International Workshop on Targets for a Circular Economy

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In preparation for The Annual World Economic Forum (WEF) meeting in January 2020, PBL Netherlands and Utrecht University, in consultation with PACE, organized an international workshop on targets for a circular economy on the 17th of January 2020 in The Hague. The workshop was attended by more than 30 leading actors in CE targets and indicators from public, private and civil society in Europe. In preparation of the workshop a short paper was written as input for the debate. The paper, participants and program of the workshop can be found in annex I, II and III.

Goal of the workshop

The goal of the workshop was to discuss key dimensions for circular economy (CE) targets that go beyond the input of resources and generation of waste, to identify the need for coordination, harmonization and alignment, and to set a basis for further collaboration among the participants with next steps. Based on short input presentations from science, policy and business perspectives and discussion rounds with all participants, recommendations were presented to Stientje van Veldhoven, the Dutch Minister of Housing and Environment. After the discussion, the recommendations were reformulated and used as input to shape the discussion on CE metrics at the WEF (see annex IV).

Summary of the day

1. Opening

In his opening chairman Marko Hekkert (Professor innovation studies and Director of the Copernicus Institute for Sustainable Development at Utrecht University) explained the goal of the workshop and made a distinction between targets and indicators. Furthermore, he pointed out that the aim of the

workshop will be to talk about the circularity targets and desired effects rather than transition indicators and the use of policy instruments to realize the desired effects.

Hans Mommaas (Director PBL Netherlands Environmental Assessment Agency) held an introduction about the Dutch context of CE policy and the role of PBL in this context. He explained that PBL was asked to look at the current Dutch target for CE and mentioned that a single target (as it is used now) might function as a dot on the horizon. However, for the purpose of steering a set of indicators is needed. He presented a framework for key elements for CE that PBL has developed. One of the challenges of this workshop is to emphasize the need to identify and discuss the key dimensions for CE targets and to develop a matching set of indicators (see annex V.a for the slides).

2. Targets for a circular economy from science and policy perspectives

After that, an academic and a policy perspective on targets for a circular economy were presented by Karel van Acker (Professor Circular Economy at University of Leuven, Belgium) and Hugo Schally (Former Head of Unit DG Environment for Eco-innovation and Circular Economy). Through the introduction of a monitoring framework, Karel van Acker stressed the importance of a meso focus (addressing societal needs or services, such as mobility), to complement an already more established macro (economic system, e.g. DMI) and micro perspective (products). Until now, the needs and consumer perspective are often lacking while stocks and behavior also need more attention (see annex V.b for the slides).

Hugo Schally (European Commission) thereafter made the point that CE is a means to transform our economic system so that it operates in a safe operating space rather than it is an end in itself. He stressed that there is a need for an indicator set that connects CE to environmental impacts, to other policy areas, and a company level and the need to capture possible rebound effects of a circular economy. He stressed the importance of starting to work with existing indicators and build on them, as well as to align the financial, business and national indicators for CE. Furthermore, Schally mentioned that the indicators for CE will be updated in the CE Action Plan 2.0. Footprints serve to assess the effects of CE. The current work on the Product Environmental Footprint Indicator (PEF) can be used for the product perspective. Together with the Joint Research Centre (JRC), the European Commission (EC) is looking to develop a basket of indicators for footprints for consumer goods.

3. Discussion

These inputs were followed by a round of discussion among all participants, which can be summarized along a couple of key points:

- **CE as a means to an end:** In the discussion, the CE was described as the “center of the engine” enabling the pursuit of prosperity and well-being within the limits of our planet. The participants agreed that it is thus a means to minimizing environmental impacts and maximizing socio-economic benefits. Material loops can be closed on different levels, such as the whole economy, a single county, a company, or a product (supply chain). To determine if closing the loop makes sense in a certain case, it is crucial to assess the final environmental and social impacts that come with it. This raises the question of how these impacts can be measured.
- **Measuring environmental impacts:** We want to know to what degree the transition to a CE with higher resource efficiency and recycling rates, eventually reduces environmental impacts. Although there still is important work to be done in terms of defining environmental indicators, some are already available. Consumption and production footprint approaches were emphasized in the discussion as they take value chains and embedded resources in third countries into account. A need to link CE indicators to other policy areas was stated (e.g. climate change, biodiversity, agriculture, SDGs).

- **Measuring social impacts:** In the discussion, participants agreed that there is a need for more social indicators, even if they are difficult to measure. The number and quality of jobs matter. However, there is no consensus yet over what meaningful effect indicators are that go beyond jobs.
- **Developing an indicator set:** The participants agreed that a set of indicators should be developed rather than one main indicator, and that such a set should build on already existing indicators on an international level. A number of aspects were mentioned that have to be taken into account in the indicator development process: How do we make the link between the CE indicators on a country level and on a supranational level (EU, the world)? Do we want binary indicators or 'gradual transition indicators'? How can indicators be linked to methodologies and tools that support appropriate decision making at a company level? In addition, it was emphasized that it is relevant to account for differences between product groups.
- **Keeping value in the supply chain:** Keeping value in the value chain and is a crucial aspect of a CE. There is a lot of focus on material streams, but products are often not circular. It all depends on how the product is put in the market. How can we find integrated ways to look at impacts and consequences of value chains?
- **Assessing economic incentives structures:** It was mentioned that there is a lack of integrated knowledge on indicators regarding economic incentives structure (tax, norms, market structure, price levels etc.).
- **Data availability:** Apart from the lack and harmonization of indicators, the issue of data availability was discussed: A big part of the existing data is not suitable for CE, because the focus is on territorial data, while many material and supply chains cross (many) boarders. There is information on the input of resources, recycling and waste and on the effects of the consumption needs. Much relevant data is lacking, especially on the use phase and connection between circularity and their effects. Furthermore, the relevance of adding the consumption perspective to the country and product level was underlined. According to several participants, there is currently a lack of data transparency. Companies would have a lot of the data that is needed, but it is unavailable to researchers and policy makers to make full use of it. There is only a small group of people currently working on material resource data integration now, which is relevant for the CE, and a structural provision of resources for researchers etc. is lacking.
- **Need for resource allocation:** There is a need for additional resources in order to develop an integrated indicator set and better data integration. Many people in the EU are working on GDP calculations, but only a few on CE indicators.

