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Waste prevention measures in the waste framework directive

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Studie naar een herziening van de Kaderrichtlijn Afval, met focus op versterking van afvalpreventie.

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Executive Summary

The Waste Framework Directive (WFD, 2008/98/EC; 2018/851) has brought together the basic principles on waste in the European Union since 2008. The waste hierarchy included in Article 4(1) WFD, prioritizes waste prevention in its approach towards the waste chain. EU Member States should initially seek to keep products in the economy for as long as possible, theoretically producing less waste. This is in line with the European Commission's strategy to achieve a circular economy, whereby efforts are made to close material flows hence reducing the need for primary resources as well as waste generation. Achieving this will not only require products to be handled in a more sustainable way, it will also require a mindset shift for both producers and consumers.

“the goal must be to achieve a paradigm shift from recycling to preventing and minimizing waste”
– Frans Timmermans

Member States have not been idle in recent years. In 2018, the European Environment Agency (EEA) already recorded 327 waste prevention measures in Member States. Re-use is the most common example of waste prevention, yet waste generation is still on the rise today. As outlined in the Circular Economy Action Plan, an accelerated transition from a linear to a circular economy is required to achieve the EU's 2050 climate neutrality target. Waste prevention plays a crucial role in this regard. The short term goal to achieve economic growth and at the same time reduce waste production is still a long way off today.

This study on the waste prevention measures in the EU Waste Framework Directive (WFD) was prepared on the basis of extensive consultations with recognised Belgian and European waste experts during one-on-one expert interviews and a stakeholder workshop, combined with a thorough review of existing literature. Insights and recommendations consequently stem from the consultations with experts, but equally from the literature.

The study provides building blocks and recommendations to strengthen waste prevention in the WFD. In this way, a coherent, underpinned and future-oriented European waste prevention policy can be developed with a focus on sustainability, socio-economic, technological and systemic aspects.

The study consists of four chapters. The first chapter contains the assumptions, facts, figures of waste prevention and principles used in the WFD. It also gives a concise overview of the Circular Economy Action Plan on the one hand and the revisions the WFD has already undergone on the other. Originally, the horizon for a new revision of the waste prevention section was set for 2023, but the European Commission has shifted its working agenda to mainly focus on reducing textile and food waste.

Chapter two elaborates on the concept of waste prevention and provides an explanation and analysis of the various provisions in the WFD related to it, being: Article 9 (Waste prevention), Article 29 (Waste prevention programmes), Article 8 (Extended producer responsibility). Chapter three examines the waste prevention measures of four concrete waste streams, namely: food, textiles, electrical and electronic equipment and plastics. These streams were identified by the Circular Economy Action Plan as the core sectors and policy priorities for the transition to a circular economy.

The final chapter proposes recommendations to anchor waste prevention more strongly in the WFD. These recommendations were chosen to be grouped and divided into two categories: (i) general recommendations, and (ii) recommended changes to existing articles. The first category (i) proposes to: transform the current Directive into a Regulation (Recommendation 1) and promote circular business models (Recommendation 2). The second category (ii) focuses on: the quality of data on waste prevention (Recommendation 3), introducing a definition of “circular economy” (Recommendation 4), setting ambitious and binding targets for Member States on waste prevention (Recommendation 5), recognising Annex IV WFD (partly) as binding measures (Recommendation 6), broadening and prioritising the role of waste prevention in extended producer responsibility (Recommendation 7), using the Digital Product Passport as a facilitator to combat waste prevention (Recommendation 8), and introducing a separate article for re-use (Recommendation 9).

Samenvatting

De Kaderrichtlijn Afvalstoffen (KRA, 2008/98/EG; 2018/851) bundelt sinds 2008 de basisbeginselen op het gebied van afvalstoffen in de Europese Unie. In de afvalhiërarchie, opgenomen in Artikel 4(1) KRA, wordt de voorkeur gegeven aan afvalpreventie om de afvalketen te benaderen. Lidstaten moeten in eerste instantie trachten om producten zolang mogelijk in de economie te houden, waardoor in theorie minder afval wordt geproduceerd. Dit past binnen de strategie van de Europese Commissie om een circulaire economie te bewerkstelligen, waar getracht wordt om de materiaalstromen te sluiten waardoor de behoefte aan primaire hulpbronnen vermindert en tegelijk de afvalproductie afneemt. Om dit te realiseren zal er niet alleen op een meer duurzame wijze met producten moeten worden omgegaan, ook zal er een omschakeling moeten komen van de denkwijze van producenten en consumenten.

“the goal must be to achieve a paradigm shift from recycling to preventing and minimising waste” – Frans Timmermans

Lidstaten hebben de laatste jaren niet stilgezeten. In 2018 noteerde het Europees Milieuagentschap reeds 327 afvalpreventiemaatregelen in de lidstaten. Hergebruik is het meest voorkomende voorbeeld van afvalpreventie. Toch stijgt de productie van afval vandaag nog steeds. Zoals uiteengezet in het Actieplan Circulaire Economie, is een versnelde transitie nodig van een lineaire naar een circulaire economie om de doestelling van klimaatneutraliteit tegen 2050 te kunnen realiseren. Afvalpreventie speelt daarbij een cruciale rol. De EU heeft als doel om op korte termijn een economische groei te realiseren en tegelijkertijd de afvalproductie te verminderen, hetgeen vandaag nog veraf is.

Dit visiedocument over de toekomstige rol van afvalpreventie in de Europese Unie kwam tot stand op basis van uitgebreide consultaties van erkende Belgische en Europese afval-experten over de toekomst van preventie in combinatie met een grondige analyse van de bestaande literatuur.

In wat volgt worden bouwstenen en voorstellen aangereikt voor de ontwikkeling van afvalpreventiemaatregelen in de KRA. Op deze wijze kan er een coherent, onderbouwd en toekomstgericht Europees afvalpreventiebeleid worden uitgewerkt met aandacht voor duurzaamheid, socio-economische, technologische en systemische aspecten.

Om tot sector-gedragen aanbevelingen te komen, is de studie opgebouwd uit vier hoofdstukken. Het eerste hoofdstuk bevat de uitgangspunten, feiten, cijfers van afvalpreventie en principes die in de KRA gehanteerd worden. Tevens wordt er een bondige uiteenzetting gegeven van enerzijds het Actieplan Circulaire Economie en anderzijds de herzieningen die de KRA reeds onderging. Oorspronkelijk was de horizon voor een nieuwe herziening van het luik afvalpreventie voorzien in 2023. De Europese Commissie heeft haar werkagenda echter beperkt tot de reductie van textiel- en voedselafval.

Hoofdstuk twee gaat dieper in op het concept “afvalpreventie” en geeft een uiteenzetting en analyse van de verschillende bepalingen in de KRA die hierop betrekking hebben, met name artikel 9 (Afvalpreventie), artikel 29 (Afvalpreventieprogramma’s) en artikel 8 (Uitgebreide producentenverantwoordelijkheid). In hoofdstuk drie worden de afvalpreventiemaatregelen van vier concrete afvalstromen onderzocht, namelijk: voedsel, textiel, elektrische en elektronische

apparatuur en plastic. Deze stromen werden door het Actieplan Circulaire Economie geïdentificeerd als de kernsectoren en beleidsprioriteiten voor de overgang naar een circulaire economie.

In het laatste hoofdstuk worden aanbevelingen gedaan om afvalpreventie sterker in de kaderrichtlijn afvalstoffen te verankeren. Deze aanbevelingen werden gegroepeerd en verdeeld in twee categorieën: i) algemene aanbevelingen, en ii) aanbevolen wijzigingen van bestaande artikelen. De eerste categorie (i) stelt voor om: de huidige richtlijn om te zetten in een verordening (Aanbeveling 1) en circulaire bedrijfsmodellen te bevorderen (Aanbeveling 2). De tweede categorie (ii) richt zich op: de kwaliteit van gegevens over afvalpreventie (Aanbeveling 3), de invoering van een definitie van "circulaire economie" (Aanbeveling 4), de vaststelling van ambitieuze en bindende streefcijfers voor de lidstaten inzake afvalpreventie (Aanbeveling 5), de (gedeeltelijke) erkenning van Bijlage IV van de kaderrichtlijn afvalstoffen als bindende maatregelen (Aanbeveling 6), de verbreding en prioritering van de rol van afvalpreventie in de uitgebreide producentenverantwoordelijkheid (Aanbeveling 7), het gebruik van het digitale productpaspoort als facilitator voor de bestrijding van afvalpreventie (Aanbeveling 8) en de invoering van een afzonderlijk artikel voor hergebruik ("Re-use") (Aanbeveling 9).

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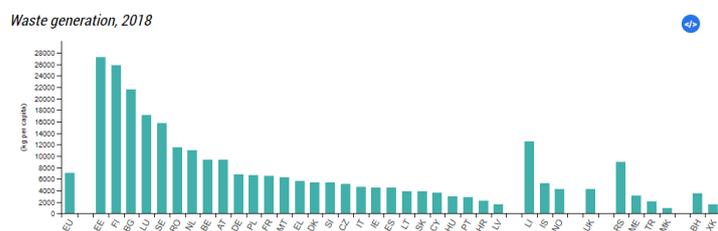
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Chapter 1: Introduction and context

Section 1: Waste generation in the EU – facts and figures

Approximately 100 billion tonnes of materials are used worldwide to manufacture products, of which eight gigatonnes are used in the EU.¹ At the current rate, by 2050 our society would require the equivalent of three earths to provide for raw materials and in 2060 the amount of used materials will be double of what they are today.² In 2020, almost 97% of material resources in the EU were wasted after their first use and the circularity rate³ was 12,8%.⁴ Less than 10% was re-used or recycled.⁵

Total waste generation in 2018 in the EU amounted to 2,337 million tonnes per year or roughly 505 kg per capita.⁶ Annual waste generation is projected to increase with 70% by 2050 in the EU.⁷ Construction, mining



¹ European Commission, “Circular economy”, [Circular economy \(europa.eu\)](#); World Economic Forum, “Circular Economy and Material Value Chains”, 2021, [Circular Economy | World Economic Forum \(weforum.org\)](#); European Circular Economy Stakeholder Platform, “2019 Circularity Gap Report reveals that the world is only 9% circular and the trend is negative”, 2019, [2019 Circularity Gap Report reveals that the world is only 9% circular and the trend is negative | European Circular Economy Stakeholder Platform \(europa.eu\)](#); Circle Economy, “The Circularity Gap Report 2021”, 2021, [CGR 2021 \(circularity-gap.world\)](#).

² IPB University, “3 Earths are Required to Meet Human Needs by 2050”, 2020, [3 Earths are Required to Meet Human Needs by 2050 | IPB University](#); World Wide Fund for Nature (WWF), “Climate Solutions: WWF’s Vision for 2050”, 2012, [Climate Solutions - WWF’s climate vision for 2050 \(panda.org\)](#); OECD, “Global Material Resources Outlook to 2060: Economic Drivers and Environmental Consequences”, 2019, <https://doi.org/10.1787/9789264307452-en>.

³ The circularity rate is the share of material resources used which came from recycled waste materials, saving extractions of primary raw materials. The circularity rate is part of the EU monitoring framework on circular economy.

⁴ The EU is confronted with diversity in the circular handling of materials. The Netherlands, Belgium and France are frontrunners with respectively 30%, 23% and 22% circularity rate. Romania, Ireland and Portugal are lagging behind with respectively 1 and 2%; Eurostat, “Circular material use rate”, 2021, [Statistics | Eurostat \(europa.eu\)](#); Eurostat, “EU’s circular material use rate increased in 2020”, 2021, [EU’s circular material use rate increased in 2020 - Products Eurostat News - Eurostat \(europa.eu\)](#).

⁵ European Commission, “Waste and Recycling”, [Waste and recycling \(europa.eu\)](#); European Commission, “Circular economy”, [Circular economy \(europa.eu\)](#); Eurostat, “Circular material use rate”, 2021, [Statistics | Eurostat \(europa.eu\)](#).

⁶ Directorate-General Environment Unit B3, “Policy agenda on waste prevention: Workshop on waste prevention”, 2022, [Fionet Webinar 7 June 22 - Presentation DG ENV.pdf](#); Eurostat, “Waste statistics”, 2021, [Waste statistics - Statistics Explained \(europa.eu\)](#); World Bank Group, “What a waste 2.0: A Global Snapshot of Solid Waste Management to 2050”, 2018, [What a Waste 2.0 : A Global Snapshot of Solid Waste Management to 2050 \(worldbank.org\)](#); European Environmental Bureau, “Explained: Europe’s new waste prevention and re-use laws”, 2020, [No-time-to-waste Europes-new-waste-prevent web.pdf \(eeb.org\)](#); European Parliament, “Waste management in the EU: infographic with facts and figures”, 2020, [EU waste management: infographic with facts and figures | News | European Parliament \(europa.eu\)](#); European Environmental Agency, “Briefing: Waste Generation”, 2019, [Waste generation — European Environment Agency \(europa.eu\)](#).

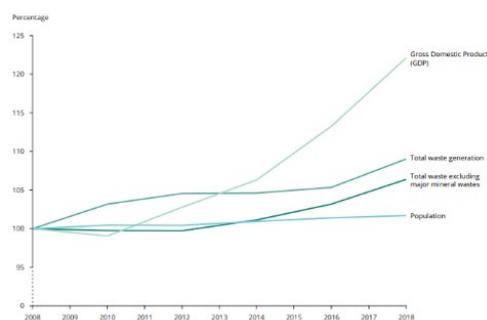
⁷ European Commission, “Re-use and recycle!”, [Re-use and recycle! \(europa.eu\)](#); United Nations Economic Commission for Europe, “Dealing with Waste”, [Dealing with Waste | UNECE](#).

and quarrying and manufacturing are the economic activities with the largest impact.⁸ The waste streams with the most generated waste are end-of-life tyres, end-of-life vehicles, construction and demolition, textile, electronic equipment and municipal waste.⁹ These statistics include all substances or objects which the holder discards or intends or is required to discard, as defined by Article 3 (1) of the Waste Framework Directive (hereafter: the “WFD”). The long-term goal of the EU’s waste management policies is to reduce the environmental and health impacts of waste, reduce the amount of waste generated and improve the EU’s resource efficiency.¹⁰ This will have to be achieved in various ways. The European Commission focusses, amongst others, on product design since it dictates up to 80% of its life-cycle environmental impact of products, including their carbon and environmental footprints.

The European Environmental Agency (hereafter: the “EEA”) disclosed that the objective for Member States to decouple waste production from economic growth is to¹¹:

*“break the link between economic growth and the environmental impacts associated with the generation of waste”.*¹²

Between 2008 and 2018 total waste generation (excluding major mineral waste)¹³ increased by approximately 7%¹⁴ and the EU gross domestic product (hereafter: “GDP”) increased by 20,4%.¹⁵ Hence, waste generation increased, but at a slower pace than economic growth. This is called relative decoupling.¹⁶ In the coming years, Member States must achieve



⁸ Eurostat, “Waste statistics”, 2021, [Waste statistics - Statistics Explained \(europa.eu\)](#).

⁹ They represented 1,004 million tonnes of waste in 2018, which corresponds in 43% of the total waste generation in the EU.

¹⁰ European Commission, “Waste prevention and management”, [Waste prevention and management - Environment - European Commission \(europa.eu\)](#).

¹¹ European Environmental Agency, “Waste generation and decoupling in Europe”, 2021, [Waste generation and decoupling in Europe \(europa.eu\)](#); European Environmental Agency, “Clear opportunities to decouple Europe’s waste generation from economic growth”, 2021, [Clear opportunities to decouple Europe’s waste generation from economic growth — European Environment Agency \(europa.eu\)](#).

¹² European Environmental Agency, “Progress towards preventing waste in Europe – the case of textile waste prevention”, EEA Report No 15/2021, 2021, [THAL21017ENN.en \(1\).pdf](#).

¹³ Major mineral wastes (such as hard rock, concrete and soil) are not included in these figures. This is partly because they are produced in specific economic sectors (construction and mining) and partly because, compared to other types of waste, the management of these waste streams is of “relatively low environmental concern”. Including these figures, there would be a 5% (114 million tonnes) increase in waste generation in 2018 compared to 2008.

¹⁴ This is approximately 50,3 million tonnes of waste. It is important to note that demographics have (almost) no impact on these figures. The demography in the EU Member States between 2008 and 2018 is relatively stable.

¹⁵ European Environmental Agency, “Clear opportunities to decouple Europe’s waste generation from economic growth”, 2021, [Clear opportunities to decouple Europe’s waste generation from economic growth — European Environment Agency \(europa.eu\)](#).

¹⁶ From a national perspective, Member States see both negative and positive trends in waste intensity. A negative trend is observed by the EEA in Ireland, Belgium, Croatia, Italy, Malta, Bulgaria and Germany. A positive trend is detected in Iceland, Norway, Sweden, Finland, Estonia, Latvia, Lithuania, Poland, Slovakia, Czechia, the Netherlands, Luxembourg, France, Austria, Slovenia, Romania, Turkey, Cyprus, Greece and Portugal. Twelve (of the latter mentioned Member States) experienced a strong positive evolution, decreasing 10 percentage points or more. Denmark and Spain did not increase nor decrease. Ireland, in a negative sense, and Romania, in a positive sense, stand out. The EEA states that in 2018 that absolute decoupling of waste generation from economic growth has not been achieved.; European Environmental Agency, “Clear opportunities to decouple Europe’s waste generation from economic growth”, 2021, [Clear opportunities to decouple Europe’s waste generation from economic growth — European Environment Agency \(europa.eu\)](#).

absolute decoupling: achieving economic growth while decreasing waste generation.¹⁷ The waste intensity in the EU has decreased from 68 kg/EUR 1000 GDP in 2008 to 60 kg/EUR 1000 GDP in 2018.¹⁸

To achieve the objectives of, amongst others, the European Green Deal¹⁹ and the Paris agreement²⁰, waste prevention is becoming increasingly important for all EU Member States.²¹ Waste prevention is defined in Article 3 (12) WFD as:

*“measures taken before a substance, material or product has become waste, that reduce: (a) the quantity of waste, including through the re-use of products or the extension of the life span of products; (b) the adverse impacts of the generated waste on the environment and human health; or (c) the content of hazardous substances in materials and products;”.*²²

The starting point of the current definition on waste prevention is preventing that the product, i.e. material that has already entered the cycle, becomes waste and therefore has an environmental impact. Prevention of material use to produce these products as such, are not included in the definition. The proposal for a new Ecodesign for Sustainable Products Regulation does capitalise on that phenomenon.

Despite existing regulations to tackle waste production, such as the WFD, the total amount of waste generated in the EU is rising. Studies demonstrate that the EU is not on course to meet its goal of reducing waste since waste generation still increases annually.²³ To reduce waste generation, the EU introduced a ‘waste hierarchy’, with five



¹⁷ European Environmental Agency, “Waste generation and decoupling in Europe”, 2021, [Waste generation and decoupling in Europe \(europa.eu\)](https://www.eea.europa.eu/en/press/2021/04/waste-generation-and-decoupling-in-europe).

¹⁸ Waste intensity expresses waste generation per unit of GDP, reflecting the economy's 'eco-efficiency' in terms of the levels of waste generated. The waste intensity indicator is interesting because, on the one hand, it is part of Eurostat's circular economy monitoring framework and, on the other hand, it reflects the structure of the economy, as a service economy which is less waste intensive than an industrial economy.; European Environmental Agency, “Progress towards preventing waste in Europe – the case of textile waste prevention”, EEA Report No 15/2021, 2021, [THAL21017ENN.en \(1\).pdf](https://www.eea.europa.eu/en/press/2021/04/waste-generation-and-decoupling-in-europe).

¹⁹ European Commission: “Communication from the Commission: The European Green Deal (COM/2019/640 final)”, 2019, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52019DC0640&from=EN>.

²⁰ The Paris Agreement sets internationally binding climate objectives and builds on the United Nations Framework on Climate Change (UNFCCC). Art. 2 (1) states: “This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by: a. Holding the increase in the global average temperature to well below 2 °C above preindustrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change.”; United Nations, “Paris Agreement”, 2015, [ADOPTION OF THE PARIS AGREEMENT - Paris Agreement text English \(unfccc.int\)](https://unfccc.int/paris_agreement/text/english).

²¹ A.A. Zorpas and K. Lasaridi, “measuring waste prevention”, Waste Management 33 (5), 2013, <https://doi.org/10.1016/j.wasman.2012.12.017>.

²² Art. 3 (12) WFD.

²³ Smart Waste, “Revising the Waste Framework Directive”, 21 March 2022, [Revising the Waste Framework Directive | Interreg Europe](https://www.interreg.eu/en/news/revising-the-waste-framework-directive); European Environmental Agency, “Early Warning”, 2022.

possible manners to deal with waste.²⁴ It prioritises waste management options according to their environmental impact and what constitutes the best overall environmental option in waste legislation and policy.²⁵ The waste hierarchy favours waste prevention.

