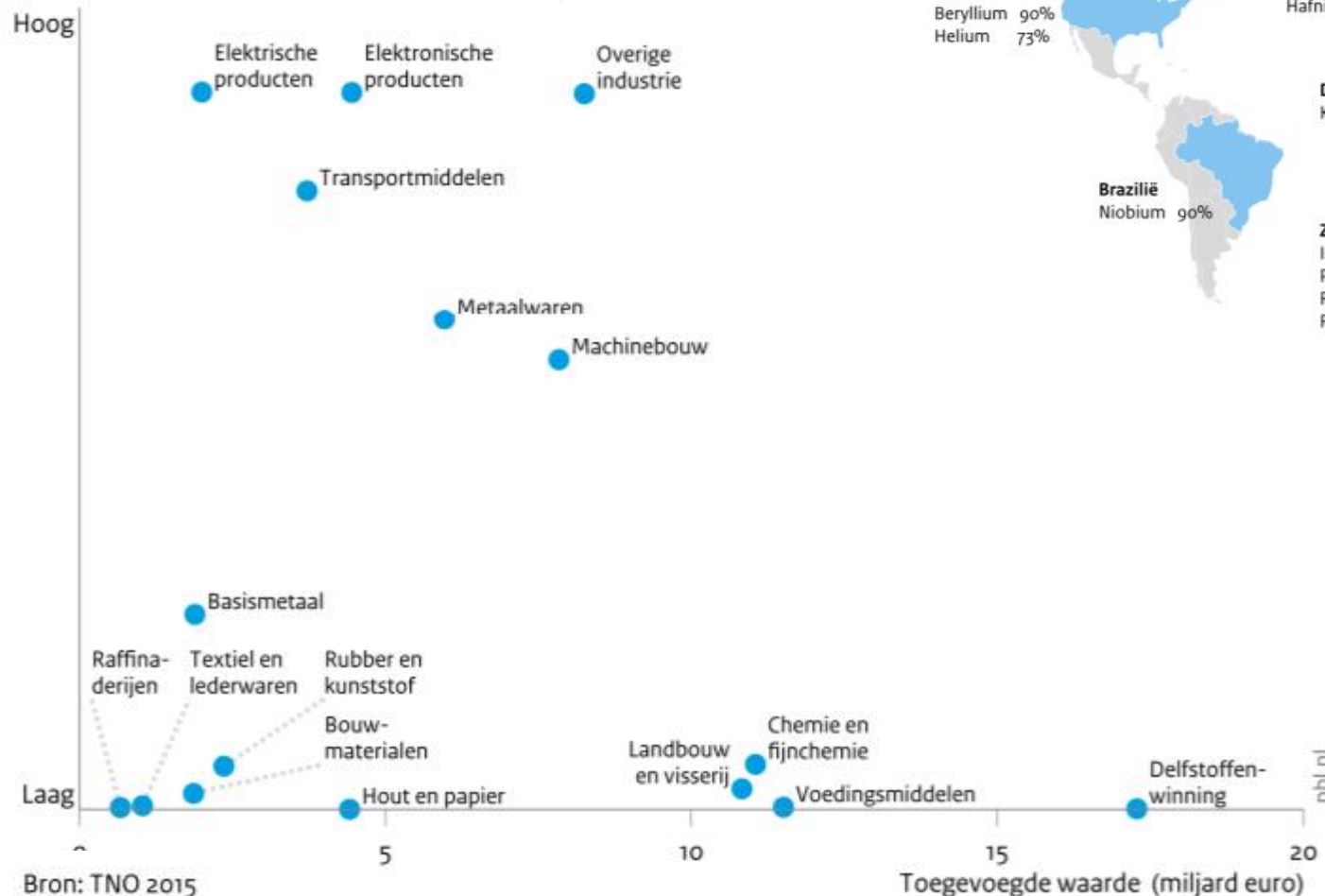
# Info-lacks for policy-making



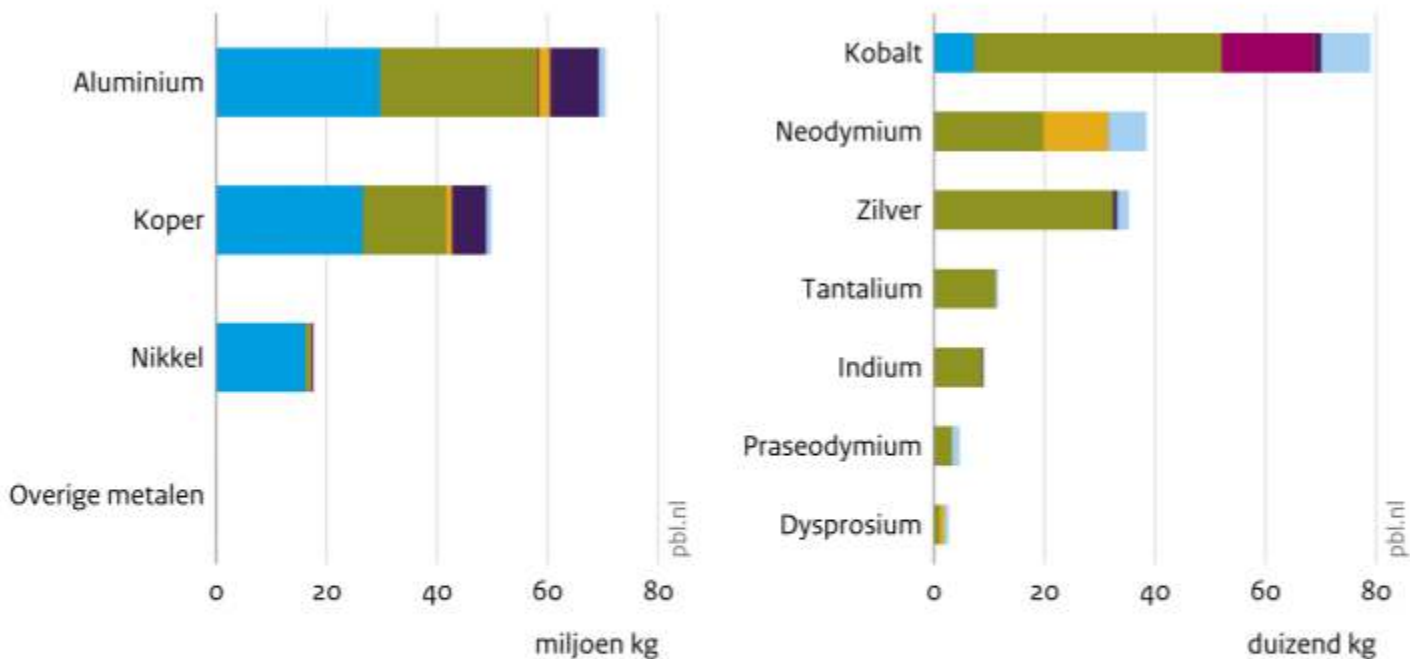
# Critical materials

Relation supply risk      Dominating countries 2010-2014  
& added value

Leveringsrisico (exclusief risico's door energietransitie)



# Material in electronic products



Cooling  
Monitors  
Lightning

Big devices (excluding solar panels)  
Small domestic devices  
Small ICT & telephone devices