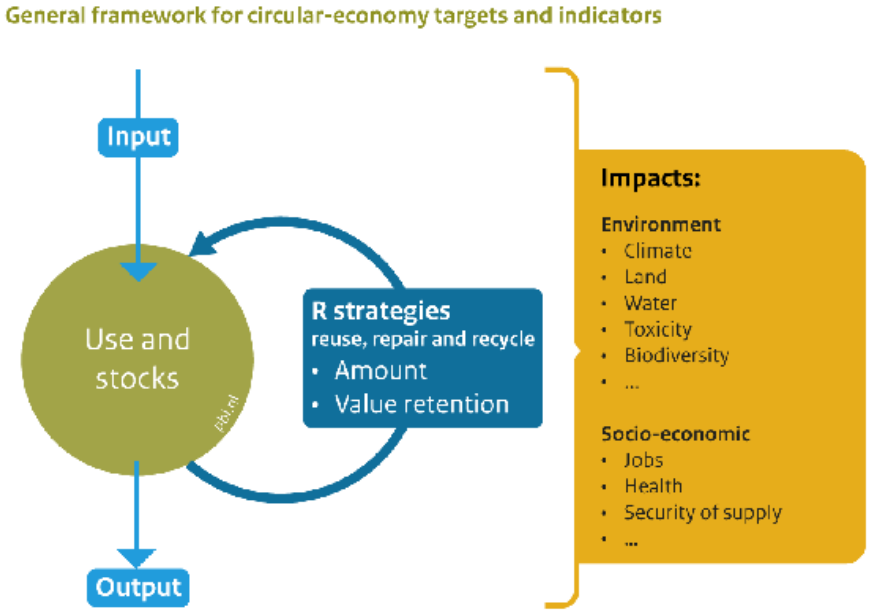
4. Targets for a circular economy from business perspective

In the second part of the day, Renilde Becqué (Independent Sustainability Consultant to WRI), Brendan Edgerton (Director Circular Economy WBCSD), and Jarkko Havas (Head of CE data and metrics at Ellen MacArthur Foundation) presented their inputs on circular economy targets from a business perspective. These slides can be found in annex V.c-e. Renilde Becqué presented an overview of the CE indicators landscape on transition and impact indicators. Whereas impact indicators were widely accepted but need joint agreement (e.g. Paris Agreement, SDGs), the variety of transition indicators needed coordination and alignment, and there is no consensus about how to link the transition level to the impact level. Brendan Edgerton showed WBCSD's Circular Transition Indicator Modules. He talked about how companies can optimize the loop by measuring their circularity within four walls. First, by understanding how much of their flow is linear and circular by calculating the circularity on their products. Inflow and outflow are the main indicators, but energy and water are also included so that this information can be monitored throughout time. From there, the loop can be optimized by analyzing how much is going to each recovery-type (recycling, reusing, refusing). WBCSD starts with

existing indicators and does not look at impacts yet for CE but is planning to do so coming years. The same goes for economic parameters. Jarkko Havas presented Circulytics, a tool for companies to calculate their circularity within the boundaries of a country, encompassing energy, materials, what is imported and what is produced (locally, regeneratively, sustainably). Based on indicators that have been developed in collaboration with a network of global partners, the tool reveals the extent to which a company has achieved circularity across its entire operations.

5. Discussion

After these inputs, Aldert Hanemaaijer presented a **framework** from PBL, showing resource inputs, use, outputs, and effects as the main elements of a circular economy. This figure (which can be found in the input paper in annex I, figure 1) provided a basis for discussion of elements that should be changed or added. This led to the following updated version of the figure:



Source: PBL

The relevance of identifying circularity indicators regarding inputs, use and stocks, the R-strategies, and the outputs (in the left of the figure) and regarding the effects of a circular economy (in the right of the figure) was shared by most participants.
The main points of discussions were:

- The figure should be applied to different layers (macro, meso, micro).
- Use and stocks:
    - A distinction should be made between short and long-time use (stock) of materials and products, as well as changes to the stocks over the lifetime of the product, as this affects the outputs.
    - Use efficiency should be taken into account.
    - Not only volumes, but also the value retention is important. There are different types of value that should be differentiated: economic/monetary value and societal value.
- Impacts:
    - *Impacts* is less confusing as a term than *effects*. The impacts should be grouped into two types: environmental and socio-economic

6. Recommendations and wrap up, with the Minister of Housing and Environment

The outcomes were presented to the Minister of Housing and Environment, Stientje van Veldhoven. She was very happy with the diversity of people and backgrounds from countries and companies. She made a pledge for the following points:

- **CE is a crucial means to an end**: We want to be fully circular because of the effects; the Dutch CE ambition to become fully circular by 2050 is a mean to realize climate and other targets. This is necessary to achieve the Paris goal. CE is crucial to measure the increasing resource demand and associated impacts.
- **This is the period for speeding up, scaling up and structuring the CE transition:** We need to know what effective and efficient policy instruments are.
- **We need to align and harmonize the monitoring efforts:** We need a set of indicators to track progress, where one target can be used for communication and inspiration. Countries and companies both need to come to a comparable set of indicators. We need a structural approach and burden sharing of the efforts.
- **A combination of inspiration/ambition and binding policy is needed:** Targets need to be clear, understandable, and inspiring. Indicators are needed to track the progress towards the set targets.
- **This is the start of a process for structural cooperation**: If we want to speed it up, we need to coordinate ourselves. No country can do this alone, so we need international collaboration beyond Europe, coherence, and joint programs with divided tasks and joint efforts to combine our insights. Let us make a start by keeping each other informed about important moments (Davos, etc.) and softly organizing a collective agenda.

The minister´s inputs were discussed around the following main points:

- **EC has published the new Green Deal**: The new Climate Pact and second CE Action Plan are following in the coming months. This action plan will also discuss how to speed and scale up, using indicators and targets, including the need for a headline indicator.

- **CE is about changing mindsets**: How can we support businesses that provide access to products and services in a more circular way?
- **Emphasize the inner loops**: Rethink, reduce, reuse are crucial strategies to increase product life cycle and value.
- **Need to scale up beyond Europe**: The International Resource Panel (IRP) is an important player that could be enriched by encompassing more non-European countries. Countries like the Netherlands and the EU as a whole are leading the discussion at the moment. Better alignment of international statistics is needed, and the challenge is to produce new and better data in non-OECD countries.
- **Build on what we have:** Let us make use of existing networks and indicators, rather than reinventing the wheel. Establish links to decentralized governments, NGOs, big companies, SMIs, and the financial sector. We need especially the interface between countries and companies, aimed at public private collaboration. PACE is equipped to make that connection. EEA, PACE and OECD can function as focal points.
- **Focus on data availability**: We need high quality data from countries beyond waste and DMC.
- **Need for collaboration:** We need future collaboration to put the pieces together. Let this day be a starting point in this process. WEF is a next step to foster the cooperation and coordination on the structuring of CE.

In the discussion, it was widely agreed among the participants that there is now a **momentum to build on.** It was thus concluded to **set up a cooperating structure** to explore where we can align, harmonize and learn from blind spots. PACE invites the leaders from public, private and civil society to engage and support the creation of a structured cooperation. **Key anchor events** in 2020 after the WEF in Davos (see annex IV for the 1 pager summary that was prepared based on this workshop) include European Environmental Agency's meeting with JRC and Eurostat to connect science and policy in EU countries on CE principles and indicators (May, Bellagio), World Circular Economic Forum (WCEF, September, Toronto), UN Biodiversity Conference (October, Kunming), COP26 (November, Glasgow), and the European Resource Forum (November, Berlin).