“Although, technically, ‘prevention’ is not a waste-management measure because it concerns substances or objects before they become waste”²⁶

When materials qualify as waste, the waste hierarchy prefers the preparing for re-use over recycling and other waste recovery options. The disposal of waste (sending it to landfill) should only be applied as last resort.²⁷

The waste hierarchy is established in Article 4 (1) WFD.²⁸ The waste hierarchy ranks the waste management options according to their environmental impact: from the preferred option on top, to the least preferred option at the bottom. Furthermore, the hierarchy also follows the life cycle approach to materials and raw materials: the aim is to maintain resource value in the economic cycle, preventing and reducing the negative effects of using primary resources on the environment and to turn waste into resources.²⁹ It is legally binding but gives Member States a certain margin of discretion to deviate from the hierarchy. However, Member States must provide a justification for deviating from the hierarchy on grounds of ‘life-cycle-thinking’^{30, 31}

The waste hierarchy was first introduced in The Netherlands³² in 1979 by Dutch politician Ad Lansink and is described by Wilson (2007) as *“a historical first step towards a move away from the ‘end of*

²⁴ M. Gharfalkara, R. Courta C. Campbella, Z. Alib and G. Hillier, “Analysis of waste hierarchy in the European waste directive 2008/98/EC”, *Waste Management* 39, 2015, <https://doi.org/10.1016/j.wasman.2015.02.007>; European Commission, “Waste prevention and management”, [Waste prevention and management - Environment - European Commission \(europa.eu\)](https://ec.europa.eu/environment/waste/prevention/).

²⁵ C. Fischer, “The development and achievements of EU waste policy”, *Journal of Material Cycles and Waste Management* 13 (1), 2011, <https://doi-org.kuleuven.e-bronnen.be/10.1007/s10163-010-0311-z>; I.D. Williams, “Forty years of the waste hierarchy”, *Waste Management* 40, 2015, <https://doi.org/10.1016/j.wasman.2015.03.014>.

²⁶ This ambiguity can (eventually) be eliminated with a more integrated view of the product life cycle. Being not only waste prevention but also product materials prevention. It is not necessary to create this in a single global framework as the new proposal is already taking on this task. However, the alignment and enforceability of these rules are important.; European Commission, “Guidelines on the interpretation of key provisions of Directive 2008/98/EC on waste”, 2012, [Table of Contents \(europa.eu\)](https://ec.europa.eu/environment/waste/guidelines/).

²⁷ A. Lansink, “Challenging Changes – Connecting Waste Hierarchy and Circular Economy”, *Waste Management & Research: The Journal for a Sustainable Circular Economy* 2018 (36), <https://doi.org/10.1177/0734242X18795600>.

²⁸ When applying the hierarchy referred to in Art. 4 (1) WFD, Member States must take measures to deliver the best overall environmental outcome. This may require specific waste streams departing from the hierarchy where this is justified by life cycle thinking on the overall impacts of the generation and management of such waste.; European Commission, “Guidelines on the interpretation of key provisions of Directive 2008/98/EC on waste”, 2012, [Table of Contents \(europa.eu\)](https://ec.europa.eu/environment/waste/guidelines/).

²⁹ OECD, “OECD Environmental Performance Reviews Waste Management and the Circular Economy in Selected OECD Countries: Evidence from Environmental Performance Reviews”, OECD Publishing, 2019, <https://ebookcentral.proquest.com/lib/kuleuvenul/detail.action?docID=6411875>.

³⁰ Life-cycle-thinking is “a conceptual approach that considers upstream and downstream benefits and trade-offs associated with goods and services. LCT takes into account the entire life cycle, starting with the extraction of natural resources and including material processing, manufacturing, marketing, distribution, use, and the treatment of waste. By introducing life cycle thinking into waste policies, the WFD integrates waste policies, when departing from the waste hierarchy, into the broader framework of reducing environmental pressures and increasing resource efficiency. Over their lifetime, products (goods and services) can contribute to various environmental impacts”.

³¹ A. Eguez, “Compliance with the EU waste hierarchy: A matter of stringency, enforcement and time”, *Journal of Environmental Management* 280, 2021, <https://doi.org/10.1016/j.jenvman.2020.111672>.

³² A. Lansink, “Challenging Changes – Connecting Waste Hierarchy and Circular Economy”, *Waste Management & Research: The Journal for a Sustainable Circular Economy* 2018 (36), <https://doi.org/10.1177/0734242X18795600>.

*pipe’ - concept of waste management in the direction of the more integrated concept of ‘resource management’, of which the main emerging driver is the ‘closing the loop’ idea”.*³³

In 2018, the EEA recorded 327 waste prevention measures taken by public authorities in the EU.³⁴ EU Member States generally focus on similar measures, following best practices.³⁵ Cooperation and information exchange between Member States on waste prevention measures is facilitated through initiatives such as the European Week for Waste Reduction.³⁶

To achieve the EU’s waste prevention goals, a shift must be made in all EU markets from a linear to a circular economy to stimulate waste prevention. The European Commission describes “circular economy” as:

*“an economy that aims to keep (the value of) products, components, resources and raw materials in the economy for as long as possible, by returning them into the product cycle at the end of their use, while minimising the generation of waste”.*³⁷

Interestingly, apart from the minimalization of waste, this description does not refer to an effort to reduce overall societal environmental impact.³⁸

A circular economy aims at closing the flows of materials, thus reducing the need for primary resources and simultaneously reducing waste output.³⁹ It requires a transition towards resource-productive industrial systems, dematerialised consumption and less consumption (in particular areas).⁴⁰

To achieve a shift towards a circular economy, products must be designed in a (more) sustainable way.⁴¹ In the EU, more attention is being paid to ‘a sustainable approach’ with, amongst others, a focus on more durable products, circular business models and less waste but also the absence of

³³ D.C. Wilson, “Development drivers for waste management”, *Waste Management & Research* 2007 (25(3)), 198-207, [Development drivers for waste management \(e-bronnen.be\)](#).

³⁴ This number excludes private initiatives.

³⁵ European Environmental Agency, “Country profiles on waste prevention”, [Country profiles on waste prevention — European Environment Agency \(europa.eu\)](#).

³⁶ Other opportunities for cooperation are offered through country networks such as the Waste Working Group of the European Commission and Eionet of the EEA.

³⁷ European Commission, “Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Closing the loop - An EU action plan for the Circular Economy”, 2015, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52015DC0614&from=EN>; European Commission, “Circular Economy”, [Circular economy \(europa.eu\)](#); S. van Ewijk and J.A. Stegemann, “Recognising waste use potential to achieve a circular economy”, 2020, <https://doi.org/10.1016/j.wasman.2020.01.019>; A. Pires and G. Martinho, “Waste hierarchy index for circular economy in waste management”, *Waste Management* 95, <https://doi.org/10.1016/j.wasman.2019.06.014>.

³⁸ In the description, this overall societal environmental is limited to waste. However, it is appropriate for a general definition in the Waste Framework Directive to go beyond waste: all materials consumption linked environmental impact categories within a classic Life Cycle Approach calculation (such as materials use, global warming, ecotoxicity, etc.) should also be included.

³⁹ A circular economy includes both keeping current cycles closed and preventing the start of new material cycles: The fewer products that are discarded, the less materials that can be extracted, the better the outcome is for the environment. This must be achieved by setting up sufficiency measures, which derives from different legal frameworks.; E. Van Gool, A. Michel, B. Keirsbilck and E. Terryn, “Public consultation as regards the Sustainable consumption of goods – Promoting repair and re-use initiative”, *KU Leuven Consumer Competition Market*, 2022.

⁴⁰ Systemiq, “Everything- as-a-Service (XAAS): How businesses can thrive in the age of climate change and digitalization”, 2021, [XaaS-ExecutiveSummary.pdf \(systemiq.earth\)](#).

⁴¹ S. Sehnem, A. Pandolfi and C. Gomes, “Is sustainability a driver of the circular economy?”, *Social Responsibility Journal* 16 (3), 2020, DOI:10.1108/SRJ-06-2018-0146; N. Johansson, “Does the EU’s Action Plan for a Circular Economy Challenge the Linear Economy?”, *Environ. Sci. Technol.* 2021 (55), <https://doi.org/10.1021/acs.est.1c06194>; N. Chaker and S. Mika, “The Circular Economy: Case Studies about the Transition from the Linear Economy”, San Diego : Elsevier Science & Technology, 2019.

hazardous substances, the use of sustainable raw materials, etc.⁴² Products must serve for more than just a onetime use, commonly referred to as “single use”. However, products on the market today are often discarded after single use, which results in a considerable amount of disposable products and a substantial impact on our environment.⁴³ Waste prevention and waste management are identified as key elements in the transition to a circular economy.⁴⁴ This transition will require a shift in the mindset of producers (and consumers), facilitated by a clear legislative framework.

The applicable legislative framework transcends waste legislation *sensu stricto*. The classic ‘silo approach’ between waste legislation on the one hand and product standardisation, producers’ responsibility and consumer rights on the other hand, is shifting towards a more joined-up approach.⁴⁵ It is essential that legislative reforms are aligned with one another, which is also stressed in the Circular Economy Action Plan 2020 (hereafter: “CEAP 2020”)⁴⁶. A joint, multidisciplinary approach is, according to the European Commission, the way forward to implement an efficient and sustainable (waste) policy.

Studies demonstrate that merely focussing on recycling will not suffice to reach a circular economy, even though it remains a vital component of waste management to deal with the currently still

⁴² M-L Franco-García, J.C. Carpio-Aguilar, H. Bressers, “Towards Zero Waste: Circular Economy Boost, Waste to Resources”, Springer, [978-3-319-92931-6.pdf](https://doi.org/10.1007/978-3-319-92931-6.pdf) (e-bronnen.be).

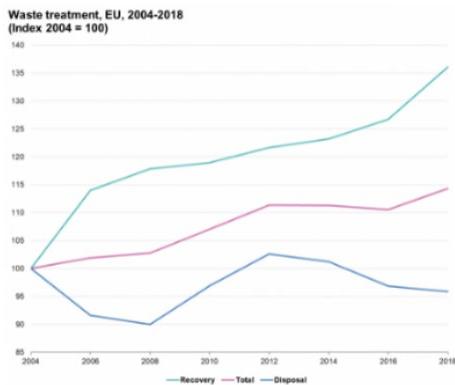
⁴³ Single use products have a significant influence on, amongst others, land pollution, biodiversity loss and increase in carbon dioxide emissions.

⁴⁴ European Commission, “Closing the loop - An EU action plan for the Circular Economy”, 2015, [EUR-Lex - 52015DC0614 - EN - EUR-Lex \(europa.eu\)](https://eur-lex.europa.eu/lexicon/52015DC0614); Government UK (The Waste Prevention Team), “Prevention is better than cure: The role of waste prevention in moving to a more resource efficient, circular economy”, 2013, [Prevention is better than cure : the role of waste prevention in moving to a more resource efficient economy \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/261449/prevention-is-better-than-cure-the-role-of-waste-prevention-in-moving-to-a-more-resource-efficient-economy.pdf); European Environmental Agency, “Waste prevention in Europe”, 2021, [Waste prevention in Europe — European Environment Agency \(europa.eu\)](https://www.eea.europa.eu/en/waste-prevention).

⁴⁵ C. Coggins, “Waste prevention — an issue of shared responsibility for UK producers and consumers: policy options and measurement”, *Conservation and Recycling* 32 (3-4), 2001, [https://doi.org/10.1016/S0921-3449\(01\)00060-X](https://doi.org/10.1016/S0921-3449(01)00060-X); E. Maitre-Ekern, “Re-thinking producer responsibility for a sustainable circular economy from extended producer responsibility to pre-market producer responsibility”, *Journal of Cleaner Production* 286, 2021, <https://doi.org/10.1016/j.jclepro.2020.125454>.

⁴⁶ European Commission, “A new Circular Economy Action Plan - For a cleaner and more competitive Europe”, 2020, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0098&from=EN>.

increasing amounts of waste.⁴⁷ In 2018, 2,169 million tonnes of waste were treated in the EU.⁴⁸ The two main treatment categories are recovery⁴⁹ and disposal^{50, 51}



The quantity of waste recovered in the EU in 2018 grew with 33,9% since 2004.⁵² Recycling means any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes.⁵³ Recycling is one of the main ways to reduce the consumption of primary resources, by replacing them with secondary materials made from recycled waste. Recycling is the greatest accelerator in recovery operations, with 37,9% of the total treated waste.⁵⁴ Binding targets in several waste legislations are key drivers for these recycling rates. In total,

EU waste legislation includes more than 30 binding targets for the period 2015-2030.

The quantity of waste subject to disposal decreased by 4,2% between 2004 and 2018. The share of disposal in total waste treatment decreased from 54.1% to 45.4 % in the same period.⁵⁵

To build a circular economy, waste prevention is essential.⁵⁶ Only by thoroughly rethinking our consumption can the tide be turned.⁵⁷ This has been repeated on several occasions by Frans

⁴⁷ Recycling falls under waste management and not waste prevention.; United Nations University, “Going Full Circle: Why Recycling Isn’t Enough”, 2018, [Going Full Circle: Why Recycling Isn’t Enough - Our World \(unu.edu\)](https://www.unu.edu/publications/going-full-circle-why-recycling-isnt-enough); Ecologist, “Recycling is not enough! Sharing is the way to achieve a circular economy”, 2014, [Recycling is not enough! Sharing is the way to achieve a circular economy \(theecologist.org\)](https://www.theecologist.org/news/2014/05/21/recycling-is-not-enough-sharing-is-the-way-to-achieve-a-circular-economy); World Economic Forum, “For a true circular economy, we must redefine waste”, 2019, [To move to a circular economy, we need to stop recycling | World Economic Forum \(weforum.org\)](https://www.weforum.org/agenda/2019/01/for-a-true-circular-economy-we-must-redefine-waste/); J.M. Leal, S. Pompidou, C. Charbuillet and N. Perry, “Design for and from recycling: A circular codesign approach to improve the circular economy”, Sustainability 12 (23), 2020, <https://doi.org/10.3390/su12239861>; M. Bimpizas-Pinis, E. Bozhinovska, A. Genovese, B. Lowe, M. Pansera, J.P. Alberich and M.J. Ramezankhani, “Is efficiency enough for circular economy?”, Resources, conservation and recycling 167, 2021, <https://doi.org/10.1016/j.resconrec.2021.105399>.

⁴⁸ This does not include exported waste but includes the treatment of waste imported into the EU. The reported amounts are therefore not directly comparable with those on waste generation.; Eurostat, “Waste statistics”, 2021, [Waste statistics - Statistics Explained \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&plugin=1); European Parliament, “Waste management in the EU: infographic with facts and figures”, 2021, [EU waste management: infographic with facts and figures | News | European Parliament \(europa.eu\)](https://www.europarl.europa.eu/media-press/infographics/infographic-waste-management-in-the-eu).

⁴⁹ Art. 3 (17) WFD defines recovery as “‘recovery’ means any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy”. Annex II of the WFD sets out a non-exhaustive list of recovery operations.

⁵⁰ Art. 3 (19) WFD defines disposal as “any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy”. Annex I WFD sets out a non-exhaustive list of disposal operations.

⁵¹ A. Tisserant, S. Pauliuk, Stefan, S. Merciai, J. Schmidt, J. Fry, R. Wood and A. Tukker, “Solid Waste and the Circular Economy: A Global Analysis of Waste Treatment and Waste Footprints”, Journal of industrial ecology 21 (3), 2017, <https://doi-org.kuleuven.e-bronnen.be/10.1111/jiec.12562>.

⁵² Statistics indicate that Belgium and Italy have the highest recycle rates. This includes: recycling, used for backfilling (the use of waste in excavated areas for the purpose of slope reclamation or safety or for engineering purposes in landscaping) or incinerating with energy recovery.; Eurostat, “Waste statistics”, 2021, [Waste statistics - Statistics Explained \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&plugin=1);

⁵³ Art. 3 (17) WFD.

⁵⁴ Eurostat, “Waste statistics”, 2021, [Waste statistics - Statistics Explained \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&plugin=1)

⁵⁵ Eurostat, “Waste statistics”, 2021, [Waste statistics - Statistics Explained \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&plugin=1)

⁵⁶ European Environmental Bureau, “Waste Prevention”, [Waste Prevention - EEB - The European Environmental Bureau](https://www.europeanenvironmental.com/our-work/waste-prevention/).

⁵⁷ Zero Waste Europe, “The case for an integrated Waste prevention Framework: Can the European Union support waste prevention without a proper legislation?”, 2020, [zero waste europe policy-briefing waste prevention framework en.pdf](https://www.zero-waste.europa.eu/wp-content/uploads/2020/06/zero-waste-europe-policy-briefing-waste-prevention-framework-en.pdf)

Timmermans, the Executive Vice-President of the European Commission: *“the goal must be to achieve a paradigm shift from recycling to preventing and minimising waste”*.⁵⁸

Finally, it is interesting to note that the European Commission has taken necessary steps to tackle the declining amount of raw materials and resources as a consequence of Russia’s invasion in Ukraine, through the implementation of the REPowerEU Plan⁵⁹. This plan was deemed necessary for ending the EU’s dependence on Russian fossil fuels and other resources and for tackling the climate crisis. The measures in the REPowerEU Plan respond to this ambition, through energy savings, diversification of energy supplies and accelerated roll-out of renewable energy to replace fossil fuels in homes, industry and power generation. Achieving the REPowerEU goals will require diversifying the supply of renewable energy equipment and of critical raw materials, reducing sectoral dependencies, overcoming supply chain bottlenecks and expanding the EU’s clean energy technology manufacturing capacity. Beyond ensuring suppliers diversification, strengthening circular economy models must be a priority. Under this plan support for research will be provided to reduce materials consumption, however the industry also has a great contribution to make. To enhance this contribution the European Commission:

- *“will set up an EU Solar Industry Alliance;*
- *will work with industry to scale up electrolyser manufacturing capacities, as laid out in the Electrolyser Declaration;*
- *will intensify work on the supply of critical raw materials and prepare a legislative proposal. The Commission will step up ongoing EU policies and actions (e.g. implementation and negotiation of Free Trade Agreements, cooperation with like minded partners, etc.) and reinforce the EU’s monitoring capacity and help secure the supply of diverse critical raw materials. This initiative will aim to strengthen the European value chain through the identification of mineral resources and of critical raw materials projects in the European strategic interest, while ensuring a high level of environmental protection, including projects that promote a circular economy and resource efficiency.”*⁶⁰

The REPowerEU Plan, as part of the green transformation of Europe’s energy system, will strengthen economic growth, reinforce its industrial leadership, and put Europe on a path towards climate neutrality by 2050.

(zerowasteurope.eu); A. Mayer, H. Willi, D. Wiedenhofer, F. Krausmann, P. Nuss and G.A. Blengini, “Measuring Progress towards a Circular Economy: A Monitoring Framework for Economy-Wide Material Loop Closing in the EU28”, *Journal of Industrial Ecology* 23 (1), 2019, <https://doi.org/10.1111/jiec.12809>.

⁵⁸ EndsEurope, “Timmermans: European Green Deal to Include Tougher Action on Plastics”, 2019, [56753 \(endseurope.com\)](https://endseurope.com); S. Virginijus, “Answers to the European Parliament questionnaire to the Commissioner-designate for Environment and Oceans”, [20190927RES62446.pdf \(europa.eu\)](https://eur-lex.europa.eu/20190927RES62446.pdf).

⁵⁹ Communication from the Commission to the European Parliament, European Council, the Council, the European Economic and Social Committee and the Committee of the Regions, ‘REPowerEU Plan’, https://eur-lex.europa.eu/resource.html?uri=cellar:fc930f14-d7ae-11ec-a95f-01aa75ed71a1.0001.02/DOC_1&format=PDF.

⁶⁰ Communication from the Commission to the European Parliament, European Council, the Council, the European Economic and Social Committee and the Committee of the Regions, ‘REPowerEU Plan’, https://eur-lex.europa.eu/resource.html?uri=cellar:fc930f14-d7ae-11ec-a95f-01aa75ed71a1.0001.02/DOC_1&format=PDF, p. 12.

Section 2: The Circular Economy Action Plan (CEAP)

The 2015 Circular Economy Action Plan (hereafter: “CEAP 2015”) aimed to transition the European economy from a linear to a circular model. It mapped out 54 actions, as well as four legislative proposals on waste. All 54 actions were adopted or implemented by 2019, which also resulted in a revision of the WFD in 2018.⁶¹ Moreover, this European initiative also proved to be a catalyst: at least 14 Member States, eight regions, and 11 cities put forward circular economy strategies.⁶²

As the CEAP 2015 targets were fulfilled by 2019, in March 2020 a new CEAP (hereafter: “CEAP 2020”) was presented as part of the European Green Deal⁶³ and EU industrial strategy⁶⁴. CEAP 2020 builds on the achievements of CEAP 2015:

*“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”.*⁶⁵

CEAP 2020 departs from the current linear economic model, *i.e.* based on the “extracting-producing-consuming-disposing” or “take – make – waste” model and make a switch to a circular economy.⁶⁶ The aim is to maintain products, components and raw materials into the economy for

⁶¹ T. Domenech and B. Bahn-Walkowiak, “Transition Towards a Resource Efficient Circular Economy in Europe: Policy Lessons From the EU and the Member States”, *Ecological economics* 155, 2019, <https://doi.org/10.1016/j.ecolecon.2017.11.001>; U. Fric, “Impact of circular economy as the EU’s ambitious policy”, *Research in Social Change* 11 (2), 2019, <https://doi.org/10.2478/rsc-2019-0010>.

⁶² T. Skrinjaric, “Empirical assessment of the circular economy of selected European countries”, *Journal of cleaner production* 255, 2020, <https://doi.org/10.1016/j.jclepro.2020.120246>; European Commission, “Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the implementation of the Circular Economy Action Plan”, 2019, [1 EN ACT part1 v9.docx \(europa.eu\)](https://ec.europa.eu/economy_finance/docs/1_EN_ACT_part1_v9.docx).

⁶³ The EU Green Deal was presented by Ursula von der Leyen on 13 December 2019 and adopted by the European Parliament on 15 January 2020. The European Green Deal is Europe’s climate change strategy for 30 years to come. Therefore, a budget of roughly €1 trillion is foreseen. The goal is to make Europe, as first continent, climate neutral by 2050. It aims to promote growth by transitioning to a modern, resource-efficient and competitive economy. It seeks to prepare the EU economy for a sustainable future.

