

THE EU CIRCULAR ECONOMY PACKAGE AND THE CIRCULAR ECONOMY COALITION FOR EUROPE

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Abstract

In terms of its scope, the EU's paradigm shift towards a circular economy is on a par with the energy transition to a low-carbon economy, the Paris Climate Agreement or the fourth industrial revolution. The EU Commission's Circular Economy Package (CEP) of 2018 is a big step forward. Still, a systematic analysis of our future raw material demand and all relevant primary and secondary raw material sources is needed so we can achieve the common goals of the circular economy (environmental protection, securing of raw materials, economic benefits, and growth) effectively and efficiently and in a manner based on scientific evidence. In view of the dominating role and resource potential of non-household wastes as well as of goods and infrastructure in use, priority should be given to the further development and implementation of the Action Plan instead of to isolated increases in recycling quotas which are hardly based on cost-benefit analysis. Taking far-reaching economic and environmental policy decisions with an insufficient, non-standardized data basis would be speculative and not in line with the CEP objectives.

1. Introduction

After what has been quite a long journey, the EU Circular Economy Package (CEP) became law at the beginning of July 2018. The road there has not been easy but the result has the potential to be a turning point in the way we in the EU look at resources. So let us take a look at the genesis of the CEP.

Sometimes, a step back to assess the situation actually turns out to be a step forward. Whether intentional or not, almost one-and-a-half years passed between the publication of the European Commission's first CEP in July 2014 and the presentation of the revised package in December 2015 which should later form the basis for the CEP 2018. That time was well invested. The European Commission and the committees of the European Parliament involved are to be commended for the transparent process and its outcome – an improved and more comprehensive proposal.

The EU imports around three times (1.8 billion tonnes) more raw materials, energy sources and goods per year than it exports. While part of this surplus becomes waste or enters the wastewater system or the atmosphere, a significant share of it remains right here – in goods and infrastructure – in the man-made, anthropogenic world surrounding us. We accumulate materials, goods and products.

In themselves, these flows of goods are not a bad thing; they merely reflect the global disparity in the availability of, and demand for, raw materials.

Availability of natural resources is determined by geological factors and cannot be changed¹. We as a society have developed three tools – second-order resources – to help us overcome the unequal distribution of natural resources: trade, diplomacy (including warfare), and technology for improved efficiency of use, substitution of critical or scarce raw materials, and recycling.²

These three pillars are also mentioned in the Raw Materials Strategy and the Roadmap to a Resource-Efficient Europe presented by the EU Commission four years ago.

Recycling and the circular economy principle are key elements of the EU's raw materials and (regional) economic policies, so they should be prioritised accordingly and no longer be treated as green issues alone.

In fact, the Commission's initiative for revision of the waste directives can be ascribed to the legal requirement to review (i) the recycling targets set out in the Waste Framework Directive and the Packaging Directive by the end of 2014 and (ii) the restrictions on the landfilling of biowaste by mid-2016. An impact analysis suggested that higher recycling targets and restrictions on landfilling would entail considerable potential for job creation, growth and investment.

When it was presented on 2 July 2014, the Circular Economy Package (entitled Towards a circular economy: A zero waste programme for Europe)³ called for nothing less than a transformation of the European Union into a circular economy by 2030, to be achieved through amendments to six EU waste directives. The CEP was immediately the focus of a heated debate.

2. Reactions to the EU Commission's Circular Economy Package 2014

Some of the arguments made against the Barroso Commission's Circular Economy Package were well-founded, while others were knee-jerk reactions. Views on the package were far from unanimous, which is also reflected in the fact that the commotion following its presentation was just as vehement as the one that ensued after the announcement of its – temporary – withdrawal.

It is only natural that the views adopted by interest groups or political parties reflect their respective interests or ideological backgrounds. What is surprising, however, is that hardly anyone challenged the importance of the subject matter itself. Many elements of the CEP were met with general approval, such as the harmonisation of definitions and calculation methods, the quality improvement of the waste management data basis or the early warning mechanism to monitor compliance with the targets.

A large part of the discussion focused on the recycling and recovery targets for municipal waste, packaging waste or specific packaging materials, on the utilisation of the energy content of waste and where to place it in the waste hierarchy, as well as on the restrictions on landfilling. Other points of contention were methodological details that have far-reaching effects, such as the methodology and point of measurement for recycling, the inclusion of waste prevention (which is difficult to capture statistically) in recovery rates, or the minimum requirements for Packaging Recycling Organisations.

Passionate contributions, including from members of the European Parliament, were made on plastic waste, especially plastic marine debris, in connection with restrictions on plastic carrier bags, as well as on the role of waste incineration for energy recovery, on product design and reusable packaging.

¹ The discussion about the Anthropocene as a new formal epoch of geological time indicates a possible change: The amount of concrete produced every year (13 gigatonnes) is equal to the amount of sediment transported by rivers each year. Waters, C. N. et al. (2016): The Anthropocene is functionally and stratigraphically distinct from the Holocene. *Science* 351, 6269.

² Sociology is perhaps a fourth component to be added to the toolbox as it impacts, among other things, the demand for resources by questioning and changing our perception of what we need and hence our consumer behaviour.

³ COM/2014/398/final, 2 June 2014.

1.1. A more ambitious package

After the inauguration of the Juncker Commission, the First Vice-President of the Commission, Frans Timmermans (who was, among other things, in charge of the Better regulation agenda), made clear in December 2014 that the Commission would not simply withdraw the Circular Economy Package (despite reports to the contrary) but would instead present a revised CEP by the end of 2015 that would be even more ambitious than the original one.

While the first part of the message was clear enough – after all, the environment ministers of eleven Member States had urged the Commission in November 2014 not to drop the project – the second part was a little disconcerting: more ambitious and sophisticated in what way? Higher targets, shorter deadlines, wider application, further regulation, stricter implementation? What is more, which of the above should be considered an improvement, and by what standards?

1.2. Circular Economy Coalition for Europe

One striking feature of the 2014 CEP was that it obviously failed to take into account the considerable body of research into resource management. While the Commission made extensive reference to studies initiated e.g. by EU institutions, top-level university research into anthropogenic resources was simply not factored into the considerations.

