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**A new Circular Economy Action Plan
For a cleaner and more competitive Europe**

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1. INTRODUCTION

There is only one planet Earth, yet by 2050, the world will be consuming as if there were three¹. Global consumption of materials such as biomass, fossil fuels, metals and minerals is expected to double in the next forty years², while annual waste generation is projected to increase by 70% by 2050³.

As half of total greenhouse gas emissions and more than 90% of biodiversity loss and water stress come from resource extraction and processing, **the European Green Deal⁴** launched a concerted strategy for a climate-neutral, resource-efficient and competitive economy. **Scaling up the circular economy from front-runners to the mainstream economic players** will make a decisive contribution to achieving **climate neutrality by 2050** and **decoupling economic growth from resource use**, while ensuring the long-term competitiveness of the EU and leaving no one behind.

To fulfil this ambition, the **EU needs to accelerate the transition towards a regenerative growth model that gives back to the planet more than it takes**, advance towards **keeping its resource consumption within planetary boundaries**, and therefore strive to **reduce its consumption footprint and double its circular material use rate in the coming decade**.

For business, working together on creating the framework for sustainable products will provide new opportunities in the EU and beyond. This **progressive, yet irreversible transition to a sustainable economic system** is an indispensable part of the **new EU industrial strategy**. A recent study estimates that applying circular economy principles across the EU economy has the potential to increase EU GDP by an additional 0.5% by 2030 creating around 700 000 new jobs⁵. There is a clear business case for individual companies too: since manufacturing firms in the EU spend on average about 40% on materials, closed loop models can increase their profitability, while sheltering them from resource price fluctuations.

Building on the single market and the potential of digital technologies, the circular economy can **strengthen the EU's industrial base and foster business creation and entrepreneurship among SMEs**. Innovative models based on a closer relationship with customers, mass customisation, the sharing and collaborative economy, and powered by digital technologies, such as the internet of things, big data, blockchain and artificial intelligence, will not only accelerate circularity but also the dematerialisation of our economy and make Europe less dependent on primary materials.

For citizens, the circular economy will provide **high-quality, functional and safe products, which are efficient and affordable**, last longer and are designed for reuse, repair, and high-quality recycling. A whole **new range of sustainable services**, product-as-service models and digital solutions will bring about a better quality of life, innovative jobs and upgraded knowledge and skills.

This Circular Economy Action Plan provides a future-oriented agenda for achieving a cleaner and more competitive Europe in co-creation with economic actors, consumers, citizens and civil society organisations. It aims at accelerating the

¹ <https://www.un.org/sustainabledevelopment/sustainable-consumption-production/>

² OECD (2018), *Global Material Resources Outlook to 2060*.

³ World Bank (2018), *What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050*.

⁴ COM(2019) 640 final.

⁵ Cambridge Econometrics, Trinomics, and ICF (2018), *Impacts of circular economy policies on the labour market*.

transformational change required by the European Green Deal, while building on circular economy actions implemented since 2015⁶. This plan will ensure that the regulatory framework is streamlined and made fit for a sustainable future, that the new opportunities from the transition are maximised, while minimising burdens on people and businesses.

The plan presents a set of interrelated initiatives to establish **a strong and coherent product policy framework that will make sustainable products, services and business models the norm and transform consumption patterns so that no waste is produced in the first place**. This product policy framework will be progressively rolled out, while key product value chains will be addressed as a matter of priority. Further measures will be put in place to **reduce waste** and ensure that the EU has a **well-functioning internal market for high quality secondary raw materials**. The capacity of the EU to take responsibility for its waste will be also strengthened.

Europe will not achieve transformative change by acting alone. The EU will continue to **lead the way to a circular economy at the global level**⁷ and use its influence, expertise and financial resources to implement **the 2030 Sustainable Development Goals**. This plan aims also at ensuring that the circular economy works for people, regions and cities, fully contributes to climate neutrality and harnesses the potential of research, innovation and digitalisation. It foresees the further development of a **sound monitoring framework** contributing to measuring well-being beyond GDP.

2. A SUSTAINABLE PRODUCT POLICY FRAMEWORK

2.1. Designing sustainable products

While up to 80% of products' environmental impacts are determined at the design phase⁸, **the linear pattern of “take-make-use-dispose” does not provide producers with sufficient incentives to make their products more circular**. Many products break down too quickly, cannot be easily reused, repaired or recycled, and many are made for single use only. At the same time, the single market provides a critical mass enabling the EU to set global standards in product sustainability and to influence product design and value chain management worldwide.

EU initiatives and legislation already address to a certain extent sustainability aspects of products, either on a mandatory or voluntary basis. Notably, the Ecodesign Directive⁹ successfully regulates energy efficiency and some circularity features of energy-related products. At the same time, instruments such as the EU Ecolabel¹⁰ or the EU green public procurement (GPP) criteria¹¹ are broader in scope but have reduced impact due to the limitations of voluntary approaches. In fact, there is **no comprehensive set of requirements** to ensure that all products placed on the EU market become increasingly sustainable and stand the test of circularity.

In order to **make products fit for a climate-neutral, resource-efficient and circular economy**, reduce waste and ensure that the performance of front-runners in sustainability

⁶ COM(2015) 614 final.

⁷ SWD(2020) 100.