⁶⁴ The four core themes of the CEAP 2020 are: make sustainable products the norm in the EU, empower consumers, focus on the lifetime of products through a sectoral view and ensure less waste. The main areas of action of this plan are: the eco-design and reparability of products, the use of recycled materials, the substitution of hazardous chemicals, the promotion of the use of recycled materials, the replacement of hazardous chemicals, the promotion of the use of digital technologies for the traceability of resources, the availability of information for consumers and public purchasers, financing and international attention to attention to more sustainable production and consumption patterns and the monitoring of progress.; Euractiv, “EU Commission unveils ‘European Green Deal’: The key points”, 2019, <https://www.euractiv.com/section/energy-environment/news/eu-commission-unveils-european-green-deal-the-key-points/>; European Commission, “Making Europe’s businesses future-ready: A new Industrial Strategy for a globally competitive, green and digital Europe”, 2020, https://ec.europa.eu/commission/presscorner/detail/en/ip_20_416.

⁶⁵ European Commission, “A new Circular Economy Action Plan - For a cleaner and more competitive Europe”, 2020, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0098&from=EN>.

⁶⁶ N. Johansson, “Does the EU’s Action Plan for a Circular Economy Challenge the Linear Economy?”, *Environ. Sci. Technol.* 2021 (55), <https://doi.org/10.1021/acs.est.1c06194>; N. Chaker and S. Mika, “The Circular Economy: Case Studies about the Transition from the Linear Economy”, San Diego: Elsevier Science & Technology, 2019; V. Veleva, G. Bodkin and S. Todorova, “The need for better measurement and employee engagement to advance a circular economy: Lessons from Biogen’s ‘zero waste’ journey”, *Journal of Cleaner Production* 154, 2017, <https://doi.org/10.1016/j.jclepro.2017.03.177>; T. Brydges, “Closing the loop on take, make, waste: Investigating circular economy practices in the Swedish fashion industry”, *Journal of Cleaner Production* 293, 2021, <https://doi.org/10.1016/j.jclepro.2021.126245>; World Economic Forum, “From ‘take, make and waste’ to the circular economy”, 2013, [From ‘take, make and waste’ to the circular economy | World Economic Forum \(weforum.org\)](https://www.weforum.org/publications/From-take-make-and-waste-to-the-circular-economy).

as long as possible, increasing their utility value and limiting the production of waste.⁶⁷ It seeks to promote sustainable consumption and production. By 2030, the goal is to reduce the total waste generation and halve the amount of residual (non-recycled) municipal waste. Chapter 4 of CEAP 2020 (entitled: Less waste, more value) specifies that waste policy is to support waste prevention and circularity.⁶⁸ To achieve these goals, the Commission mainly focusses on making products more sustainable.⁶⁹

The 35 actions included in CEAP 2020 entail the promotion of extended product lifetimes, the increase of re-use and recycling, the promotion of sustainable labelling and sourcing of raw materials.⁷⁰ These key actions will mainly target following product streams: electronics and ICT, batteries and vehicles, packaging, plastics, textiles, construction and buildings, food and water. That is why it is envisaged that the EU is undertaking revisions of legislations regarding following waste streams: the general WFD, batteries⁷¹, end-of-life vehicles⁷², construction products⁷³, industrial emissions and use of hazardous substances in electrical and electronic equipment⁷⁴. These revisions mainly focus on waste prevention (and waste management, *e.g.* increasing the recycled content, promoting safer and cleaner waste streams, and high-quality recycling).⁷⁵ Furthermore, it announced the establishment of a 'right to repair' and strategies for textiles and sustainable built environment. Lastly, the Commission stated that it 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 the WFD⁷⁶.

⁶⁷ European Commission, "A new Circular Economy Action Plan - For a cleaner and more competitive Europe", 2020, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0098&from=EN>; J. Voorter, A. Iurascu, S. Van Grasse, "The concept 'circular economy': towards a more universal definition", *Ius Publicum Network Review* 2, 2022, [Matthias Ruffert \(ius-publicum.com\)](https://www.ius-publicum.com/).

⁶⁸ European Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste, Official Journal L 182, 16/7/1999, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:31999L0031&from=NL>; European Commission, "A new Circular Economy Action Plan - For a cleaner and more competitive Europe", 2020, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0098&from=EN>.

⁶⁹ European Environmental Agency, "Making sustainable products the norm", 2021, [EEB-SPPI-DiscussionPaper-June2021.pdf](https://www.eea.europa.eu/en/press/news/2021/06/01/eeb-sppl-discussion-paper-june-2021).

⁷⁰ European Circular Economy Stakeholder Platform, "Joint statement on the new Circular Economy Action Plan (CEAP) by members of the Coordination Group (CG) of the European Circular Economy Stakeholder Platform: represented by CG Chair Ladeja Godina Košir", 2020, [coordinationgroup-ceap-joint-statement.pdf \(europa.eu\)](https://ec.europa.eu/eip/coordination-group/ceap-joint-statement.pdf).

⁷¹ European Parliament and Council Directive 2006/66/EC, of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC, Official Journal L 266, 26/9/2006, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02006L0066-20131230&rid=1>

⁷² European Parliament and Council Directive 2000/53/EC of 18 September 2000 on end-of life vehicles, Official Journal L 269, 21/10/2000, [EUR-Lex - 32000L0053 - EN \(europa.eu\)](https://eur-lex.europa.eu/legal-content/EN/Lex/32000L0053-EN).

⁷³ European Parliament and Council Regulation 305/2011 of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC, Official Journal L 88/5, L 4/4/2011, [L_2011088EN.01000501.xml \(europa.eu\)](https://eur-lex.europa.eu/legal-content/EN/Lex/2011088EN.01000501.xml).

⁷⁴ European Parliament and Council Directive 2012/19/EU of 4 July 2012 on waste electrical and electronic equipment (WEEE), Official Journal L 197 24/7/2012, [Consolidated TEXT: 32012L0019 — EN — 04.07.2018 \(europa.eu\)](https://eur-lex.europa.eu/legal-content/EN/Lex/32012L0019-EN-04.07.2018).

⁷⁵ This trend is not new. Other legislative initiatives had the same objective, such as: the Single-Use Plastics Directive and the Packaging and Packaging Waste Directive.; European Parliament and Council Directive 2019/904 of 5 June 2019 on the reduction of the impact of certain plastic products on the environment, L 155, 12/6/2019, [L_2019155EN.01000101.xml \(europa.eu\)](https://eur-lex.europa.eu/legal-content/EN/Lex/2019155EN.01000101.xml); European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste, Official Journal L 365 31.12.1994, [Consolidated TEXT: 31994L0062 — EN — 26.05.2015 \(europa.eu\)](https://eur-lex.europa.eu/legal-content/EN/Lex/31994L0062-EN-26.05.2015).

⁷⁶ European Parliament and Council Directive 2008/98/EC of 19 November 2008 on waste and repealing certain Directives, Official Journal L 312, 22/11/2008, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32008L0098&from=EN>.

Section 3: Revision of the Waste Framework Directive

EU waste legislation has led to significant improvements in waste management since the 1970s.⁷⁷ Today, the core of waste management and prevention lies in the WFD. The current WFD was first introduced in 2008 by the European Commission under José Manuel Barroso. Since its adoption, it has been amended four times (lastly in 2018).⁷⁸

The WFD sets out measures to tackle the negative effects of waste generation and management on the environment and human health, and to improve the efficient use of resources crucial to the transition to a circular economy. It obliges Member States to determine waste measures that deliver the best environmental outcome.⁷⁹

As explained before, the waste hierarchy prioritises waste prevention. However, this priority given to waste prevention is currently not adequately reflected in terms of binding waste prevention measures and targets in the WFD. The majority of the binding measures and targets included in the WFD concern recycling and not prevention.⁸⁰ The WFD includes targets for recycling and preparing for re-use of municipal waste.⁸¹ The landfill directive sets targets for the landfilling of municipal waste.

As announced in the CEAP 2020, the European Commission would launch a proposal to revise the WFD in Q2 of 2023, because the current WFD has *“insufficient contribution to the circular economy and to the protection of the environment”*.⁸² As outlined above, a revision of the WFD is crucial in transposing the goals set by the CEAP 2020 and should aim to address the (i) non-declining waste generation, (ii) stagnating recycling rates and the fact that recyclable waste is often going towards energy recovery and disposal instead of being re-used or recycled. Furthermore, the Directorate-General for Environment communicated that the revision would aim to improve and promote (iii) treatment of waste high up the waste hierarchy; (iv) separating waste collection to yield optimal

⁷⁷ European Environmental Agency, “Chapter 36: Waste production and management — The problem”, 2020, [36. Waste Production and Management — European Environment Agency \(europa.eu\)](#). The European Community Strategy for Waste Management (resolution was published on 24 February 1997 Management (OJ C 76/1 of 11.3.1997); First published as a Commission Communication to Council SEC (89) 934 Final, and latest version as revised and endorsed under Council Resolution of 24 on a Community Strategy for Waste

⁷⁸ More specifically, it has been amended in 2014 (Commission Regulation (EU) 1357/2014 of 18 December 2014), 2015 (Commission Directive (EU) 2015/1127 Text with EEA relevance of 10 July 2015), 2017 (Council Regulation (EU) 2017/997 of 8 June 2017) and in 2018 (Directive (EU) 2018/851 of the European Parliament and of the Council Text with EEA relevance of 30 May 2018). Furthermore it has been corrected (by a corrigendum) in 2015 and 2017.

⁷⁹ Art. 4 (2) WFD.

⁸⁰ B.V. Elsevier, “Quantification of material recovery from meat waste incineration – An approach to an updated food waste hierarchy”, *Journal of hazardous materials* 2021 (416), <https://doi.org/10.1016/j.jhazmat.2021.126021>; A. Eguez, “Compliance with the EU waste hierarchy: A matter of stringency, enforcement, and time”, *Journal of environmental management* 2021 (280), <https://doi.org/10.1016/j.jenvman.2020.111672>.

⁸¹ In total, in all EU regulation includes more than 30 binding targets for the period 2015-2030.

⁸² European Organization for Packaging and the Environment, “The Waste Framework Directive review is in motion”, 2022, [The Waste Framework Directive review is in motion | EUROPEN \(europen-packaging.eu\)](#); European Commission, “A new Circular Economy Action Plan - For a cleaner and more competitive Europe”, 2020, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0098&from=EN>.

recycling results (including harmonised waste collection systems); (v) improve better use of secondary raw materials (by stimulating an internal market for secondary materials); (vi) ensure Extended Producer Responsibility schemes that fully implement the ‘polluter pays principle’; and (vii) increasing the amounts of waste oils collected and treated in line with the waste hierarchy.⁸³

The objectives of the revision were therefore to address existing performance problems to meet the targets set in CEAP 2020.⁸⁴ Although it was initially announced that the revision would focus extensively on waste prevention, the scope of the revision has been narrowed. In its 2023 work programme, the European Commission stated that as far as the revision of the WFD is concerned, it will mainly focus on textiles and food waste reduction⁸⁵:

“In 2023, we will take action to reduce waste and the environmental impact of waste, with a focus on food and textile waste, a topic identified during the Conference on the Future of Europe. Some 20% of all food produced in the EU is wasted, depleting natural resources, undermining ecosystems and contributing to greenhouse gas emissions. To tackle this, we will take measures including food waste reduction targets. With around 11 kilograms of textiles per person per year being discarded in the EU, we will also act to improve textile recycling and ensure that producers bear greater responsibility for waste treatment.

We will set up a comprehensive framework for sustainable food systems in the EU, to make sustainability central to all food-related policies. We will overhaul the EU’s animal welfare laws to broaden their scope and ensure a higher level of animal welfare. This responds to the recommendations of the Conference on the Future of Europe and the European Citizens’ Initiative, ‘End the Cage Age’.”

The narrowed scope of the revision of the WFD does not alter the fact, however, that the message to the European Commission remains important that there is an urgent need to focus on prevention in all waste and product streams, as ‘prevention of waste’ is set at the top of the waste hierarchy established by the EU itself.

Section 4: Scope of the study

This study provides recommendations for a revision of the WFD to implement an effective and binding European waste prevention policy. It should be noted that the scope of this study is limited to waste prevention measures to be included in the WFD. Consequently, it does not cover *e.g.* waste management measures such as repair or remanufacturing, although these techniques have the

⁸³ Directorate-General Environment Unit B3, “Policy agenda on waste prevention: Workshop on waste prevention”, 2022, [Eionet Webinar 7 June 22 - Presentation DG ENV.pdf](#); European Commission, “Call for evidence for an impact assessment: Environmental impact of waste management – revision of EU waste framework”, 2022, [Environmental impact of waste management – revision of EU waste framework \(europa.eu\)](#) and [090166e5e774a270.pdf](#).

⁸⁴ European Environmental Agency and European Topic Centre on Circular Economy and Resource Use, “Tracking Waste Prevention Progress: Developing a monitoring framework at the EU level: Summary report of the expert workshop”, 2022, [Summary report - Waste prevention webinar - 7 June 2022.pdf](#).

⁸⁵ European Commission, ‘Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, “Commission work programme 2023”, 2022, https://commission.europa.eu/system/files/2022-10/com_2022_548_3_en.pdf.

capacity to increase the value of products and ensure that they are used until the actual end of their life.

Prevention can be pursued in different ways and consists mainly out of three components:

- (i) by extending a product's life through better design (durability, repair, and upgrade of products);
- (ii) by preventing waste at the source in manufacturing, construction, and commercial operations (process improvement and efficiency);
- (iii) by alternative consumption and production patterns which promote sharing, re-use, and preparing for re-use (including refurbishment and remanufacture) activities.⁸⁶

Furthermore, as described in the waste prevention definition of the WFD, measures to reduce (iv) hazardous substances in materials and products and (v) the adverse impacts of the generated waste on the environment and human health are also considered waste prevention measures.

The WFD is not the only European legislation with waste prevention measures. The so-called 'waste streams legislations' also focus on prevention measures. Product-specific legislation can respond to the needs of the market in a more efficient manner.⁸⁷ This study examined the prevention measures included in four waste stream legislations/initiatives (Food, Textile, Electrical and Electronic Equipment and Plastics) to support the recommendations for amendment of the WFD.

Section 5: Methodology and structure

Chapter 1 to 3 contain the result of a desk research (*i.e.* literature review), consisting of an analysis of existing literature on waste prevention. Chapter 1 to 3 seek to inform the reader of the main concepts and leading ideas on waste prevention, circular economy and the related EU legislation. In this first part, the descriptive, explanatory, comparative and evaluative method was applied. Chapters 1 to 3 serve as a basis for the legislative proposals in Chapter 4.

To complement the findings in the literature analysis, interviews were conducted with several waste regulation experts. The experts provided insights on the efficiency of the current waste prevention measures included in the WFD as well as the implementation of these measures in Member States and shared their views on possible amendments of these measures.⁸⁸

The following experts were interviewed:

- **ZeroWasteEurope:** Nathan Dufour and Theresa Mörsen (12 May 2022)
- **European Environmental Bureau (EEB):** Piotr Barczak (16 May 2022)
- **OECD:** Maarten Dubois (17 May 2022)
- **Systemiq:** Bertram Kloss (23 May 2022)

⁸⁶ B. Karigl, C. Neubauer, U. Kral, U. Tesar, F. Montevecchi, Francesca, "Scoping study to assess the feasibility of further EU measures on waste prevention", Luxembourg: Publications Office, 2022, [KH0722209ENN.en.pdf](#); J. Potting, M. Hekkert, E. Worrell and A. Hanemaaijer, "Circular Economy: Measuring innovation in the product chain", PBL Netherlands Environmental Assessment Agency, 2017, [pbl-2016-circular-economy-measuring-innovation-in-product-chains-2544.pdf](#).

⁸⁷ European Commission, "Waste Law", [Waste law \(europa.eu\)](#).

⁸⁸ K. Riesenhuber, "European legal methodology", Cambridge : Intersentia, 2021; L. Kestemont, "Handbook on legal methodology: from objective to method", Cambridge : Intersentia, 2018; J. Baeck, "Rechtsmethodologie", Brugge: Die Keure, 2019

- **European Environment Agency:** Sanna Due (1 June 2022)
- **Dutch Ministry of Infrastructure and Environment:** Steffen van der Velde and John Tieman (8 June 2022)

The following stakeholders were present at the stakeholder workshop on 7 December 2022, organised and facilitated by Deloitte Legal:

- **OVAM:** Anne D’Haese, Sofie Bouteligier
- **Circular Flanders:** Thierry Van Eekelen, Brigitte Mouligneau
- **Agora:** Patrick van Den Bossche
- **Denuo:** Aarnout Ecker
- **KULeuven:** Christopher Borucki
- **VOKA:** Katelijne Haspeslagh
- **Bond Beter Leefmilieu:** Nina Maat

Chapter 1 outlines the introduction and context of the study. Chapter 2 elaborates on the waste prevention provisions of the WFD, highlighting Articles 8, 9 and 29 WFD. Chapter 3 examines how waste stream specific regulations deal with waste prevention. Building further on Chapters 1 to 3, Chapter 4 contains recommendations to strengthen waste prevention measures in the WFD.

Chapter 2: Waste Framework Directive

Section 1: Introduction

On 20 November 2008, the European Parliament and the Council adopted Directive 2008/98/EC on waste and repealing certain Directives, i.e. WFD.⁸⁹ It repealed the “old” Framework Directive (Directive 2006/12/EC) and incorporated and repealed the Hazardous Waste Directive (Directive 91/689/EEC) and the Waste Oil Directive (Directive 75/439/EEC). The WFD was published on 22 November 2008 and entered into force on 12 December 2008. It has been revised four times, lastly in 2018 (Directive 2018/851).⁹⁰ In order to modernise waste management systems in the EU, a revised WFD entered into force in July 2018.

The WFD contains the general waste management principles to be applied by Member States. It requires for example that waste should be managed without endangering human health and harming the environment, without risk to water, air, soil, plants or animals, without causing a nuisance through noise or odours and without adversely affecting the countryside or places of special interest. Furthermore, the WFD includes mandatory recycling rates at Member State level, simplification and harmonisation of definitions and calculation methods and clarified legal status for recycled materials and by-products, reinforced rules and new obligations on separate collection (bio-waste, textiles and hazardous waste produced by households, construction and demolition waste), minimum requirements for Extended Producer Responsibility, strengthened waste prevention and waste management measures, including for marine litter, food waste, and products containing critical raw materials.

Section 2: Waste prevention in the WFD

Section 2 of this chapter first highlights the definitions of “waste” and “waste prevention” and subsequently provides an overview of the waste prevention measures currently included in the WFD.

⁸⁹ European Parliament and Council Directive 2008/98/EC of 19 November 2008 on waste and repealing certain Directives, Official Journal L 312, 22/11/2008, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32008L0098&from=EN>.

⁹⁰ More specifically, it has been amended in 2014 (Commission Regulation (EU) 1357/2014 of 18 December 2014), 2015 (Commission Directive (EU) 2015/1127 Text with EEA relevance of 10 July 2015), 2017 (Council Regulation (EU) 2017/997 of 8 June 2017) and in 2018 (Directive (EU) 2018/851 of the European Parliament and of the Council Text with EEA relevance of 30 May 2018). Furthermore it has been corrected (by a corrigendum) in 2015 and 2017.

Subsection 1: Definition of Waste

The WFD defines “waste” in Article 3 (1) WFD as “*any substance or object which the holder discards or intends or is required to discard*”.⁹¹

The case law of the European Court of Justice (hereafter: “ECJ”) on the definition of waste demonstrates that the term “waste” must be interpreted in a broad sense.⁹² The ECJ highlights that the key element in the interpretation of the definition is the behaviour of the holder of the substances.⁹³ If waste can be re-used after it was discarded, must be discarded or was intended to be discarded it does not automatically lose its qualification of waste.⁹⁴ The term ‘discarding’ entails both the ‘useful application’ and the ‘disposal’ of a substance or object.⁹⁵ Again, when it is established that an object or substance has no use to the holder the object or substance falls within the notion of waste.⁹⁶ It must be emphasised that the assessment of whether a substance is waste depends on factual circumstances, and that the actual interpretation is based on a case-by-case analysis.

Subsection 2: Definition and interpretation of Waste prevention

The WFD defines “waste prevention” in Article 3 (12) as: “*measures taken before a substance, material or product has become waste, that reduce: (a) the quantity of waste, including through the re-use of products or the extension of the life span of products; (b) the adverse impacts of the generated waste on the environment and human health; or (c) the content of hazardous substances in materials and products*”⁹⁷.

Following the adoption of the WFD, the European Commission established guidelines on how to interpret the provisions laid down in the Directive, i.e. the ‘*Guidelines on the interpretation of key provisions of Directive 2008/98/EC on waste*’ (hereafter: the “Guidelines”).⁹⁸ Even though the Guidelines are not legally binding, they provide guidance to Member States for the implementation of the waste management measures into national law.

The Guidelines refer to the definition of waste prevention laid down in Article 3 (12) of the WFD and give additional clarification on its scope.⁹⁹ According to the guidelines, a distinction must be made between quantitative and qualitative waste prevention.¹⁰⁰ Quantitative waste prevention entails the reduction of the amounts of waste, whereas qualitative waste prevention concerns reducing

⁹¹ Art. 3 (1) WFD.

⁹² ECJ 15 June 2000, C-418/97 and C-419/97, ARCO Chemie Nederland Ltd; ECJ 18 April 2002, C-9/00, Palin Granit Oy.

