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Towards a circular economy:
A zero waste programme for Europe

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Towards a circular economy: A zero waste programme for Europe

1. Introduction: a circular economy in support of sustainable growth

Valuable materials are leaking from our economies. In a world where demand and competition for finite and sometimes scarce resources will continue to increase, and pressure on resources is causing greater environmental degradation and fragility, Europe can benefit economically and environmentally from making better use of those resources. Since the industrial revolution, our economies have developed a 'take-make-consume and dispose' pattern of growth — a linear model based on the assumption that resources are abundant, available, easy to source and cheap to dispose of. It is increasingly being understood that this threatens the competitiveness of Europe.

Moving towards a more circular economy is essential to deliver the resource efficiency agenda established under the Europe 2020 Strategy for smart, sustainable and inclusive growth.[1] Higher and sustained improvements of resource efficiency performance are within reach and can bring major economic benefits.

Circular economy systems keep the added value in products for as long as possible and eliminates waste. They keep resources within the economy when a product has reached the end of its life, so that they can be productively used again and again and hence create further value. Transition to a more circular economy requires changes throughout value chains, from product design to new business and market models, from new ways of turning waste into a resource to new modes of consumer behaviour. This implies full systemic change, and innovation not only in technologies, but also in organisation, society, finance methods and policies. Even in a highly circular economy there will remain some element of linearity as virgin resources are required and residual waste is disposed of.

Industry already recognises the strong business case for improving resource productivity. It is estimated that resource efficiency improvements all along the value chains could reduce material inputs needs by 17%-24% by 2030[2] and a better use of resources could represent an overall savings potential of €630 billion per year for European industry.[3] Business driven studies based on product-level modelling demonstrate significant material cost saving opportunities for EU industry from circular economy approaches and a potential to boost EU GDP by up to 3.9%[4] by creating new markets and new products and creating value for business. It is not surprising therefore that companies are continually working to improve resource management, but they are held back by a range of market barriers.

The high-level European Resource Efficiency Platform,[5] bringing together selected governments, businesses and civil society organisations, called for action to move to a more circular economy, which relies more on reuse and high-quality recycling and much less on primary raw materials.

[1] COM(2010) 2020, COM(2011) 21.

[2] Meyer, B. et al (2011) "Macroeconomic modelling of sustainable development and the links between the economy and the environment". Study for the European Commission (DG Environment), available at http://ec.europa.eu/environment/enveco/studies_modelling/pdf/report_macroeconomic.pdf

[3] "Guide to resource efficiency in manufacturing: Experiences from improving resource efficiency in manufacturing companies". Europe INNOVA (2012).

[4] Ellen MacArthur Foundation (2012) Towards the Circular Economy: Economic and business rationale for an accelerated transition.

[5] http://ec.europa.eu/environment/resource_efficiency/re_platform/index_en.htm.

With the *Roadmap to a Resource Efficient Europe* in 2011,[6] the Commission proposed a framework for action and underlined the need for an integrated approach across many policy areas and levels. The main ideas of the Roadmap are now developed in the Seventh Environment Action Programme (7th EAP).[7]

Moving to more circular economic models promises a much brighter future for the European economy. It would allow Europe to rise to the current and future challenges of global pressure on resources and rising insecurity of supply. Pumping resources back into productive use again and again, cutting waste and reducing dependence on uncertain supplies is a direct route to improving resilience and competitiveness. By helping to decouple economic growth from resource use and its impacts, it offers the prospect of sustainable growth that will last.

Resource productivity in the EU grew by 20% in 2000-2011, but this may be in part due to the effects of the recession. Maintaining this rate would lead to a further 30% increase by 2030 and could boost GDP by nearly 1%, while creating over two million jobs more than under a business-as-usual scenario.[8] Stepping up efforts to increase resource productivity will go hand in hand with existing objectives of Community policy such as reducing carbon emission, increasing energy efficiency, sustainable reindustrialisation of the EU economy, and securing access to raw materials, whilst reducing environmental impacts and greenhouse gas emissions.