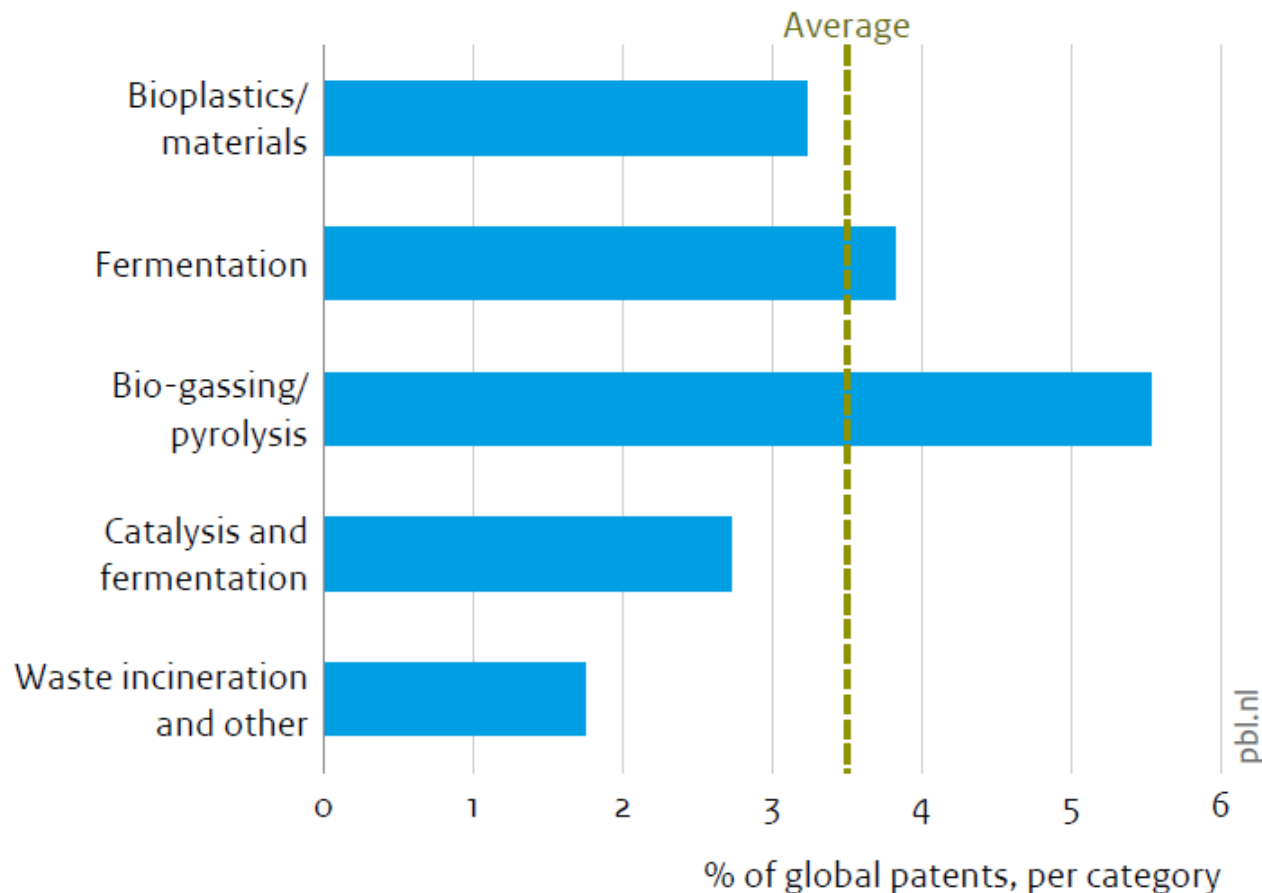
# Suggested indicators for measuring transition process

Source: PBL

	Capacity (able to)	Permission (allowed to)	Motivation (want to)
	All the indicators below are measured in three sub-classes (see Figure 2.2 for an explanation of the R numbers): R0–R2: Smarter product use and manufacture R3–R7: Extend lifespan of product and its parts R8–R9: Useful application of materials		
<b>Means (input)</b>	For increasing circular knowledge and expertise, e.g.: - Number of circular economy researchers (in FTE) - Investment in research (in euros) - Circular courses	For developing circular regulations and change 'linear' regulations, e.g.: - Number of circular policy advisers (in FTE) - Number of circular advisers in branch organisations (in FTE)	For developing circular visions and transition agendas, e.g.: - Number of people actively working on this (in FTE)
<b>Activities (throughput)</b>	Related to knowledge and expertise, e.g.: - Number of circular innovation projects - Share of circular projects in total number of innovation projects - Number of network meetings for circular projects	Related to developing circular and changing 'linear' regulations, e.g.: - Policy process for new circular laws and regulations - Negotiations for circular standards	Related to increasing motivation for the circular economy, e.g.: - Number of vision-forming meetings - Number of awareness campaigns - Description of awareness campaigns - Development of new laws and regulations that discourage linear practices (e.g. resource tax, public circular procurement, resource passport)
<b>Achievements (output)</b>	Knowledge- and expertise-related activities, e.g.: - Number of publications - Number of patents (technology, product design) - Number of new revenue models - Number of new circular products - Share of circular products in total number of products - Number of circular start-ups	New and changed regulations that permit circular initiatives, e.g.: - Number of legal and regulatory barriers to the circular economy removed - Description of new standards and regulations	Results of activities that increase motivation for circular economy, e.g.: - Number and description of vision documents - Number of circular economy media reports - Consumer perception of circular economy - Market volume of public circular procurement - Number and description of new laws and regulations that discourage linear practices (e.g. resource tax, public circular procurement, resource passport)
<b>Core achievements (core output)</b>	Circularity strategies (see Fig. 2.2; realisation of first and third strategic objectives) & Substitution (first and third strategic objectives)		