⁹³ ECJ 24 June 2008, C-188/07, Commune de Mesquer; ECJ 18 December 2007, C-263/05, Commission/Italy and ECJ 11 November 2004, C-457-02, Niselli.

⁹⁴ ECJ 28 March 1990, C-359/88, Zanei and others.

⁹⁵ ECJ 12 December 2013, C-241/12 and C-242/12, Shell Nederland Verkoopmaatschappij BV and Belgian Shell.

⁹⁶ ECJ 18 April 2002, C-9/00, Palin Granit Oy.

⁹⁷ Art. 1 (12) WFD.

⁹⁸ European Commission, “Guidelines on the interpretation of key provisions of Directive 2008/98/EC on waste”, 2012, [Table of Contents \(europa.eu\)](#).

⁹⁹ Art. 3 (12) WFD.

¹⁰⁰ European Commission, “Guidelines on the interpretation of key provisions of Directive 2008/98/EC on waste”, 2012, [Table of Contents \(europa.eu\)](#).

the presence of harmful substances in materials and products. Prevention is not a waste management operation because it concerns substances or objects before they become waste. Consequently, obligations arising from waste management legislation (permits and registration, inspections, requirements for transfrontier shipments) do not apply.¹⁰¹

In the Guidelines, the European Commission clearly states that re-use is considered to be a prevention measure, not a waste-management operation.¹⁰² Re-use is defined in Article 3 (13) of the WFD as *“any operation by which products or components that are not waste are used for the same purpose for which they were conceived”*¹⁰³. Re-use is a situation where the original owner of a functioning product is no longer in need of the product in question and transfers it to a new owner, who then actively uses it.¹⁰⁴ This transfer is considered a form of waste prevention, since the product is not waste (as defined in Article 3 (1) WFD) at any time. Three Member States/regions have so far set (binding) targets for re-use of products: Flanders (Belgium), France and Spain.¹⁰⁵

Re-use is different from ‘preparing for re-use’ and ‘recovery’. Products that are ‘prepared for re-use’ or ‘recovered’ are considered waste under the WFD and consequently fall outside the scope of waste prevention. Article 3 (16) defines preparing for re-use as *“checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so they can be re-used without any other pre-processing”*¹⁰⁶. As such, the Commission argues that preparing for re-use is a specific case of recovery. Recovery is defined as *“any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy. Annex II sets out a non-exhaustive list of recovery operations”*¹⁰⁷.

Waste prevention encompasses all actions that prevent products, substances or materials from becoming waste. It can be achieved by quantitative waste prevention¹⁰⁸, qualitative waste

¹⁰¹ European Commission, “Guidelines on the interpretation of key provisions of Directive 2008/98/EC on waste”, 2012, [Table of Contents \(europa.eu\)](#).

¹⁰² Re-use has a key role in waste prevention through offsetting the production of new products, resulting in environmental gains. Re-use is high on the political agenda and can contain a very broad spectrum of measures: from an individual sale at flea markets to organised waste management.

¹⁰³ Art. 3 (13) WFD.

¹⁰⁴ An example of re-use: a person gives or sells an item of clothing to another individual. This ‘transaction’ contains all the conditions for re-use: (i) the item is given a second life because it is not thrown away, (ii) the item changes ownership with a view or intention of being re-used for its original purpose, (iii) the re-use operations does not need to be accompanied by a monetary transaction, but it can be. Another good example of re-use is when someone takes over a piece of clothing directly, gives it a second life without throwing it away, from the owner with the intention of re-using it for its original purpose and not let it enter the waste management system. Other examples of re-use are: supporting the establishment of re-use centres and markets for used building materials, providing information on opportunities for re-use, implementing an information and experience exchange platform for re-use, organising campaigns to encourage re-use, establishing procurement guidelines that facilitate re-use, setting specific mandatory quotas for re-used products, develop action plans to achieve more efficient re-use, set up of more re-use centres, cooperation with other organisations and networks of repair cafes, etc.

¹⁰⁵ European Environmental Agency, “Progress towards preventing waste in Europe – the case of textile waste prevention”, EEA Report No 15/2021, 2021, [THAL21017ENN.en \(1\).pdf](#).

¹⁰⁶ Art. 3 (16) WFD.

¹⁰⁷ Art. 3 (15) WFD.

¹⁰⁸ Quantitative waste prevention is the reduction of the amount of waste and the quantity of materials used in products (e.g., ecodesign).

prevention¹⁰⁹, increasing the efficiency with which products are used (e.g., sharing products instead of purchasing) or extending the lifespans of products.

Annex IV: non-binding examples

Annex IV WFD also lists examples or measures for the Member States to incorporate in their waste prevention programmes (hereafter: “WPP”). These measures are:

Measures that can affect the framework conditions related to the generation of waste:

1. The use of planning measures, or other economic instruments promoting the efficient use of resources.
2. The promotion of research and development into the area of achieving cleaner and less wasteful products and technologies and the dissemination and use of the results of such research and development.
3. The development of effective and meaningful indicators of the environmental pressures associated with the generation of waste aimed at contributing to the prevention of waste generation at all levels, from product comparisons at Community level through action by local authorities to national measures.

Measures that can affect the design and production and distribution phase:

4. The promotion of eco-design (the systematic integration of environmental aspects into product design with the aim to improve the environmental performance of the product throughout its whole life cycle).
5. The provision of information on waste prevention techniques with a view to facilitating the implementation of best available techniques by industry.
6. Organise training of competent authorities as regards the insertion of waste prevention requirements in permits under this Directive and Directive 96/61/EC.
7. The inclusion of measures to prevent waste production at installations not falling under Directive 96/61/EC. Where appropriate, such measures could include waste prevention assessments or plans.
8. The use of awareness campaigns or the provision of financial, decision making or other support to businesses. Such measures are likely to be particularly effective where they are aimed at, and adapted to, small and medium sized enterprises and work through established business networks.
9. The use of voluntary agreements, consumer/producer panels or sectoral negotiations in order that the relevant businesses or industrial sectors set their own waste prevention plans or objectives or correct wasteful products or packaging.
10. The promotion of credible environmental management systems, including EMAS and ISO 14001.

¹⁰⁹ Qualitative waste prevention is the reduction of the content of harmful substances in materials and products.

Measures that can affect the consumption and use phase:

11. Economic instruments such as incentives for clean purchases or the institution of an obligatory payment by consumers for a given article or element of packaging that would otherwise be provided free of charge.
12. The use of awareness campaigns and information provision directed at the general public or a specific set of consumers.
13. The promotion of creditable eco-labels.
14. Agreements with industry, such as the use of product panels such as those being carried out within the framework of Integrated Product Policies or with retailers on the availability of waste prevention information and products with a lower environmental impact.
15. In the context of public and corporate procurement, the integration of environmental and waste prevention criteria into calls for tenders and contracts, in line with the Handbook on environmental public procurement published by the Commission on 29 October 2004.
16. The promotion of the re-use and/or repair of appropriate discarded products or of their components, notably through the use of educational, economic, logistic or other measures such as support to or establishment of accredited repair and re-use-centres and networks especially in densely populated regions.

Subsection 3: Waste prevention measures in the WFD

Even though the WFD does not contain an extensive set of provisions laying down principles regarding waste prevention, it does contain a few key provisions compelling Member States to take certain measures in order to prevent waste generation.

An overview of the Articles in the WFD that deal with waste prevention is presented below in the green frame. Subsequently, the key provisions of the WFD will be discussed in more detail, more specifically Article 9, 29 and 8 WFD. Subsection 3.1: Article 9: Prevention of waste

Article 9: Prevention of waste

Article 9 WFD: Prevention of waste	<ol style="list-style-type: none">1. Member States shall take measures to prevent waste generation. Those measures shall, at least:<ol style="list-style-type: none">(a) promote and support sustainable production and consumption models;(b) encourage the design, manufacturing and use of products that are resource-efficient, durable (including in terms of life span and absence of planned obsolescence), repairable, re-usable and upgradable;
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(c) target products containing critical raw materials to prevent that those materials become waste;

(d) encourage the re-use of products and the setting up of systems promoting repair and re-use activities, including in particular for electrical and electronic equipment, textiles and furniture, as well as packaging and construction materials and products;

(e) encourage, as appropriate and without prejudice to intellectual property rights, the availability of spare parts, instruction manuals, technical information, or other instruments, equipment or software enabling the repair and re-use of products without compromising their quality and safety;

(f) reduce waste generation in processes related to industrial production, extraction of minerals, manufacturing, construction and demolition, taking into account best available techniques;

(g) reduce the generation of food waste in primary production, in processing and manufacturing, in retail and other distribution of food, in restaurants and food services as well as in households as a contribution to the United Nations Sustainable Development Goal to reduce by 50 % the per capita global food waste at the retail and consumer levels and to reduce food losses along production and supply chains by 2030;

(h) encourage food donation and other redistribution for human consumption, prioritising human use over animal feed and the reprocessing into non-food products;

(i) promote the reduction of the content of hazardous substances in materials and products, without prejudice to harmonised legal requirements concerning those materials and products laid down at Union level, and ensure that any supplier of an article as defined in point 33 of Article 3 of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (1) provides the information pursuant to Article 33(1) of that Regulation to the European Chemicals Agency as from 5 January 2021;

(j) reduce the generation of waste, in particular waste that is not suitable for preparing for re-use or recycling;

(k) identify products that are the main sources of littering, notably in natural and marine environments, and take appropriate measures to prevent and reduce litter from such products; where Member States decide to implement this obligation through market restrictions, they shall ensure that such restrictions are proportionate and non-discriminatory;

(l) aim to halt the generation of marine litter as a contribution towards the United Nations Sustainable Development Goal to prevent and significantly reduce marine pollution of all kinds; and

(m) develop and support information campaigns to raise awareness about waste prevention and littering.

2. The European Chemicals Agency shall establish a database for the data to be submitted to it pursuant to point (i) of paragraph 1 by 5 January 2020 and maintain it. The European Chemicals Agency shall provide access to that database to waste treatment operators. It shall also provide access to that database to consumers upon request.

3. Member States shall monitor and assess the implementation of the waste prevention measures. For that purpose, they shall use appropriate qualitative or quantitative indicators and targets, notably on the quantity of waste that is generated.

4. Member States shall monitor and assess the implementation of their measures on re-use by measuring re-use on the basis of the common methodology established by the implementing act referred to in paragraph 7, as from the first full calendar year after the adoption of that implementing act.

5. Member States shall monitor and assess the implementation of their food waste prevention measures by measuring the levels of food waste on the basis of the methodology established by the delegated act referred to in paragraph 8, as from the first full calendar year after the adoption of that delegated act.

6. By 31 December 2023, the Commission shall examine the data on food waste provided by Member States in accordance with Article 37(3) with a view to considering the feasibility of

establishing a Union-wide food waste reduction target to be met by 2030 on the basis of the data reported by Member States in accordance with the common methodology established pursuant to paragraph 8 of this Article. To that end, the Commission shall submit a report to the European Parliament and to the Council, accompanied, if appropriate, by a legislative proposal.

7. The Commission shall adopt implementing acts to establish indicators to measure the overall progress in the implementation of waste prevention measures and shall, by 31 March 2019, adopt an implementing act to establish a common methodology to report on re-use of products. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 39(2).

8. By 31 March 2019, the Commission shall adopt, on the basis of the outcome of the work of the EU Platform on Food Losses and Food Waste, a delegated act in accordance with Article 38a to supplement this Directive by establishing a common methodology and minimum quality requirements for the uniform measurement of levels of food waste.

9. By 31 December 2024, the Commission shall examine data on re-use provided by Member States in accordance with Article 37(3) with a view to considering the feasibility of measures to encourage the re-use of products, including the setting of quantitative targets. The Commission shall also examine the feasibility of setting other waste prevention measures, including waste reduction targets. To that end, the Commission shall submit a report to the European Parliament and to the Council, accompanied, if appropriate, by a legislative proposal.

Article 9 WFD lays down the general obligation for Member States to take measures in order to prevent waste generation. In addition, it imposes Member States to implement at least the waste prevention measures included in the first paragraph of Article 9. These measures encourage re-use as part of the WPP of the Member States. They range from the promotion and support of sustainable production and consumption to the encouragement of re-use of products. The first paragraph also contains obligations for specific waste streams such as food.

Member States must monitor and assess the implementation of their waste prevention measures. For that purpose, they must use appropriate qualitative or quantitative indicators and targets. The priority and emphasis lies on the quantity of waste that is generated.

The implementation of the re-use measures must be measured¹¹⁰, monitored, reported and assessed by the Member States in accordance with the ‘*Methodology for the reporting of re-use of products and rules for the reporting of reusable packaging*’ and the implementing decision of 18 December 2020¹¹¹, established by the European Commission.¹¹² Member States must annually report on the data on re-use and at least every third year on re-use for a given product category.¹¹³ The reporting is limited to products that are most relevant for waste prevention and environmental gains.

Article 9 (5) WFD obliges Member States to implement food waste measures. These must be monitored via the methodology and minimum quality requirements for the uniform measurement of levels of food waste of 3 May 2019.¹¹⁴ By 31 December 2023, the Commission must also examine the data on food waste provided by Member States with a view to considering the feasibility of establishing a Union-wide food waste reduction target to be met by 2030.

The European Commission further commits to the task of “*considering the feasibility of measures to encourage the re-use of products, including the setting of quantitative targets*” by 31 December 2024.¹¹⁵ In light of this, the WFD stated the European Commission would examine the data on reusable packaging provided by Member States in accordance with Article 12 and Annex III with a view to considering the feasibility of setting quantitative targets on re-use of packaging, including the calculation rules, and any further measures to promote re-use of packaging.¹¹⁶ This was confirmed by the recent Proposal for a revision of EU Regulation on Packaging and Packaging Waste¹¹⁷, as Article 26 of the proposal, for example, lays down several re-use and refill targets applicable to specific types of packaging waste.

¹¹⁰ In the preamble the European Commission acknowledges that there are “limitations to and difficulties in collecting data on re-use due to the broad scope of product categories, the fact that measurement of re-use is a novel exercise and the administrative burdens associated with the collection of data on re-use, the common methodology for measuring and the format for reporting should be proportional, appropriate and cost efficient”. Therefore, the methodology of the Commission allows for the use of a variety of data gathering tools to measure re-use.

¹¹¹ European Commission, “Decisions Commission implementing decision (EU) 2021/19 of 18 December 2020 laying down a common methodology and a format for reporting on re-use in accordance with Directive 2008/98/EC of the European Parliament and of the Council”, L 10/1, 12/1/2021, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021D0019&from=EN>.

¹¹² European Commission, Methodology for the reporting of re-use of products and rules for the reporting of reusable packaging”, [KH0219923ENN.en.pdf](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021D0019&from=EN).

¹¹³ Art. 37 (3) WFD; The preamble states that “*in order for the measuring and reporting to be as accurate as possible, double counting of products should be avoided. Only the products that are actually being re-used should be counted. Products that are merely offered for re-use, such as products that are donated to re-use operators and other products for which re-use is not certain, should not be included in re-use measured and reported to the Commission*”.

¹¹⁴ European Commission, “Commission Delegated Decision (EU) 2019/1597 of 3 May 2019 supplementing Directive 2008/98/EC of the European Parliament and of the Council as regards a common methodology and minimum quality requirements for the uniform measurement of levels of food waste”, L 248/77, 27/9/2019, [COMMISSION DELEGATED DECISION \(EU\) 2019/ 1597 - of 3 May 2019 - supplementing Directive 2008/ 98/ EC of the European Parliament and of the Council as regards a common methodology and minimum quality requirements for the uniform measurement of levels of food waste \(europa.eu\)](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D1597&from=EN).

¹¹⁵ Art. 9 (5) and (8) WFD.

¹¹⁶ Art. 5 European Parliament and the Council Directive of 30 May 2018 amending Directive 94/62/EC on packaging and packaging waste, L 150/141, 14/6/2018, [L 2018150EN.01014101.xml \(europa.eu\)](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L150&from=EN).

¹¹⁷ Proposal for a European Parliament and Council Regulation on packaging and packaging waste, amending Regulation (EU) 2019/1020 and Directive (EU) 2019/904, and repealing Directive 94/62/EC, <https://environment.ec.europa.eu/system/files/2022-11/Proposal%20for%20a%20Regulation%20on%20packaging%20and%20packaging%20waste.pdf>.

Article 29: Waste prevention programmes

Article 29 WFD: **Waste prevention programmes**

1. Member States shall establish waste prevention programmes setting out at least the waste prevention measures as laid down in Article 9(1) in accordance with Articles 1 and 4. Such programmes shall be integrated either into the waste management plans required under Article 28 or into other environmental policy programmes, as appropriate, or shall function as separate programmes. If any such programme is integrated into the waste management plan or into those other programmes, the waste prevention objectives and measures shall be clearly identified. 2. When establishing such programmes, Member States shall, where relevant, describe the contribution of instruments and measures listed in Annex IVa to waste prevention and shall evaluate the usefulness of the examples of measures indicated in Annex IV or other appropriate measures. The programmes shall also describe existing waste prevention measures and their contribution to waste prevention.

The aim of such objectives and measures shall be to break the link between economic growth and the environmental impacts associated with the generation of waste.

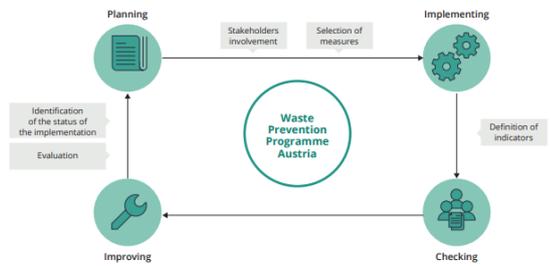
2a. Member States shall adopt specific food waste prevention programmes within their waste prevention programmes.

5. The Commission shall create a system for sharing information on best practice regarding waste prevention and shall develop guidelines in order to assist the Member States in the preparation of the Programmes.

<p>Article 30: Evaluation and review of plans and programmes</p>	<p>1. Member States shall ensure that the waste management plans and waste prevention programmes are evaluated at least every sixth year and revised as appropriate and, where relevant, in accordance with Articles 9 and 11.</p> <p>2. The European Environment Agency shall publish, every two years, a report containing a review of the progress made in the completion and implementation of waste prevention programmes, including an assessment of the evolution as regards the prevention of waste generation for each Member State and for the Union as a whole, and as regards the decoupling of waste generation from economic growth and the transition towards a circular economy.</p>
<p>Article 31: Public participation</p>	<p>Member States shall ensure that relevant stakeholders and authorities and the general public have the opportunity to participate in the elaboration of the waste management plans and waste prevention programmes, and have access to them once elaborated, in accordance with Directive 2003/35/EC or, if relevant, Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment (1). They shall place the plans and programmes on a publicly available website.</p>
<p>Article 32: Cooperation</p>	<p>Member States shall cooperate as appropriate with the other Member States concerned and the Commission to draw up the waste management plans and the waste prevention programmes in accordance with Articles 28 and 29.</p>
<p>Article 33: Information to be submitted to the Commission</p>	<p>1. Member States shall inform the Commission of the waste management plans and waste prevention programmes referred to in Articles 28 and 29, once adopted, and of any substantial revisions to the plans and programmes.</p> <p>The Commission shall adopt implementing acts to establish the format for notifying the information on the adoption and substantial revisions of the waste management plans and the waste prevention programmes. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 39(2).</p>

<p>Article 38: Exchange of information and sharing of best practices, interpretation and adaptation to technical progress</p>	<p>1. The Commission shall organise a regular exchange of information and sharing of best practices among Member States, including, where appropriate, with regional and local authorities, on the practical implementation and enforcement of the requirements of this Directive, including on:</p> <p>[...]</p> <p>(g) prevention and the setting up of systems which promote re-use activities and the extension of life span.</p> <p>[...]</p> <p>2. The Commission may develop guidelines for the interpretation of the requirements set out in this Directive, including on the definition of waste, prevention, re-use, preparing for re-use, recovery, recycling, disposal, and on the application of the calculation rules set out in Article 11a.</p> <p>[...]</p>
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Article 29 WFD requires Member States (and regional entities) to establish WPPs.¹¹⁸ The EEA is, in accordance with Article 30 (2) of the Directive, designated to evaluate these programmes. These programmes can be integrated in the waste management plans, in any other environmental policy programmes or established as separate programmes. They must be evaluated and revised at least every six years, or in the event of a legislative change. In addition, Article 29 WFD contains the following requirements:



- (i) The WPPs must at least contain the waste prevention measures laid down in Article 9 (1) WFD;
- (ii) the waste prevention objectives and measures set out in the WPPs must be clearly identified¹¹⁹; and
- (iii) Member States must adopt specific WPPs

¹¹⁸ The WFD required Member States to draw up WPPs by December 2013. Most Member States planned to issue a new WPP in 2019, six years after their first publication obligation. When the revised WFD (2018) was adopted, many Member States did not meet this deadline. New strategies were elaborated at national level to meet the new European requirements.

¹¹⁹ Art. 29 (2), second paragraph emphasises that “the aim of such objectives and measures (be to break the link between economic growth and the environmental impacts associated with the generation of waste”.

within their WPPs. The Waste Prevention Guidelines of the European Commission (2012) state that a comprehensive WPP “comprises the whole economy, all material flows and products used by a nation, from their respective cradles to their discarding”. Generally, WPPs are based on a framework that includes objectives, targets and indicators linking to national efforts to prevent waste. Relevant content, effectiveness of implementations, efficiency of implemented measures and consistency of the WPP elements with the requirements stemming from other policy areas, are essential in a WPP.¹²⁰ Quantitative¹²¹ and qualitative¹²² waste prevention targets and WPP indicators and benchmarks¹²³.