This is where the Circular Economy Coalition for Europe (CEC4Europe)⁴ comes in: What started out as an exchange of ideas among scientists from Austria, Denmark, France, Germany, and later on, Norway, Switzerland and the UK, became an informal platform dedicated to resource and waste management in early 2015 and then transformed into the CEC4Europe initiative. The coalition came together to answer a crucial question: How can we move towards an effective and efficient state-of-the-art circular economy? In other words, what can scientists and resource management experts do to support the EU institutions in their endeavour?

In the months to follow, the coalition discussed the weaknesses of the first CEP and suggested alternatives in a dialogue with the EU Commission and Parliament, interest groups and leading businesses. A number of suggestions have been incorporated into the revised 2015 package and, more specifically, the Action Plan, but other points of criticism remained unchanged.

1.3. The 2015 Circular Economy Package

The new CEP of 2 December 2015 is the result of a broad dialogue between the EU Commission, above all the Directorates-General ENV and GROW, the European Parliament and its committees ENVI and ITRE, the Member States, and a broad range of stakeholders.⁵ More than 1,400 interested parties participated in the public consultation between June and August 2015.⁶

⁴ www.cec4europe.eu, EU Transparency register no. 628480917959-24, 24 June 2015.

⁵ Circular Economy Stakeholder Conference (2015). Closing the loop - Circular Economy: boosting business, reducing waste, Brussels, https://ec.europa.eu/environment/ecoap/events/closing-loop-circular-economy-boosting-business-reducing-waste_en, 25 June 2015

⁶ http://ec.europa.eu/environment/consultations/closing_the_loop_en.htm, 2 October 2015.

The 2015 Circular Economy Package comprises two parts⁷: While the legislative proposals on waste (four proposed directives to revise six waste directives)⁸ correspond to the first package in terms of the topics covered, they (and above all the quantitative targets they specify) have been thoroughly revised. The most important improvement of the new CEP, however, is the Action Plan for the Circular Economy. Its seven chapters present the Commission's plans on the life-cycle phases of production, consumption and waste management, on specific projects for the market for secondary raw materials, five selected waste streams,⁹ innovation and investment, and on monitoring progress towards a circular economy.

Under the Waste Framework Directive, the EU Member States are obligated to achieve a 50% recycling and re-use target for paper, metal, plastics, and glass by 2020. Under the proposed amendment to the directive, the target is set to apply to municipal waste as a whole (harmonised definition) and to be raised to 60% by 2025 and 65% by 2030.

For packaging waste, the existing 60% target for recycling or energy recovery as well as the upper limit of 80% for material recovery will no longer apply. Instead, the target on the re-use and recycling of packaging waste will be set at 65% by 2025 and 75% by 2030. Minimum sub-targets for specific materials contained in packaging waste will be up to 85%, and separate recycling targets will be introduced for ferrous metals and aluminium.

The existing leeway that Member States have probably exploited in the calculation of recycling and re-use rates is to be reduced substantially through specification of a calculation methodology.

Landfilling of municipal waste is to be reduced significantly so that by 2030 the Member States send no more than 10% of municipal waste to landfill.¹⁰ This objective is supported by a ban on the landfilling of waste to be collected separately (glass, plastics, metal, paper and, in future, biowaste).¹¹

In addition, the Member States will be obligated to apply waste prevention measures. Food waste, beverage packaging, waste electrical and electronic equipment, textiles, bulky waste and critical raw materials are addressed specifically, and the measures mentioned include the promotion of resource efficiency, repair, collection and re-use. National waste management plans also have to address the issue of littering.

For industrial waste and construction and demolition waste, the Commission makes explicit reference to the application of best available techniques. Moreover, the Member States are to promote sorting systems for construction and demolition waste.¹²

Producers responsibility requirements are to be complemented and harmonised with the introduction of mandatory technical and organisational minimum requirements on collection and recovery schemes, above all with regard to transparency of the operators' background and financing as well as mass flows. Producer

⁷ See e.g. the informative summary published in the December 2015 issue of the *Europaspiegel* magazine of the Federal Association of the German Waste Management Industry (<http://bde.de/assets/public/Dokumente/Europa/BDE-VOEB-Europaspiegel-122015.pdf>).

⁸ Proposal for a directive amending the Waste Framework Directive (2008/98/EC), the Directive on Packaging and Packaging Waste (94/62/EC), the Directive on the Landfill of Waste (1999/31/EC), and – in one proposal – the Directive on End-of-Life Vehicles (2000/53/EC), the Directive on Batteries and Accumulators and Waste Batteries and Accumulators (2006/66/EC) and the Directive on Waste Electrical and Electronic Equipment (2012/19/EU).

⁹ Plastics, food waste, critical raw materials, construction and demolition waste, and biomass.

¹⁰ This step is especially important in light of the fact that 18 Member States landfilled over 50% of municipal waste and only 6 Member States landfilled less than 3%. However, we should not overlook the necessary role of sanitary landfills as a final sink of materials that can be landfilled.

¹¹ Under the Landfill Ordinance, Member States have been obliged to set up a strategy to reduce the amount of biodegradable municipal waste going to landfill. For instance, by mid-2016, biodegradable municipal waste going to landfill must be reduced to 35 % of the total amount (by weight) of biodegradable municipal waste produced in 1995.

¹² At least for wood, glass, metal, construction minerals, and gypsum.

responsibility schemes’ businesses should be guided by the principle of full cost coverage based on optimised cost of service.