There is a wide range of proven measures to promote resource efficiency that have shown pay-offs and the potential to be applied on a more systematic basis. The steps needed to ensure that these changes are job-rich are also being undertaken, in particular in the Communication on Green Employment and the Green Action Plan for SMEs.[9]

2. Setting up an enabling policy framework

Markets are an important driver of resource efficiency and circular economy, as materials and energy have become the principal input costs for many companies. However, whilst markets are already driving change there are a number of market barriers to effective and efficient management of resources. Waste prevention, ecodesign, reuse and similar measures could bring net savings of €600 billion, or 8% of annual turnover, for businesses in the EU, while reducing total annual greenhouse gas emissions by 2-4%.[10] However, for this to happen the market barriers that prevent these opportunities from being developed need to be overcome.

Whilst resource productivity can benefit a wide range of sectors, it will also allow European firms to benefit from the fast growth in markets for eco-industries, which are forecast to double between 2010 and 2020. Internationally, resource-efficiency improvements are in demand across a wide range of industrial sectors.

Existing infrastructure, business models and technology, together with established behaviour keep economies 'locked-in' to the linear model. Companies may lack the information, confidence and capacity to move to circular economy solutions. The financial system often fails to provide for investment in efficiency improvements or innovative business models, which are perceived as more risky and complex, deterring many traditional investors. Conventional consumer habits can also hinder new products and services development. Such

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6 COM(2011) 571.

7 OJ L 354, 28.12.2013, p. 171–200.

8 *Modelling the Economic and Environmental Impacts of Change in Raw Material Consumption* (2014), Cambridge Econometrics et al.

9 Reference to Communications to be adopted simultaneously

10 *The opportunities to business of improving resource efficiency* (2013), AMEC et al.

barriers tend to persist in a context where prices do not reflect the real costs of resource use to society, and where policy fails to provide strong and consistent signals for the transition to a circular economy.

Building on evidence of key products, materials and value chains, the Commission will work with stakeholders to develop an enabling framework for the circular economy using measures which combine smart regulation, market-based instruments, research and innovation, incentives, information exchange and support for voluntary approaches. Such a framework will contribute to the objective of a sustainable industrial renaissance in the EU and rely on proactive consumers and business, with a special focus on SMEs. Internationally, the EU should work closely with other partners, both at the multilateral and bilateral level, so as to ensure the maximum impact of the circular economy concept.

The Commission will: further analyse the major market and governance failures which hamper the avoidance and reuse of material waste, taking account of the heterogeneity of material types and their uses, to contribute to an enabling policy framework for resource efficiency at EU level.

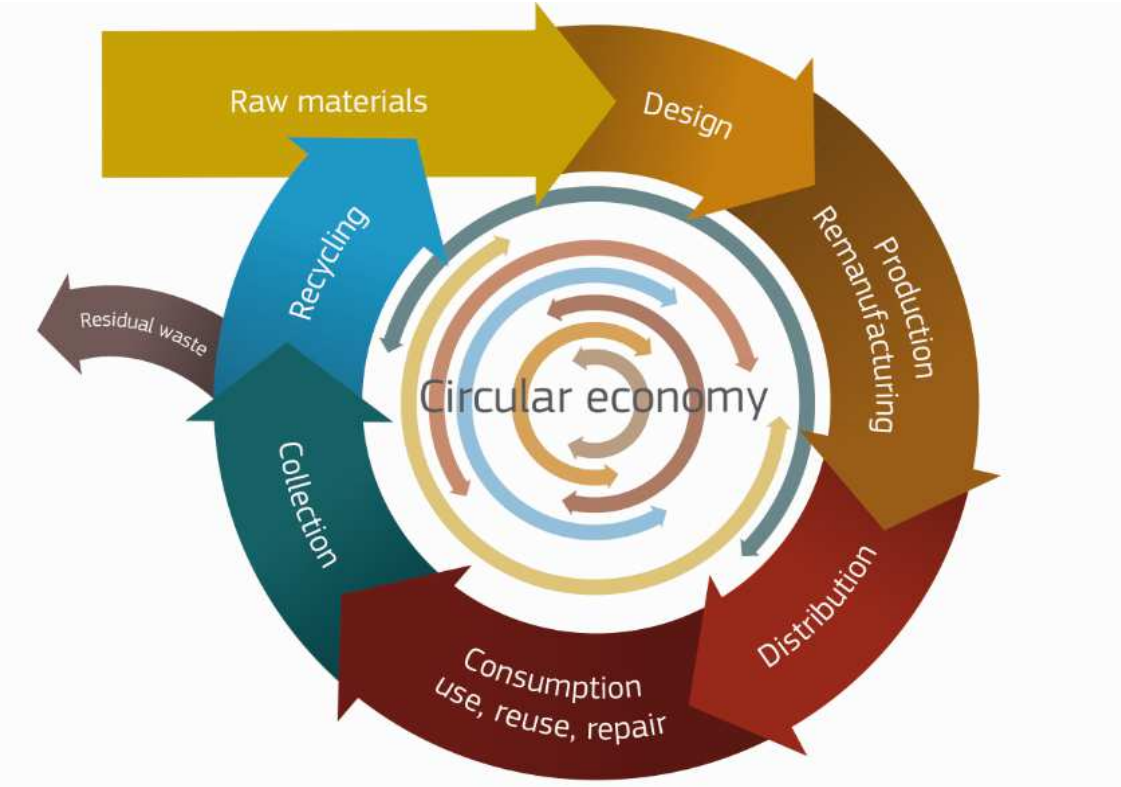
2.1. Designing and innovating for a circular economy