Annex

I. Input paper

Towards relevant targets and metrics for a circular economy

University of Utrecht: prof. dr. Marko Hekkert and prof. dr. Ernst Worrell
PBL Netherlands Environmental Assessment Agency: dr. Maikel Kishna and Aldert Hanemaaijer MSc.

Input for the workshop on targets for a circular economy, January 17th 2020, The Hague

1 Introduction

Globally, the use of natural resources has more than tripled since 1970 and continues to grow. If the current trends continue, global extraction of materials will more than double between now and 2060. As a consequence, global greenhouse gas emissions will rise with more than 40%, land use with 20-25% and biodiversity will decline further with 10-20% (IRP, 2019). The more we are able to decouple economic growth from resource use and use our resources much more efficient, the more we can have a positive impact on climate change and biodiversity. To achieve this decoupling, in recent years governments around the world have embraced the notion of a circular economy as a basis for resource efficiency policies.

While popular, the concept of a circular economy is not uncontested. On a more detailed level, there is discussion about how circular economies operate and, therefore, there is also discussion about a clear guidance for policy strategies. An important element in designing policies to stimulate the transition to a circular economy is to have meaningful policy targets and formulate clear metrics to track progress. This demand has been acknowledged by various national governments and by international organizations such as the World Economic Forum.

For example, the Dutch government has set a target to reduce resource consumption by 50% until 2030, and to be a circular economy without waste by 2050. While such a target creates a clear dot on the horizon and accelerates transition efforts, it has also disadvantages, since it does not differentiate between different materials used in varying volumes and volume, as well as between the various impacts related to the environment and economy. Therefore, the Dutch government has asked PBL Netherlands Environmental Assessment Agency to come with a proposition for a measurable and meaningful target framework. Other countries and regions have formulated goals in different ways, highlighting the need to come to a common understanding of meaningful circular economy goals and indicators.

To stimulate an in-depth discussion on what meaningful metrics and targets are for stimulating and monitoring the transition to a circular economy, PBL, Utrecht University, and PACE organize a high-level workshop on targets and metrics for a circular economy in the run-up to the Annual World Economic Forum Meeting 2020, that will be held in Davos from January 20th till 24th. This paper provides input for the discussion in the workshop.

2 Current approaches for CE targets

2.1 EU: no CE targets, 10 CE indicators and Resource efficiency indicators

The EU did not set a future target yet for the transition to a circular economy (EC 2015a). It did agree on a main indicator: resource productivity. This is defined as GDP / domestic material consumption (DMC). DMC is defined as the total amount of materials with an economic value directly used in production or consumption activities. It does not take materials into account that are imported embedded in products. Therefore, it may underestimate that total material consumption of economies.

Apart from the disadvantage of the DMC indicator, the resource productivity indicator has the disadvantage that an increase in resource productivity does not necessarily correspond to an absolute reduction in resource use. It just indicates that the economic system growths faster than its resource use.

The EU is aware of this shortcoming, but states that at the moment it is not feasible to design a single indicator that covers all possible effects of resource efficiency policy (EP, 2015). It should therefore be seen as a temporary proxy that provides some insight in the progress to a circular economy (EC 2013). A major advantage of this indicator is that it can be measured with available data and that it allows a comparison between member states.

Next to this main indicator, in the beginning of 2018 the EU published a set of 10 indicators to measure progress in the transition to CE like amount of waste, recycling percentage, share of circular procurement, level of resource self-sufficiency, financial investments and patents.

On top of this the EU uses indicators in their Resource Efficiency Program like water use, land use, and carbon emissions. Also specific targets are agreed upon for recycling and reduction of landfilling and waste incineration.

2.2 Resource targets in Germany, Austria and the Netherlands

Both Germany and Austria use the same resource efficiency indicator as the EU. Both countries take one step further by setting an actual target based on this indicator. Austria is aiming to double resource efficiency for all resources by 2020 compared to 2008 and a 10 fold increase by 2050. Germany agreed on the target to double abiotic resource efficiency by 2020 compared to 1994.

The Netherlands agreed on a target to have a circular economy in 2050 (“without waste”) and an absolute reduction of 50% in primary abiotic resource use by 2030. A further specification of the target is currently under discussion. Critical issues for specification are whether fossil fuels are part of resource use, whether it focuses in the direct resource use or also indirect resource use, and whether the target will be sector specific. Apart from the measurability issues this also raises the question what are relevant elements that should be addressed to come to meaningful targets for a circular economy.

3. Relevant elements for meaningful CE targets

Based on the experiences of the EU and several countries with setting targets and subsequent metrics we might conclude that countries prefer a single indicator as a basis for target setting and to track progress towards the target. Below we discuss five relevant dimensions that may provide insight in

the progress made in the transition to a circular economy. For each dimension we briefly discuss advantages and disadvantages of including these dimensions in the formulation of metrics and targets.

3.1 Focus on input: Reducing resource use

Reducing primary resource use is an important element to realize a more circular economy. However, it is important to discern direct and indirect resource use. Direct resource use is measured by the national production of materials corrected for international trade. Indirect resource use also takes the embedded materials into account that are associated with the import and export of products.

The focus on direct resource use has the disadvantage that it underestimates resource use. However, adding indirect resource use has the disadvantage that it requires detailed information on the material composition of all products used, imported and exported by an economy.

Another disadvantage of a single indicator to measure resource use is that the mass of all materials is summed in a single metric. The obvious disadvantage is that materials differ in their environmental impacts, availability, scarcity, and (geographic) origin. Therefore, targets set based on this indicator may easily be reached by a focus on high volume and heavy materials that may have very little harmful effects nor being scarce. An extreme example is that countries focus on efficient use of sand or aggregates to quickly make progress (as measured by the chosen indicator).

3.2 Focus on output: reducing waste

Instead of focusing on the amount of materials that enters and economy, it is also possible to focus on the amount of materials that leave the economy as waste. By focusing on the absolute value of resources that enter the waste stage of an economy it provides also insight in how efficiently resources as used.

Focusing on waste has similar disadvantages as focusing on resource use. Also in this case all materials are lumped in a single indicator that does not differentiate between the environmental effects and scarcity of materials. A major advantage of target setting using waste related metrics is that they are much easier to enforce than targets based on resource use. When targets are not met, different policy instruments can directly be targeted to reduce the amount of material that enters the waste stage, like pricing or banning certain waste management practices. The Netherlands for example have set a ban on landfilling for combustible materials. A disadvantage of focusing on waste (and inputs for that matter), may be that the effectiveness of a circular economy in reducing e.g. environmental impacts of material use, may be limited as it only considers the material output, and not the processes within a CE and may disregard other inputs (e.g. energy).

3.3 Focus on use of resources in products: reuse, repair, recycling, value retention

While the dimensions above focus on insight in the total material input or output it is also possible to focus directly on how a more resource efficient economy can be organized. The literature on circular economy presents a range of R-strategies that lead to more resource efficient economies. A typical division is Refuse, Reuse, Recycle.

The advantage of using metrics that provide insight in these R-strategies is that policy makers directly gain insight in how progress towards a circular economy takes place and where room for improvement is possible.