⁸ <https://op.europa.eu/en/publication-detail/-/publication/4d42d597-4f92-4498-8e1d-857cc157e6db>

⁹ Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products, OJ L 285, 31.10.2009, p. 10.

¹⁰ Regulation (EC) No 66/2010 of the European Parliament and of the Council of 25 November 2009 on the EU Ecolabel, OJ L 27, 30.1.2010, p. 1.

¹¹ https://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm

progressively becomes the norm, the Commission will propose **a sustainable product policy legislative initiative**.

The **core of this legislative initiative** will be to widen the Ecodesign Directive beyond energy-related products so as to **make the Ecodesign framework applicable to the broadest possible range of products and make it deliver on circularity**.

As part of this legislative initiative, and, where appropriate, through complementary legislative proposals, the Commission will consider establishing **sustainability principles** and other appropriate ways to regulate the following aspects:

- improving product **durability, reusability, upgradability and reparability**, addressing the presence of **hazardous chemicals** in products, and increasing their **energy and resource efficiency**;
- increasing **recycled content in products**, while ensuring their performance and safety;
- enabling **remanufacturing and high-quality recycling**;
- reducing **carbon and environmental footprints**;
- restricting **single-use** and countering **premature obsolescence**;
- introducing a **ban on the destruction of unsold durable goods**;
- incentivising **product-as-a-service** or other models where **producers keep the ownership of the product** or the responsibility for its performance throughout its lifecycle;
- mobilising the potential of **digitalisation** of product information, including solutions such as **digital passports, tagging and watermarks**;
- rewarding products based on their **different sustainability performance**, including by linking high performance levels to incentives.

Priority will be given to addressing product groups identified in the context of the value chains featuring in this Action Plan, such as electronics, ICT and textiles but also **furniture and high impact intermediary products** such as steel, cement and chemicals. Further product groups will be identified based on their environmental impact and circularity potential.

This legislative initiative and any other complementary regulatory or voluntary approaches will be developed in a way to **improve the coherence with existing instruments regulating products along various phases of their life cycle**. It is the intention of the Commission that the **product sustainability principles will guide broader policy and legislative developments in the future**. The Commission will also increase the effectiveness of the current Ecodesign framework for energy-related products, including by swiftly adopting and implementing a new Ecodesign and Energy Labelling Working Plan 2020-2024 for individual product groups.

The review of the Ecodesign Directive as well as further work on specific product groups, under the Ecodesign framework or in the context of other instruments, will build, where appropriate, on criteria and rules established under the EU Ecolabel Regulation, the Product Environmental Footprint approach¹² and the EU GPP criteria. The Commission will consider the introduction of mandatory requirements to increase the

¹² https://ec.europa.eu/environment/eussd/smgp/PEFCR_OEFSR_en.htm

sustainability not only of goods, but also of services. The possibility to introduce requirements linked to environmental and social aspects along the value chain, from production through use to end of life, will also be carefully assessed, including in the context of WTO rules. For instance, ensuring the accessibility of certain products and services¹³ next to contributing to social inclusion can have the added benefit of increasing product durability and reusability.

Furthermore, to support the **effective and efficient application** of the new sustainable product framework, the Commission will:

- establish a common **European Dataspace for Smart Circular Applications**¹⁴ with data on value chains and product information;
- step up efforts, in cooperation with national authorities, on **enforcement of applicable sustainability requirements** for products placed on the EU market, in particular through **concerted inspections and market surveillance actions**.

2.2. Empowering consumers and public buyers

Empowering consumers and providing them with cost-saving opportunities is a key building block of the sustainable product policy framework. To enhance the participation of consumers in the circular economy, the Commission will propose a revision of EU consumer law to ensure that **consumers receive trustworthy and relevant information on products at the point of sale**, including on their **lifespan** and on the **availability of repair services, spare parts and repair manuals**. The Commission will also consider further **strengthening consumer protection against green washing and premature obsolescence**, setting minimum requirements for **sustainability labels/logos** and for **information tools**.

In addition, the Commission will work towards **establishing a new ‘right to repair’** and consider **new horizontal material rights for consumers** for instance as regards availability of spare parts or access to repair and, in the case of ICT and electronics, to upgrading services. Regarding the role that **guarantees** can play in providing more circular products, the Commission will explore possible changes also in the context of the review of Directive 2019/771¹⁵.

The Commission will also propose that **companies substantiate their environmental claims** using Product and Organisation Environmental Footprint methods. The Commission will test the integration of these methods in the EU Ecolabel and include more systematically durability, recyclability and recycled content in the EU Ecolabel criteria.

Public authorities’ purchasing power represents 14% of EU GDP and can serve as a powerful driver of the demand for sustainable products. To tap into this potential, the Commission will propose **minimum mandatory green public procurement (GPP) criteria and targets in sectoral legislation** and phase in **compulsory reporting to monitor the uptake of Green Public Procurement (GPP)** without creating unjustified administrative burden for public buyers. Furthermore, the Commission will continue to

¹³ Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services, OJ L 151, 7.6.2019, p. 70.

¹⁴ COM (2020) 67 final.

¹⁵ Directive (EU) 2019/771/EC of the European Parliament and of the Council of 20 May 2019 on certain aspects concerning contracts for the sale of goods, OJ L 136, 22.5.2019, p. 28.

support capacity building with guidance, training and dissemination of good practices and encouraging public buyers to take part in a “**Public Buyers for Climate and Environment**” initiative, which will facilitate exchanges among buyers committed to GPP implementation.