Circular economy approaches 'design out' waste and typically involve innovation throughout the value chain, rather than relying solely on solutions at the end of life of a product. For example, they may include:

reducing the quantity of materials required to deliver a particular service (lightweighting);
lengthening products' useful life (durability);
reducing the use of energy and materials in production and use phases (efficiency);
reducing the use of materials that are hazardous or difficult to recycle in products and production processes (substitution);
creating markets for secondary raw materials (recyclates) materials (based on standards, public procurement, etc.);
designing products that are easier to maintain, repair, upgrade, remanufacture or recycle (ecodesign);
developing the necessary services for consumers in this regard (maintenance/repair services, etc.);
incentivising and supporting waste reduction and high-quality separation by consumers;
incentivising separation, collection systems that minimise the costs of recycling and reuse;
facilitating the clustering of activities to prevent by-products from becoming wastes (industrial symbiosis); and
encouraging wider and better consumer choice through renting, lending or sharing services as an alternative to owning products, while safeguarding consumer interests (in terms of costs, protection, information, contract terms, insurance aspects etc).

An important starting-point is the design of production processes, products and services. Products can be redesigned to be used longer, repaired, upgraded, remanufactured or eventually recycled, instead of being thrown away. Production processes can be based more on the reusability of products and raw materials, and the restorative capacity of natural resources, while innovative business models can create a new relationship between companies and consumers.

The following conceptual diagram illustrates in a simplified way the main phases of a circular economy model, with each of them presenting opportunities in terms of reducing costs and dependence on natural resources, boosting growth and jobs, as well as limiting waste and harmful emissions to the environment. The phases are interlinked, as materials can be used in a cascading way, for instance; industry exchanges by-products, products are refurbished or remanufactured or consumers choose product-service systems. The aim is to minimise the resources escaping from the circle so that the system functions in an optimal way.



Some EU policies and instruments already provide tools and incentives in line with the circular economy model. The waste hierarchy that underlies our waste legislation is leading progressively to adoption of the preferred options of waste prevention, preparation for reuse and recycling, and discourages landfilling. Chemicals policy aims at phasing out toxic substances of very high concern. Some ecodesign measures for energy-related products include requirements on durability and to facilitate recycling. The Bioeconomy Strategy[11] promotes the sustainable and integrated use of biological resources and waste streams for the production of food, energy and bio-based products. Climate policy creates incentives to save energy and reduce greenhouse gas emissions.

A common and coherent EU framework for promoting the circular economy will help bring such elements together with Horizon 2020 to address the research and innovation challenge.[12]

In order to support design and innovation for a more circular economy, the Commission will:

[11] COM(2012) 60

[12] See the annex to this Communication.

under the EU Research and Innovation Programme (Horizon 2020), demonstrate the opportunities for moving towards a circular economy at European level with large-scale innovation projects targeted at cooperation within and between value chains, fostering skills development and supporting the market application of innovative solutions;

establish a reinforced partnership to support research and innovative policies for the circular economy;

facilitate the development of more circular models for products and services, including through a more coherent product policy, and further develop the application of the Ecodesign Directive by paying further attention to resource efficiency criteria, including for the future priority product groups in the 2015- 2017 Work Plan; and

encourage the cascading principle in the sustainable use of biomass, taking into account all biomass using sectors so that biomass can be utilised in a most resource efficient way.