Another argument for focusing on this dimension is that it provides insight in the level of value retention of resources and products. Value retention is frequently mentioned as one of the core reasons for striving towards a circular economy. Improved value retention is not only beneficial for reaching environmental benefits, but it also provides ample room for business opportunities that create economic value and employment from improved resource value retention.

A disadvantage is that detailed information is needed on each R strategy. This information needs to be collected at the level of product categories and specific materials. This information can then be aggregated to an overall metric for Refuse, Reuse and Recycling.

One can also argue that it is not necessary to measure progress at this level since the impacts will become visible in both total resource use and amount of waste (although excluding those resources not measured by the metric, e.g. energy, water).

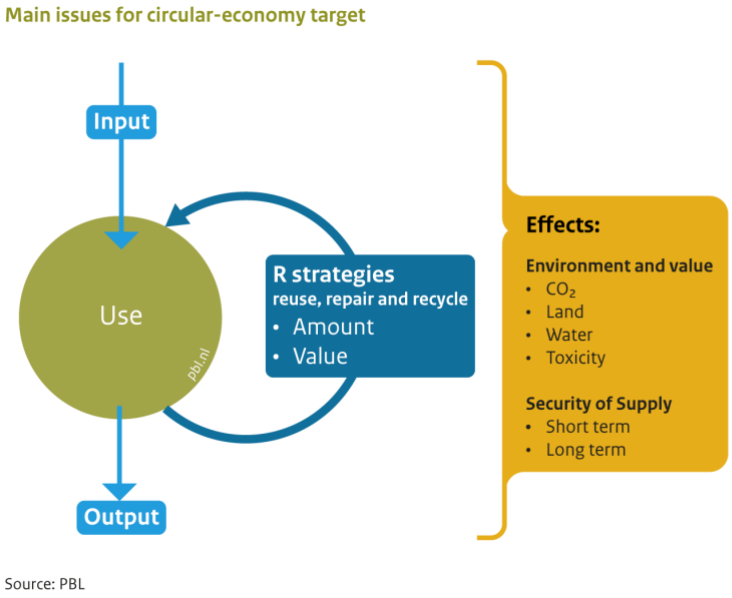


Figure 1: Main issues for circular economy targets

3.4 Impacts (overarching goals)

In the end, a more resource efficient economy is pursued for a range of reasons; the most important being a positive impact on the environment and to provide security of supply of resources. Therefore, it may be worthwhile to develop meaningful metrics that provide insight in progress made on the impacts of a circular economy. Examples are emissions of greenhouse gases, land use related to resource use, toxic emissions to the environment, and metrics for resource scarcity and geographical dependency (criticality).

The advantage of using these measures is that insight is provided in the actual reasons why governments embark in a journey towards a circular economy. A disadvantage is that a broad dashboard of indicators is needed to provide the necessary insights.

3.5 Differences between materials/product groups

For each of the dimensions discussed above, it is important to select a level of aggregation. Differences between materials and product groups in toxicity, resource scarcity and criticality, and impact on the

climate are very large. For plastics, the societal debate centers around plastic waste and climate change while for food the debate is centered around land use, water use and carbon, nitrogen and phosphate emissions. Also, the socio-institutional setting is likely to differ strongly between product groups and this has a large impact on the rate of change. So, ideally a material and product group-specific set of indicator is used. However, the disadvantage of such an approach is a complex dashboard of indicators that differ per material and product group, while it may present trade-offs for policymakers. Also, in terms of practical feasibility (e.g. data collection) this may present a challenge.

4 Conclusion

To measure progress towards a circular economy different dimensions can be distinguished. Governments so far prefer a simple indicator that provides sub-optimal insight in the progress towards a CE. Apparently the practical feasibility outweighs the advantage of improved and more detailed insights, that would enable improved decision and policymaking.

The key question is whether it is possible to develop a meaningful indicator set that is both practically feasible and provides relevant insights in the progress towards a CE, and what would such an indicator set look like?

In answer to the question to make the current circular economy target measurable and useful to steer the CE transition, PBL Netherlands advised the Dutch government to do just so. While one indicator is useful for communication and putting a clear dot on the horizon, to steer the CE transition it is necessary to use a set of targets and indicators, including the input, use and resource of resources (in amounts and value) and look at the effect of a circular economy in terms of a better environment (less greenhouse gas emissions, land use, etc.) and improve security of supply of resources. Furthermore the idea is to work with differentiated sets of targets for different product groups or domains. The challenge hereby is not to end up with a very complex dashboard of indicators, as mentioned earlier in this paper.

5 Aim of the workshop

The main aim of the workshop is to bring the discussion on targets for a circular economy to the next level. The workshop aims to have an open and up-front discussion on the relevant targets for a circular economy with 15-20 key stakeholders to develop a proposal for a meaningful set of targets and indicators. The discussion will start with the question of which societal issues are being addressed by a circular economy, moving beyond the input of resources and generation of waste. Next, the discussion will move to the benefits and disadvantages of goals that are currently in place in different countries and companies, acknowledging that countries and companies might need different indicators, depending on the economic structure. The workshop will end with concrete recommendations that the Minister of Housing and the Environment can present at the World Economic Forum 2020. Important questions to address during this workshop are:

- What are key dimensions to define success and come to targets for a circular economy?
- What are practical experiences with defining these key dimensions and target-setting?
- Where is full alignment and where is divergence on the key dimensions for targets?
- Where do we need harmonization for a set of indicators for circular economy?
- What set of indicators is a good starting point for such a discussion?
- What are logical and necessary next steps to make this happen?

II. List of participants

PBL Netherlands Environmental Assessment Agency

Universiteit Utrecht

PACE

Participants

International Workshop on
Targets for a Circular Economy

Aldert Hanemaaijer	**PBL** Coordinator Program Circular Economy
Arnold Tukker	**Leiden University** Professor of Industrial Ecology and Director of the Institute of Environmental Sciences
Arnoud Walrecht	**KPMG** Sustainability Director
Birgitta Kramer	**Goldschmeding Foundation** Program Manager Circular Economy
Brendan Edgerton	**WBCSD** Director Circular Economy
David McGinty	**PACE** Global Director
Ernst Worrell	**Utrecht University** Professor Energy, Resources & Technological Change
Esther de Kleuver	**Min. of Infrastructure and Water Manag.** Director Sustainable Environment and Circular Economy
Frank Dietz	**PBL** Head Thema Circular Economy
Hans Bruyninckx	**EEA** Executive Director
Hans Mommaas	**PBL** Director-General
Harald Tepper	**Philips** Program Lead Circular Economy
Henning Wilts	**Wuppertal Institute** Director Circular Economy
Hugo Schally	**European Commission** Head of Unit, " Multilateral environmental co-operation " in DG Environment
Jaco Tavenier	**Ministry of Infrastructure and Water Management** Senior Policy Advisor
Jarkko Havas	**Ellen Macarthur Foundation** Lead of data and metric initiative
Jelmer Vierstra	**Natuur en Milieu** Senior Program Leader Circular Economy at Natuur & Milieu