Table 1 Recycling targets and (from 2020) re-use targets as specified in the Packaging Directive and the Waste Framework Directive as well as the proposed 2015 Circular Economy Package

Waste classification	Current targets PPWD ¹⁾	2020 targets WFD	2025 proposal CEP ³⁾	2030 proposal CEP ³⁾	2025 proposal ENVI	2030 proposal ENVI
Municipal waste Recycling/re-use		50 %	60 %	65 %	65 % ⁴⁾	70 % ⁴⁾
Landfill (max.)				10 % ²⁾		5 % ²⁾
Packaging waste	55-80%		65 %	75 %	70 %	80 %
Paper, cardboard	60 %		75 %	85 %	90 %	
Plastic	22.5 %		55 %		60 %	
Glass	60 %		75 %	85 %	80 %	90 %
Ferrous metals	50 %		75 %	85 %	80 %	90 %
Aluminium	75 %	85 %	80 %	90 %	75 %	85 %
Wood	15 %		60 %	75 %	65 %	80 %
Bio-waste					65 %	70 %
Construction waste Recycling/re-use		70 %				

PPWD Packaging and packaging waste directive, 2005/20 EC

WFD Waste framework directive, 2008/98 EC

CEP Circular economy package, COM(2015)595, COM(2015)596

ENVI Environment Committee, European Parliament

1) Recycling targets

2) Landfill ban on separately collected plastic, metal, glass, paper, cardboard and biowaste

3) New definition of point of measurement

4) Including a minimum of 3% (2025) and 5% (2030) of total municipal waste prepared for re-use

Estonia, Greece, Croatia, Latvia, Malta, Romania and Slovakia may obtain five additional years for the attainment of the 2025 and 2030 targets.

2. Criticism

According to the Commission, the Circular Economy Package is intended to serve the objectives of growth and employment while at the same time ensuring and strengthening environmental protection. This reflects the economic relevance of the issue as described earlier, which is to be commended and supported.

It also implies that effectiveness and efficiency have to serve as the guiding principles for the project. Otherwise the CEP would place a burden on businesses without leading to a significant expansion of the raw material base or improving resource efficiency. In the following, effectiveness and efficiency will be at the heart of the arguments put forward.

2.1. Focus on municipal waste

The 2014 CEP focused on municipal waste, which accounts for only 7–10% of total waste generated. That does not make much sense in terms of resource management, substitute fuels and pollutant management.

It is factually wrong to assume that waste from business and industry is too heterogeneous and can be managed sufficiently using best available techniques (BAT).¹³

With its Action Plan, the 2015 CEP is a significant step forward from the previous position and it shows that the Commission took the criticism on board.¹⁴ What remains to be seen is whether the Commission will succumb to the temptation of trying to use the same methods and targets as for municipal waste when approaching industrial and construction waste. The EU will have to develop custom-tailored instruments to utilise this considerable raw material potential.

2.2. Recycling targets

For municipal waste – and above all packaging waste – most Member States have already achieved high recycling targets as set out in the EU Packaging Directive.¹⁵ What remains to be seen is whether these targets are in fact beneficial under the specific circumstances in the Member States.

Very little is known about the assumptions underlying the new recycling and re-use targets and the implementation periods specified. No cost-benefit analysis has been conducted.

That is indeed unfortunate. After all, from an environmental point of view, it would make much more sense to set optimal recycling targets instead of the highest targets possible.¹⁶

So it is impossible to say whether the proposed rates for 2025 or 2030 in fact help achieve the Commission's own objectives (growth, employment, environmental protection). A first economic assessment of the effects shows that, assuming the targets can be achieved on time and their implementation is technically feasible, the recycling rate of packaging waste can be increased by around 30% but the associated cost would double.¹⁷

Instead of setting – potentially inefficient – higher targets that some Member States will probably ignore just like they did the old ones, the Commission should focus on a harmonisation of recycling levels in the Member States to avoid further distortion of competition and incentives for waste exports to countries where the standards in waste management are low.

The Commission's new proposal allows certain Member States¹⁸ to request a five-year extension of the deadline to meet the recycling targets for municipal waste and/or the restrictions on landfill, which is reasonable as a first step. However, to be truly effective, the proposal would also have to include an implementation plan as well as proactive measures to help underperforming Member States achieve the target level.

¹³ With its amendment to the Commercial Waste Ordinance, Germany, too, has taken account of this fact.

¹⁴ Municipality representatives, among others, have criticised that the proposed definition of municipal waste should include a quantitative threshold in addition to the criterion of composition. In terms of resources, this is not relevant, though.

¹⁵ However, the statement that the EU has achieved an average recycling rate of 42% for municipal waste is irrelevant in this context: Under the EU Waste Framework Directive, every Member State has to achieve a 50% recycling rate by 2020. The high weighted mean is attributable to high waste arisings and exceptionally high recycling rates reported by Germany, while the arithmetic mean for the Member States was as low as 32% in 2013 (Eurostat, 2015).

¹⁶ The emphasis on municipal waste is again misleading. A case in point is the requirement that 85% of all aluminium packaging has to be recovered by 2030, whereas the much larger (and less dispersed) amount of aluminium components in construction and the automotive industry have not been addressed at all.

¹⁷ Based on the recycling targets specified in the 2014 CEP, that effect would be even more pronounced: Raising the recycling rate of packaging by 50% would lead to a cost increase of 200%. This assessment does not take into account the effect of re-use. Denkstatt GmbH (2016): *Beurteilung des Maßnahmenpaketes der Kommission zur Circular Economy hinsichtlich Umsetzbarkeit und Kosten*. Study on behalf of ARA, Vienna.

¹⁸ Estonia, Greece, Croatia, Malta, Romania, and Slovakia.