2.3. Circularity in production processes

Circularity is an essential part of a wider transformation of industry towards climate-neutrality and long-term competitiveness. It can deliver substantial material savings throughout value chains and production processes, generate extra value and unlock economic opportunities. In synergy with the objectives laid out in the Industrial Strategy¹⁶, the Commission will enable greater circularity in industry by:

- assessing options for further promoting circularity in industrial processes in the context of the review of the **Industrial Emissions Directive**¹⁷, including the integration of circular economy practices in upcoming Best Available Techniques reference documents;
- facilitating industrial symbiosis by developing an **industry-led reporting and certification system**, and enabling the implementation of industrial symbiosis;
- supporting the **sustainable and circular bio-based sector** through the implementation of the Bioeconomy Action Plan¹⁸;
- promoting the use of **digital technologies for tracking, tracing and mapping of resources**;
- promoting the uptake of green technologies through a system of solid verification by **registering the EU Environmental Technology Verification scheme** as an EU certification mark.

The new **SME Strategy**¹⁹ will foster circular industrial collaboration among SMEs building on training, advice under the Enterprise Europe Network on cluster collaboration, and on knowledge transfer via the European Resource Efficiency Knowledge Centre.

3. KEY PRODUCT VALUE CHAINS

The sustainability challenge posed by key value chains requires urgent, comprehensive and coordinated actions, which will form an integral part of the sustainable product policy framework outlined in section 2. Those actions will contribute to the response to the climate emergency and will feed into the EU Industrial Strategy, as well as into the forthcoming biodiversity, Farm to Fork and forest strategies. As part of the governance of the sectorial actions, the Commission will cooperate closely with stakeholders in key value chains to identify barriers to the expansion of markets for circular products and ways to address those barriers.

¹⁶ COM(2020) 102.

¹⁷ Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control), OJ L 334, 17.12.2010, p. 17.

¹⁸ COM(2018) 763 final.

¹⁹ COM(2020) 103.

3.1. Electronics and ICT

Electrical and electronic equipment continues to be one of the fastest growing waste streams in the EU, with current annual growth rates of 2%. It is estimated that less than 40% of electronic waste is recycled in the EU²⁰. Value is lost when fully or partially functional products are discarded because they are not repairable, the battery cannot be replaced, the software is no longer supported, or materials incorporated in devices are not recovered. About two in three Europeans would like to keep using their current digital devices for longer, provided performance is not significantly affected²¹.

To address these challenges, the Commission will present a ‘**Circular Electronics Initiative**’ mobilising existing and new instruments. In line with the new sustainable products policy framework, this initiative will promote longer product lifetimes and include, among others, the following actions:

- regulatory measures for electronics and ICT including **mobile phones, tablets and laptops** under the Ecodesign Directive so that devices are designed for energy efficiency and durability, reparability, upgradability, maintenance, reuse and recycling. The upcoming Ecodesign Working Plan will set out further details on this. **Printers and consumables such as cartridges** will also be covered unless the sector reaches an ambitious voluntary agreement within the next six months;
- focus on electronics and ICT as a **priority sector for implementing the ‘right to repair’**, including a right to update obsolete software;
- regulatory measures on **chargers for mobile phones and similar devices**, including the **introduction of a common charger**, improving the durability of charging cables, and incentives to decouple the purchase of chargers from the purchase of new devices;
- improving the collection and treatment of waste electrical and electronic equipment²² including by exploring options for **an EU-wide take back scheme to return or sell back old mobile phones, tablets and chargers**;
- review of EU rules on **restrictions of hazardous substances in electrical and electronic equipment**²³ and provide guidance to improve coherence with relevant legislation, including REACH²⁴ and Ecodesign.

3.2. Batteries and vehicles

Sustainable batteries and vehicles underpin the mobility of the future. To progress swiftly on enhancing the sustainability of the emerging battery value chain for electro-mobility and boost the circular potential of all batteries, this year the Commission will propose a **new regulatory framework for batteries**. This legislative proposal will build on the

²⁰ https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=t2020_rt130&plugin=1

²¹ Special Eurobarometer 503, January 2020.

²² Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE), OJ L 197, 24.7.2012, p. 38.

²³ Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment, OJ L 305, 21.11.2017, p. 8.

²⁴ Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and establishing a European Chemicals Agency, OJ L396, 30.12.2006, p. 1.

evaluation of the Batteries Directive²⁵ and the work of the Batteries Alliance with the consideration of the following elements:

- **rules on recycled content** and measures to improve the **collection and recycling rates of all batteries**, ensure the **recovery of valuable materials** and provide **guidance to consumers**;
- addressing **non-rechargeable batteries** with a view to progressively phasing out their use where alternatives exist;
- **sustainability and transparency requirements for batteries** taking account of, for instance, the carbon footprint of battery manufacturing, ethical sourcing of raw materials and security of supply, and facilitating reuse, repurposing and recycling.

The Commission will also propose to revise the rules on **end-of-life vehicles**²⁶ with a view to promoting more circular business models by **linking design issues to end-of-life treatment**, considering **rules on mandatory recycled content for certain materials** of components, and **improving recycling efficiency**. Moreover, the Commission will consider the most effective measures to ensure the collection and the environmentally sound treatment of **waste oils**.