February 24, 2020

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Participants

International Workshop on
Targets for a Circular Economy

Julia Koch	**PBL** Researcher Circular Economy
Karel van Acker	**University of Leuven** Professor Sustainable Material Use
Ke Wang	**PACE** Knowledge Lead
Kimberly Chan	**DSM** Global Lead Circular Economy
Ladeja Godina Košir	**Circular Change** Founder & CEO, **ECESP** Founder and Executive Director
Lani Kok	**Ministry of Infrastructure and Water Management** Policy Office Coordination Circular Economy
Maikel Kishna	**PBL** Researcher Circular Economy
Marc de Wit	**Circle Economy** Director Strategic Alliances
Marijke Hofman	**PBL** Management Assistant
Marko Hekkert	**Utrecht University** Professor Innovation Studies and Director of the Copernicus Institute for Sustainable Development
Merlijn Nijhof	**Ministry of Finance** Coordinator/Specialist Directorate Public Private Investments
Mojca Pinteric	**Netherlands embassy in Ljubljana** Senior Economic Policy Adviser
Otto Friebel	**BRBS Recycling** Director
Patricia Megale Coelho	**Utrecht University** Researcher on Packaging Reuse and Circular Economy
Peter Borkey	**OECD** Head of the Environment and Economy Integration Division and Principal Administrator Resources Productivity and Waste
Piero Morseletto	**VU University Amsterdam** Department Member Environmental Policy Analysis
Renilde Becqué	**WRI** Sr. International Sustainability & Energy Consultant
Stientje van Veldhoven	**Ministry of Infrastructure and Water Management** Minister for the Environment and Housing

III. Program of the workshop

PBL Netherlands Environmental Assessment Agency

Universiteit Utrecht

PACE
PLATFORM FOR ACCELERATING THE CIRCULAR ECONOMY

International Workshop on Targets for a Circular Economy

Date: 17th of January, 2020
Location: PBL, Netherlands Environmental Assessment Agency, Bezuidenhoutseweg 30, 2594 AV, The Hague, The Netherlands

In preparation for The Annual World Economic Forum meeting in January 2020, PBL Netherlands together with Utrecht University, and in consultation with PACE, the Program for Accelerating the Circular Economy, are pleased to invite you to the International Workshop on Targets for a Circular Economy.

Dutch cabinet's aim

Acknowledging that circular economy can provide a big contribution in realizing climate targets, saving biodiversity and improving security of supply of critical materials it is crucial to come up with targets for a circular economy that will help to steer in this direction. The Dutch cabinet wants the Dutch economy to be fully circular by 2050 and achieve an intermediate target of 50% less use of primary abiotic raw materials by 2030. On the initiative of the Dutch Minister of Environment and Housing, Stientje van Veldhoven, PBL is working on the operationalization of the Dutch 2030 target.

The challenge

Formulating a national policy target for resource use or resource productivity that directly contributes to reducing environmental impacts and increasing security of supply is a key challenge. The EU and other nations have also dealt with this challenge when formulating policy goals and lead indicators. We would like to learn from discussions that already took place in the EU, other countries and within companies.

The Workshop

In order to situate this challenge on setting useful targets for a circular economy in a broader multi-level perspective and the international scientific debate related, the workshop aims to have an open and up-front discussion on relevant targets for a circular economy with key stakeholders. The discussion will start with the question which societal issues are being addressed by a circular economy, moving beyond the input of resources and generation of waste. Next, the discussion moves to the benefits and downsides of goals that are currently in place in different countries and companies. Concluding, the workshop will lead to an overview of elements that should ideally be added to existing goals and will design a process on how to get there.

The workshop will end with concrete recommendations that the Minister of Environment and Housing can use to shape the discussion at the World Economic Forum on tangible and meaningful targets for a circular economy.

February 24, 2020

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Program

International Workshop on Targets for a Circular Economy

10.30 - 11.00	**Arrival and coffee**
11.00 - 11.10	**Opening workshop** Chairman Marko Hekkert (Professor innovation studies and Director of the Copernicus Institute for Sustainable Development at Utrecht University)
11.10 - 11.20	**Targets for a circular economy** Hans Mommaas (Director PBL Netherlands Environmental Assessment Agency)
11.20 – 11.30	**Targets for a circular economy from science and policy perspectives** Karel van Acker (Professor Circular Economy at University of Leuven, Belgium) Hugo Schally (Head of Unit, "Multilateral environmental co-operation" in DG Environment of the European Commission)
11.30 – 13.00	**Discussion**
13.00 – 14.00	**Lunch**
14.00 – 14.15	**Targets for a circular economy from business perspective** Renilde Becqué (Independent Sustainability Consultant to WRI) Brendan Edgerton (Director Circular Economy WBCSD) Jarkko Havas (Head of CE data and metrics at Ellen MacArthur Foundation)
14.15 – 15.15	**Discussion**
15.15 – 15.40	**Next Steps** David McGinty (Global Director PACE)
15.40 – 16.00	**Coffee and tea break**
16.00 – 17.30	**Recommendations and wrap up, with the Minister of Environment and Housing** Stientje van Veldhoven (Minister of Environment and Housing)
17.30 – 18.30	**Network drinks**
19.00 – 21.00	**Dinner**

Location. PBL, Netherlands Environmental Assessment Agency, Bezuidenhoutseweg 30, 2594 AV, The Hague, The Netherlands

Date. 17th of January, 2020

Contact

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Patricia Megale Coelho Utrecht University p.m.megalecoelho@uu.nl. +31 (0)61110.4952

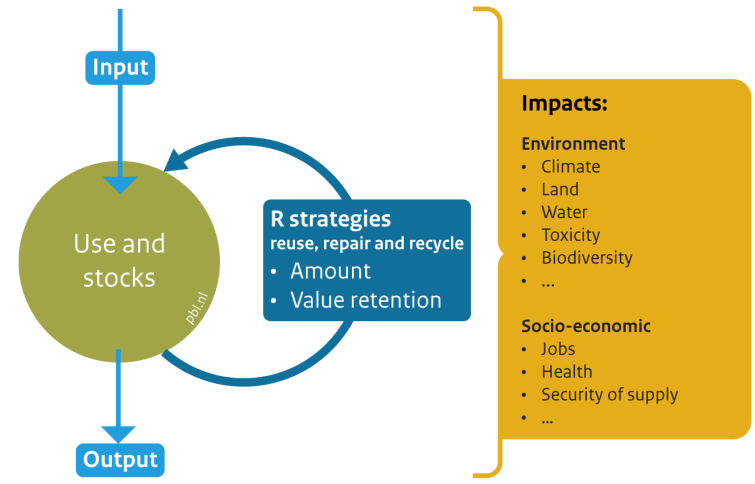
IV. 1 pager summary for WEF in Davos

Background for Circular Economy Metrics Table Discussion at World Economic Forum 2020

This one-pager summarizes the main take away messages from a high-level workshop on CE metrics hosted by PBL, University of Utrecht and PACE, with support of the Dutch Ministry of Infrastructure and Water Management, on January 17th, 2020. The workshop was attended by 30+ leading actors in CE targets and indicators from public, private and civil society in Europe.