In 2021 the EEA, in cooperation with Eionet, introduced new guidelines for evaluating WPPs.¹²⁴ These guidelines provide practical advice and highlighting case studies to help Member States evaluate the relevance, effectiveness and efficiency of programmes.¹²⁵ A graphic overview:

¹²⁰ European Commission, “Guidelines on the interpretation of key provisions of Directive 2008/98/EC on waste”, 2012, [Table of Contents \(europa.eu\)](#).

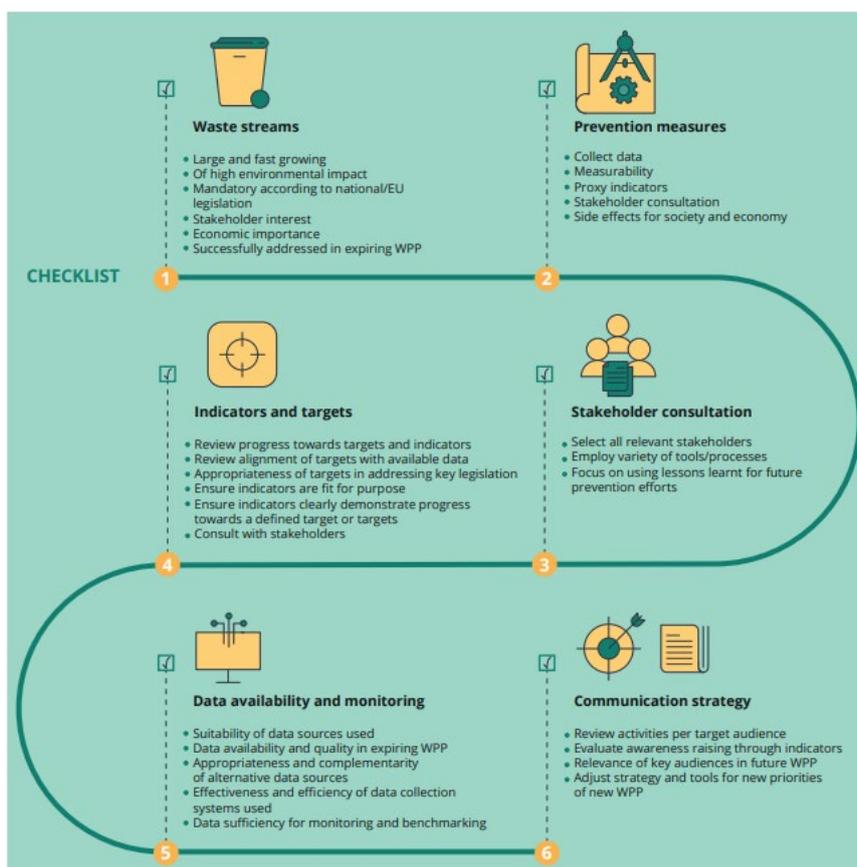
¹²¹ Quantitative targets are usually expressed in terms of absolute waste generation, per person waste generation or the waste intensity of specific waste types or sectors.

¹²² Qualitative waste prevention targets are usually expressed in terms of a set of activities such as stakeholder engagement, policy implementation or economic support mechanisms.

¹²³ WPP indicators and benchmarks refer to the measures undertaken to achieve and evaluate progress towards each target and are linked to specific data sets. Indicators can be of different natures.

¹²⁴ European Environmental Agency and Eionet, “Guidance for evaluating waste prevention programmes”, 2021, [Guidance for evaluating waste prevention programmes | European Circular Economy Stakeholder Platform \(europa.eu\)](#).

¹²⁵ [Guidance for evaluating waste prevention programmes | European Circular Economy Stakeholder Platform \(europa.eu\)](#)



The results of the evaluation must feed and incorporate into the preparation of new WPPs. The EEA notes that there is an increasing tendency to integrate the WPPs into national waste management plans and in other policy documents, such as their laws or circular economy strategies. This has both a positive and a negative component. On the positive side, waste management plans are being integrated into a country's main strategic waste policy documents. However, because the field of waste prevention and the ways to deal with it are rapidly changing, the EEA warns that there can be a risk of creating a (legislative) gap if a country has had a WPP for a long time.¹²⁶ WPP's should be amended frequently.

126 European Environmental Agency and Eionet, "Guidance for evaluating waste prevention programmes", 2021, Guidance for evaluating waste prevention programmes | European Circular Economy Stakeholder Platform (europa.eu)

EEA member countries	Food/organic waste (30)	Plastic/packaging waste (30)	Textile (16)	Manufacturing waste (29)	WEEE (29)	Household/municipal waste (26)	Hazardous waste (27)
Austria							
Belgium (*)							
Bulgaria							
Croatia							
Cyprus							
Czechia							
Denmark							
Estonia							
Finland							
France							
Germany							
Greece							
Hungary							
Iceland							
Ireland							
Italy							
Latvia							
Liechtenstein							
Lithuania							
Luxembourg							
Malta							
Netherlands							
Norway							
Poland							
Portugal							
Romania							
Slovakia							
Slovenia							
Spain							
Sweden							
Switzerland							
Turkey							

Note: (*) Note that the regional plan, as part of the Wallonia regional programme, does not cover textile and manufacturing waste.

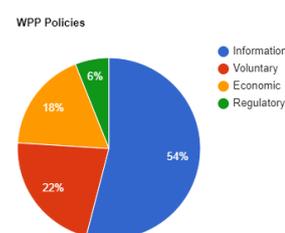
waste and hazardous waste.¹²⁸

The EEA concluded in 2021 that only eight Member States updated their WPP.¹²⁹ Consequently, in 2021 only one third of the EU Member States complied with the WFD.

Member States use several types of policies to prevent waste. EEA reports demonstrate that there are four types of policies in the WPPs: (i) voluntary agreements, (ii) regulatory agreements, (iii) economic or market-based instruments and (iv) information instruments and awareness-raising.

The number of binding (economic and regulatory) instruments already increased significantly in comparison with the prevention programmes of 2016. Today, they mainly relate to issues on global social problems, such as food loss or plastic and packaging waste. With the upcoming European initiatives, the European Commission aims to continue this trend.¹³⁰

Each national WPP places a unique emphasis on prevention measures in different waste streams. This is related to factors such as generated waste volumes or economic importance. All Member States include prevention measures on food/organic waste and plastic/packaging waste in their WPP. The majority of Member States also incorporate waste measures on textiles.¹²⁷ Other measures are on waste streams of municipal waste, waste electrical and electronic equipment, manufacturing waste, construction



¹²⁷ At present, not every region/country has set up separate collection of textiles. From 2025 onwards, separate collection of textiles will be mandatory. The question to be solved in the WPPs is what to do with the collected textiles afterwards. Experts state that there will be more focus on prevention and re-use (e.g. through second hand stores) on the one hand and on recycling on the other hand. The EEA expects that the focus on textiles at EU level (e.g. Textile Strategy) will give textile waste prevention a more prominent place in the (next versions of) WPPs.

¹²⁸ Research also indicates that not all waste streams are equally interesting to be targeted by (future) waste prevention measures. On the one hand, waste originating from the following waste streams would benefit most from EU actions on waste prevention: Textile, discarded equipment (including electrical and electronic equipment), construction and demolition, rubber, discarded vehicles and municipal waste (including household and similar waste). On the other hand, waste originating from the waste following waste streams would benefit the least from EU actions on waste prevention: vegetal, dredging spoils, minerals and sludges. They are considered less relevant because of the small number of Member States that generate this type of waste or because of their small size in terms of the amount of waste generated.

¹²⁹ European Environmental Agency, "Country profiles on waste prevention", [Country profiles on waste prevention — European Environment Agency. \(europa.eu\)](https://www.eea.europa.eu/en/publications/country-profiles-on-waste-prevention)

¹³⁰ European Environmental Agency, "Progress towards preventing waste in Europe – the case of textile waste prevention", EEA Report No 15/2021, 2021, [THAL21017ENN.en \(1\).pdf](https://www.eea.europa.eu/en/publications/progress-towards-preventing-waste-in-europe-the-case-of-textile-waste-prevention).

There are two important consequences in the shift away from information and voluntary instruments towards binding instruments: on the one hand more mature policy developments on prevention and on the other hand more effective waste prevention in the future.¹³¹

However, the EEA (2021) concludes that no discernible trends or observable impact can be distilled of the adoption of WPP at EU level, since the evidence of the effectiveness of WPPs is very limited. The main waste prevention policy objective (absolute decoupling of waste generation from economic growth) is not achieved.¹³² EEA also states that waste prevention measures have no direct and measurable effect on the total amount of waste generated in the EU. The question can therefore be raised whether the current way WPPs are presented, is efficient.¹³³

Furthermore, it is difficult to assess which measures have which effects and impacts.¹³⁴ Therefore, EEA the indicates that Member States, as well as the EU itself, need to implement monitoring measures.¹³⁵

The German Umweltbundesamt identified seven key factors for success of waste prevention measures, based on an analysis of waste prevention measures in the WPPs.¹³⁶ The report concludes that, for waste prevention measures to be effective, they must have at least the following characteristics:

- They must be legally binding and consistent in enforcement, instead of voluntary agreements;
- They must be achieved through sustainable financing by establishing markets, new business models, tax incentives, and providing funds;
- They must be monitored and evaluated regularly, including data collection and reporting routines;

¹³¹ European Environmental Agency, “Progress towards preventing waste in Europe – the case of textile waste prevention”, EEA Report No 15/2021, 2021, [THAL21017ENN.en \(1\).pdf](#).

¹³² However, it appears that, for the period from 2008 to 2018, although total waste generation in the EU increased at a lower rate than the economy, indicating a relative decoupling.

¹³³ This is mainly because (i) Member States enjoy a high degree of freedom in designing WPPs, which makes the assessment considerably more difficult; (ii) not all results of prevention measures (in terms of effectiveness) are monitored in similar ways. This makes it difficult to identify best practices. Therefore, evaluations and data on the effectiveness of WPP are lacking. The adaptation of the new guidelines for evaluating WPPs established indicators to measure overall progress in the implementation of waste prevention measures. This allows for more effective monitoring of data for evidence-based decision making; European Environmental Agency, “Waste prevention in Europe”, 2021, [Waste prevention in Europe — European Environment Agency \(europa.eu\)](#).

¹³⁴ Nordic Council of Ministers, “Proposals for targets and indicators for waste prevention in four waste streams”, 2013, [FULLTEXT01.pdf \(diva-portal.org\)](#); J. Yano and S. Sakai, “Waste prevention indicators and their implications from a life cycle perspective: a review”, *Journal of Material Cycles and Waste Management* 18, 2016, <https://doi.org/10.1007/s10163-015-0406-7>; H. Wilts, G. Dehoust, D. Jepsen, F. Knappe, “Eco-innovations for waste prevention — Best practices, drivers and barriers”, *Science of The Total Environment* 461–462, 2013, <https://doi.org/10.1016/j.scitotenv.2013.05.096>; European Environmental Agency and European Topic Centre on Circular Economy and Resource Use, “Tracking Waste Prevention Progress: Developing a monitoring framework at the EU level: Summary report of the expert workshop”, 2022, [Summary report - Waste prevention webinar - 7 June 2022.pdf](#).

¹³⁵ Umweltbundesamt, “Development of scientific and technical foundations for a national waste prevention programme”, 2010, [Development of scientific and technical foundations for a national waste prevention programme \(umweltbundesamt.de\)](#).

¹³⁶ Umweltbundesamt, “Appropriate Evaluation Benchmarks and Indicators for Measuring the Success of Waste Prevention Measures: Final Report”, 2019, [Appropriate Evaluation Benchmarks and Indicators for Measuring the Success of Waste Prevention Measures \(umweltbundesamt.de\)](#).

- They must be encouraged by public institutions (as frontrunners in sustainable procurement), taking account of waste prevention criteria;
- broad regional coverage of waste prevention measures;
- consolidation and formalisation of community engagements through the establishment of networks and umbrella organisations;
- package of waste prevention measures instead of individual measures.

The research study on holistic indicators for waste prevention from 2019 from Zero Waste Europe adds that the European Commission uses the RACER methodology of the Impact Assessment Guidelines to assess the suitability of the indicators determined for the monitoring of waste prevention measures. Racer is the acronym for Relevant (i.e. closely linked to the main objectives and operational targets and relevant in terms of progress), Accepted (by different stakeholders), Credible (for non-experts, as well as unambiguous and easy to interpret), Easy (to observe, monitor and communicate) and Robust (in quality of the data base).¹³⁷

These principles were taken into account when drafting the recommendations (see below).

¹³⁷ H. Wilts, U. Meinel, J. Schinkel and L. Feder, "Research study on holistic indicators for waste prevention", Zero Waste Europe, 2019, [zero waste europe research study holistic-indicators-for-waste-prevention en.pdf \(zerowasteurope.eu\)](https://zerowasteurope.eu/research-study-holistic-indicators-for-waste-prevention-en.pdf).

Article 8: Extended Producer Responsibility

Article 8: Extended producer responsibility

1. In order to strengthen the re-use and the prevention, recycling and other recovery of waste, Member States may take legislative or non-legislative measures to ensure that any natural or legal person who professionally develops, manufactures, processes, treats, sells or imports products (producer of the product) has extended producer responsibility. Such measures may include an acceptance of returned products and of the waste that remains after those products have been used, as well as the subsequent management of the waste and financial responsibility for such activities. These measures may include the obligation to provide publicly available information as to the extent to which the product is re-usable and recyclable.

Where such measures include the establishment of extended producer responsibility schemes, the general minimum requirements laid down in Article 8a shall apply. Member States may decide that producers of products that undertake financial or financial and organisational responsibilities for the management of the waste stage of a product's life cycle of their own accord should apply some or all of the general minimum requirements laid down in Article 8a.

2. Member States may take appropriate measures to encourage the design of products and components of products in order to reduce their environmental impact and the generation of waste in the course of the production and subsequent use of products, and in order to ensure that the recovery and disposal of products that have become waste take place in accordance with Articles 4 and 13.

Such measures may encourage, inter alia, the development, production and marketing of products and components of products that are suitable for multiple use, that contain recycled materials, that are technically durable and easily repairable and that are, after having become waste, suitable for preparing for re-use and recycling in order to facilitate proper implementation of the waste hierarchy. The measures shall take into account the impact of products throughout their life cycle, the waste hierarchy and, where appropriate, the potential for multiple recycling.

	<p>3. When applying extended producer responsibility, Member States shall take into account the technical feasibility and economic viability and the overall environmental, human health and social impacts, respecting the need to ensure the proper functioning of the internal market.</p> <p>4. The extended producer responsibility shall be applied without prejudice to the responsibility for waste management as provided for in Article 15(1) and without prejudice to existing waste stream specific and product specific legislation.</p> <p>5. The Commission shall organise an exchange of information between Member States and the actors involved in extended producer responsibility schemes on the practical implementation of the general minimum requirements laid down in Article 8a. This includes, inter alia, exchange of information on best practices to ensure adequate governance, cross-border cooperation concerning extended producer responsibility schemes and a smooth functioning of the internal market, on the organisational features and the monitoring of organisations implementing extended producer responsibility obligations on behalf of producers of products, on the modulation of financial contributions, on the selection of waste management operators and on the prevention of littering. The Commission shall publish the results of the exchange of information and may provide guidelines on these and other relevant aspects. The Commission shall publish guidelines, in consultation with Member States, on cross-border cooperation concerning extended producer responsibility schemes and on the modulation of financial contributions referred to in point (b) of Article 8a(4).</p> <p>Where necessary to avoid distortion of the internal market, the Commission may adopt implementing acts in order to lay down criteria with a view to the uniform application of point (b) of Article 8a(4) but excluding any precise determination of the level of the contributions. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 39(2).</p>
<p>Article 8a: General minimum requirements</p>	<p>1. Where extended producer responsibility schemes are established in accordance with Article 8(1), including pursuant to other legislative acts of the Union, Member States shall:</p>

for extended producer responsibility schemes

(a) define in a clear way the roles and responsibilities of all relevant actors involved, including producers of products placing products on the market of the Member State, organisations implementing extended producer responsibility obligations on their behalf, private or public waste operators, local authorities and, where appropriate, re-use and preparing for re-use operators and social economy enterprises;

(b) in line with the waste hierarchy, set waste management targets, aiming to attain at least the quantitative targets relevant for the extended producer responsibility scheme as laid down in this Directive, Directive 94/62/EC, Directive 2000/53/EC, Directive 2006/66/EC and Directive 2012/19/EU of the European Parliament and of the Council (1), and set other quantitative targets and/or qualitative objectives that are considered relevant for the extended producer responsibility scheme;

(c) ensure that a reporting system is in place to gather data on the products placed on the market of the Member State by the producers of products subject to extended producer responsibility and data on the collection and treatment of waste resulting from those products specifying, where appropriate, the waste material flows, as well as other data relevant for the purposes of point (b);

(d) ensure equal treatment of producers of products regardless of their origin or size, without placing a disproportionate regulatory burden on producers, including small and medium-sized enterprises, of small quantities of products.

2. Member States shall take the necessary measures to ensure that the waste holders targeted by the extended producer responsibility schemes established in accordance with Article 8(1), are informed about waste prevention measures, centres for re-use and preparing for re-use, takeback and collection systems, and the prevention of littering. Member States shall also take measures to create incentives for the waste holders to assume their responsibility to deliver their waste into the separate collection systems in place, notably, where appropriate, through economic incentives or regulations.

3. Member States shall take the necessary measures to ensure that any producer of products or organisation implementing extended producer responsibility obligations on behalf of producers of products:

(a) has a clearly defined geographical, product and material coverage without limiting those areas to those where the

collection and management of waste are the most profitable;

(b) provides an appropriate availability of waste collection systems within the areas referred to in point (a);

(c) has the necessary financial means or financial and organisational means to meet its extended producer responsibility obligations;

(d) puts in place an adequate self-control mechanism, supported, where relevant, by regular independent audits, to appraise:

(i) its financial management, including compliance with the requirements laid down in points (a) and (b) of paragraph 4;

(ii) the quality of data collected and reported in accordance with point (c) of paragraph 1 of this Article and with the requirements of Regulation (EC) No 1013/2006;

(e) makes publicly available information about the attainment of the waste management targets referred to in point (b) of paragraph 1, and, in the case of collective fulfilment of extended producer responsibility obligations, also information about:

(i) its ownership and membership;

(ii) the financial contributions paid by producers of products per unit sold or per tonne of product placed on the market; and

(iii) the selection procedure for waste management operators.

4. Member States shall take the necessary measures to ensure that the financial contributions paid by the producer of the product to comply with its extended producer responsibility obligations:

(a) cover the following costs for the products that the producer puts on the market in the Member State concerned:

- costs of separate collection of waste and its subsequent transport and treatment, including treatment necessary to meet the Union waste management targets, and costs necessary to meet other targets and objectives as referred to in point (b) of paragraph 1, taking into account the revenues from re-use, from sales of secondary raw material from its products and from unclaimed deposit fees,
- costs of providing adequate information to waste holders in accordance with paragraph 2,
- costs of data gathering and reporting in accordance with point (c) of paragraph 1.

This point shall not apply to extended producer responsibility schemes established pursuant to Directive 2000/53/EC, 2006/66/EC or 2012/19/EU;

b) in the case of collective fulfilment of extended producer responsibility obligations, are modulated, where possible, for individual products or groups of similar products, notably by taking into account their durability, reparability, re-usability and recyclability and the presence of hazardous substances, thereby taking a lifecycle approach and aligned with the requirements set by relevant Union law, and where available, based on harmonised criteria in order to ensure a smooth functioning of the internal market; and

(c) do not exceed the costs that are necessary to provide waste management services in a cost-efficient way. Such costs shall be established in a transparent way between the actors concerned.

Where justified by the need to ensure proper waste management and the economic viability of the extended producer responsibility scheme, Member States may depart from the division of financial responsibility as laid down in point (a), provided that:

(i) in the case of extended producer responsibility schemes established to attain waste management targets and objectives established under legislative acts of the Union, the producers of products bear at least 80 % of the necessary costs;

(ii) in the case of extended producer responsibility schemes established on or after 4 July 2018 to attain waste management targets and objectives solely established in Member State legislation, the producers of products bear at least 80 % of the necessary costs;

(iii) in the case of extended producer responsibility schemes established before 4 July 2018 to attain waste management targets and objectives solely established in Member State legislation, the producers of products bear at least 50 % of the necessary costs,

and provided that the remaining costs are borne by original waste producers or distributors. This derogation may not be used to lower the proportion of costs borne by producers of products under extended producer responsibility schemes established before 4 July 2018.

5. Member States shall establish an adequate monitoring and enforcement framework with a view to ensuring that producers of products and organisations implementing extended producer responsibility obligations on their behalf

implement their extended producer responsibility obligations, including in the case of distance sales, that the financial means are properly used and that all actors involved in the implementation of the extended producer responsibility schemes report reliable data. Where, in the territory of a Member State, multiple organisations implement extended producer responsibility obligations on behalf of producers of products, the Member State concerned shall appoint at least one body independent of private interests or entrust a public authority to oversee the implementation of extended producer responsibility obligations. Each Member State shall allow the producers of products established in another Member State and placing products on its territory to appoint a legal or natural person established on its territory as an authorised representative for the purposes of fulfilling the obligations of a producer related to extended producer responsibility schemes on its territory. For the purposes of monitoring and verifying compliance with the obligations of the producer of the product in relation to extended producer responsibility schemes, Member States may lay down requirements, such as registration, information and reporting requirements, to be met by a legal or natural person to be appointed as an authorised representative on their territory.