From a broader perspective, the forthcoming [Comprehensive European Strategy on Sustainable and Smart Mobility](#) will look into enhancing synergies with the circular economy transition, in particular by applying product-as-service solutions to reduce virgin material consumption, use sustainable alternative transport fuels, optimise infrastructure and vehicle use, increase occupancy rates and load factors, and eliminate waste and pollution.

3.3. Packaging

The amount of materials used for packaging is growing continuously and in 2017 packaging waste in Europe reached a record – 173 kg per inhabitant, the highest level ever. In order to ensure that all packaging on the EU market is reusable or recyclable in an economically viable way by 2030, the Commission will review Directive 94/62/EC²⁷ to **reinforce the mandatory essential requirements for packaging** to be allowed on the EU market and consider other measures, with a focus on:

- **reducing (over)packaging and packaging waste**, including by setting targets and other waste prevention measures;
- driving **design for re-use and recyclability of packaging**, including considering restrictions on the use of some packaging materials for certain applications, in particular where alternative reusable products or systems are possible or consumer goods can be handled safely without packaging;
- considering **reducing the complexity of packaging materials**, including the number of materials and polymers used.

²⁵ Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC, OJ L 266, 26.9.2006, p. 1.

²⁶ Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of-life vehicles, OJ L 269, 21.10.2000, p. 34.

²⁷ European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste, OJ L 365 31.12.1994, p. 10.

As part of the initiative to harmonise separate collection systems referred to in section 4.1, the Commission will assess the feasibility of EU-wide **labelling that facilitates the correct separation of packaging waste at source**.

The Commission will also establish **rules for the safe recycling into food contact materials** of plastic materials other than PET.

The Commission will also strictly monitor and support the implementation of the requirements of the Drinking Water Directive to **make drinkable tap water accessible in public places**, which will reduce dependence on bottled water and prevent packaging waste.

3.4. Plastics

The **EU Strategy for Plastics in the Circular Economy**²⁸ has set in motion a comprehensive set of initiatives responding to a challenge of serious public concern. However, as consumption of plastics is expected to double in the coming 20 years, the Commission will take further targeted measures to address the sustainability challenges posed by this ubiquitous material and will continue to promote a concerted approach to tackle plastics pollution at global level as set out in section 7.

To increase uptake of recycled plastics and contribute to the more sustainable use of plastics, the Commission will propose **mandatory requirements for recycled content and waste reduction measures for key products such as packaging, construction materials and vehicles**, also taking into account the activities of the Circular Plastics Alliance.

In addition to measures to reduce plastic litter, the Commission will address the **presence of microplastics in the environment** by:

- **restricting intentionally added microplastics** and tackling pellets taking into account the opinion of the European Chemicals Agency;
- developing **labelling, standardisation, certification and regulatory measures** on unintentional release of microplastics, including measures to increase the **capture of microplastics** at all relevant stages of products' lifecycle;
- further developing and harmonising methods for **measuring unintentionally released microplastics**, especially from tyres and textiles, and delivering harmonised data on microplastics concentrations in seawater;
- closing the gaps on **scientific knowledge related to the risk and occurrence** of microplastics in the environment, drinking water and foods.

Furthermore, the Commission will address emerging sustainability challenges by developing a **policy framework on**:

- **sourcing, labelling and use of bio-based plastics**, based on assessing where the use of bio-based feedstock results in genuine environmental benefits, going beyond reduction in using fossil resources;
- **use of biodegradable or compostable plastics**, based on an assessment of the applications where such use can be beneficial to the environment, and of the criteria for such applications. It will aim to ensure that labelling a product as

²⁸ COM(2018) 28 final.

‘biodegradable’ or ‘compostable’ does not mislead consumers to dispose of it in a way that causes plastic littering or pollution due to unsuitable environmental conditions or insufficient time for degradation.

The Commission will ensure the timely implementation of the new Directive on **Single Use Plastic Products**²⁹ and fishing gear to address the problem of marine plastic pollution while safeguarding the single market, in particular with regard to:

- harmonised interpretation of the products covered by the Directive;
- labelling of products such as tobacco, beverage cups and wet wipes and ensuring the introduction of tethered caps for bottles to prevent littering;
- developing for the first time rules on measuring recycled content in products.

3.5. Textiles

Textiles are the fourth highest-pressure category for the use of primary raw materials and water, after food, housing and transport, and fifth for GHG emissions³⁰. It is estimated that less than 1% of all textiles worldwide are recycled into new textiles³¹. The EU textile sector, predominantly composed of SMEs, has started to recover after a long period of restructuring, while 60% by value of clothing in the EU is produced elsewhere.