2.2. Unlocking investment in circular economy solutions

The EU and the Member States should encourage investment in circular economy innovation and its take-up, and, against the background of the reform of the financial system, address barriers to mobilise more private financing for resource efficiency. Recent Commission proposals on non-financial reporting, [13] long-term financing [14] and occupational pension funds [15] have integrated requirements to disclose relevant environmental information to investors or consider investment risks related to the scarcity of resources and climate change.

In order to reduce the risk for investors, innovative financial instruments are being developed, such as the Natural Capital Financing Facility of the Commission and the European Investment Bank. Public private partnerships (PPP) are also effective instruments for leveraging private action and investment in resource efficiency. The Sustainable Process Industry through Resource and Energy Efficiency (SPIRE) PPP and the Bio-Based Industries Joint Technology Initiative are actively contributing to circular economy goals.

Policy has a further role in providing the right signals for investment in resource efficiency by eliminating environmentally harmful subsidies and switching taxation away from labour towards pollution and resources. Progress on environmental tax reform in EU Member States is addressed within the European Semester of economic policy coordination.

In order to unlock investment in the circular economy, the Commission will:

take up promising areas identified by the Resource Efficiency Finance Roundtable[16] including innovative financial instruments, reflecting resource issues in accounting rules for companies, clarifying the sustainability responsibilities of financial institutions (fiduciary duties), developing methodologies for 'resource stress tests' for companies, and exploring the potential of the bonds market to channel additional finance for resource efficiency projects;

prepare guidance on the possibilities offered by the new public procurement directives in the field of Green Public Procurement (GPP), and a recommendation on monitoring Member States' performance in achieving the indicative 50% GPP target [17], support innovative

[13] COM(2013) 207.
[14] COM(2014) 168.
[15] COM(2014) 167.
[16] MEMO/13/110.
[17] COM/2008/400

instruments, such as pre-commercial procurement and public procurement for innovation, and facilitate the establishment of GPP networks among public authorities; and

further integrate circular economy priorities into EU funding and encourage Member States to use available EU funding in programmes and projects on the circular economy, in particular through the European Structural and Investment Funds..

2.3. Harnessing action by business and consumers and supporting SMEs

Business and consumers remain the key actors in the transition to a more circular economy. Upstream and downstream decisions in the value chain need to be better connected, providing coherent incentives between producers, investors, distributors, consumers and recyclers, and ensuring a fair distribution of costs and benefits. Market mechanisms need to be employed to ensure the most efficient allocation and use of resources, and where there are market failures or innovation bottlenecks, these must be addressed. Functioning secondary materials markets need to be developed. Particular attention should be paid to enabling entrepreneurs to tap into potential new markets linked to circular economy, and to ensuring that the necessary skills base is available in the labour market. Consumers should be empowered to make informed choices through better information on green credentials of different products.

The European Resource Efficiency Platform has identified[18] significant opportunities for business at different stages in the 'loop' feeding back materials back into the production process or various segments of the supply chain of origin or in other supply chains.. These are based on experience of successful initiatives that could be scaled up and applied more widely, and include:

in the production phase, sustainable sourcing standards, voluntary schemes led by industry and retailers, and industrial symbiosis to provide markets for by-products;

in the distribution phase, improving information on the resources contained in products and how they can be repaired or recycled, referred to in the recommendations of the Platform as a 'product passport'; and

in the consumption phase, collaborative consumption models based on lending, swapping, bartering and renting products, and product service systems to get more value out of underutilised assets or resources (e.g. cars, tools, lodging).

The Environmental Footprint pilot phase set out in the Commission's *Building the Single Market for Green Products* Communication[19] is bringing stakeholders together to develop a common, agreed way for measuring the environmental impact of products and organisations. After the pilot phase, the Commission will assess whether these methods are successful so that they can be applied in existing or new instruments to improve environmental performance of products.

Such measures should be scaled up to ensure good framework conditions and a level playing-field for existing and new businesses to adapt to global resource megatrends, to reward the best companies, to encourage new entrepreneurs to develop the business solutions of tomorrow, to test them on the market and to provide credible information to consumers. The multi-stakeholder process launched in the context of the European Consumer Agenda[20]

[18] http://ec.europa.eu/environment/resource_efficiency/documents/erep_manifesto_and_policy_recommendations_31-03-2014.pdf

[19] COM(2013) 196 and Commission Recommendation 2013/179/EU.