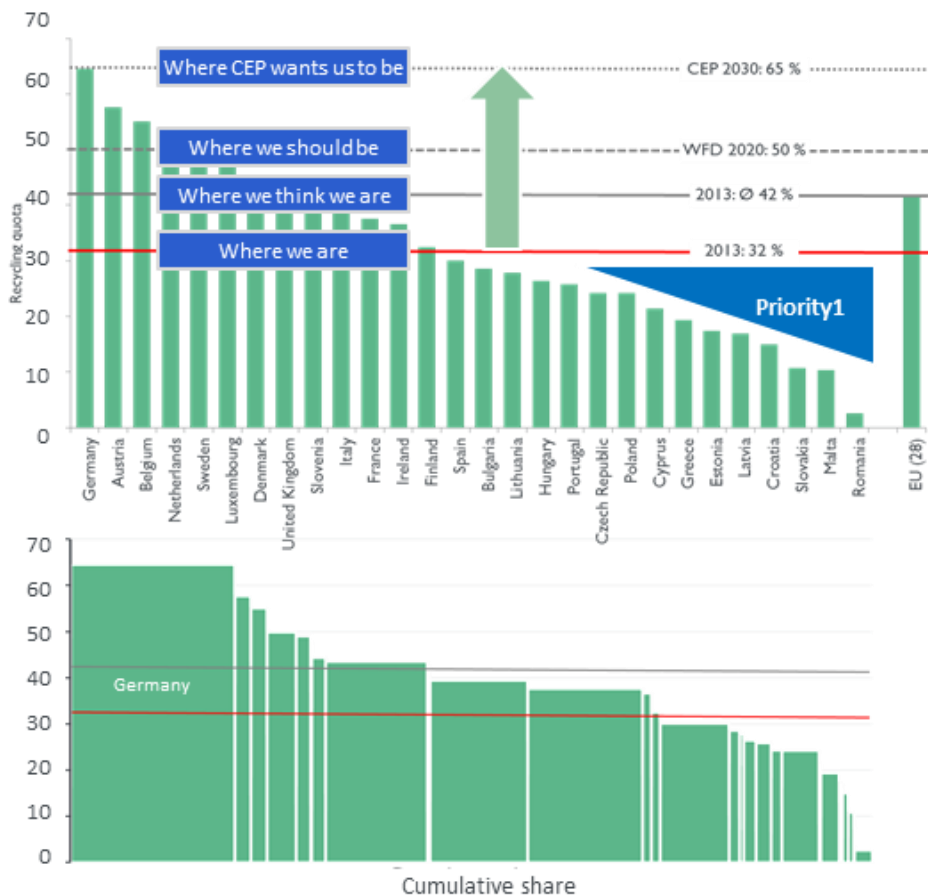


Figure 1 Recycling of municipal waste in the Member States in 2013 (Eurostat, 2015) and targets set out in the 2015 Circular Economy Package

2.3. Factor time

Achieving a fundamental change in the methods used at the first stage of treatment (recycling, incineration with energy recovery, landfilling) is indeed possible for municipal waste: Fig. 3 shows the shift in waste management methods used in Austria between the end-1990s (more than 70% going to landfill and less than 20% going to recycling) and 2013 (3% going to landfill and just under 60% going to recycling).

In contrast, the Commission’s original proposal would have forced all Member States to achieve a higher target within a shorter period of time and, for some, from a less advanced starting point – and all that under the current unfavourable political and economic conditions. That, frankly, seems entirely unrealistic, as transformations like these are unthinkable without clear targets, a favourable investment climate, a stable legal framework and an appropriate administrative culture.

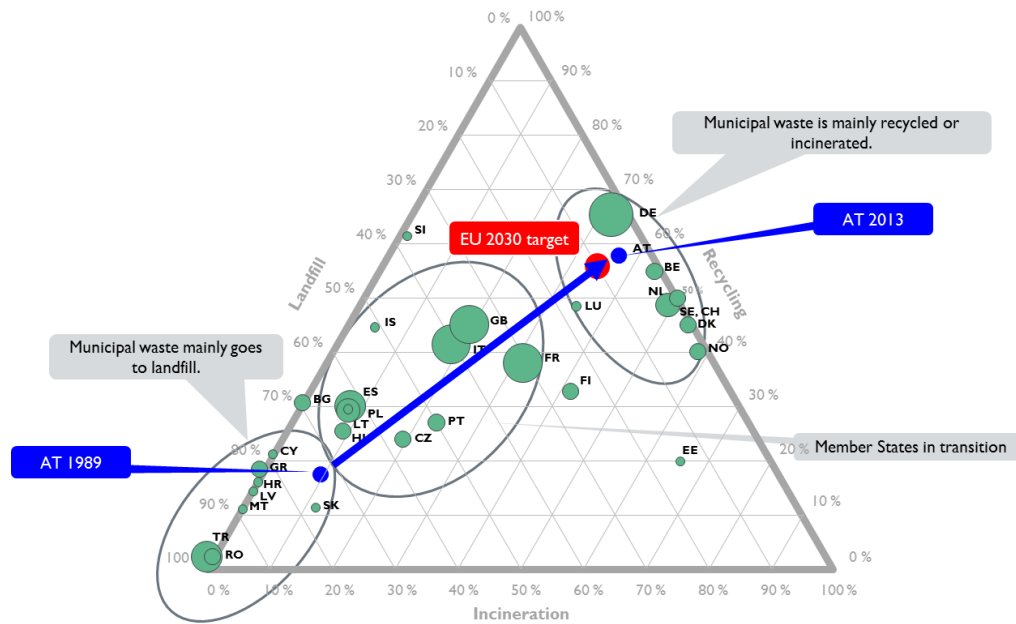


Figure 2 Mix of waste management methods used in the EU Member States in 2013, proposed target for 2030 (2014 CEP) and the transition in Austria 1989 – 2013 (according to Pomberger 2015).

2.4. Narrow focus on waste management

Even though the Commission’s focus on municipal waste has been expanded to include the broad range of commercial and industrial waste, an even greater potential of secondary raw materials can be found in other areas. But because the materials are still being used, they are not on the radar of the waste management industry.

To give an example:¹⁹ The amount of plastics entering the market in Austria is around 1,000,000 tonnes per year (2010 data; see Fig. 4). The largest area of use is for packaging, which accounts for around 28%, with almost all of it collected and managed as soon as it is discarded. The second-largest area of use is the construction industry (around 25%). Of this, only around 20% per year reaches the waste management stage – by far the bulk of it is still around, and much of it will be in use for many years to come, contributing to the increase in anthropogenic stocks.

Goods in use are not included in today’s waste management statistics. If we rely on waste management data alone, we fail to consider this potential, which leads to wrong priorities identified from incorrect quantitative and qualitative data, and we do not take into account the factor of time. A planning framework based on incomplete information, like the one underlying the Circular Economy Package, is bound to be short-sighted.

¹⁹ Feketisch, J. & D. Laner (2015): Kunststoffe in Österreich – Eine Analyse der Entwicklungen in den letzten 15 Jahren. *Österreichische Wasser- und Abfallwirtschaft* 67: 35–42.

Sensible planning frameworks have to take into account future waste arisings and the potential of secondary raw materials and substitute fuels: the accumulation of anthropogenic stocks over time, the point where products become waste after the end of their service life, the relevant amounts, the location and combination of materials, and last but not least, their quality including new materials (future wastes). This situation calls for a forward-looking approach based on dynamic modelling – a look in the rear-view mirror to scrutinise data of the past will not be of much use.