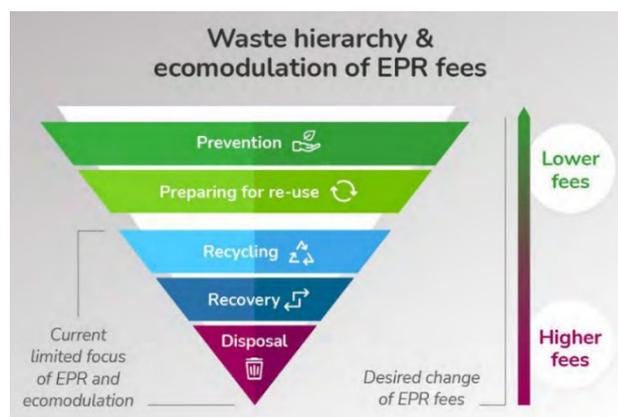
6. Member States shall ensure a regular dialogue between relevant stakeholders involved in the implementation of extended producer responsibility schemes, including producers and distributors, private or public waste operators, local authorities, civil society organisations and, where applicable, social economy actors, re-use and repair networks and preparing for re-use operators.

7. Member States shall take measures to ensure that extended producer responsibility schemes that have been established before 4 July 2018, comply with this Article by 5 January 2023.

8. The provision of information to the public under this Article shall be without prejudice to preserving the confidentiality of commercially sensitive information in conformity with the relevant Union and national law.

Article 8 WFD introduces the concept of Extended Producer Responsibility (hereafter: EPR).

“EPR schemes” are defined in Article 3 (21) WFD as “a set of measures taken by Member States to ensure that producers of products bear financial responsibility or financial and organisational



responsibility for the management of the waste stage of a product’s life cycle”. EPR schemes aim at strengthening waste prevention, reducing waste generation and promote re-use¹³⁸ but also recycling¹³⁹. EPR schemes seek to make the manufacturer of the product responsible for the management of the product’s materials at the end of its life and for the final disposal of these materials according to applicable legislation. EPR schemes can be organised in various ways¹⁴⁰ but they always apply the polluter pays principle.¹⁴¹

The principle originated in Sweden, where it was introduced in 1990.¹⁴² In 2008 it was incorporated in Article 8 of the WFD.¹⁴³ To streamline and further harmonise the implementation of EPR across the EU, Article 8a (“General requirements for extended producer responsibility schemes”) was adopted in 2018.¹⁴⁴

¹³⁸ These are the so-called “upstream measures”.

¹³⁹ EPR policies include targets and incentives aimed at increasing recycling rates.

¹⁴⁰ An overview of the way EPR schemes can be organised: (i) EPR schemes can have mandatory or voluntary status. Mandatory EPR schemes at EU level have been introduced in several specific waste streams, amongst others in end-of-life vehicles, waste electrical and electronic equipment and packaging. Member States can further implement other voluntary EPR schemes, as they see fit, for other products that are not covered at EU level. Such examples can be found in the waste streams of used oils, used tyres, graphic paper, textiles, medicines, fluorinated refrigerant furniture; (ii) EPR schemes can entail individual or collective responsibility: when a producer takes direct responsibility for his own products, the EPR scheme falls under the so-called individual responsibility. The choice of an individual EPR scheme is, however, rare and limited. In collective EPR schemes, on the other hand, producers choose to collectively share responsibility by collaboration. They fulfil their responsibility in a collective way through so-called Producer Responsibility Organisations. These Producer Responsibility Organisations are waste stream specific and organise the management of their products at the end of their life cycle. They can also differ from one Member State to another. The producers pay a EPR fee to the applicable Producer Responsibility. The fee modulation is based on (measurable) product characteristics. Collective EPR are generally arranged and considered a more cost-effective way to comply with the regulatory requirements, while individual EPR schemes provide stronger incentives for individual producers to reduce product waste; (iii) type of producer responsibility: physical, organisational, financial or informational; and (iv) mode of implementation policy mechanisms: take-back requirements, advanced deposit fees and deposit-return schemes.

¹⁴¹ Producers are obliged to contribute to or pay the full and true cost of end-of-life treatment and disposal of their materials and products. In addition to the end on life cost, also the social and environmental costs should be covered.; OECD, “The Polluter Pays Principle: Definition, Analysis, Implementation”, 2008, [9789264044845-en.pdf \(e-bronnen.be\)](#); F.P. Colelliab, E. Croci, F.B. Pontonic and S.F. Zanini, “Assessment of the effectiveness and efficiency of packaging waste EPR schemes in Europe”, Waste Management 148, 2022, [Assessment of the effectiveness and efficiency of packaging waste EPR schemes in Europe \(sciencedirectassets.com\)](#).

¹⁴² It is an excellent example of a useful national measure that was adopted in a European context since it was incorporated as a core element of waste management in the EU, making it applicable to all other European legal systems.; Laubinger, F., Brown, A., Dubois, M. and Börkey, P., “Modulated fees for Extended Producer Responsibility schemes (EPR)”, OECD Environment Working Papers No. 184 2021, [2a42f54b-en.pdf \(oecd-ilibrary.org\)](#).

¹⁴³ The general regulatory framework is regulated at EU level, aiming at a heterogeneous implementation and design of EPR schemes. However, there is also a significant competence left to national legislators. The details of these EPR schemes are regulated at national level. This includes the scope, instrument design and governance of individual EPR schemes. The regulatory and policy frameworks at national level are therefore crucial for the effective implementation of EPR systems.

¹⁴⁴ It introduces specific objectives and/or targets for waste management (incl. reporting, equal treatment of producers and PROs as well as the definition of roles and responsibilities of all stakeholders); put in place specific obligations for PROs (e.g. in regards to geographical, product and material scope, the availability of collection points and self-control mechanisms); implement adequate

Before EPR schemes were introduced, studies demonstrate that producers did not have a clear incentive to recover materials at the end of a products' life. Data¹⁴⁵ demonstrate that some EPR schemes consistently perform above average and meet the targets set out by the EU, while other EPR schemes demonstrate mixed results or underperform. The current focus of EPR schemes is on downstream measures, which leads to improvements in waste recycling rates and recovery performances. However, there is limited evidence that the same trend can be extended to waste prevention, in particular the incentive for producers to invest in design for environment to stimulate a full circular economy. More focus should lie on upstream measures who influence product design in terms of *e.g.*, reusability and durability.¹⁴⁶ The ecomodulation criteria of EPR schemes must better reflect the product characteristics and should emphasise circular economy performances. Due to the emphasis on downstream waste management, there seems to be a knowledge gap regarding the possible effects of EPR on eco-design measures preventing waste prevention.

EPR schemes should reflect the end-of-life cost plus the social and environment cost of a product. Studies demonstrate that this is frequently not the case. In most EPR schemes, the modulated fee covers the net operational cost of waste management but does not entirely cover public information and awareness campaigns, waste prevention actions, monitoring and surveillance, etc. Accordingly, the cost is not fully covered by the producer.¹⁴⁷ Furthermore, the size of ecomodulation fees is a crucial factor to improve eco-design.¹⁴⁸

monitoring and enforcement mechanisms to reduce free-riding in competitive EPR schemes and appoint at least one body independent of private interests to oversee the implementation; and define a minimum scope of EPR cost coverage and encourage eco-design by implementing eco-modulated fees, whilst ensuring that waste management services are delivered in a cost-effective way (i.e. meeting the necessary cost principle).

¹⁴⁵ Due to a lack of transparent data, it is difficult to analyse the effectiveness of several EPR schemes. More efficient data monitoring would increase the capacity to monitor and evaluate EPR schemes; A. Sachdeva, A. Araujo and M. Hirschnitz-Garbers, "Extended Producer Responsibility and Ecomodulation of Fees", Ecologic 2021, [Extended Producer Responsibility and Ecomodulation of Fees. Opportunity: Ecomodulation of Fees as a Way Forward for Waste Prevention \(ecologic.eu\)](https://ecologic.eu/Opportunity-Ecomodulation-of-Fees-as-a-Way-Forward-for-Waste-Prevention).

¹⁴⁶ Upstream measures are initiatives which seek to foster circular product design and establish standards to produce resource efficient products that generate less waste during production and after use; Systemic, "Making Materials Work for Life – Introducing Producer Ownership (project LAUNCH)", 2019, [Producer-Ownership-Project-LAUNCH-White-Paper.pdf \(systemiq.earth\)](https://systemiq.com/producer-ownership-project-launch-white-paper/).

¹⁴⁷ EPR schemes have the potential to shift costs from the taxpayer to the producers of the generating products, but when the costs are not fully covered by the schemes, they often still fall on taxpayers and governments or municipalities; F. Laubinger, A. Brown, M. Dubois, P. Börkey, "Modulated fees for Extended Producer Responsibility schemes (EPR)", OECD Environment Working Papers No. 184 2021, [2a42f54b-en.pdf \(oecd-ilibrary.org\)](https://oecd-ilibrary.org/2a42f54b-en.pdf).

¹⁴⁸ Most EPR products use the concept of basic or necessary costs and fees that differentiate on factors such as weight of product and type of material. This is neither an incentive to improve product design, nor reflective of the end-of-life cost. This leads to *e.g.* more lightweight products that are less expensive, regardless of whether this product is more environmentally damaging or not. Ecomodulation of fees according to the waste hierarchy provides a better incentive for the producer to focus on eco-design, since prevention and re-use are ranked higher than *e.g.* recycling. The setting of bonuses or maluses could counter the current reality that the fees do not reflect the real end of life and in particular the social and environmental impact of managing end of life of products. Bonuses or maluses can encourage producers to switch to environmentally friendly products through price effects but can also lead to revenue instability if the size of the fee modulation is not carefully estimated. When done properly, it could lead to an increase in effectiveness and promote innovation; J.F.D. Rodrigues, A. Lorena, I. Costa, P. Ribeiro and P. Ferrao, "An Input-Output Model of Extended Producer Responsibility", Journal of Industrial Ecology 20 (6), 2016, <https://doi.org/10.1111/jiec.12401>; K. Winternitza, M. Heggieb and J. Bairda, "Extended producer responsibility for waste tyres in the EU: Lessons learnt from three case studies – Belgium, Italy and the Netherlands", Waste Management 89, 2019, [Extended producer responsibility for waste tyres in the EU: Lessons learnt from three case studies – Belgium, Italy and the Netherlands \(sciencedirectassets.com\)](https://www.sciencedirect.com/science/article/abs/S0959652619300000).

Lastly, more efficient reporting requirements, such as periodic reviews and evaluation, and enforcement measures could enhance transparency.

Chapter 3: Waste prevention in other legal frameworks

Section 1: General

Subsection 1: Introduction

Under CEAP 2020, new policy initiatives are expected to have a positive effect on waste prevention in the targeted waste streams. The revision of EU legislation on for example packaging and end-of-life vehicles are currently on the legislative programme, while negotiations regarding new EU legislation on batteries are currently taking place. Regarding waste prevention, the European Commission intends to introduce food waste reduction targets, enhance extended producer responsibility (EPR) schemes, harmonise the various waste collection systems analysing the density and accessibility of separate collection points, “taking account of regional and local conditions ranging from urban to outermost regions”^{149, 150} These policy measures must support eco-design and in particular design for longevity. Promoting repair and remanufacturing will delay products from becoming waste. They aim to reduce the waste generation of these product groups by stimulating circular economy.



Subsection 2: Scope of other EU legal frameworks

CEAP 2020 identified food waste, textile waste, electrical and electronic equipment waste and plastic waste as core sectors and policy priorities for the transition to a circular economy. While

¹⁴⁹ European Commission, “A new Circular Economy Action Plan - For a cleaner and more competitive Europe”, 2020, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0098&from=EN>.

¹⁵⁰ WBCSD, “Circular Economy Action Plan 2020 Summary for businesses: Implications and next steps”, 2020, https://docs.wbcsd.org/2020/11/WBCSD_Circular_Economy_Action_Plan_2020%E2%80%93Summary_for_business.pdf.

CEAP 2020 identified a broad set of “key product value chains”, these four waste streams mentioned above were analysed as part of this study to identify new specific waste prevention measures that could be transposed/incorporated into the WFD. Before elaborating on these four waste streams, this study brings forward a brief overview of other EU legislation containing provisions on waste prevention measures that are already in place, as this overview is pertinent to keep in mind when recommending new provisions within the (new) WFD or Regulation. These new provisions could entail legal interference with the applicable framework of other waste streams, so while bringing new recommendations forward with this study, it should be taken into account that several provisions regarding waste prevention need to be coordinated.

<p>Ecodesign Directive¹⁵¹ :</p>	<ul style="list-style-type: none"> - provides EU-wide rules for improving the environmental performance of products. It sets out minimum mandatory requirements for the energy efficiency of these products;
<p>Draft Ecodesign for Sustainable Products Regulation (ESPR)¹⁵² :</p>	<ul style="list-style-type: none"> - builds further on the existing Ecodesign Directive, which sets ecodesign requirements at EU level for energy-related products; - enables information requirements to be set for products to learn more about their impact and to allow for more sustainable choices along the whole value chain and will introduce transparency requirements related to the destruction of unsold goods, which entail being upfront about the quantity of products disposed of and the reason for disposal;
<p>Packaging and Packaging Waste Directive¹⁵³¹⁵⁴ :</p>	<ul style="list-style-type: none"> - includes measures for the prevention, re-use and recovery of packaging waste in Member States, ensuring that packaging placed on the EU market complies with the essential requirements, such as limiting the weight and volume of packaging to a minimum adequate amount in order to meet the required level of safety, hygiene and acceptability for the product and for the consumers (see infra);

¹⁵¹ Directive 2009/125/EC of the European Parliament and of the Council establishing a framework for the setting of ecodesign requirements for energy-related products.

¹⁵² European Environmental Bureau, “EEB response to the Ecodesign for Sustainable Products Regulation (ESPR) consultation”, 2022, [EEB-response-to-the-Ecodesign-for-Sustainable-Products-Regulation-ESPR-consultation—June-2022.pdf](#).

¹⁵³ European Parliament and Council Directive 2018/852 of 30 May 2018 amending Directive 94/62/EC on packaging and packaging waste, L 150/141, 14/6/2018, [L_2018150EN.01014101.xml \(europa.eu\)](#).

¹⁵⁴ This legislative framework is currently under revision, as the European Commission has introduced the Proposal for a Regulation of the European Parliament and of the Council on packaging and packaging waste, amending Regulation (EU) 2019/1020 and Directive (EU) 2019/904, and repealing Directive 94/62/EC, COM(2022) 677 final.

Single Use Plastics Directive¹⁵⁵;	<ul style="list-style-type: none"> - intends to reduce the consumption of single use plastics (SUP) products and requires Member States to ensure separate collection; - promotes circular approaches that give priority to sustainable and non-toxic re-usable products and re-use systems rather than to single-use products, aiming first and foremost to reduce the quantity of waste generated;¹⁵⁶
Plastic Bags Directive¹⁵⁷:	<ul style="list-style-type: none"> - amends the Packaging and Packaging Waste Directive (94/62/EC) while addressing the unsustainable consumption and use of lightweight plastic carrier bags; - implements waste prevention measures entailing defining a maximum annual consumption level of 90 lightweight plastic carrier bags per person by the end of 2019 (a 50 % reduction compared to 2010) and 40 lightweight plastic carrier bags per person by the end of 2025 (an 80 % reduction compared to 2010) and ensuring that lightweight plastic carrier bags are not provided free of charge at the point of sale of goods or products;¹⁵⁸
WEEE Directive¹⁵⁹:	<ul style="list-style-type: none"> - introduced to prevent the generation of WEEE and to promote re-use, recycling and other forms of recovery; - establishes an obligation to collect WEEE separately for sorting and recycling, it sets a detailed framework for Extended Producer Responsibility; - aims to incentivise improvements regarding the design of electrical and electronic equipment to facilitate recycling;
Batteries Directive¹⁶⁰:	<ul style="list-style-type: none"> - establishes rules regarding the placing on the market of batteries and accumulators and a general prohibition of those which contain hazardous substances; - includes rules for the collection, treatment, recycling and disposal of batteries and accumulators; - ensures that a high proportion of spent batteries are recycled, by imposing the obligation on EU Member States to take any measures needed to promote and maximise

¹⁵⁵ European Parliament and Council Directive 2019/904 of 5 June 2019 on the reduction of the impact of certain plastic products on the environment, L 155, 12/6/2019, [L_2019155EN.01000101.xml \(europa.eu\)](#).

¹⁵⁶ Preamble (2) European Parliament and Council Directive 2019/904 of 5 June 2019 on the reduction of the impact of certain plastic products on the environment, L 155, 12/6/2019, [L_2019155EN.01000101.xml \(europa.eu\)](#).

¹⁵⁷ European Parliament and Council Directive 2015/720 of 29 April 2015 amending Directive 94/62/EC as regards reducing the consumption of lightweight plastic carrier bags, L 115/11, 6/5/2015, [L_2015115EN.01001101.xml \(europa.eu\)](#).

¹⁵⁸ Art. 1 (2) European Parliament and of the Council Directive 2015/720 of 29 April 2015 amending Directive 94/62/EC as regards reducing the consumption of lightweight plastic carrier bags, L 115/11, 6/5/2015, [L_2015115EN.01001101.xml \(europa.eu\)](#).

¹⁵⁹ European Parliament and of the Council Directive 2012/19/EU of 4 July 2012 on waste electrical and electronic equipment (WEEE) (recast 2018/849/EC), L 197/38, 24/7/2012, [Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment \(WEEE\)Text with EEA relevance \(europa.eu\)](#).

¹⁶⁰ European Parliament and of the Council Directive 2018/849 on 30 May 2018 amending Directives 2000/53/EC on end-of-life vehicles, 2006/66/EC on batteries and accumulators and waste batteries and accumulators, and 2012/19/EU on waste electrical and electronic equipment, L 150/93, 14/6/2018, [L_2018150EN.01009301.xml \(europa.eu\)](#).

	separate waste collections and prevent batteries being discarded as unsorted municipal refuse;
Waste Shipment Regulation¹⁶¹:	- specifies the procedures for controlling waste shipments to improve environmental protection and sets out a control system for the transportation of waste;
Waste Statistics Regulation¹⁶²:	- creates a framework for the production of waste management statistics at EU level, which provides the EU with data on waste management in order to monitor the implementation of the EU's policy on the generation, recovery and disposal of waste.

¹⁶¹ European Parliament and of the Council Regulation (EC) No 1013/2006 of 14 June 2006 on shipments of waste, L 190/1, 12/7/2006, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32006R1013>.

¹⁶² European Parliament and of the Council Regulation (EC) No 2150/2002 of 25 November 2002 on waste statistics, L 332, 09/12/2002.

Section 2: Waste prevention measures applicable to specific waste streams

Subsection 1: Introduction

Before listing the main waste streams impacting potential prevention measures to be implemented in the WFD, it is interesting to highlight several other (general) legislative frameworks and proposals that will have a significant influence on waste prevention in general.

Firstly, this study highlights the importance of the Proposal for Ecodesign for Sustainable Products Regulation (ESPR), as referred to above (see Chapter 3 – Subsection 2). The proposal mentions in its preamble (recital 21):

“(21) In order to ensure consistency, performance requirements should complement the implementation of Union legislation on waste. While requirements for placing on the market packaging as a final product are laid down under European Parliament and Council Directive 94/62/EC¹⁶³, this Regulation may complement that Directive by setting product-based requirements focussing on the packaging of specific products when placed on the market. Where relevant, such complementary requirements should contribute in particular to minimising the amount of packaging used, in turn contributing to the prevention of waste generation in the Union.”

This legislative proposal intends to complement the current WFD and its future amendments with regard to waste prevention. For example, Article 20 ESPR covers the destruction of unsold consumer products and imposes transparency and other obligations for economic operators with regard to the amounts of discarded products and specific impact of these amounts of discarded products.

Moreover, other legislative frameworks contribute to the essential role of (waste) prevention in several product and waste streams. Specifically, the European Commission has announced the establishment of a 'right to repair', with a view of saving costs for consumers and facilitating the development of a circular economy.¹⁶³ The introduction of an effective 'right to repair' for consumers has been announced in several of the European Commission's strategic documents, such as the European Green Deal and CEAP 2020. From a consumers' perspective it is confirmed that products not only tend to break down faster than they used to but that repairing them is often too costly, difficult to arrange for lack of spare parts, and sometimes impossible. That is why the European Commission intends to broaden the scope of the consumers' right to repair not only outside the coverage of the legal warranty but also intends to give consumers the right to obtain relevant technical information from manufacturers to repair products themselves. This will

¹⁶³ European Parliament, 'Right to Repair', 2022, [https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/698869/EPRS_BRI\(2022\)698869_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/698869/EPRS_BRI(2022)698869_EN.pdf).

inevitably contribute to enhanced waste prevention, as the reparation of products form a significant threshold for consumer to hold on to certain products.

These frameworks are good examples of the necessary shift in several product streams to a new attitude towards sustainable and circular usage of products which evidently contributes to the EU's ambitions for decreasing waste. In following subsection this study further elaborates on the legislative frameworks and concrete waste prevention measures that might contribute in a same way to the EU's ambitions.

Subsection 2: Food waste prevention measures

Applicable framework

In 2015, the UN adopted several Sustainable Development Goals (hereafter: "SDGs"). Several SDGs in the "Agenda 2030"¹⁶⁴ include targets on sustainable agriculture and food waste: SDG 2 'end hunger', SDG 12 'responsible consumption and production'¹⁶⁵ and SDG 15 'life on land'.¹⁶⁶ The European Commission identified the food sector as a key sector in the shift to a resource efficient Europe and therefore introduced a communication to establish a roadmap to a resource efficient Europe.¹⁶⁷ Food waste was included in CEAP 2015¹⁶⁸ and the EU Platform on Food Losses and Food Waste was established.