# Example of results

## Share of Dutch bio-based patents, 2008 – 2013



Source: RVO

# Circular economy & energy transition

- 40% of Dutch fossil energy carriers for materials & products
  - ~ 31% Direct fossil-use (feedstock & process energy)
  - ~ 9% Indirect fossil-use (energy for energy)
  - ~ . .% Abroad for Dutch production
- 55-77 % of CO<sub>2</sub> for materials & products in the NlDs
  - ~ 19% Direct from production & manufacture
  - ~ 24-30% Direct & further up-/downstreams in the NlDs
  - ~ 31-47% Abroad for Dutch production

(source Drissen & Vollebergh, 2018)

# Some conclusions

- Circular economy is more than recycling
  - Circular economy: Resource management (incl. waste management)
  - Dutch ambition: 50% resource use in 2030, fully circular in 2050
  - Presently 85.000 circular activities in the NlDs
    - > 85% Repair activities
    - ~ 2% Innovative activities (recycling dominant)
  - Large overlap between circular economy & energy transition
  - Monitoring progress towards circular economy :
    - Effect indicators: Partly available ('classical' indicators)
    - Transition process: Novel, to be further elaborated
- Baseline 2014 and results 2016^2019 available

# Some recommendations

- Keep CE-policy distinct from other policy areas (though obvious overlaps exist)
- Move beyond recycling to higher circularity strategies
- Use creativity from stakeholders (though be aware of strategic behavior)
- Consolidate enthusiasm of stakeholders, celebrate steps forward



# Used sources

- Drissen & Vollebergh (2018; in Dutch): <https://www.pbl.nl/sites/default/files/downloads/PBL-2018-Bijdrage-circulaire-economie-aan-energietransitie-3277.pdf>
- Dutch CE-policy plan: <https://www.government.nl/documents/policy-notes/2016/09/14/a-circular-economy-in-the-netherlands-by-2050>
- Kishna et al. (2019; in Dutch): <https://www.pbl.nl/sites/default/files/downloads/pbl-2019-policy-brief-doelstelling-circulaire-economie-2030-3551.pdf>
- Potting et al. (2017): <https://www.pbl.nl/sites/default/files/downloads/pbl-2016-circular-economy-measuring-innovation-in-product-chains-2544.pdf>
- Potting et al. (2017): [https://www.pbl.nl/sites/default/files/downloads/PBL-2017-EPA-network-discussion-paper-monitoring-progress-of-the-circular-economy-in-the-EU\\_2772\\_1.pdf](https://www.pbl.nl/sites/default/files/downloads/PBL-2017-EPA-network-discussion-paper-monitoring-progress-of-the-circular-economy-in-the-EU_2772_1.pdf)
- Potting et al. (2018): <https://www.pbl.nl/sites/default/files/downloads/pbl-2018-circular-economy-what-we-want-to-know-and-can-measure-3217.pdf>
- Prins & Rood (2020; in Dutch): <https://www.pbl.nl/sites/default/files/downloads/pbl-2020-op-weg-naar-een-robuuste-monitoring-van-de-circulaire-economie-3808.pdf>
- Rood & Kisna (2019): <https://www.pbl.nl/sites/default/files/downloads/pbl-2019-outline-of-the-circular-economy-3633.pdf>

# Thanks for your attention !

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