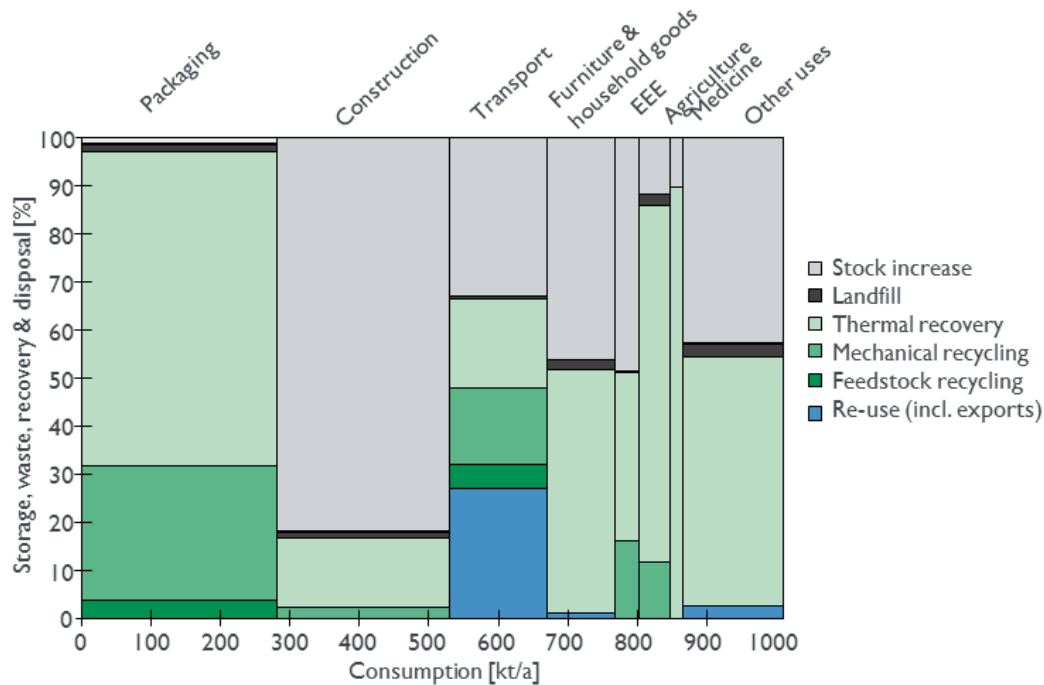


Figure 3 Plastic entering the market in Austria in 2010 by industry and waste management method (according to Feketisch & Laner 2015).

2.5. Anthropogenic stocks

The Action Plan of the 2015 Circular Economy Package acknowledges that while municipal waste (around 0.5 tonnes per capita and year) is a political priority and thus plays a prominent role in the proposed amendments to the waste directives, it represents just a tiny potential from a resource policy point of view. At around 5 tonnes per capita and year, total waste arising are higher by a factor of 10 (see Fig. 5).

Even more importantly, the increase in anthropogenic stocks (goods and infrastructure) is much higher than that at 8–10 tonnes per capita and year. In the time that it takes us to produce 5 tonnes of waste, the stocks of goods we hold increase by 10 tonnes. In advanced economies, anthropogenic stocks (our statistical backpack, so to speak) are around 400 tonnes per capita, including goods in use and after use (landfills).²⁰

When this mass reaches the end of its life, it will have a decisive impact on the quantity and quality of waste arisings – even before future Ecodesign measures take effect. In other words, the waste of the future is already here, so the commitment to zero waste by 2030 is impossible to achieve and even misleading.

²⁰ Baccini, P. & Brunner, P. H. (2012a): Metabolism of the Anthroposphere. 2nd ed., MIT Press, Cambridge MA, and Baccini, P. & Brunner, P. H. (2012b): Do you know the stocks and flows of your real economy? *The European Financial Review*, 03.08.2012.

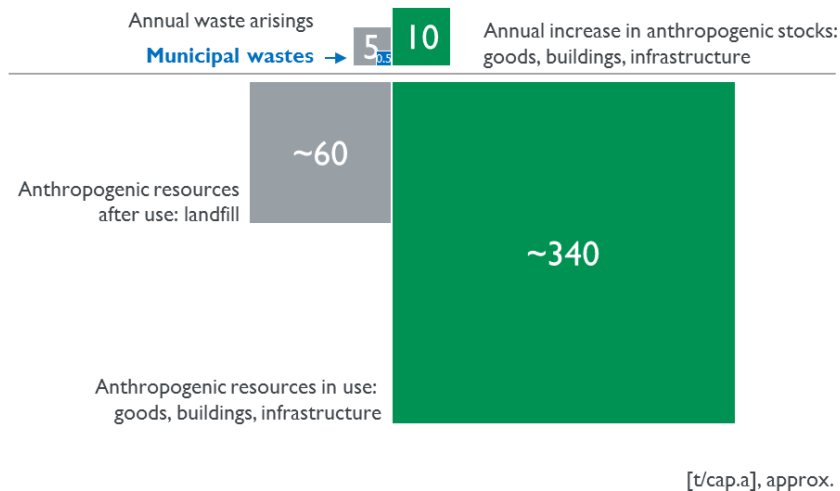


Figure 4 Anthropogenic stocks and their annual increase (schematic representation).

These anthropogenic stocks contain mostly minerals, maybe 10 tonnes of steel and about a tonne of plastics, but the stocks are growing. Over time, and after use, they will become waste. Today, we don't know when. We neither know the quantities nor the qualities, and we don't know the logistics we need nor the technologies or capacities to deal with them in an ecologically and economically sound manner. And, above all, we do not know the future demand for secondary materials.

From this point of view, the concept of circularity seems like a romantic illusion, and is even a bit misleading. While a circle closes a loop and ends at the starting point, the world is not the same with respect to markets, demand, or technologies when recyclables re-appear as secondary raw materials. We will hardly notice a difference for fast moving consumer goods, but definitely when e.g. electronics, car parts, or buildings are concerned.

The transformation from a linear to a circular mode of thinking can only be the important first step. Next, we have to change from a static to a dynamic manner of thinking and factor in time in our considerations about targets, potentials, and action: From circularity to the helix.