- The group agrees that **CE metrics need cooperation of different sectors (public, private, civil society), as well as different countries and continents**. The cooperation is necessary to ensure that CE transition answers to common global goals such as the SDGs. Coherence between countries is crucial to multi-national companies because of their global value chains.
- **CE is not the end goal by itself, but a crucial means to address societal challenges** such as climate change and biodiversity. We need a portfolio of indicators to measure CE, including both indicators which measure progress towards circularity and indicators which measure environmental and socio-economic impacts of the transition. (see graphic below)
- **A lot of work on indicators is already ongoing**, for example by the European Commission, OECD, WBCSD, EMF and Circle Economy. It was noted that current focus still weighs largely on material flows and recycling (so called "waste+"). **There are clear gaps in indicators** to measure the "inner circular loops" (e.g. repair and refurbish), to cover the consumption footprints, and to evaluate the socio-economic impacts.
- It is proposed to set up a cooperating structure to explore where we can align or harmonize. PACE invites the leaders from public, private and civil society to **engage and support the creation of a structured cooperation**. Key anchor events in 2020 include European Environmental Agency's meeting on public CE indicators (May, Bellagio), WCEF (September, Toronto), UN Biodiversity Conference (October, Kunming) and COP26 (November, Glasgow).

General framework for circular-economy targets and indicators



Source: PBL

V. Presentations

a. Input from Hans Mommaas, Director PBL Netherlands Environmental Assessment Agency

Targets for a Circular Economy

International Workshop The Hague, 17 January 2020

Hans Mommaas, Director-General PBL

Welcome to PBL

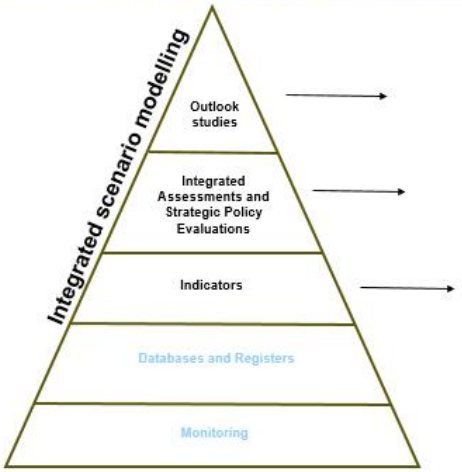
PBL Netherlands Environmental Assessment Agency

PBL is the Dutch national institute for **strategic policy analysis** in the fields of the **environment**, **nature** and **spatial planning**.

- It contributes to the quality of the politico-administrative consideration by conducting **surveys**, **analyses** and **evaluations** in which an integrated approach is paramount.
- First and foremost **policy-oriented**; PBL performs both solicited and unsolicited research, **independently** and based on **science**.

PBL Netherlands Environmental Assessment Agency

Knowledge programme



PBL Netherlands Environmental Assessment Agency

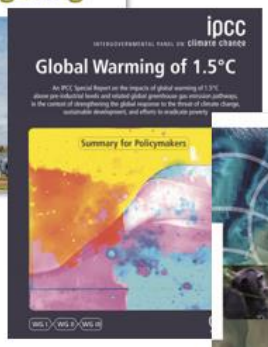
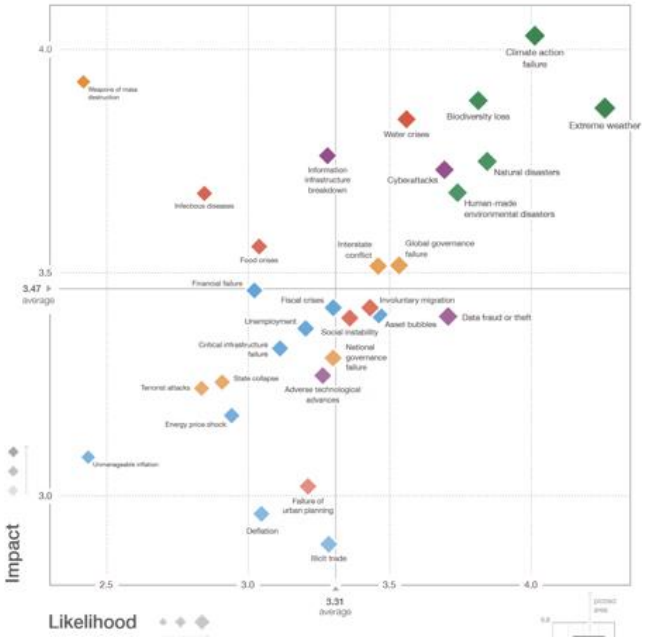


Figure II: The Global Risks Landscape 2020



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Four major environmental challenges

Climate & Energy

Food, Agriculture & Nature

Green & Circular Economy

Resilient (city) regions

PBL Netherlands Environmental Assessment Agency

Circular Economy Policy in The Netherlands

- Government broad program CE
- 2017 "Resource agreement"
  - Signed by > 400 organizations
- 2018 Transition CE agenda's 5 domains
  - Companies, ngo's and government
- 2019 Cabinet's reaction / Action program
  - 4 Ministries involved; Min IenW coordinates

Construction, Manufacturing industry, Biomass and Food, Plastics, Consumer goods

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Priority package Action Program

- Extended Producer Responsibility,
- Monitoring hindering/enabling rules,
- Public Procurement, Circular Design
- Stimulatung the market, Finance
- **Monitoring**, knowledge and innovation
- Consumer awareness, Education and Labour,
- **International approach**
- "Acceleration House"

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Coordinating role for PBL

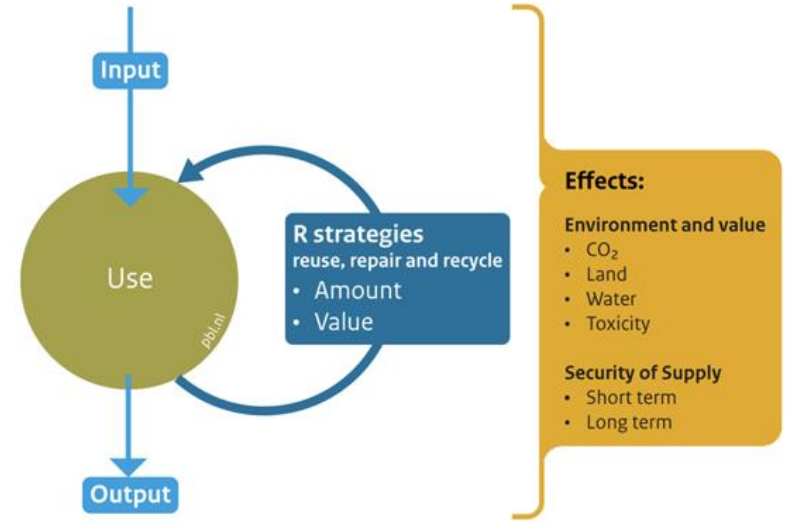
- Working program € 2 mln /yr
  - With other knowledge institutes
  - Strengthening the knowledge base
  - CE modelling
- Integrated CE reporting
  - Trends, effects and actions
  - Input for policy
- Policy brief on CE targets

