

A circular economy within ecological limits: Why we need to set targets to reduce EU resource consumption and waste generation in the new Circular Economy Action Plan

Executive Summary

In its European Green Deal, published on 11th December 2019, one of the European Commission's priorities is speeding the transition to a circular economy. In that light, the EC announced the publication of a new Circular Economy Action Plan (CEAP), due in March 2020.

At its core, we believe **the objective of a true circular economy means reducing the absolute quantity of natural resources that enter our economy, and reducing the quantity of waste coming out.** Only with a smaller and slower circle of material throughput will we manage to stay within ecological limits and a safe operating space. Better product design and other measures, as emphasised in the European Green Deal, are certainly aiming in that direction. However, we think they should be more clearly linked with political targets to unleash their full potential and ensure they are actually driving down absolute resource use.

This discussion paper sets out two measures that should be integrated in the new Circular Economy Action Plan to realise a true circular economy:

1. **Setting a headline target to halve EU material footprint by 2030**, broken down into specific material sub-group targets and plans, and supporting the development and monitoring of complementary indicators on land, water and carbon footprints as part of the circular economy monitoring framework.
2. **Setting a cap on absolute waste generation per capita**, driving direct actions towards waste prevention of both commercial and municipal waste, including specific sectoral targets in key areas such as for packaging waste, food waste, construction waste, electronic waste and hazardous waste.



Introduction

Global material footprint is already beyond ecological limits above 100 billion tonnes per year, and if we continue “business-as-usual”, it is expected to double in the next 40 years¹. The EU consumes more than its fair share of global resources - the same as if we had almost three planets available to produce the resources we use and absorb the wastes we produce². Impacts from overconsumption are significant - indeed in its European Green Deal, the European Commission notes that “*resource extraction and processing account for more than 90% of global biodiversity loss and water stress impacts, and for approximately half of global climate change emissions*”.

Multiple indicators suggest Europe is not moving fast enough in the right direction:

- Between 2010-2015 the EU’s consumption impacts have grown by 5% and exceed planetary boundaries in key areas.³
- If embedded emissions in imported goods were accounted for, Europe would not have achieved any emissions reduction since 1990.⁴
- The latest Eurostat data shows that in 2017 Europeans generated more packaging waste than ever in history.⁵
- The ratio of reused and recycled materials to total material use in the EU (or circular material reuse rate) was only 12% in 2018.⁶
- All EU countries have an ecological deficit, and every year the date of our “overshoot day” comes earlier.⁷

It is clear we cannot continue to increase consumption, driving the demand for energy, metals, minerals and biomass further beyond the already breached capacity of the biosphere, perpetuating waste, pollution, global and local inequalities. With this overconsumption, it is impossible to ensure the long-term wellbeing of the planet and the people. We need to transition to a new economy and modes of producing and consuming that respect planetary boundaries and global justice. This will only come about, if the focus is on decreased resource consumption among the world’s wealthiest, including the EU, as well as redistribution in resource access and making resource supply chains more sustainable.

The circular economy as a concept is meant to help achieving the goal of reducing resource consumption. Especially when broadening its definition, from pure recycling to smarter and more circular product design and alternative business models, the circular economy can indeed be a powerful tool in this regard.



Why set targets?

Targets are a fundamental tool in policy making, as they set a clear intention and direction and drive action towards a desired goal. If we are to be serious about the need to reduce pressure on limited resources and reducing the waste we generate, strong targets are needed to initiate and sustain ambitious action to achieve them.

For example, the EU headline targets on energy and climate, first set for 2020, then for 2030 and now beyond, have proven highly effective to trigger actions and policy developments, making sure they converge towards a few high level objectives covering our whole EU economy and society. They have enabled the deployment of actions and analysis per country, per sector, per territories, per municipalities, but also at a micro level for companies and products. They have a clear cascading and multiplication effect for adopting efficiency and GHG emissions reductions practices. They have proven indispensable to unleash existing potentials and act as legal drivers to support investments. Furthermore, they have helped to create awareness and ownership by citizens and media. Consequently, replicating and adapting what we learnt from energy and climate policy to circular economy seems logical.