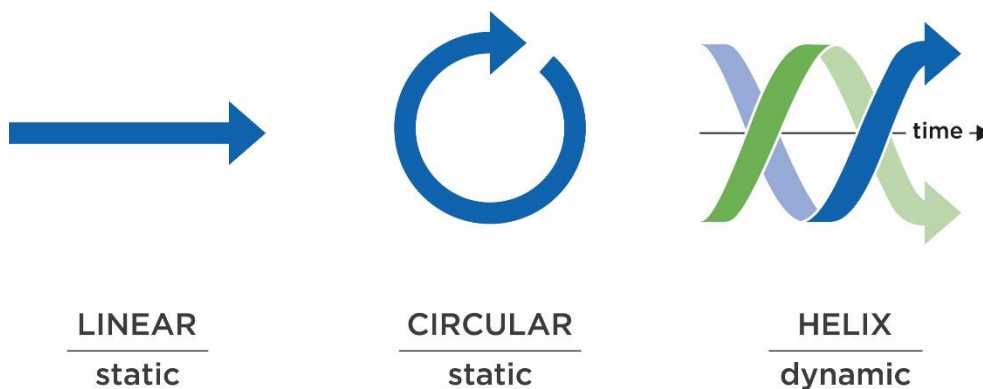


Figure 5 From a static linear model to a dynamic helix model

2.6. Demand for secondary raw materials

Mandatory recycling targets lead to an artificial increase in supply (i.e. not driven by demand). It could be argued that this supply will eventually create a market and demand as the legal environment fosters innovation and investment that serve the objectives of growth and environmental protection.

This line of argument ignores two aspects: Even though it is quite safe to assume that in 10-15 years there will still be a market for consumer recyclables like packaging made of glass, paper, metal, PE or PET, it remains to be seen whether the materials obtained due to the massive increase in recycling targets (leaving aside the re-use of materials for the sake of simplicity) will actually meet the required quality standards, and if they do, at what competitive cost.²¹

The second aspect that, surprisingly, has been completely ignored so far is what raw materials the EU industry will actually need over the CEP's planning horizon. It would be presumptuous to assume that an artificially high supply level of secondary raw materials of unspecified quality is enough of an incentive for corporations in a global competitive environment to make radical shifts in their raw materials procurement policies.

If the Circular Economy Package is to live up to its purpose and make a significant contribution to improving the EU industry's raw material base, it has to take into account all available sources of secondary raw materials and substitute fuels while at the same time modelling future quantitative and qualitative raw material needs in cooperation with users in industry to ensure supply security.²²

This will allow us to prioritise our raw material needs and specify suitable potentials of secondary raw materials and substitute fuels and, on this basis, to develop market-based instruments for the materials' needs-based, effective and efficient exploitation.

2.7. Bringing the EU Action Plan to life

The Action Plan lists numerous aspects of a circular economy which can hardly be addressed simultaneously. An ongoing survey of the plethora of programmes and mission statements on circular economy from governments, industry associations, NGOs and other bodies attempts to find out which topics of circular economy are the most frequently mentioned.²³

The following topics were considered high priorities among all participating entities are shown in table 2.

Taking the answers of all respondent categories into consideration, it becomes evident that the following three aspects were considered most relevant:

- The design of a product to reuse, repair, remanufacture or recycle it;
- Improving the cooperation between stakeholders/Member States as well as better implementing EU waste legislation;
- The comprehensive elaboration of extended producer responsibility schemes

²¹ Aluminium is a good example of the problem: Raising Austria's recycling rate to the 2030 target level without improving the quality of the material does not make much sense as the amount of mixed aluminium scrap currently produced already exceeds the country's final consumption of casting alloys. Logistics and recovery methods need to be developed further to ensure cascading use and obtain high-quality scrap for wrought alloys that can be of use e.g. in structural vehicle components (Buchner 2015).

²² The European Commission's 2012 study on critical raw materials and its 2014 update (<http://ec.europa.eu/DocsRoom/documents/10010/attachments/1/translations/en/renditions/native>) are good examples of an approach that should be developed further.

²³ Unterasinger (2018)

Table 2 Topics with highest priorities by respondent category (Unterasinger 2018)

	Multistakeholder networks	Business and civil society	Public authority networks	Knowledge community
The design of a product to reuse, repair, remanufacture or recycle it	x	x	x	x
The improved cooperation between stakeholders / Member States as well as better implementation of EU waste legislation	x	x	x	x
The comprehensive elaboration of extended producer responsibility schemes	x			x
The support of the industry and the circular economy by means of Horizon 2020			x	x
Binding minimum requirements for extended producer responsibility schemes	x			x
The interface between chemicals, products and waste legislation		x	x	x
The establishment of minimum requirements for the reuse of water			x	
The support of innovation (e.g. through EIP and Horizon 2020) and of investments	x		x	
The environmental performance of buildings		x	x	

3. EU Circular Economy Package 2018

On 4 July 2018, the first set of regulations entered into force, giving the member states 24 months to incorporate the directives into national legislation. The four amended directives were officially approved by the EU Council in late May and form part of the EU's circular economy strategy:

- Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste.
- Directive (EU) 2018/850 of the European Parliament and of the Council of 30 May 2018 amending Directive 1999/31/EC on the landfill of waste.
- Directive (EU) 2018/849 of the European Parliament and of the Council of 30 May 2018 amending Directives 2000/53/EC on end-of-life vehicles, 2006/66/EC on batteries and accumulators and waste batteries and accumulators, and 2012/19/EU on waste electrical and electronic equipment.
- Directive (EU) 2018/852 of the European Parliament and of the Council of 30 May 2018 amending Directive 94/62/EC on packaging and packaging waste.²⁴

3.1. Targets

The Circular Economy package sets recycling goals for both municipal and packaging waste. By 2025, EU countries will need to recycle 55 % of their municipal waste, rising to 60 % in 2030 and then to 65% after another five years. The new rules also target packaging, 65% of which will have to be collected for recycling by 2025, with the proportion rising to 70 % in 2030.

The mandatory recycling rates vary according to the type of packaging, with the 2025 targets ranging from 25 % for wood-based packaging to 75 % for paper and cardboard. The figure for plastic packaging is set

²⁴ European Commission. Environment. Circular Economy: Implementation of the Circular Economy Action Plan (23.07.2018)

between the two at 50 %. By 2030, 30 % of wood-based packaging needs to be recycled, the figure for paper and cardboard lies at 85 %. For plastic packaging, a recycling target of 55 % needs to be met by 2030.