PBL Netherlands Environmental Assessment Agency

PBL Policy brief Dutch CE Targets 2030

- Fully circular in 2050
- 50% Reduction primary abiotic raw materials in 2030
- Single indicator useful for communication and 'dot on the horizon'
- Better use a set of targets to steer towards a circular economy
- Differentiated sets of targets for different product goups

Main issues for circular-economy target



Source: PBL

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Challenges for this workshop

- Identify key dimensions to come to targets for a circular economy
- Practical experiences with key dimensions and indicators
- Alignment where possible and identify divergence
- Identify where we need to harmonize key issues and indicators
- Set of indicators as starting point for the discussion
- Logical and necessary next steps to make this happen

- Further strengthening knowledge partnerships

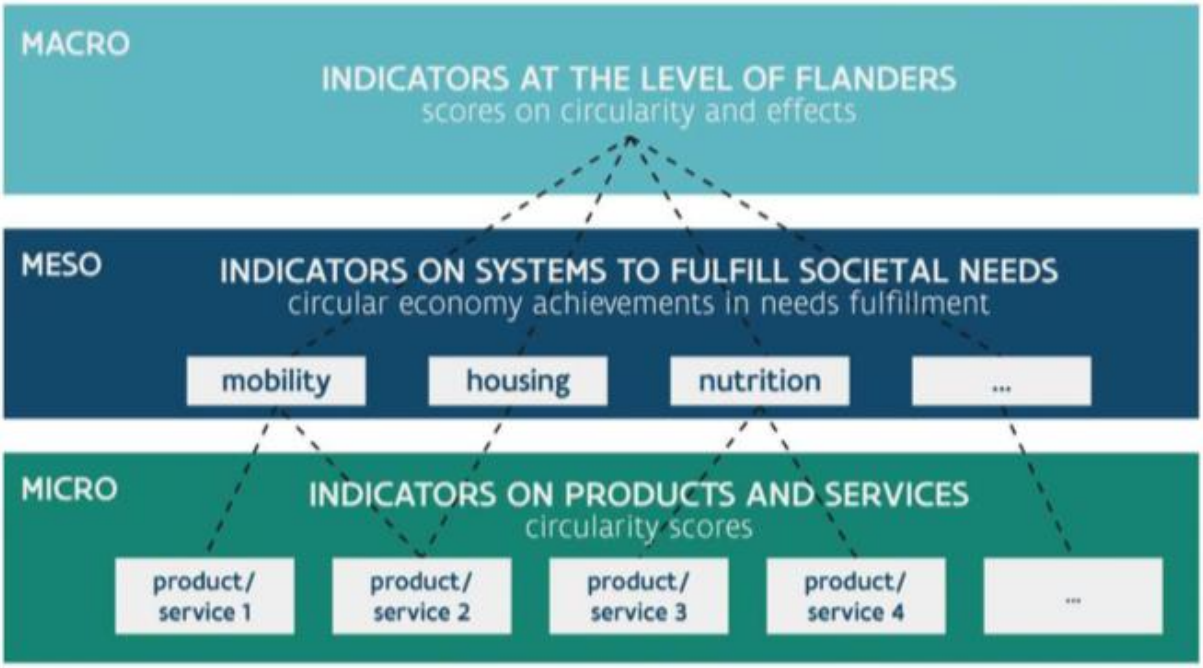
b. Input from Karel van Acker, Professor Circular Economy at University of Leuven, Belgium

KU LEUVEN

PBL, International Workshop on Targets for a Circular Economy
The Hague, 17 January 2020

Targets for a circular economy from science and policy perspectives

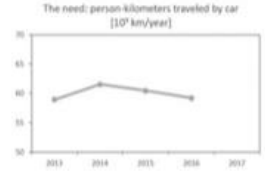
Karel Van Acker, Luc Alaerts
KU Leuven

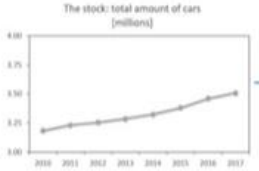


Draft CE monitor mobility

Tentative elaboration for cars in Flanders… version 2.0 in progress

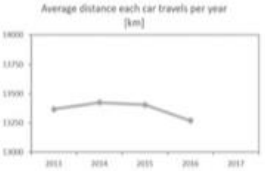
Need stagnated ←

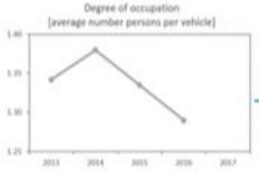




→ Increasing amount of cars (materials)

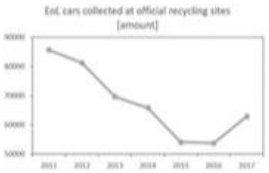
Use intensity not improved ←

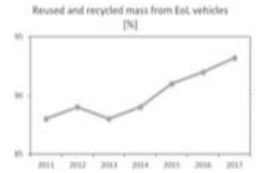




→ Use efficiency not improved

Less control over EoL stage ←





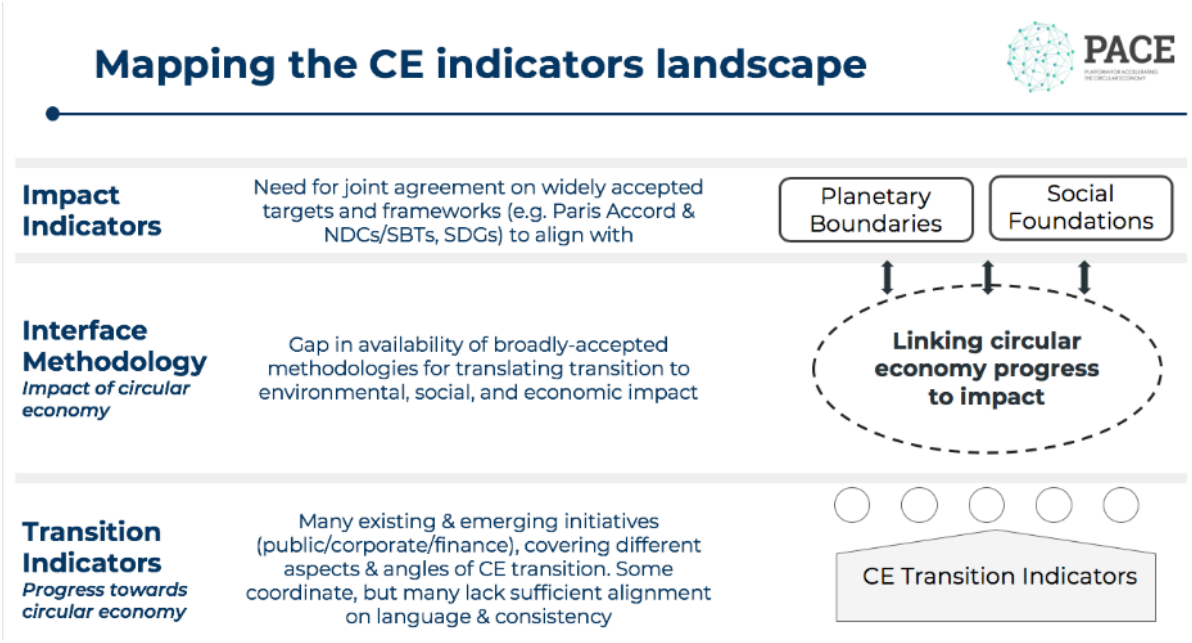
→ More efficient application of recycling technologies