In the light of the complexity of the textile value chain, to respond to these challenges the Commission will propose a **comprehensive EU Strategy for Textiles**, based on input from industry and other stakeholders. The strategy will aim at strengthening industrial competitiveness and innovation in the sector, boosting the EU market for sustainable and circular textiles, including the market for textile reuse, addressing fast fashion and driving new business models. This will be achieved by a comprehensive set of measures, including:

- applying the **new sustainable product framework** as set out in section 2 to textiles, including developing **ecodesign measures** to ensure that textile products are fit for circularity, ensuring the uptake of secondary raw materials, tackling the presence of hazardous chemicals, and **empowering business and private consumers to choose sustainable textiles** and have **easy access to re-use and repair services**;
- improving the business and regulatory environment for sustainable and circular textiles in the EU, in particular by providing **incentives and support to product-as-service models, circular materials and production processes**, and increasing transparency through **international cooperation**;
- providing guidance to achieve **high levels of separate collection of textile waste**, which Member States have to ensure by 2025;
- boosting the **sorting, re-use and recycling of textiles**, including through **innovation, encouraging industrial applications and regulatory measures** such as extended producer responsibility.

²⁹ Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment, OJ L 155, 12.6.2019, p. 1.

³⁰ EEA Briefing report Nov 2019.

³¹ Ellen McArthur Foundation (2017), *A new Textiles Economy*

3.6. Construction and buildings

The built environment has a significant impact on many sectors of the economy, on local jobs and quality of life. It requires vast amounts of resources and accounts for about 50% of all extracted material. The construction sector is responsible for over 35% of the EU's total waste generation³². Greenhouse gas emissions from material extraction, manufacturing of construction products, construction and renovation of buildings are estimated at 5-12% of total national GHG emissions³³. Greater material efficiency could save 80% of those emissions³⁴.

To exploit the potential for increasing material efficiency and reducing climate impacts, the Commission will launch a new comprehensive **Strategy for a Sustainable Built Environment**. This Strategy will ensure coherence across the relevant policy areas such as climate, energy and resource efficiency, management of construction and demolition waste, accessibility, digitalisation and skills. It will promote circularity principles throughout the lifecycle of buildings by:

- addressing the sustainability performance of construction products in the context of the revision of the **Construction Product Regulation**³⁵, including the possible introduction of **recycled content requirements** for certain construction products, taking into account their safety and functionality;
- promoting measures to improve the durability and adaptability of built assets in line with the circular economy principles for buildings design³⁶ and developing **digital logbooks** for buildings;
- using Level(s)³⁷ to **integrate life cycle assessment in public procurement** and the **EU sustainable finance framework** and exploring the appropriateness of setting of carbon reduction targets and the potential of carbon storage;
- considering a revision of **material recovery targets set in EU legislation for construction and demolition waste and its material-specific fractions**;
- promoting initiatives to **reduce soil sealing**, rehabilitate abandoned or contaminated brownfields and increase the safe, sustainable and circular use of **excavated soils**.

Furthermore, the '**Renovation Wave**' initiative announced in the European Green Deal to lead to significant improvements in energy efficiency in the EU will be implemented in line with circular economy principles, notably optimised lifecycle performance, and longer life expectancy of build assets. As part of the revision of the recovery targets for construction and demolition waste, the Commission will pay special attention to insulation materials, which generate a growing waste stream.

³² Eurostat data for 2016.

³³ <https://www.boverket.se/sv/byggande/hallbart-byggande-och-forvaltning/miljoindikatorer---aktuellt-status/vaxthusgaser/>

³⁴ Hertwich, E., Lifset, R., Pauliuk, S., Heeren, N., IRP, (2020), *Resource Efficiency and Climate Change: Material Efficiency Strategies for a Low-Carbon Future*.

³⁵ Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC, OJ L 88, 4.4.2011, p. 5.

³⁶ <https://ec.europa.eu/docsroom/documents/39984>

³⁷ <https://ec.europa.eu/environment/eussd/buildings.htm>

3.7. Food, water and nutrients

The circular economy can significantly reduce the negative impacts of resource extraction and use on the environment and contribute to restoring biodiversity and natural capital in Europe. Biological resources are a key input to the economy of the EU and will play an even more important role in the future. The Commission will aim at ensuring the sustainability of renewable bio-based materials, including through actions following the Bioeconomy Strategy and Action Plan.

While the food value chain is responsible for significant resource and environmental pressures, an estimated 20% of the total food produced is lost or wasted in the EU. Therefore, in line with the Sustainable Development Goals and as part of the review of Directive 2008/98/EC³⁸ referred to in section 4.1, the Commission will propose a **target on food waste reduction**, as a key action under the forthcoming EU Farm-to-Fork Strategy, which will address comprehensively the food value chain.

The Commission will also consider specific measures to increase the sustainability of food distribution and consumption. Under the sustainable products initiative, the Commission will launch the analytical work to determine the scope of a legislative initiative on reuse to **substitute single-use packaging, tableware and cutlery by reusable products in food services**.

The new Water Reuse Regulation will encourage circular approaches to water reuse in agriculture. The Commission will **facilitate water reuse and efficiency, including in industrial processes**.

Furthermore, the Commission will develop an **Integrated Nutrient Management Plan**, with a view to ensuring more sustainable application of nutrients and stimulating the markets for recovered nutrients. The Commission will also consider **reviewing directives on wastewater treatment and sewage sludge** and will assess **natural means of nutrient removal such as algae**.

4. LESS WASTE, MORE VALUE

4.1. Enhanced waste policy in support of waste prevention and circularity

Despite efforts at EU and national level, the amount of waste generated is not going down. Annual waste generation from all economic activities in the EU amounts to 2.5 billion tonnes, or 5 tonnes per capita a year, and each citizen produces on average nearly half a tonne of municipal waste. The decoupling of waste generation from economic growth will require considerable effort across the whole value chain and in every home.