Food waste within the Waste Framework Directive

Article 3 (4)(a) WFD and Regulation (EC) No 178/2002 define food as *"any substance or product, whether processed, partially processed or unprocessed, intended to be, or reasonably expected to be ingested by humans"*.¹⁶⁹

- Article 9 WFD establishes provisions for the prevention of waste. According to Article 9 (1)(g) WFD, Member States must take measures to reduce the generation of food waste in primary production, in processing and manufacturing, in retail and other distribution of food, in restaurants and food services as well as in households as a contribution to SDG 12.3. The

¹⁶⁴ United Nations, "Resolution adopted by the General Assembly on 25 September 2015: Transforming our World: The 2030 Agenda for Sustainable Development", A/RES/70/1, 21/10/2015, [Microsoft Word - 1516301E.docx \(unfpa.org\)](#).

¹⁶⁵ SDG 12.3 focuses specifically on food waste and introduces the target of halving per capita global food waste at the retail and consumer levels by 2030 and reduce food losses along production and supply chains, including post-harvest losses.

¹⁶⁶ SDG 15 intends to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

¹⁶⁷ European Commission, "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Roadmap to a Resource Efficient Europe", COM(2011) 517 Final, 20/09/2011, [EUR-Lex - 52011DC0571 - EN \(europa.eu\)](#).

¹⁶⁸ The European Commission indicated that, while the food value chain is responsible for resource and environmental pressures, an estimated 20% of the total food produced is lost or wasted in the EU; European Commission, 'Food Safety – Farm to Fork strategy', https://ec.europa.eu/food/horizontal-topics/farm-fork-strategy_en.

¹⁶⁹ Art. 3 (4)(a) WFD: "4a. 'food waste' means all food as defined in Article 2 of Regulation (EC) No 178/2002 of the European Parliament and of the Council (1) that has become waste"; Art. 2 Regulation of the European Parliament and of the Council (EC) No 178/2002 of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety.

revision of the WFD (2014) proposed an objective to reduce food waste with 30% by 2025.¹⁷⁰ However, the adopted WFD does not include a quantified target for the reduction of food waste. Member States will still have to monitor and assess the implementation of their food waste prevention measures by measuring the levels of food waste.¹⁷¹ In order to enhance the consistency and quality of this data, different initiatives (projects and instruments) have been developed globally and in the EU. In 2016, a multi-stakeholder group published the Food Loss and Waste Accounting and Reporting Standard¹⁷². In May 2019, the European Commission adopted a delegated act which establishes the scope and method for the measurement of food waste, voluntary measurements and minimum quality requirements.¹⁷³

According to the waste hierarchy, food waste prevention (along the food supply chain) obtains the highest priority. However, current legislative provisions do not establish a link to food waste, which has led the European Court of Auditors to propose a waste hierarchy that is applied to food waste and takes into consideration the particularities of food. Ranging from most to least preferred, the proposed hierarchy consists of six levels starting with prevention, followed by donation, use as animal feed, recycling (*e.g.*, for industrial uses), other recovery (*e.g.*, for energy production) and disposal.

Furthermore, according to Article 9 (1) Member States must take measures to prevent (food) waste generation. Those measures must promote and support sustainable production and consumption models¹⁷⁴ and encourage food donation and other redistribution for human consumption and thus prioritise human use over animal feedstock and the reprocessing into non-food products¹⁷⁵. Annex IVa No. 3 of the amending Directive includes fiscal incentives for donation of products and in particular food in accordance with the waste hierarchy. Member States will establish specific food waste prevention programs within their WPPs¹⁷⁶. Today, 28 (out of 32 Member States and regional) WPPs contain measures on food waste. Annex IV WFD does not include measures that address food waste prevention.

In addition to the provisions laid down in the WFD, several guidelines and initiatives were introduced by the EU that reflect the ambition to prioritise food waste as a priority for circular economy. The following paragraphs elaborate on the different initiatives that were introduced to create awareness for the need to tackle food waste, which form a basis for future regulation and concrete measures taken by EU Member States.

¹⁷⁰ This was also in line with the EU Farm-to-Fork Strategy¹⁷⁰, which comprehensively addresses the food value chain.

¹⁷¹ Art. 9 (5) WFD.

¹⁷² FLW Protocol, 'Food Loss and Waste Accounting and Reporting Standard', https://www.flwprotocol.org/wp-content/uploads/2017/05/FLW_Standard_final_2016.pdf; The standard aims to facilitate the quantification of food waste in providing a framework, for example uniform terminology, to all kinds of entities such as companies, NGOs, public institutions.

¹⁷³ For example, EU Member States will be required to measure the amount of food waste for a given stage in the food supply chain applying a prescribed method at least once every four years. 1. This policy entered into force in 2019 and has the potential to enhance the consistency and quality of data generated in the EU and is considered an important step towards managing food waste issues; Art. 2 (2) Commission Delegated Decision (EU) 2019/1597.

¹⁷⁴ Art. 9 (1)(a) WFD.

¹⁷⁵ Art. 9 (1)(h) WFD.

¹⁷⁶ Art. 29 (2)(a) WFD.

EU Platform on Food Losses and Food Waste (2016)

In order to support the achievement of SDG Target 12.3 (on food loss and waste and maximising the contribution of all actors) and CEAP 2015¹⁷⁷, the Commission established the EU Platform on Food Losses and Food Waste (hereafter: “FLW”).¹⁷⁸ The FLW aims to support all actors in defining measures needed to prevent food waste, sharing best practices, and mapping progress. Member States benefit from the exchange of information and experience by the FLW. It inspires further action at national level.¹⁷⁹

The FLW shares best practices and maps progress made over time, while the EEA constitutes the competent authority for the specific evaluation of actual binding measures for the EU Member States. Under the auspice of the FLW 91 actions are collected through a survey circulated to members of the FLW, submitted by different actors¹⁸⁰. These prevention actions were assessed and categorised through following classifications of food waste prevention actions:

Classification	Actions
Redistribution of food for human consumption: actions aiming at redistributing surplus food fit for human consumption (32 actions),	<ul style="list-style-type: none"> - redistributing surplus food fit for human consumption either for profit (through commercial organizations) or by donating it to people in need (through charitable organizations); - collecting leftover crops from farmers' fields after they have been commercially harvested or on fields where it is not economically profitable to harvest; - using digital tools to manage the redistribution of food <i>e.g.</i> donation matching software or apps/websites to sell products close to sell by date;
Food valorisation: actions in which surplus food is valorised in value	<ul style="list-style-type: none"> - Processing food into other food products such as juices or jams; - using surplus food to produce animal feed.

¹⁷⁷ The Platform has supported the Commission in implementing the actions foreseen under the EU action plan for the Circular Economy (2015) to reduce food waste: development of a common methodology and indicators to measure food waste; clarify relevant EU legislation related to waste, food and feed in order to facilitate food donation and utilisation of former foodstuffs as animal feed; and explore options for more effective use and understanding of date marking on food.

¹⁷⁸ The FLW brings together EU institutions, experts from the Member States, international organisations and relevant stakeholders.

¹⁷⁹ The Platform has also produced its own deliverables. (i) As part of its contribution to the Commission’s pilot project to map and analyse existing regulatory and policy measures impacting food redistribution from EU Member States (2018-2020), it adopted a document illustrating how Member States implement EU rules to facilitate food donation in practice. (ii) It has developed key recommendations for action in food waste prevention at each stage of the food supply chain (December 2019). This reference document can support all actors in identifying and implementing appropriate actions to take at national, regional and local levels. (iii) To support effective action on-the-ground, the Platform has also helped the Commission in developing a common evaluation framework for food waste prevention actions and a calculator to quantify the environmental and economic impacts of food waste prevention actions (2019).; European Commission, EU Platform on Food Losses and Food Waste, ‘Activity report – first mandate (2016 – 2021), 2021.

¹⁸⁰ European Commission Joint Research Centre, “Assessment of food waste prevention actions - Development of an evaluation framework to assess the performance of food waste prevention actions”, 2019’, EUR 29901 EN, 4, https://food.ec.europa.eu/system/files/2019-12/fs_eu-actions_eu-platform_jrc-assess-fw.pdf.

<p>added products such as animal feed (2 actions),</p>	
<p>Consumer behaviour change: actions promoting a behavioural shift amongst consumers to achieve a reduction in food waste generation (21 actions),</p>	<ul style="list-style-type: none"> - implementing campaigns to raise awareness on the issue of food waste and providing tips to adopt a less wasteful behaviour; - developing digital tools to guide consumers towards food waste reduction; - running educational programs in schools to inform pupils on the topic of food waste; - assigning awards to virtuous households/students based on food waste reduction achieved.
<p>Improvement of the supply chain efficiency: actions leading to an increase in the efficiency of the food supply chain, by acting either on the processes, the products, or the packaging to promote food waste reduction (21 actions), and</p>	<ul style="list-style-type: none"> - implementing more efficient processes and technologies; - providing training or developing guidelines to achieve food waste reduction at production/processing/distribution stages and in commercial kitchens; - developing digital tools to provide guidance and enable the implementation of the aforementioned food waste reduction measures; - applying discounts for products close to the end of shelf-life (i.e. close to the end of the 'use by' or 'best before' date); - selling at a lower price product that were rejected due to cosmetic reasons; - introducing new packaging options to reduce FW at distribution and/or at consumption (e.g. reducing the perishability of products, creating new packaging sizes); - optimize and clarify the use of date labels to avoid products being discarded prematurely; - improving public procurement procedures to increase their efficiency (e.g. better management of supply and demand); - issuing certificates to companies (manufacturers, distributors or food services) that put in place a set of measures to reduce food waste.
<p>Food waste prevention governance: crosscutting actions that encompass voluntary agreements, national food waste prevention programs, and regulatory frameworks (15 actions).</p>	<ul style="list-style-type: none"> - voluntary agreements aiming at improving resource efficiency and reducing FW within the food sector; - regulatory frameworks/policies (including fiscal incentives) to simplify/promote the redistribution or re-use of surplus food and to promote the implementation of measures to increase the supply chain efficiency; - large scale programmes coordinated at national level encompassing various activities and initiatives to reduce FW through the supply chain; - fiscal incentives for businesses that put in place measures to prevent FW or redistribute/re-use surplus food;

EU Guidelines for the feed use of food no longer intended for human consumption (2018)

As the European Commission established the CEAP to reduce food waste as integral part of the communication on the Circular Economy, one of the initiatives is to valorise the nutrients which are, for commercial reasons or due to problems of manufacturing or certain defects, no longer intended for human consumption, through its safe use in animal nutrition, without compromising animal and public health.

After a consultation of stakeholders several bottlenecks were identified which might hinder or even prevent them from supplying food no longer intended for human consumption to be used as feed. One of these bottlenecks for example is the lack of harmonisation of the requirements for the registration of food business operators in the Member States.¹⁸¹

The EU Guidelines for the feed use of feed no longer intended for human consumption intend to address these issues within the existing legal framework. They do not create new legal provisions or seek to exhaustively cover all provisions. The guidelines should assist the national and local competent authorities and the operators in the food chain in applying the relevant Union legislation, which can be achieved by explaining the legislation applicable depending on the classification of a certain product, enhancing legal clarity, and presenting examples of best practices in EU Member States.¹⁸²

National food waste prevention measures

Since 2018 the WFD focusses on new areas of waste prevention. The two main focus areas are food waste prevention and the promotion of re-use. Under the auspice of the WFD EU Member States may develop separate food waste prevention programmes.¹⁸³ Consequently measures on food waste prevention are included in 28 of the 32 national and regional WPPs. Because of this, Member States have introduced an array of policies and measures, that become subject to evaluation executed by the EEA, including¹⁸⁴:

Actions and measures	EU Member States
Prioritisation of actions against food waste, for better efficiency throughout the whole food chain	Austria, France, the Netherlands, Spain

¹⁸¹ Some require registration as feed business operator only if food no longer intended for human consumption of non-animal origin is directly delivered as feed to farmers, whereas others require registration of all food business operators as feed business operators which deliver food no longer intended for human consumption to be used as feed (Notice European Commission, 'Guidelines for the feed use of food no longer intended for human consumption', 2018/C 133/02, p. 1.)

¹⁸² Notice European Commission, 'Guidelines for the feed use of food no longer intended for human consumption' (2018/C 133/02), p. 2, https://circulareconomy.europa.eu/platform/sites/default/files/feed_guidelines.pdf.

¹⁸³ European Environment Agency, 'Progress towards preventing waste in Europe — the case of textile waste prevention', report No 15/2021, <https://www.eea.europa.eu/publications/progressing-towards-waste-prevention-in>.

¹⁸⁴ European Environment Agency, 'Progress towards preventing waste in Europe — the case of textile waste prevention', report No 15/2021, <https://www.eea.europa.eu/publications/progressing-towards-waste-prevention-in>.

Integration of the waste prevention hierarchy in their management plans or other legislation	Czechia, France, Germany, Hungary, Italy, Latvia
Dealing with surplus food across the food supply chain, including through the creation of digital redistribution platforms	Croatia, Denmark, Finland, Netherlands
Donation of pre-packaged food labelled 'Best before ...' within the timeframe set in the recommendations	Lithuania
Legislation that obliges supermarkets to donate unsaleable but edible food to social institutions or to use it alternatively as animal feed or as compost	France, Italy
Encouragement of food donations by fiscal incentives through tax credits and tax deductions	France, Portugal, Spain
Voluntary agreements in the food sector with the aim of reducing food waste	Spain ("Food has no waste — Use it")
Obligation to register as a food business operator for all charity organisations (that handle the food), including fulfilling requirements for liability, traceability and hygiene	Lithuania, Romania
Guidelines for the prevention of food waste in the catering sector	Germany, Spain
Implementation of action plans to reduce food waste	Austria, Sweden
Provision of funds for research and innovation activities that help reduce food waste	Germany
Educational activities in schools and/or professional training	Croatia, Czechia, Finland, Hungary, Italy
Awareness-raising and behaviour change campaigns for consumers including dedicated events	- Germany ('Too good for the bin!'), Latvia ('Discarded is not gone'), Lithuania ('Sincerely, food'), Spain ('More food, less waste'),

	- Danish 'National Food Waste Day', Germany's 'Germany saves food!' awareness-raising week, the Netherlands' 'Waste-free Week'
Creation of certification schemes and labels	France's 'anti-food waste label', Luxembourg's 'Antigaspi' logo, Portugal's label for 'sustainable production and responsible consumption'

Binding food waste targets

A first conclusion regarding the current legal framework on food waste is that, in order to achieve a solid enforcement of the circular economy and waste legislation on food waste reduction, a clear, ambitious, measurable and sanctionable reduction target for food waste could be introduced for all Member States. In addition, a legal enshrinement of the waste hierarchy that takes into account the particular nature of foodstuffs and therefore includes food donations in particular would be welcome.

In order to tackle these issues Eurostat recently published important data on food consumption and food waste in EU Member States.¹⁸⁵ At EU level, Eurostat concluded that the total food waste measured in 2020 nearly reached 57 million tonnes. It further elaborated on food waste in several categories, such as household food waste (which represented more than 31 million tonnes of fresh mass, with a 55% share of the total), processing and manufacturing food waste, where the amount of measured food waste was slightly above 10 million tonnes of fresh mass, representing an 18% share of the total), food waste from the primary production sector (which represented 6 million tonnes and an 11% share towards the total amount of food waste), food waste from restaurants and food services (representing more than 5 million tonnes and an 9% share towards the total) and food waste from retail and other distribution of food sectors (representing more than 4 million tonnes and a 7% share).

It is clear that the European Commission will focus on targeting food waste and reducing the amounts of food waste by wanting to impose binding food waste targets on EU Member States. This is clearly mentioned in the CEAP 2020 as discussed in detail above. The CEAP 2020 states that a 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. As biological and natural resources are a key input to the economy of the EU that will play an even more important role in the future, the Commission will aim at ensuring the sustainability of renewable bio-based materials. In light of this it must be stated that the food value chain is responsible for significant resource and environmental pressures, an estimated 20% of the total food produced is

¹⁸⁵ Eurostat, ' Food waste and food waste prevention – estimates', 25 October 2022, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Food_waste_and_food_waste_prevention_-_estimates.

lost or wasted in the EU.¹⁸⁶ That is why the European Commission wants to propose a target on food waste reduction, as one of the key actions under the EU Farm-to-Fork Strategy¹⁸⁷, which will comprehensively address the food value chain. This will happen in line with the Sustainable Development Goals¹⁸⁸ under the auspice of the UN and as part of the review of Directive 2008/98/EC38.

More interestingly, the Commission is currently preparing a proposal with a legally binding reduction target for food waste. This binding objective is presumed to be included in the revision process for the WFD and will form one of the guiding principles.¹⁸⁹ The proposal as part of the revised WFD has the general objective to improve sustainability of food systems by reducing food wastage and strives to achieve specific objectives such as ensuring that Member States take ambitious action to reduce food waste in their respective territories and contribute to SDG target 12.3 Possible actions to be taken by EU Member States in light of these objectives are influencing attitudes and behaviours of producers, consumers manufacturers etc., conducting less wasteful practices in food chain (*i.e.* more cooperation, more food donation, more re-use as by products) and raising awareness for the current numbers regarding food waste and spreading knowledge regarding the current issues to all stakeholders.

Additionally, the EU Platform on Food Losses and Food Waste introduced key recommendations that address actions required by both public and private players at each stage of the food supply chain. These recommendations also include a set of 'cross-cutting' recommendations, which are common across various stages of the food value chain, often involve multiple actors and are needed to achieve the global food loss and waste targets¹⁹⁰. The European Commission claims that the recommendations for action will play a key role in helping to scale-up action across the EU, mobilising Member States, food businesses and civil society.¹⁹¹

The binding targets and additional measures mentioned above should be linked to the waste hierarchy as mentioned above in the sense that the new legal framework regarding waste should not only maintain targets for waste prevention, being top of the hierarchy, but also targets regarding re-use and recycling. These targets are complementary for the reason that they all contribute to tackling the huge amounts of waste being generated in the EU.

¹⁸⁶ European Commission, "A new Circular Economy Action Plan - For a cleaner and more competitive Europe", 2020, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0098&from=EN>.

¹⁸⁷ European Commission, "Food Safety – Farm to Fork strategy", https://ec.europa.eu/food/horizontal-topics/farm-fork-strategy_en.

¹⁸⁸ SDG is an international framework, but they are no commitment to results. Reporting is voluntary but this is the difference with the commission as it will be a binding legal framework. At least, this is the idea. Now results must follow.

¹⁸⁹ EU Platform on Food Losses and Food Waste, 'Food Waste reduction targets – update', 22 October 2022, flw_eu-platform_20221020_pres04.pdf (europa.eu).

¹⁹⁰ Sustainable Development Goal 12.3: "By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses"; United Nations, "Ensure sustainable consumption and production patterns", <https://sdgs.un.org/goals/goal12>.

¹⁹¹ European Commission, "Food safety - Key recommendations for action", https://ec.europa.eu/food/safety/food-waste/eu-actions-against-food-waste/eu-platform-food-losses-and-food-waste/key-recommendations_en.

Subsection 3: Textile waste prevention

Applicable framework

Textiles entail the fourth highest-pressure category for the use of primary raw materials and water, after food, housing and transport, and fifth for GHG emissions¹⁹². Less than 1% of all textiles worldwide are recycled into new textiles.¹⁹³ The Textile Regulation (EU) No 1007/2011¹⁹⁴ is the core legislation for textile waste prevention.

The EU has introduced new initiatives in which textile waste prevention has a central role, such as CEAP 2020¹⁹⁵ and the EU strategy for sustainable and circular textiles¹⁹⁶.

The Commission's 2030 Vision for textiles can be summarised as:

- All textile products placed on the EU market are durable, repairable and recyclable, to a great extent made of recycled fibres, free of hazardous substances, produced in respect of social rights and the environment;
- “Fast fashion is out of fashion” and consumers benefit longer from high quality affordable textiles;
- Profitable re-use and repair services are widely available;
- The textiles sector is competitive, resilient and innovative with producers taking responsibility for their products along the value chain with sufficient capacities for recycling and minimal incineration and landfilling.¹⁹⁷

These measures form the basis for the revision of the legal framework regarding waste management of textiles, such as the Textile Regulation (EU) No 1007/2011¹⁹⁸ and, more generally, the WFD and the Proposal for Ecodesign for Sustainable Products Regulation.

The WFD obliges all Member States to collect textile waste separately by 2025. The European Commission expects to reduce the amount of textile waste ending up in residual waste and to increase the amount of textiles available for re-use or recycling.

¹⁹² European Environmental Agency, Briefing report – Textiles in Europe’s circular economy, November 2019, <https://www.eea.europa.eu/publications/textiles-in-europes-circular-economy>.

¹⁹³ Ellen McArthur Foundation, ‘A new Textiles Economy’, 2017, <https://ellenmacarthurfoundation.org/a-new-textiles-economy>.

¹⁹⁴ The Regulation on textile fibre names and related labelling and marking of the fibre composition of textile products.

¹⁹⁵ The new Circular Economy Action Plan gives a major role to the approach to sustainable textiles. The CEAP cites several action points to enable the transition to the circular economy in textiles. The CEAP focuses within its analysis of a ‘sustainable product policy framework’ on designing sustainable products.

¹⁹⁶ European Commission, EU Strategy for Sustainable and Circular Textiles COM(2022) 141, https://eur-lex.europa.eu/resource.html?uri=cellar:9d2e47d1-b0f3-11ec-83e1-01aa75ed71a1.0001.02/DOC_1&format=PDF.