[20] COM (2012) 225

has highlighted the need for effective tools against misleading and unfounded environmental claims.

The labour force has to be equipped with the relevant skills in order to ensure an effective, job-rich transition.[21] The Green Employment Communication[22] creates the framework for unlocking the job creation opportunities of a more circular and resource-efficient economy. National, regional and local authorities and social partners also have an important role in developing targeted and coordinated support in the form of investment, infrastructure, technology and skills, in particular focusing on the needs of SMEs. They are also well positioned to facilitate a shift of consumer choice to more sustainable products and services, and encourage behavioural change.

To support action by business, in particular SMEs and consumers, the Commission will:

build on the results of the Environmental Footprint pilot phase running until 2016 and set out how to apply the use of environmental impact measurement in product and process design and in providing consumers with better information on environmentally sustainable choices;

trigger broad stakeholder cooperation through coordination and support action under Horizon 2020 and its instruments, including the European Institute of Innovation and Technology, the European Structural and Investment Funds, the Eco-innovation Action Plan, the Green Action Plan for SMEs, and the European Consumer Agenda;

build on the Raw Materials European Innovation Partnership stakeholder commitments that are directly linked to resource productivity;

support job creation and skills development through enhanced policy coordination, directing European funding to programmes and schemes that support green growth, improving information and monitoring, including through the European Semester process, and working with social partners, education and training institutions and other stakeholders; and

support best practices exchanges at the international level.

3. Modernising waste policy and targets: waste as a resource

Turning waste into a resource is part of 'closing the loop' in circular economy systems. The objectives and targets set in European legislation have been crucial drivers of improved waste management; they stimulate innovation in recycling and reuse, limit landfilling, reduce losses of resources and create incentives for behavioural change. But in the EU we still generate about five tonnes of waste per person per year on average, and little more than a third of that is effectively recycled.

The European Union has set out its political commitment[23] to reduce waste generation, to recycle waste into a major, reliable source of raw materials for the Union, to recover energy only from non-recyclable materials and to virtually eliminate landfilling. Taking waste policy further will bring significant benefits for growth and job creation at relatively low or no cost, while contributing to a better environment. With respect to global markets, an ambitious waste policy is expected to drive innovation and help make EU companies even more competitive in the provision of waste management services and offer new market opportunities to EU exporters.

[21] COM (2012) 173
[22] COM (2014) 446
[23] 7th EAP

3.1. Defining waste targets for a move to a recycling society

Europe has made substantial progress in turning waste into a resource and promoting sustainable ways of waste management such as recycling. However, performance varies considerably between Member States. Six have already effectively eliminated the landfilling of municipal waste, reducing it from 90% to less than 5% in the past 20 years and reaching recycling rates of 85% in certain regions. In others over 90% of waste is still landfilled and less than 5% is recycled.

Strong policy signals are needed to create longer-term predictability for investment and change so that materials, such as plastics, glass, metals, paper, wood, rubber and other recyclables, re-enter the economy as secondary raw materials at competitive prices. Setting clear recycling targets for the period to 2030 will provide such predictability. Separate collection at source along with sound methodologies to calculate recycling rates will ensure high quality recycling and contribute to the development of markets for the supply of high quality secondary raw materials. To that effect, the existing measurement method to assess what is actually recycled should be clarified as some Member States currently report waste collected as waste recycled despite significant material loss between these phases. Landfilling of all recyclable waste shall be prevented by 2025. Member States should endeavour to virtually eliminate landfill by 2030. Energy recovery, including waste-to-energy recovery and use of bio-fuels, will have a role to play with respect to non-reusable and non-recyclable waste. This will require more efficient use of the unevenly spread energy recovery capacity currently available in the EU, together with measures to avoid overcapacity.

Successful implementation can create more than 180 000 direct jobs in the EU by 2030, in addition to the estimated 400 000 jobs that will be created by the implementation of the waste legislation in force[24]. They will lead to satisfying between 10 and 40% of the raw material demand in the EU, while contributing to achieving the 2030 EU target to reduce greenhouse gas emissions by 40% – 62 Mt of CO2eq per year would be avoided in 2030.