Rolling out the sustainable product policy and translating it into specific legislation (see sections 2 and 3) will be key to making progress on waste prevention. In addition, we need to build on, further strengthen and better implement EU waste laws.

EU waste laws have driven major improvements in waste management since the 1970s, supported by EU funds. However, they need to be modernised on an ongoing basis to make them fit for the circular economy and the digital age. As explained in section 3, revision of **EU legislation on batteries, packaging, end-of-life vehicles, and hazardous substances in electronic equipment** will be proposed with a view to

³⁸ Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives, OJ L 312, 22.11.2008, p. 3.

preventing waste, increasing recycled content, promoting safer and cleaner waste streams, and ensuring high-quality recycling.

In addition, the Commission will put forward **waste reduction targets** for specific streams as part of a broader set of measures on waste prevention in the context of a review of Directive 2008/98/EC. The Commission will also enhance the implementation of the recently adopted requirements for **extended producer responsibility schemes**, provide incentives and encourage sharing of information and good practices in waste recycling. All this shall serve the objective to significantly reduce total waste generation and halve **the amount of residual (non-recycled) municipal waste by 2030**.

High quality recycling relies on effective separate collection of waste. To help citizens, businesses and public authorities better separate waste, the Commission will **propose to harmonise separate waste collection systems**. In particular, this proposal will address the most effective combinations of separate collection models, the density and accessibility of separate collection points, including in public spaces, taking account of regional and local conditions ranging from urban to outermost regions. Other aspects that facilitate consumer involvement will also be considered, such as common bin colours, harmonised symbols for key waste types, product labels, information campaigns and economic instruments. It would also seek standardisation and the use of quality management systems to assure the quality of the collected waste destined for use in products, and in particular as food contact material.

Additional efforts are necessary to support the Member States in waste management. Half of them are at risk of non-compliance with the 2020 target to recycle 50% of municipal waste. To drive policy reforms, the Commission will organise **high-level exchanges on the circular economy and waste** and **step up cooperation with Member States, regions and cities** in making the best use of EU funds. Where necessary, the Commission will also use its enforcement powers.

4.2. Enhancing circularity in a toxic-free environment

EU chemicals policy and legislation, in particular REACH, encourage a shift to ‘safe-by-design chemicals’ through the progressive substitution of hazardous substances to better protect citizens and the environment. However, the safety of secondary raw materials can still be compromised, for instance, where banned substances persist in recycled feedstock. To increase the confidence in using secondary raw materials, the Commission will:

- support the development of solutions for **high-quality sorting and removing contaminants from waste**, including those resulting from incidental contamination;
- develop **methodologies to minimise the presence of substances that pose problems to health or the environment in recycled materials and articles made thereof**;
- co-operate with industry to progressively develop **harmonised systems to track and manage information on substances** identified as being of very high concern and other relevant substances, in particular those with chronic effects³⁹,

³⁹ As identified under Regulation (EC) 1907/2006 and Regulation (EC) 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures,

and substances posing technical problems for recovery operations present along supply chains, and **identify those substances in waste**, in synergy with measures under the sustainable products policy framework and with the ECHA Database on articles containing substances of very high concern;

- propose amending the **annexes to the Regulation on Persistent Organic Pollutants**, in line with scientific and technical progress and the international obligations under the Stockholm Convention;
- improve the **classification and management of hazardous waste** so as to maintain clean recycling streams, including through further alignment with the classification of chemical substances and mixtures where necessary.

The forthcoming **Chemicals Strategy for Sustainability** will further address the interface between chemicals, products and waste legislation and strengthen synergies with the circular economy.

4.3. Creating a well-functioning EU market for secondary raw materials

Secondary raw materials face a number of challenges in competing with primary raw materials for reasons not only related to their safety, but also to their performance, availability and cost. A number of actions foreseen in this Plan, notably introducing requirements for **recycled content** in products, will contribute to preventing a mismatch between supply and demand of secondary raw materials and ensure the smooth expansion of the recycling sector in the EU. Furthermore, to establish a well-functioning internal market for secondary raw materials the Commission will:

- assess the scope to develop further **EU-wide end-of-waste criteria for certain waste streams** based on monitoring Member States' application of the revised rules on end-of-waste status and by-products, and support cross-border initiatives for cooperation to harmonise national end-of-waste and by-product criteria;
- enhance the role of **standardisation** based on the on-going assessment of existing standardisation work at national, European and international levels;
- make timely use of the restrictions on the use of **substances of very high concern in articles** for cases where the use of the substance is subject to an authorisation requirement, while continuing to improve enforcement at borders;
- assess the feasibility of establishing a **market observatory for key secondary materials**.

4.4. Addressing waste exports from the EU

The global market for waste is undergoing considerable changes. In the past decade, millions of tonnes of European waste has been exported to non-EU countries, often without sufficient consideration of proper waste treatment. In many cases, waste exports result both in negative environmental and health impacts in the countries of destination, and in loss of resources and economic opportunities for the recycling industry in the EU. Recent import restrictions introduced by some third countries have exposed the

amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006, OJ L 353, 31.12.2008, p. 1.

overdependence of the EU on foreign waste treatment, but they have also mobilised the recycling industry to increase its capacity and add value to waste in the EU.