… a long way to go towards circular economy in Flanders

Monitoring: 4 perspectives

- Needs perspective
  (complex set of products and value chains)
- Consumer perspective
  (behavioural insights)
- Evolutionary perspective
  (path-dependency and innovation burden)
- Stocks perspective
  (quality of stocks instead of quantity of flows)

c. Input from Renilde Becque, Independent Sustainability Consultant to WRI



d. Input from Brendan Edgerton, Director Circular Economy WBCSD

Circular Transition Indicators (v1.0)

Working group

Objective

Provide insight in circularity on a company level to drive the transition towards a circular economy.

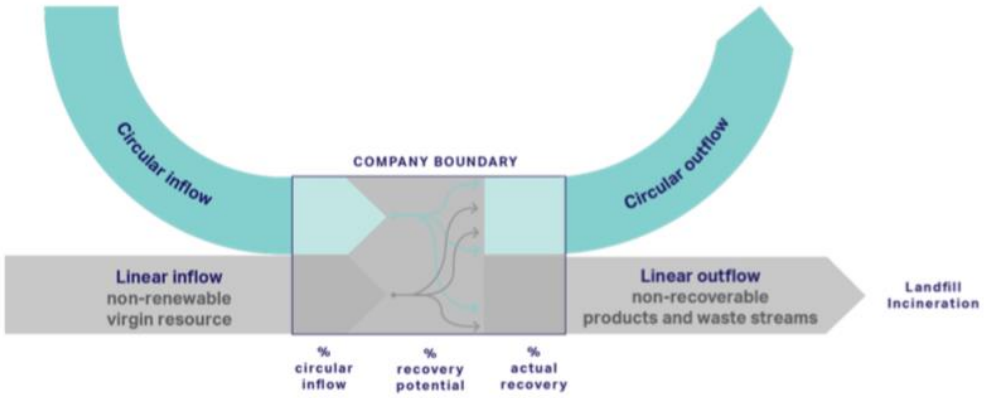
Achieving scale through…

- **Neutrality** – objective, quantitative, consistent
- **Empowerment** – actionable, calculate, expertise
- **Adaptability** – scope, indicators, users, time
- **Transparency** – methodology, assumptions, development

Advisory group

wbcsd

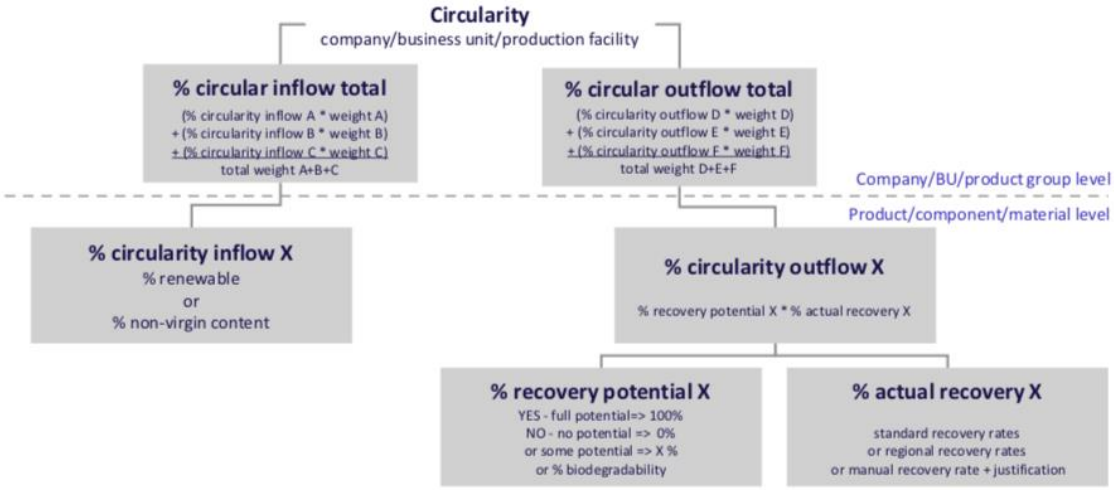
Circular Transition Indicators **Methodology logic**



wbcsd

Circular Inflow and outflow

Close | Optimize | Value



Circular Transition **Indicator modules**

Close the loop
% circular inflow
% circular outflow
% water circularity
% renewable energy

Optimize the loop
% critical material
% recovery type

Value the loop
Circular material productivity

e. Input from Jarkko Havas, Head of CE data and metrics at Ellen MacArthur Foundation

CIRCULYTICS™

ELLEN MACARTHUR FOUNDATION

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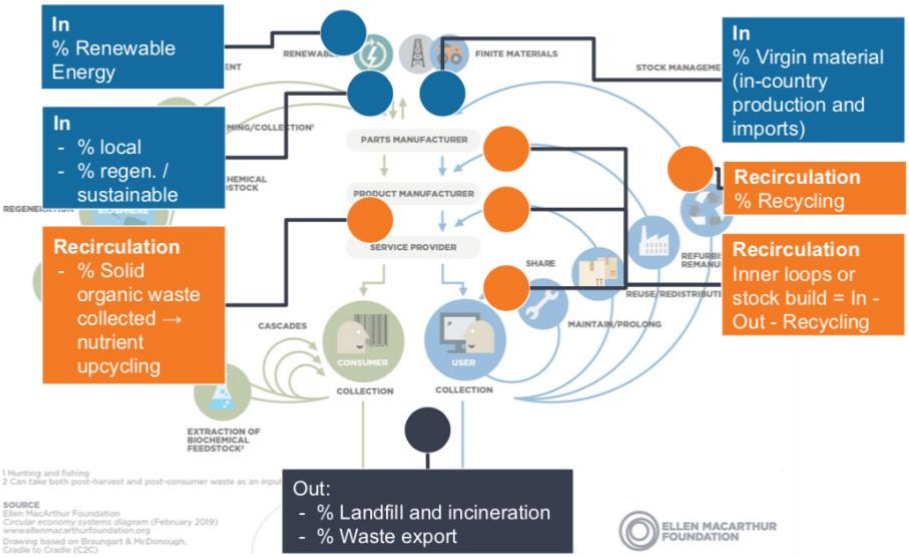
Suggested indicators to measure progress based on feasibility