In order to boost the economic, social and environmental benefits gained from the better management of municipal waste, the Commission proposes to:

- boost reuse and recycling of municipal waste to a minimum of 70% by 2030;
- increase the recycling rate for packaging waste to 80% by 2030, with interim targets of 60% by 2020 and 70% by 2025, including targets for specific materials;
- ban the landfilling of recyclable plastics, metals, glass, paper and cardboard, and biodegradable waste by 2025, while Member States should endeavour to virtually eliminate landfill by 2030[25];
- further promote the development of markets for high quality secondary raw materials, including through evaluating the added value of end-of-waste criteria for specific materials.
- Clarify the calculation method for recycled materials in order to ensure a high recycling quality level.

[24] SWD(2014) 207

[25] A certain proportion of 'residual' waste is non-recoverable and may therefore be landfilled, since no alternative treatment option is currently available. This would be limited to a maximum of 5%.

3.2. Delivering simplification and better implementation of waste legislation

Targets leave flexibility to Member States to decide how to achieve them. However, there is significant potential to further simplify and improve the implementation of waste legislation at national level and to reduce the current disparities.

In 2012, the Commission developed a Waste Management Scoreboard and roadmaps with specific recommendations for the Member States with the weakest performance. It will continue to focus particular attention on the Member States with the largest distance to the targets, seeking to address, in partnership with them, implementation weaknesses at an early stage.

Economic measures have proved instrumental in improving national waste management, in particular through landfill and incineration taxes, pay-as-you-throw and extended producer responsibility schemes, or incentives for local authorities to promote prevention, reuse and recycling. Landfill bans have also proved effective. Setting minimum requirements for producer responsibility schemes at EU level will help cut costs and eliminate barriers faced by producers having to respect several national schemes in the EU.

European funds can support Member States' efforts focusing on integrated waste management including separate collection, reuse and recycling infrastructure. Landfilling or stand-alone incineration should not be supported in future.

Making the best use of available waste management capacity in the EU would require better planning and information-sharing and may involve tolerating more shipments of waste within the EU towards the most modern and efficient installations, at least as a transitional measure.

There is scope for further streamlining and facilitating national-level data collection and reporting, and increasing the reliability of data and its consistency across the EU. Adopting common indicators will facilitate better monitoring and benchmarking of Member States' performance.[26]

Actions to further simplify the waste *acquis* and ensure effectiveness and efficiency will build on efforts undertaken already to cut the administrative costs of waste policy, for example, through exemptions from requirements for take-back for certain SMEs or efforts to put in place mandatory electronic data interchange for waste shipments.

To ensure that the benefits from EU legislation are delivered via simplification and better implementation, the Commission proposes to:

- address overlaps amongst waste targets and align definitions;
- significantly simplify reporting obligations for Member States, including clarifying and streamlining calculation methods for municipal, landfill and packaging waste targets;
- allow Member States to exempt SMEs or undertakings collecting and/or transporting very small quantities of non-hazardous waste, from the general permit or registration requirements under the Waste Framework Directive;
- introduce annual reporting through a single entry point for all waste data and make waste statistics consistent with the requirements of EU waste legislation, while benchmarking national methodologies against statistical standards;

[26] For instance, four calculation methods are allowed for the recycling target on municipal waste. Depending on the method chosen, the results might be quite different (around 20 %).

- require the development of computerised data monitoring systems and third-party data verification in Member States;
- establish an early warning mechanism to ensure that Member States put in place an appropriate set of measures to meet targets on time;
- lay down minimum operating conditions for extended producer responsibility schemes that could be further developed at national level or in EU guidance documents, and promote the use of economic instruments in Member States; and
- promote direct investment in waste management options at the top of the waste hierarchy (prevention, re-use, recycling).

3.3. Tackling specific waste challenges

Tailor-made approaches are needed to address particular waste challenges related to significant loss of resources or environmental impacts.

Waste prevention: As a first priority affecting all the phases in a circular economy, it should be ensured that less waste is generated. Waste prevention programmes have recently been adopted by the Member States, as required by the Waste Framework Directive, and are currently reviewed by the European Environment Agency. Following their assessment, the Commission will develop initiatives promoting good practices in waste prevention in the EU.