A headline target on halving the EU material footprint by 2030

Increasingly, economic activities at different levels are marketed as being circular, but they are often fragmented. And in practice it is difficult to assess whether they substitute business-as-usual consumption and deliver any tangible resource savings. On aggregate, the underlying objective of circular activities must be a reduction in absolute resource consumption. It is hence essential to start measuring and setting targets towards resource use reduction.

The European Green Deal itself notes that measures up until now have not been enough - that *“consumption of materials and energy, as well as the generation of non-mineral waste have continued to increase, despite the increases in circular material use and recycling”*. Consequently, the Commission needs to question and intervene, not operate within, the “business-as-usual” models that show that resource consumption will increase in the coming decades.

There are more and more voices calling for setting targets and plans on reducing resource consumption. The European Parliament’s resolution on the European Green Deal demanded that the new CEAP *“must aim at reducing the total environmental and*

resource footprint of EU production and consumption". The Dutch government in their Circular Economy by 2050 report⁸ stated that "The most important desired effect of the transition to a circular economy is a reduced consumption of natural resources.....". Overarching targets would ensure an implementation of the circular economy would focus on reducing resource consumption.

What is the material footprint?

The material footprint of a country or region accounts for the total mass of raw materials – biomass, fossil fuels, metal ores and non-metal ores – that are extracted along the entire supply chains in order to produce the final products or services consumed in that country or region. It can also be referred to as "raw material consumption". Therefore, for the EU, the material footprint accounts not only for raw material extraction within the EU, but for the sum of material extraction globally needed to produce the goods consumed in the EU as a whole (or a member state). This ensures that environmental and social pressures and related impacts, which are caused outside of the EU, are taken into consideration.

The resource productivity indicator alone, as currently used in the Resource Efficiency Scoreboard, is not enough - it does not give an accurate picture of the EU's progress on resources. It is calculated as the gross domestic product (GDP) divided by domestic material consumption (DMC). DMC includes domestic extraction plus direct imports minus direct exports. As such it does not include upstream flows related to imports and exports of raw materials and products originating outside of the EU economy. Aiming at an absolute reduction of resources use must be understood comprehensively and thus be measured by means of the material footprint.

Several methodologies exist to calculate the material footprint. We recommend using the Eurostat methodology for the EU. However, there is an ongoing process between Eurostat, the UN International Resources Panel and the OECD regarding the harmonisation of their existing methodologies to calculate the material footprint. This process needs to be accelerated, so comparison of material footprint on a global scale between countries and regions can be more reliable.



Therefore, as an overarching objective in the new CEAP a clear headline target must be established to halve EU material footprint by 2030 and to monitor complementary indicators on land, water and carbon footprints (see more below on these). The material footprint indicator is already included in SDGs 8.4 and 12.2 and is reported by Eurostat. Its reduction should be measured using a baseline of 2015 levels⁹.

The target will act as a leverage for measures including on extending product life time, reuse, redesign, repair, remanufacturing, recycling, and other resource efficient and circular patterns. It will bring them together towards the common goal of resource use reduction. Reduction should be central to all planned EU strategies and legislations including upcoming strategies on textiles and construction - for example, how can we reduce our clothing footprint (clothes are made from biomass and/or fossil fuels), including by adopting strong measures to tackle fast fashion.

The target should be listed explicitly in the annex of actions in the CEAP to drive focus on achieving this core objective. Applying 13.7 tonnes per capita in 2015 as the baseline¹, the 50% reduction in material footprint can be further broken down into the following targets (starting with slower reductions in the early years):

- 11.0 tonnes per capita by 2025
- 6.8 tonnes per capita by 2030

The targets should also be broken down into specific targets for individual material groups, i.e. biomass, fossil energy carriers, metals and non-metal minerals. This will facilitate better management of those materials for which a reduction in consumption is the most urgent. For example, a higher reduction target could be implemented for those material resources where their extraction and use exert high environmental pressure (e.g. fossil energy carriers that emit high levels of greenhouse gases) and thus the target not only contributes to quantity reduction, but also impact reduction of resource use on the environment.

The headline target could potentially also be cascaded down in a more systemic way per societal needs (housing, nutrition, mobility, leisure...) and at microlevel per products / services.