The recycling targets for metal packaging are split between ferrous metals and aluminium. The rate for ferrous metals is set at 70 % by 2025, rising up to 80 % by 2030. For aluminium, the target of 50 % by 2025 will rise to 60 % in 2023; for glass, the recycling target is to rise from 70 % by 2025 to 75 % by 2030.

By 2035 the amount of municipal waste landfilled must be reduced to 10% or less of the total amount of municipal waste generated.²⁵

In addition, the Circular Economy Package encourages a 30 % reduction in food waste by 2025, and a 50 % reduction by 2030. However, other than the recycling and landfilling targets, these goals are not legally binding.

Hazardous household waste will have to be collected separately by 2022, bio-waste by 2023 and textiles by 2025.

The new legislation will place a particular focus on waste prevention and introduce important objectives for food waste in the EU and halting marine litter to help achieve the UN Sustainable Development Goals in these areas.

The recycling targets of 2018’s CEP show deviations compared to the proposal of the EU commission of 2015:²⁶

Table 3 Recycling targets and re-use targets as specified in the Packaging Directive and the Waste Framework Directive as well as the proposed 2015 Circular Economy Package and 2018 Circular Economy Package in comparison

		EU PPWD	EC Proposal 2 Dec 2015		CEP 2018		
			2025	2030	2025	2030	2035
Municipal waste	Recycling / Re-use		60 %	65 %	55 %	60 %	65 %
	Landfill (maximum)			10 %			10 %
Packaging waste		55 – 80 %	65 %	75 %	65 %	70 %	70 %
Paper		60 %	75 %	85 %	75 %	85 %	85 %
Plastics		22,5 %	55 %		50 %	55 %	55 %
Glass		60 %	75 %	85 %	70 %	75 %	75
Ferrous metals		50 %	75 %	85 %	70 %	80 %	80 %
Aluminium			75 %	85 %	50 %	60 %	60 %
Wood		15 %	60 %	75 %	25 %	30 %	30 %

4. An EU strategy for plastics

With the release of the first-ever Europe wide strategy for plastics in January 2018, the EU underlines its ambition regarding a transition towards a circular economy²⁷

Under the new strategy and with tackling marine pollution in mind, the European Union aims at five areas:

²⁵ It is highly regrettable that the phasing-out of landfills has been postponed so far into to the future especially since a landfill-ban is seen as an effective incentive for increased recycling and thermal utilization of municipal waste.

²⁶ European Commission. Press Release Data Base: Circular Economy: New rules will make EU the global front-runner in waste management and recycling (22. 05.2018)

²⁷ European Commission. Environment, European Strategy for Plastics (05.09.2018)

Make recycling profitable for business: New rules on packaging shall be developed to improve the recyclability of plastics used on the market and increase the demand for recycled plastic content. With more plastic being collected, improved and scaled up recycling facilities should be set up, alongside a better and standardised system for the separate collection and sorting of waste across the EU. This shall save around a hundred euros per tonne collected. It shall also deliver greater added value for a more competitive, resilient plastics industry.

Curb plastic waste: European legislation has already led to a significant reduction in plastic bag use in several Member States. The new plans will now turn to other single-use plastics and fishing gear, supporting national awareness campaigns and determining the scope of new EU-wide rules to be proposed in 2018 based on stakeholder consultation and evidence. The Commission plans also take measures to restrict the use of microplastics in products, and fix labels for biodegradable and compostable plastics.

Stop littering at sea: New rules on port reception facilities shall tackle sea-based marine litter, with measures to ensure that waste generated on ships or gathered at sea is not left behind but returned to land and adequately managed there. Also included are measures to reduce the administrative burden on ports, ships and competent authorities.

Drive investment and innovation: The Commission will provide guidance for national authorities and European businesses on how to minimise plastic waste at source. Support for innovation will be scaled up, with an additional €100 million financing the development of smarter and more recyclable plastics materials, making recycling processes more efficient, and tracing and removing hazardous substances and contaminants from recycled plastics.

Spur change across the world: As the European Union does its own homework, the EU will also work with partners from around the world to come up with global solutions and develop international standards. Reference is given to the EU-supported clean-up of the Ganga River (India).²⁸

In Annex III, entitled pledging campaign, the European commission calls on stakeholders to come forward with voluntary pledges to boost the uptake of recycled plastics. The objective is to ensure that by 2025 ten million tonnes of recycled plastics find their way into new products on the EU market.²⁹ This is an important move, as it shows the Commission's understanding for market forces and the need of adequate demand of recyclates: If the 50% recycling target for plastic packaging will be met by all member states in 2025, there will be a supply of approx. ten million tonnes of recyclates, which is three times more than the current recycling operation in the EU.³⁰ According to the EU strategy on plastics, packaging, construction, automotive and electric/electronic products are the target sectors for increased up-take of recyclates, supported by green public procurement.

5. Proposal for single-use plastics directive

In May 2018, the European Commission proposed EU-wide rules to target the 10 single-use plastic products that are most often found on Europe's beaches and seas as well as lost and abandoned fishing gear.

²⁸ European Commission, Press Release Date Base: Plastic Waste: a European strategy to protect the planet, defend our citizens and empower our industries (16.01.2018)

²⁹ European Commission, Annexes to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions (16.01.2018)

³⁰ Velis (2014), PlasticsEurope (2018)

Plastic ban in certain products: Where alternatives are readily available and affordable, single-use plastic products shall be banned from the market. The ban shall apply to plastic cotton buds, cutlery, plates, straws, drink stirrers and sticks for balloons which will all have to be made exclusively from more sustainable materials instead. Single-use drinks containers made with plastic shall only be allowed on the market if their caps and lids remain attached.

Consumption reduction targets: Member States shall have to reduce the use of plastic food containers and drinks cups. They can do so by setting national reduction targets, making alternative products available at the point of sale, or ensuring that single-use plastic products cannot be provided free of charge.