Marine litter: Marine litter pollutes beaches, causes harm to marine life and creates a long-term waste problem which is expensive to clean up. The 7th EAP calls for a Union-wide quantitative headline reduction target supported by source-based measures.

Full implementation of the measures in the revised EU waste legislation package could deliver marine litter reductions of 13% by 2020 and 27% by 2030. Setting a dedicated reduction target for 2020 would give a clear signal to Member States currently developing measures to achieve 'good environmental status' for marine waters by the 2020 deadline under the Marine Strategy Framework Directive, and would provide an impetus for the development of marine litter action plans within the four Regional Sea Conventions. Other EU-level measures, incorporating inter alia the results of the ongoing evaluation of the Port Reception Facilities Directive[27], will also contribute to the achievement of the target. A second stage of the reduction target will be developed in due time, based on further analysis of the reduction potential from other land- and sea-based sources, and taking into account the commitment made at Rio+20 to achieve significant marine litter reductions by 2025.

Construction and demolition waste: Markets for recycled materials are essential to increasing the recycling rate of construction and demolition waste. Design for better management of construction and demolition waste, increasing recyclability and recycled content in construction materials, will be included in a framework for the assessment of the environmental performance of buildings, as outlined in the Commission's Communication on *Resource Efficiency Opportunities in the Building Sector*.[28]

Furthermore, under the proposed early warning mechanism, Member States' performance will be monitored against the target of 70% recycling by 2020, with measures including increased landfill charges for construction and demolition waste, or additional sorting obligations on major demolition sites to improve the quality of recyclates.

[27] Directive 2000/59/EC

[28] COM(2014) 445

Food waste:

It has been estimated that up to 30% of all food produced around the world is lost or wasted. The Commission is considering presenting specific proposals to reduce food waste.

Hazardous waste: Proper management of hazardous waste remains a challenge, with data on the actual treatment path missing for part of this waste stream. As a first step, record-keeping and traceability will be strengthened through the setting-up of hazardous waste registries and identifying capacities and bottlenecks in Member States' hazardous waste management systems. These registries might be progressively expanded to other types of waste like it is already the case in several Member States.

Plastic waste: Plastic production in the EU is expected to increase at a rate of 5% annually. While only 24% of plastic waste is recycled, close to 50% is landfilled, and the rest is incinerated. The public consultation on plastic waste carried out by the Commission in 2013[29] pointed to significant potential for using plastic more sustainably and showed strong support for eliminating the landfilling of plastics and for the better design of plastics and plastic products. The Commission's recent proposal allowing Member States to restrict the use of plastic bags,[30] and the proposals in this Communication for increased recycling and abandoning landfilling are important steps to improve plastic waste management.

Recycling of critical raw materials: While all raw materials are important, critical raw materials deserve particular attention as their production worldwide is concentrated in few countries, while many of them have low substitutability and low recycling rates. The Commission promotes efficient use and recycling of critical raw materials in the framework of the Raw Materials Initiative[31] and the European Innovation Partnership on Raw Materials.

Illegal waste shipments: The Commission will step up action to ensure compliance with relevant EU legislation, in particular Regulation (EC) No 1013/2006 on shipments of waste as recently amended in order to reinforce waste shipment inspections.

Recycling of phosphorus: Phosphorus is a vital resource for food production, but it has significant security-of-supply risks and its current use involves waste and losses at every stage of its lifecycle. Following the Consultative Communication on the sustainable use of phosphorus,[32] the Commission is developing a framework for further action.

To address specific waste challenges the Commission:

proposes an aspirational target of reducing **marine litter** by 30% by 2020 for the ten most common types of litter found on beaches, as well as for fishing gear found at sea , with the list adapted to each of the four marine regions in the EU;

envisages measures to stimulate markets in recycled materials derived from **construction and demolition waste** and develop a common EU assessment framework for the environmental performance of buildings;

proposes that Member States develop national food-waste prevention strategies and endeavour to ensure that **food waste** in the manufacturing, retail/distribution, food service/hospitality sectors and households is reduced by at least 30% by 2025;

[29] COM(2013) 123.
[30] COM(2013) 761.
[31] COM(2011) 25
[32] COM(2013) 517.

envisages developing a proper registry system for at least **hazardous waste** in all Member States;

further to its proposal to reduce the use of lightweight **plastic** bags, proposes that plastics be banned from landfill by 2025;

Proposes that Member States shall include measures regarding collection and recycling of waste containing significant amounts of critical raw materials in their national waste management plans; and

is considering developing a policy framework on **phosphorus** to enhance its recycling, foster innovation, improve market conditions and mainstream its sustainable use in EU legislation on fertilisers, food, water and waste.