¹ This is the year when the SDGs were adopted and the material footprint was identified as indicator for SDGs 8 and 12.

It is also vital to set a specific multi-stakeholder governance body to monitor the progress of this target, possibly as part of the existing platform on circular economy.

The Dutch resource reduction targets

The Dutch government has stated that “The most important desired effect of the transition to a circular economy is a reduced consumption of natural resources.....”. In this light, one of the headline aims of their circular economy strategy¹ is to half the use of abiotic resources in the Netherlands by 2030 (using 2014 as a baseline).

The Netherlands is the only country to set such an absolute target for resource use. Since setting this target in 2016, the Dutch Government has published a number of documents to establish a monitoring framework:

- *Material Flow Monitor 2016 (CBS, 2019)*
- *Circular Economy what we want to know and can measure (CBS,PBL,RIVM, 2018)*

The proposed approach taken by the Netherlands is to combine different methodologies based on material flow accounting. The reports identify the need to prioritise not only by weight or quantity but rather the environmental impact associated with resource use. The first progress report on monitoring the circular economy¹ is expected to be published in English in 2020.

The Dutch target sets an important precedent for acknowledging the necessary direction of travel for Europe’s economy and resource use. The Dutch strategy and subsequent studies identify the limitations of a single indicator, and thus allow for the dynamic development of the monitoring framework and identification of achievable pathways over time.

Arguably one limitation of the Dutch approach is its focus on abiotic resources. Without linked targets on biotic resource use (which are in principle also finite) there is a risk of burden shifting to the biosphere affecting land, nutrient and water use at the European and global level.



Complementary indicators on land, water and carbon footprints

Resource consumption goes beyond materials. The EU's total consumption (footprint) of land, water and its embodied carbon emissions must also be accounted for, to give a holistic picture of the EU's consumption of all natural resources and avoid one-dimensional solutions. Thus, to complement the headline reduction target of material footprint, we propose a set of indicators, which are to be monitored as part of the EU circular economy monitoring framework with the view to also setting reduction targets in the future. This dashboard approach is similar to the one applied in the Roadmap to a Resource Efficient Europe¹⁰ or in the Resource Efficiency Scoreboard¹¹, in that it covers the same resource categories (however, the Scoreboard does not use footprint indicators).

Carbon footprint: The carbon footprint is already a well-developed indicator. Monitoring the carbon footprint of products and materials finally consumed in the EU would bridge further actions between climate and circular economy, such as setting product standards with regard to their carbon footprint.

Land and water footprints: Due to the underdevelopment of consistent methodologies and measurement of land and water footprints these need to be further developed as a priority. It is vital the EU can accurately measure its consumption on a global scale of these critical resources to account for its responsibility for land and water consumption pressures and extraction and use impacts caused outside its borders.

The inclusion and monitoring of these indicators should be with the aim to setting reduction targets in the future, so that the circular economy takes a holistic “four footprint” approach. Again, their progress should also be monitored by the same multi-stakeholder governance body mentioned above for material footprint.

A waste prevention target

The second part of making the circle smaller is capping the total amount of waste generated. Waste represents both inefficiency and unnecessary consumption, and we need to aim towards designing it out of the system. We know that waste laws are assessed in terms of CO₂eq emissions avoidance, cost savings, job creation, but not yet in terms of material savings, despite all waste targets being set by weight. Thus, like the reduction target on resource use, a supporting target on overall waste

prevention should be established to provide a forward looking vision for Europe's waste policies.

Why it's needed: Although member states have been obliged to establish waste prevention programmes since December 2012, it is widely acknowledged that waste policies (including supporting instruments such as Extended Producer Responsibility) have so far focused on recycling. Overall, waste prevention is yet to be comprehensively addressed in Europe's circular economy action plans, waste laws and other related policies and is mostly weakly applied in voluntary agreements¹².

A binding EU target needs to be set with a maximum level of commercial and municipal solid waste in kg per capita per year. The cap should be on total waste generated, not only on residual waste per capita, to address waste problem not only through better recycling and composting, but through a real reduction (thus aligning with the waste hierarchy). Note also the inclusion of commercial waste - it should not be limited only to municipal waste, as it may then be a limited indicator when we move towards more circular business models.