In the light of these developments, and considering that illegal shipments of waste remain a source of concern, the Commission will take action with the aim to **ensure that the EU does not export its waste challenges to third countries**. Actions on product design, quality and safety of secondary materials and enhancing their markets will contribute to making “**recycled in the EU**” a benchmark for qualitative secondary materials.

Facilitating preparing for re-use and recycling of waste in the EU will be enhanced by a thorough review of **EU rules on waste shipments**⁴⁰. The review will also aim at **restricting exports of waste that have harmful environmental and health impacts in third countries or can be treated domestically within the EU** by focusing on countries of destination, problematic waste streams, types of waste operations that are source of concern, and enforcement to counteract illegal shipments. The Commission will also support measures at multilateral, regional and bilateral levels to **combat environmental crime notably in the areas of illegal exports and illicit trafficking**, strengthen **controls of shipments of waste**, and improve the sustainable management of waste in these countries.

5. MAKING CIRCULARITY WORK FOR PEOPLE, REGIONS AND CITIES

Between 2012 and 2018 the number of jobs linked to the circular economy in the EU grew by 5% to reach around 4 million⁴¹. Circularity can be expected to have a positive net effect on job creation provided that workers acquire the skills required by the green transition. The potential of the **social economy**, which is a pioneer in job creation linked to the circular economy, will be further leveraged by the mutual benefits of supporting the green transition and strengthening social inclusion, notably under the Action Plan to implement the **European Pillar of Social Rights**⁴².

The Commission will ensure that its instruments in support of skills and job creation contribute also to accelerating the transition to a circular economy, including in the context of updating its **Skills Agenda**, launching a **Pact for Skills** with large-scale multi-stakeholder partnerships, and the Action Plan for Social Economy. Further investment in education and training systems, lifelong learning, and social innovation will be promoted under the **European Social Fund Plus**.

The Commission will also harness the potential of EU financing instruments and funds to support the necessary investments at regional level and ensure that all regions benefit from the transition. In addition to awareness-raising, cooperation and capacity-building, **Cohesion Policy** funds will help regions to implement circular economy strategies and reinforce their industrial fabric and value chains. Circular economy solutions will be tailored to the **outermost regions and islands**, due to their dependence on resource imports, high waste generation fuelled by tourism, and waste exports. The **Just Transition Mechanism**⁴³ proposed as part of the European Green Deal Investment Plan and InvestEU will be able to support projects focusing on the circular economy.

⁴⁰ Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste, OJ L 190, 12.7.2006, p. 1.

⁴¹ https://ec.europa.eu/eurostat/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=cei_cie010&language=en

⁴² COM(2020) 14 final

⁴³ https://ec.europa.eu/commission/presscorner/detail/en/fs_20_39

The proposed **European Urban Initiative**, the **Intelligent Cities Challenge Initiative**, and the **Circular Cities and Regions Initiative** will provide key assistance to cities. Circular economy will be among the priority areas of the **Green City Accord**.

The **European Circular Economy Stakeholder Platform** will continue to be the place for stakeholders to exchange information.

6. CROSSCUTTING ACTIONS

6.1. Circularity as a prerequisite for climate neutrality

In order to achieve climate neutrality, the synergies between circularity and reduction of greenhouse gas emissions need to be stepped up. The Commission will:

- analyse how the **impact of circularity on climate change mitigation and adaptation** can be measured in a systematic way;
- improve **modelling tools to capture the benefits of the circular economy on greenhouse gas emission reduction** at EU and national levels;
- promote strengthening **the role of circularity in future revisions of the National Energy and Climate Plans** and, where appropriate, in other climate policies.

Next to reducing greenhouse gas emissions, achieving climate neutrality will also require that carbon is removed from the atmosphere, used in our economy without being released, and stored for longer periods of time. Carbon removals can be nature based, including through restoration of ecosystems, forest protection, afforestation, sustainable forest management and carbon farming sequestration, or based on increased circularity, for instance through long term storage in wood construction, re-use and storage of carbon in products such as mineralisation in building material.

To **incentivise the uptake of carbon removal and increased circularity of carbon**, in full respect of the biodiversity objectives, the Commission will explore the development of a **regulatory framework for certification of carbon removals** based on robust and transparent carbon accounting to monitor and verify the authenticity of carbon removals.

6.2. Getting the economics right

Accelerating the green transition requires careful yet decisive measures to steer financing towards more sustainable production and consumption patterns. The Commission has already taken a series of initiatives in this respect, including **integrating the circular economy objective under the EU Taxonomy Regulation**⁴⁴, and carrying out preparatory work on **EU Ecolabel criteria for financial products**. The **Circular Economy Finance Support Platform** will continue to offer guidance to project promoters on circular incentives, capacity building and financial risk management. EU financial instruments, such as SME guarantees under the current framework and InvestEU as of 2021, mobilise private financing in support of the circular economy. The Commission has also proposed a new **own resource for the EU budget based on the amount of non-recycled plastic packaging waste**. In addition, the Commission will:

⁴⁴ The EU classification system for environmentally sustainable activities:
<https://eur-lex.europa.eu/legal-content/en/HIS/?uri=CELEX%3A52018PC0353>

- enhance disclosure of environmental data by companies in the upcoming **review of the non-financial reporting** directive;
- support a **business led initiative to develop environmental accounting principles** that complement financial data with circular economy performance data;
- encourage the **integration of sustainability criteria into business strategies** by improving the corporate governance framework;
- reflect objectives linked to the circular economy as part of the **refocusing of the European Semester** and in the context of the forthcoming revision of the **State Aid Guidelines in the field of the environment and energy**;
- continue to encourage the broader application of well-designed **economic instruments**, such as **environmental taxation, including landfill and incineration taxes, and** enable Member States to use **value added tax (VAT) rates** to promote circular economy activities that target final consumers, notably repair services⁴⁵.