4. Setting a resource efficiency target

In the 7th EAP, Member States and the European Parliament agreed that the European Union should establish indicators and set targets for resource efficiency, and assess whether it would be appropriate to include a lead indicator and target in the European Semester. Following wide consultations, resource productivity, as measured by GDP relative to Raw Material Consumption (RMC), has been identified as a candidate for a resource productivity target.[33]

A realistic target to increase resource productivity, endorsed by the EU and its Member States would focus political attention and tap the currently overlooked potential of a circular economy to create sustainable growth and jobs and increase the coherence of EU policy.It would be a proportionate way to ensure this coherence and encourage action.

The EU is already forecast to increase its resource productivity by 15% between 2014 and 2030 under a business- as- usual scenario. Using smart policies to promote the transition to a more circular economy, as called for by the European Resource Efficiency Platform, it would be possible to double this rate. While contributing significantly to the sustainability dimension of growth, increasing resource productivity by 30% would also have a positive impact on job creation and growth of GDP.[34]

Industry would benefit from this improvement in resource productivity through enhanced competitiveness.[35] Resource costs can make up a significant part of their cost structure, and they need available and predictable supplies.[36] There would be both immediate financial gains, and longer term strategic benefits, as growing global demand drives up resource prices and volatility. Becoming most resource efficient will therefore help Europe meet its reindustrialisation objective.

A resource productivity target, while not binding and set at the level of the EU, would provide an impetus for those Member States that do not already have a target at national level to develop measures that take account of resource use. It would lead to more balanced measures, that consider the wider economic, social and environmental consequences and fill this gap.

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[33] RMC is an aggregate indicator measuring (in tonnes) all the material resources used in the economy, while taking into account the resource use embedded in imports. Currently it is available for the EU and some Member States. Countries for which RMC is not yet available can use Domestic Material Consumption in the meantime.

[34] SWD (2014) 211.

[35] Stakeholders preferred RMC as a measure of resource use because it captures the resource use embedded in both imported and domestically produced products, and so allows for a fair comparison of their respective resource efficiency.

[36] Recent studies on the steel and aluminium sectors show that raw materials make up around 30 to 40 per cent of their cost structures, larger than for example labour costs.

Member States would be free to undertake the balance of policies and actions that are most economically and environmentally advantageous in line with wider policy objectives. In doing so, they would benefit from a range of already proven - but not widely deployed - good practice that they could adopt and tailor to their own needs and circumstances. The review of the Europe 2020 strategy is currently underway[37] supported by public consultation to gather all views on its development. The Commission therefore considers that any decision on setting a resource productivity headline target should be taken in the review, after taking into account the results of public consultation together with recommendations of the European Resource Efficiency Platform.

To ensure that policy makers are aware of the overall picture of resource pressures on the environment, other indicators, in particular for water use and finite land resources, need to be taken into account. Eurostat has published a Resource Efficiency Scoreboard since 2013 as part of the Europe 2020 indicators.[38] This is designed to monitor implementation of the *Roadmap to a Resource Efficient Europe*, communicate the link between resources and engage stakeholders further in the process of measuring societal progress beyond GDP.

In order to tap the potential of resource efficiency in the context of sustainable growth:

- the Commission will take the recommendations of the European Resource Efficiency Platform on a headline target for resource efficiency into account together with outcomes of the public consultation in the ongoing review of the Europe 2020 strategy;
- In parallel, the Resource Efficiency Scoreboard used to monitor indicators of the use of resources other than carbon and materials (in particular, land and water) will be developed further; and
- National statistical offices should work to establish a commonly accepted methodology within the European Statistical System in order to calculate raw material consumption at national level.

[37] COM(2014) 130 of 19.3.2014; Taking stock of the Europe 2020 Strategy for smart, sustainable and inclusive growth.

[38] http://epp.eurostat.ec.europa.eu/portal/page/portal/europe_2020_indicators/ree_scoreboard.