The cap can be progressively worked towards, using different annual percentage reductions for member states, allowing for their vastly differing waste generation amounts. For example, member states generating waste quantities that are below the EU average could have much smaller reductions to obtain annually (perhaps even none in some cases) compared to member states who generate above the EU average, who will need to work harder and implement true reforms to tackle consumption to reach the cap.

Some member states and regions have already established waste prevention targets:

- France: committed to achieving a 7% reduction in municipal solid waste generation by 2020 compared to 2010¹³.
- Italy: committed to reducing non-hazardous waste by 5% by unit of GDP by 2020 compared to 2010¹⁴.
- Flanders: has set a legal goal for the maximum level of residual waste per capita per year at 141 kg per capita by 2022¹⁵.

As well as an economy-wide target, specific sectoral targets could be set in key areas such as for food waste, construction waste, electronic waste, hazardous waste and packaging waste. We suggest, for example, that a maximum level of food waste is set per capita which would be sufficient for the EU to achieve the SDG objective of halving food waste by 2030.



These targets would drive policies in the right direction to reduce waste - policies like bans on unnecessary packaging or on destruction of unsold materials in the retail sector, increasing VAT on disposables and minimum lifetime and reparability requirements for durable goods.

Conclusions

We call the European Commission to outline in its new Circular Economy Action Plan:

- A material footprint headline reduction target aiming to halve the EU material footprint by 2030, in combination with a stronger monitoring framework, including actions on carbon, water and land footprints
- A waste prevention target to cap total waste generation per capita of both commercial and municipal waste with setting specific sectoral prevention targets for priority product categories
- To set a specific multi-stakeholder governance body to monitor the progress along these two key directions, possibly as part of the existing platform on circular economy.

It would be a major missed opportunity not to consider setting such targets in the March Circular Economy Action Plan. There will be no new opportunity in the coming years. In addition, there is a clear risk to see national authorities adopt their own approach, with their own calculation methods and objectives, at the expense of a coordinated EU-wide approach that would ensure consistency, ease reporting, comparison and transfer of best experiences.

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¹ <https://www.oecd.org/environment/waste/highlights-global-material-resources-outlook-to-2060.pdf>

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http://awsassets.panda.org/downloads/wwf_eu_overshoot_day_living_beyond_nature_s_limits_web.pdf

³

https://publications.jrc.ec.europa.eu/repository/bitstream/JRC115570/science_for_policy_brief_rev2_-_online.pdf

⁴ https://buyclean.org/eu-carbon-loop-hole-report-final_v1/

⁵ https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=env_waspac&lang=en

⁶ <https://ec.europa.eu/eurostat/web/circular-economy/indicators/monitoring-framework>

⁷ <https://data.footprintnetwork.org/#/>

⁸ https://www.government.nl/binaries/government/documents/policy-notes/2016/09/14/a-circular-economy-in-the-netherlands-by-2050/17037+Circulaire+Economie_EN.PDF

⁹ https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=env_ac_rme&lang=en

¹⁰ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0571&from=EN>

¹¹ https://ec.europa.eu/environment/resource_efficiency/targets_indicators/scoreboard/index_en.htm

¹² <https://www.eea.europa.eu/highlights/product-reuse-and-longer-lifespans>

¹³ [https://www.ecologique-](https://www.ecologique-solidaire.gouv.fr/sites/default/files/Programme_national_prevention_dechets_2014-2020.pdf)

[solidaire.gouv.fr/sites/default/files/Programme_national_prevention_dechets_2014-2020.pdf](https://www.ecologique-solidaire.gouv.fr/sites/default/files/Programme_national_prevention_dechets_2014-2020.pdf)

¹⁴ [minambiente.it/sites/default/files/archivio/normativa/dm_07_10_2013_programma.pdf](https://www.ecologique-solidaire.gouv.fr/sites/default/files/Programme_national_prevention_dechets_2014-2020.pdf)

¹⁵ <https://www.ovam.be/sites/default/files/atoms/files/Ontwerp%20uitvoeringsplan-LR.pdf>