6.3. Driving the transition through research, innovation and digitalisation

European businesses are frontrunners in circular innovations. The **European Regional Development Fund**, through smart specialisation, **LIFE** and **Horizon Europe** will complement private innovation funding and support the whole innovation cycle with the aim to bring solutions to the market. Horizon Europe will support the development of indicators and data, novel materials and products, substitution and elimination of hazardous substances based on “safe by design” approach, circular business models, and new production and recycling technologies, including exploring the potential of chemical recycling, keeping in mind the role of digital tools to achieve circular objectives. **Marie Skłodowska Curie Actions** can in addition support development of skills, training and mobility of researchers in this area.

Digital technologies can track the journeys of products, components and materials and make the resulting data securely accessible. The **European data space for smart circular applications** referred to in section 2 will provide the architecture and governance system to drive applications and services such as product passports, resource mapping and consumer information.

The **European Institute of Innovation and Technology** will coordinate innovation initiatives on circular economy in collaboration with universities, research organisations, industry and SME’s within the **Knowledge and Innovation Communities**.

The **regime for intellectual property** needs to be fit for the digital age and the green transition and support EU businesses’ competitiveness. The Commission will propose an **Intellectual Property Strategy** to ensure that intellectual property remains a key enabling factor for the circular economy and the emergence of new business models.

⁴⁵ Subject to the outcome of the on-going legislative procedure.

7. LEADING EFFORTS AT GLOBAL LEVEL

The EU can only succeed if its efforts drive also the global transition to a just, climate-neutral, resource-efficient and circular economy. There is a growing need to advance discussions on defining a “Safe Operating Space’ whereby the use of various natural resources does not exceed certain local, regional or global thresholds and environmental impacts remain within planetary boundaries.

For countries with an EU accession perspective, our closest neighbours in the South and the East, emerging economies and key partners across the world, the new sustainable models will open up business and employment opportunities, while strengthening the ties with European economic actors⁴⁶.

To support a global shift to a circular economy, the Commission will:

- building on the European Plastics Strategy, lead efforts at international level to reach a **global agreement on plastics**, and promote the uptake of the EU’s circular economy approach on plastics;
- propose a **Global Circular Economy Alliance** to identify knowledge and governance gaps in advancing a global circular economy and take forward partnership initiatives, including with major economies;
- explore the feasibility of defining a ‘**Safe Operating Space**’ for natural resource use and consider initiating discussions on an **international agreement on the management of natural resources**;
- build a stronger **partnership with Africa** to maximise the benefits of the green transition and the circular economy;
- ensure that **Free Trade Agreements** reflect the enhanced objectives of the circular economy;
- continue promoting the circular economy in the **accession process with the Western Balkans**, and in the context of **bilateral, regional and multilateral policy dialogues, fora and environmental agreements**, as well as of pre-accession assistance and neighbourhood, development and international cooperation programmes, including the International Platform on Sustainable Finance;
- step up **outreach activities**, including through the European Green Deal diplomacy and the Circular Economy missions, and work with EU Member States to enhance coordination and joint efforts for a global circular economy.

8. MONITORING PROGRESS

In line with the European Green Deal and the 2020 Annual Sustainable Growth Strategy⁴⁷, the Commission will **reinforce the monitoring of national plans and measures to accelerate the transition to a circular economy as part of refocusing the European Semester** process to integrate a stronger sustainability dimension.

⁴⁶ SWD(2020) 100.

⁴⁷ COM (2019) 650 final.

The Commission will also update the **Monitoring Framework for the Circular Economy**⁴⁸. Relying on European statistics as much as possible, new indicators will take account of the focus areas in this action plan and of the interlinkages between circularity, climate neutrality and the zero pollution ambition. At the same time, projects under Horizon Europe and Copernicus data will improve circularity metrics at various levels not yet reflected in official statistics.

Indicators on resource use, including consumption and material footprints to account for material consumption and environmental impacts associated to our production and consumption patterns will also be further developed and will be linked to monitoring and assessing the progress towards decoupling economic growth from resource use and its impacts in the EU and beyond.

9. CONCLUSION

The transition to the circular economy will be systemic, deep and transformative, in the EU and beyond. It will be disruptive at times, so it has to be fair. It will require an alignment and cooperation of all stakeholders at all levels - EU, national, regional and local, and international.

Therefore, the Commission invites EU institutions and bodies to endorse this Action Plan and actively contribute to its implementation, and encourages Member States to adopt or update their national circular economy strategies, plans and measures in the light of its ambition. Furthermore, the Commission will recommend including the circular economy among the topics for discussion on the future of Europe and a regular theme of citizens' dialogues.

⁴⁸ <https://ec.europa.eu/eurostat/web/circular-economy/indicators/monitoring-framework>