Obligations for producers: Producers shall help cover the costs of waste management and clean-up, as well as awareness raising measures for food containers, packets and wrappers (such as for crisps and sweets), drinks containers and cups, tobacco products with filters (such as cigarette butts), wet wipes, balloons, and lightweight plastic bags. The industry shall also be given incentives to develop less polluting alternatives for these products.

Collection targets: Member States shall be obliged to collect 90% of single-use plastic drinks bottles by 2025, for example through deposit refund schemes.

Labelling Requirements: Certain products shall require a clear and standardised labelling which indicates how waste should be disposed, the negative environmental impact of the product, and the presence of plastics in the products. This shall apply to sanitary towels, wet wipes and balloons.

Awareness-raising measures: Member States shall be obliged to raise consumers' awareness about the negative impact of littering of single-use plastics and fishing gear as well as about the available re-use systems and waste management options for all these products.

For fishing gear, which accounts for 27% of all beach litter, the Commission aims to complete the existing policy framework with producer responsibility schemes for fishing gear containing plastic. Producers of plastic fishing gear shall be required to cover the costs of waste collection from port reception facilities and its transport and treatment. They shall also cover the costs of awareness-raising measures.³¹

6. Criticism

6.1. Policy Coherence

The focus of the commission lies on preventing and combating marine litter. This is, in itself, a very important approach. However, the question arises if this focus is chosen wisely given the fact that Europe is not over proportionally responsible for plastic waste in the world's seas due to advanced waste management systems. Plastic waste does, nevertheless, primarily originate from regions without existing or well-functioning waste management systems (eg. Asia, Africa or Latin America which is, in total, approximately 2 billion people). A little over 50 % of macro plastics in the oceans comes from fishery.³² A well working waste management system would constitute a proven solution for preventing plastic wastes in the sea.

Contrary, Europe as well as northern America as wealthy regions are over proportionally responsible for primary microplastics in the seas (of which approx. 60 % originate from tyre wear and textile fibres)³³. It

³¹ European Commission, Press Release Data Base: Single Use plastics: New rules to reduce marine litter (28.05.2018)

³² L. Lebreton et al.(2018): Evidence that the Great Pacific Garbage Patch is rapidly accumulating plastic, Nature, Scientific Reports volume 8, Article number: 4666

³³ Boucher, J. and Friot D. (2017). Primary Microplastics in the Oceans: A Global, Evaluation of Sources. Gland, Switzerland: IUCN. 43pp.

would, therefore, be more wisely to shift the focus to this problem, for which no technical solutions are available yet.

6.2. Collection target for plastic bottles

Taking out separate packaging is not in line with the circular economy package and the pledge of the commission to cooperate with the economy. A mandatory rate for separate collection prescribes – unlike quotas for recycling or recovery – a certain technology. The regulation would make any other method for the retrieval of plastic bottles for recycling obsolete. Above all, sorting from MSW that would well be necessary in order to meet the 50 % recycling target for plastic packaging in 2025, would not contribute to the quota, leaving investments questionable.

6.3. Litter clean-up costs in EPR

Littering and marine debris, whether intentional or accidental, is caused by human behaviour and goes far beyond the topic of packaging. Imposing financial responsibility for litter clean-up costs on PROs will not solve littering. It is the PROs responsibility to provide waste management collection systems and consumer information through educational and awareness campaigns aimed at changing consumer behaviour and to ultimately increase recycling. These campaigns contribute significantly to the prevention of littering and complement the effort of other stakeholders (i.e. the municipal authorities) to minimise the social, economic and environmental problems that result from litter.

However, imposing financial responsibility for litter clean-up costs on PROs will not solve littering. PROs should only be financially responsible for the costs falling within their remit and influence.

6.4. Eco-modulation of EPR fees as a tool towards a circular economy

Improving eco-design of packaging and products constitutes a central pillar of the EU circular economy strategy. The European Commission has identified the eco-modulation of fees paid by producers under Extended Producer Responsibility (EPR) as a lever to incentivise eco-design. In view of imports and the flux of products between member states, it is important to find harmonized criteria for the characterization as recyclable or resource efficient, based on scientific evidence.

So far, a practical implementation of this approach at national level can be found in §21 of the German Circular Economy Law as well as in similar regulations in France and in Italy

7. **Outlook**

The Circular Economy Package 2018 reflects the political will and direction the European Union wishes to go. While the first set of regulations still emphasises municipal waste, it also recognises the importance of other types of waste. The final 2018 CEP remedies numerous shortcomings of the 2014 CEP and, with its Action Plan, offers a realistic chance of developing a circular economy policy that helps achieve the Commission's stated goals of growth, employment and environmental protection.

Its focus still needs to be expanded, though: Anthropogenic resources, with their high growth rates and large stocks, can play an important role in securing resources for the European economy. At present, the data base

on the potential of secondary raw materials, deposits and dissipation, grade and quality, the economic viability of their recovery as well as pollutants is sketchy at best.³⁴

The European waste management industry, which will be in charge of the treatment and conditioning of secondary raw materials and substitute fuels, does not have adequate planning frameworks for, or sufficient data on, the materials it will have to handle over the decades to come, nor does it have the logistics, technologies and capacities required in some areas.

It stands to reason that political intervention should be based on substantiated facts and take into account the real key challenges so as to satisfy the criteria of effectiveness and efficiency.

This is why the EU Circular Economy Package should be primarily seen as the starting point of a broad research initiative in the Member States and at the European level to address these questions and create the knowledge base required. It would be speculative and ultimately irresponsible to take far-reaching economic and environmental policy decisions with an insufficient data basis.

Recommendations	
Regulation	<ul style="list-style-type: none"> (1) Resource management instead of focussing on municipal waste (2) Get to know our starting point: harmonization of definitions, statistics, and calculation methods (3) Harmonising recycling levels between Member States instead of isolated increase in quotas (4) Optimum instead of maximum recycling targets, based on cost-benefit analysis (5) Binding minimum requirements for EPR schemes
Action Plan	<ul style="list-style-type: none"> (1) Modelling of the future raw material demand in terms of quantity and quality (2) Systematic exploration of anthropogenic resource stocks in goods, buildings and infrastructure (3) Prioritization of materials and (primary and secondary) sources (4) Appropriate policies and instruments to support holistic resource efficiency. (5) Evidence-based approach instead of guesswork, based on insufficient data

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