¹⁹⁷ European Commission, EU Strategy for Sustainable and Circular Textiles COM(2022) 141, https://eur-lex.europa.eu/resource.html?uri=cellar:9d2e47d1-b0f3-11ec-83e1-01aa75ed71a1.0001.02/DOC_1&format=PDF.

¹⁹⁸ European Parliament and Council (EU) Regulation No 1007/2011 of 27 September 2011 on textile fibre names and related labelling and marking of the fibre composition of textile products and repealing Council Directive 73/44/EEC and Directives 96/73/EC and 2008/121/EC of the European Parliament and of the Council, 15/02/2018, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011R1007&from=EN>.

The EU Strategy for Textiles aims at boosting the EU market for sustainable and circular textiles, including the market for textile re-use, with the focus on tackling fast fashion. It is stated in the CEAP that these targets will be achieved by the following measures:

- Applying the new sustainable product framework as set out in section 2 of the CEAP to textiles, which includes 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.

The EU strategy for sustainable and circular textiles put forward by the European Commission announces several legislative initiatives in which waste prevention measures will play a key role.

Firstly, the EU strategy for sustainable and circular textiles states that extending the life of textile products is the most effective way of significantly reducing the impact on the environment and inducing the prevention of waste. To achieve this, improved product design is brought forward as a key tool because failures in quality such as colour fastness, tear strength or the quality of zippers and seams are among the main reasons for consumers to discard textiles.¹⁹⁹ Consequently, if the durability of clothing will be increased, consumers are able to use clothing for longer and at the same time support circular business models such as re-use, renting and repair, take-back services and second-hand retail, in a way that creates cost-saving opportunities to citizens.

Moreover the European Commission will introduce several requirements related to environmental aspects of textile products. These requirements entail detailed criteria for good quality and durable products, restrictions of hazardous chemicals, as well as requirements on environmentally sustainable sourcing of textile fibres.

Under the proposed Ecodesign for Sustainable Products Regulation the European Commission proposes a transparency obligation requiring large companies to publicly disclose the number of products they discard and destroy, including textiles and their further treatment in terms of

¹⁹⁹ European Commission, EU Strategy for Sustainable and Circular Textiles COM(2022) 141, p.3, https://eur-lex.europa.eu/resource.html?uri=cellar:9d2e47d1-b0f3-11ec-83e1-01aa75ed71a1.0001.02/DOC_1&format=PDF.

preparing for re-use, recycling, incineration or landfilling.²⁰⁰ Based on the reporting, the European Commission will evaluate whether a ban on the destruction of unsold or returned textiles is needed and feasible. In light of this, Article 20 of the proposed Ecodesign for Sustainable Products Regulation states:

*“The Commission shall be empowered to adopt delegated acts in accordance with Article 66 to supplement this Regulation by prohibiting economic operators **to destroy unsold consumer products in the Union, where the destruction of unsold consumer products falling within a certain product group has significant environmental impact.***

In the delegated acts adopted pursuant to the first subparagraph, the Commission shall set out certain exemptions to those prohibitions where it is appropriate in view of:

(a) health and safety concerns;

(b) damage to products as a result of their handling or detected after a product has been returned by a consumer;

(c) fitness of the product for the purpose for which it is intended, taking into account, where applicable, Union and national law and technical standards;

(d) refusal of products for donation, preparing for re-use or remanufacturing.”

Finally, the European Commission will propose harmonised EU extended producer responsibility (EPR) rules for textiles with eco-modulation of fees, as part of the forthcoming revision of the WFD in 2023. One of the key objectives in this regard will be the creation of an economy for collection, sorting, re-use, preparation for re-use and recycling, as well as incentives for producers and brands to ensure that their products are designed in respect of circularity principles. In order to assess this process, the Commission will propose that a notable share of contributions made to EPR schemes will be dedicated to waste prevention measures and preparation for re-use.²⁰¹

Waste prevention measures

When analysing the specific waste prevention measures laid down in the Textile Regulation, it is clear that it mainly focusses on labelling and marking of the fibre composition of textile products, as it requires that textile products sold in the EU are labelled or marked to provide information about their fibre composition.

The EU strategy for sustainable and circular textiles, on the other hand, marked the intentions of the European Commission to address the different lifecycle stages at which synthetic fibres are shed into the environment by a set of prevention and reduction measures, notably through binding design requirements, now introduced under the draft Ecodesign for Sustainable Products Regulation, as well as under the Commission initiative to address the unintentional release of

²⁰⁰ Art. 20 Proposal for a Regulation of the European Parliament and of the Council establishing a framework for setting ecodesign requirements for sustainable products and repealing Directive 2009/125/EC, COM(2022) 142 final, https://eur-lex.europa.eu/resource.html?uri=cellar:bb8539b7-b1b5-11ec-9d96-01aa75ed71a1.0001.02/DOC_1&format=PDF.

²⁰¹ European Commission, EU Strategy for Sustainable and Circular Textiles COM(2022) 141, p.7, https://eur-lex.europa.eu/resource.html?uri=cellar:9d2e47d1-b0f3-11ec-83e1-01aa75ed71a1.0001.02/DOC_1&format=PDF.

microplastics in the environment²⁰². In addition to product design, measures will target manufacturing processes, prewashing at industrial manufacturing plants, labelling and the promotion of innovative materials. The EU Textile Strategy does not elaborate extensively on specific waste prevention measures, but rather forms an excellent legal and policy basis for legislation currently under revision or already being introduced by the European Commission, that includes appropriate waste prevention measures such as tackling the overextensive destruction of unsold consumer products.²⁰³

²⁰² European Commission, Measures aiming to reduce the presence in the environment of unintentionally released microplastics from tyres, textiles and plastic pellets', https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12823-Microplastics-pollution-measures-to-reduce-its-impact-on-the-environment_en.

²⁰³ European Commission, EU Strategy for Sustainable and Circular Textiles COM(2022) 141, p.4-5, https://eur-lex.europa.eu/resource.html?uri=cellar:9d2e47d1-b0f3-11ec-83e1-01aa75ed71a1.0001.02/DOC_1&format=PDF

Subsection 4: Electrical and Electronic Equipment Waste prevention

Applicable framework

Another waste stream addressed in this study is the Waste from electrical and electronic equipment (“WEEE”). WEEE includes a large range of devices such as computers, fridges and mobile phones at the end of their life. This type of waste contains a complex mixture of materials, some of which are hazardous. These can cause major environmental and health problems if the discarded devices are not managed properly.²⁰⁴ In addition, modern electronics contain rare and expensive resources, which can be recycled and re-used if the waste is effectively managed. Improving the collection, treatment and recycling of electrical and electronic equipment (EEE) at the end of their life can improve sustainable production and consumption, increase resource efficiency and contribute to the circular economy.²⁰⁵

It was clear that the growing amount of WEEE needed to be tackled, reason for which the EU introduced the WEEE Directive²⁰⁶. The WEEE Directive aims to protect the environment and human health by encouraging sustainable production and consumption, more specifically by:

- preventing the creation of waste from electrical and electronic equipment (WEEE),
- promoting re-use and repair, recycling and other ways of recovering waste from electrical and electronic equipment (EEE),
- supporting the efficient use of resources and recovery of valuable secondary raw materials.

In order to achieve these objectives, the Directive requires the separate collection and proper treatment of WEEE and sets targets for their collection as well as for their recovery and recycling. The Directive facilitates the tackling of illegal waste exports by making it more difficult for exporters to disguise illegal shipments of WEEE. Furthermore, it reduces the administrative burden by pursuing the harmonisation of national EEE registers and of the reporting format.²⁰⁷

Waste prevention measures

The WEEE Directive imposes certain waste prevention requirements on EU Member States. In particular, Member States must:

²⁰⁴ European Commission, Waste from Electrical and Electronic Equipment (WEEE), https://environment.ec.europa.eu/topics/waste-and-recycling/waste-electrical-and-electronic-equipment-weee_en.

²⁰⁵ European Commission, Waste from Electrical and Electronic Equipment (WEEE), https://environment.ec.europa.eu/topics/waste-and-recycling/waste-electrical-and-electronic-equipment-weee_en.

²⁰⁶ Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE).

²⁰⁷ European Commission, Waste from Electrical and Electronic Equipment (WEEE), https://environment.ec.europa.eu/topics/waste-and-recycling/waste-electrical-and-electronic-equipment-weee_en.

- encourage cooperation between producers and recyclers to design electrical equipment which can be re-used, dismantled or recovered in line with the Ecodesign Directive²⁰⁸;
- minimise the disposal of WEEE in unsorted municipal waste;
- allow private households and distributors to return WEEE free of charge;
- ban the disposal of WEEE collected separately that has not been properly treated;
- ensure a minimum annual WEEE collection rate²⁰⁹.

In order to comply with the waste prevention requirements, EU Member States must:

- verify whether all plants treating WEEE are officially licensed;
- establish a register of all companies producing or importing electrical and electronic equipment;
- carry out inspections to ensure compliance with the legislation and establish penalties for infringement of the legal requirements;
- require producers to: (i) meet minimum treatment targets for different WEEE categories, (ii) finance the cost of collection, treatment, recovery and environmentally sound disposal from all users, apart from private households, of products on sale from 13 August 2005 and (iii) provide information to the public on how WEEE can be returned and collected.

Finally, it is essential to note that the Commission is currently evaluating the WEEE Directive to verify whether the Directive is still fit for purpose. Through this evaluation the Commission is currently exploring certain possibilities to simplify the WEEE Directive. The European Commission intends to organise several stakeholder consultations the first quarter of 2023, and intends to publish an extensive study to support the executed evaluation.²¹⁰

²⁰⁸ European Parliament and Council Directive 2009/125/EC of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products.

²⁰⁹ As of 2016, this is 45% of total weight of electrical and electronic equipment that was sold in the past three years and, from 2019, this target increases to 65% which is equivalent to a target for collection of 85% of the total WEEE generated. Member States are entitled to establish more ambitious targets.

²¹⁰ European Commission, 'Waste from electrical and electronic equipment – evaluating the EU rules', https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13420-Waste-from-electrical-and-electronic-equipment-evaluating-the-EU-rules_en

Subsection 5: Plastic Waste prevention

Applicable framework

The EU legal framework regarding plastic waste is currently fragmented as there are several applicable Directives containing requirements for the processing of plastic waste.

the first, the Packaging and Packaging Waste Directive²¹¹ sets out measures and requirements for the prevention, re-use and recovery of packaging waste in Member States ensuring that packaging placed on the EU market complies with the essential requirements mentioned in the Directive²¹². These requirements aim to reduce packaging waste and to establish design requirements that cater to a wide range of packaging materials and packaged goods. Packaging that meets these requirements is guaranteed free circulation in the EU.

The Commission continued its ambition towards reducing packaging waste through the recent Proposal for a revision of the EU Regulation on Packaging and Packaging Waste²¹³. The European Commission proposed this new framework on packaging to tackle the constantly growing source of waste and of consumer frustration. The rules provided in the proposal are ensuring reusable packaging options, putting a halt to unnecessary packaging, a limitation on overpackaging and the establishment of clear labels to support correct recycling. For several industries, the proposed framework tends to create new business opportunities and decrease the need for raw materials, which should lead to an increase of the EU's recycling capacity and to a less dependent stance towards external suppliers for resources. Below, this study elaborates on several (waste prevention) measures being proposed by the new regulatory framework. Additionally, the Single Use Plastics Directive²¹⁴ sets out several provisions regarding plastic waste streams and aims to prevent and reduce the impact on the environment of certain plastic products and to promote a transition to a circular economy by introducing a mix of measures tailored to the products covered by the Directive, including an EU-wide ban on single-use plastic ("SUP") products whenever alternatives are available. It also states that Extended Producer Responsibility is involved in the targets and requires Member States to ensure separate collection.

Moreover, with regards to microplastics, the 'Microplastics Initiative'²¹⁵ was planned for the fourth quarter (Q4) of 2022 by the European Commission. However, the current status of this initiative is

²¹¹ European Parliament and Council Directive 2018/852/EC 2018/852 amending Directive 94/62/EC on packaging and packaging waste, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:01994L0062-20180704&from=EN>.

²¹² Art. 9 European Parliament and Council Directive 2018/852/EC 2018/852 amending Directive 94/62/EC on packaging and packaging waste.

²¹³ Proposal for a European Parliament and Council Regulation on packaging and packaging waste, amending Regulation (EU) 2019/1020 and Directive (EU) 2019/904, and repealing Directive 94/62/EC, <https://environment.ec.europa.eu/system/files/2022-11/Proposal%20for%20a%20Regulation%20on%20packaging%20and%20packaging%20waste.pdf>.

²¹⁴ Directive 2019/904 of the European Parliament and of the Council on the reduction of the impact of certain plastic products on the environment.

²¹⁵ European Commission, Measures aiming to reduce the presence in the environment of unintentionally released microplastics from tyres, textiles and plastic pellets', https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12823-Microplastics-pollution-measures-to-reduce-its-impact-on-the-environment_en.

unclear as the European Commission marks it with “feedback – upcoming”. The Microplastics Initiative aims to tackle microplastics unintentionally released into the environment, focusing on labelling, standardisation, certification and regulatory measures for the main sources of these plastics. It further aims to improve the clear view on the risks and occurrence of microplastics in the environment, tap water and food, and to reduce environmental pollution and potential health risks, while respecting the principles of the single market and encouraging competitiveness and innovation. This initiative is being developed in coordination with other new and ongoing initiatives, such as the Sustainable Products Initiative²¹⁶.

Finally, the Plastic Bags Directive²¹⁷ was adopted in order to target the unsustainable consumption and use of lightweight plastic carrier bags. EU Member States must take measures to reduce the consumption of lightweight plastic carrier bags such as national reduction targets, restrictions on their use or financial measures (charging for them).

These provisions constitute the general legal framework for plastic waste in the EU. Nevertheless, there is other legislation containing several provisions which have an (indirect) impact on the processing of plastic waste. For example the Directive 2000/53/EC on end-of-life vehicles²¹⁸ emphasizes the need for continuous improvement in the recycling of all plastics from end-of-life vehicles, as well as the development of markets for recycled materials. This Directive also aims to improve the environmental performance of all economic operators involved in the life cycle of the vehicles.

In order to have a complete view of the broad spectrum of applicable rules and policy frameworks regarding plastics, it is highly essential to also take into account soft law. Although the applicable legal framework is, as mentioned, fragmented, the European Commission introduced an important initiative, the ‘Plastics Strategy’²¹⁹, in order to tackle the problem of an unharmonized framework regarding plastic waste.

The Plastics Strategy aims to protect our environment and reduce marine litter, greenhouse gas emissions and our dependence on imported fossil fuels. It will support more sustainable and safer consumption and production patterns for plastics. It also aims to transform the way plastic products are designed, produced, used and recycled in the EU.

This initiative introduced several actions to be taken, such as making recycling profitable for business, curbing plastic waste and promoting global change by introducing international standards on plastics. In Annex I of the Plastics Strategy, a full list of actions and recommendations was introduced. These proposed measures are essential to take into account by establish a new amended WFD.

²¹⁶ European Commission, ‘Sustainable Products Initiative’, https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12567-Sustainable-products-initiative_en.

²¹⁷ European Parliament and Council Directive 2015/720 amending Directive 94/62/EC as regards reducing the consumption of lightweight plastic carrier bags, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015L0720&from=EN>.

²¹⁸ European Parliament and Council (EU) Directive No 2000/53/EC of 18 September 2000 on end-of life vehicles.

²¹⁹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, ‘A European Strategy for Plastics in a Circular Economy’, COM/2018/028 final, <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1516265440535&uri=COM:2018:28:FIN>.

Waste prevention measures

The current Packaging and Packaging Waste Directive, as amended in 2018, requires EU Member States to take measures, such as national programmes, incentives through extended producer responsibility schemes and other economic instruments, to prevent the generation of packaging waste and to minimise the environmental impact of packaging.²²⁰ EU Member States should encourage the increase in the share of reusable packaging put on the market and of systems to re-use packaging in an environmentally sound manner without compromising food safety or the safety of consumers. This may include deposit-return schemes, economic incentives, minimum percentages of reusable packaging placed on the market for each type of packaging, and targets.²²¹

Interestingly, for the purpose of this study, it is essential to note that the Packaging and Packaging Waste Directive lays down several environmental targets for EU Member States regarding packaging waste specified for several materials by 2025 and 2030 (see table).²²² Although these targets are being implemented with regard to the promotion of recovery and recycling, these targets could form suitable waste prevention measures for the purpose of achieving a circular and waste reduced economy. By imposing concrete prevention targets in similarity to the recovery and recycling targets mentioned in the Packaging and Packaging Waste Directive, the EU can enforce actual food waste prevention on EU Member States.

2025	2030
By 31 December 2025, at least 65% by weight of all packaging waste must be recycled. The recycling targets per material are: 50% of plastic 25% of wood 70% of ferrous metals 50% of aluminium 70% of glass, and 75% of paper and cardboard	By 31 December 2030, at least 70% by weight of all packaging waste must be recycled. This includes: 55% of plastic 30% of wood 80% of ferrous metals 60% of aluminium 75% of glass and 85% of paper and cardboard

As mentioned above, under Article 4 of this Directive EU Member States should already take measures in order to prevent plastic waste, such as introducing national programmes, incentives through EPR schemes etc. Regarding actual prevention targets the Directive laid down two scenarios for EU Member States to opt from:

- Either EU Members States adopt measures ensuring that the annual consumption level does not exceed 90 lightweight plastic carrier bags per person by 31 December 2019 and 40 lightweight plastic carrier bags per person by 31 December 2025, or equivalent targets set in weight²²³;
- Or EU Member States adopt instruments ensuring that, by 31 December 2018, lightweight plastic carrier bags are not provided free of charge at the point of sale of goods or

²²⁰ Art. 4 Packaging and Packaging Waste Directive.

²²¹ Directive 94/62/EC on packaging and packaging waste.

²²² Art. 6 (1)(f)-(i) Packaging and Packaging Waste Directive.

²²³ Very lightweight plastic carrier bags may be excluded from national consumption objectives.

products, unless equally effective instruments are implemented. Very lightweight plastic carrier bags may be excluded from those measures.

As most of the deadlines mentioned above have expired, it is recommended that the EU will impose new and binding targets for EU Member States to achieve before a certain year in order to drastically reduce processing of plastic waste.

Under the Packaging and Packaging Waste Directive, EU Member States must also ensure that the packaging placed on the market meets the **essential requirements** contained in Annex II of the Directive. These essential requirements entail:

- the limitation of the weight and volume of packaging to a minimum adequate amount in order to still meet the required level of safety, hygiene and acceptability for the packed product and for the consumers;
- the minimization of the content of hazardous substances and materials in the packaging material and its components;
- the design of reusable or recoverable packaging, which may include design for material or organic recycling as well as design for energy recovery.²²⁴

As mentioned above, the European Commission has recently introduced a proposal for a regulation on packaging and packaging waste. This new regulatory framework has several main objectives, including a new focus on (packaging) waste prevention. The legislative proposal focusses on reducing packaging waste in quantity, restricting unnecessary packaging and promoting reusable and refillable packaging solutions. The European Commission is committed to boost high quality recycling and make all packaging on the EU market recyclable in an economically viable way by 2030.

With regard to prevention measures, the legislative proposal intends to reduce the need for primary natural resources and create a well-functioning market for secondary raw materials, increasing the use of recycled plastics in packaging through mandatory targets.

The main target is to reduce packaging waste with 15% by 2040 per Member State per capita. This would lead to an overall waste reduction in the EU of 37% compared to a scenario without amending the legislation. Nevertheless, the said proposal sets forward to achieve above mentioned goals mainly through both re-use and recycling and less through actual waste prevention.

To address unnecessary packaging, the Commission intends to ban certain forms of packaging, such as single-use packaging for food and beverages, single-use packaging for fruits and vegetables, cosmetics and other miniature packaging provided to customers hotels. Many measures aim to make packaging fully recyclable by 2030. This includes e.g. establishing certain design criteria for packaging.

²²⁴ Annex II Packaging and Packaging Waste Directive.

Article 49 of the proposal requires producers or producer responsibility organisations to make available information on prevention and management of packaging waste for the packaging they supply within the territory of a Member State. This is very interesting as it emphasizes the need for valid information and data in order to tackle waste generation by prevention. In Chapter 4 of this study several recommendations are being presented, including a recommendation focusing on extended producer responsibility (EPR) schemes in the WFD and the use of a Digital Product Passport in several waste streams. Based on this legislative proposal it is clear that the European Commission intends to focus more on valid information regarding waste generation in EU Member States in order to implement the right prevention measures. Through a revised role of the EPR schemes and the Digital Product Passport, containing several information requirements for producers, manufacturers etc., the legislative waste framework could take essential steps in creating a overall tool for EU Members States to have a clear view on the actual waste generation before taking the appropriate waste prevention measures.

In legal frameworks, other than the Packaging and Packaging Waste Directive, there are several other measures incorporated by the EU. Under the auspice of the Single Use Plastic Directive, for example, EU Member States are required to take measures to reduce the consumption of certain single-use plastics, such as drinking cups including covers and lids, and containers of prepared food for immediate consumption, and are required to monitor consumption of these single-use products as well as the measures taken and report the progress made to the European Commission.²²⁵ Moreover, EU Member States may introduce national consumption reduction targets, measures ensuring that re-usable alternatives to the single-use plastic products are made available at the point of sale to the final consumer.

Other waste prevention measures entail the obligation for certain disposable plastic products placed on the market, such as sanitary items, tobacco products etc., to carry a visible, clearly legible and indelible marking affixed to its packaging or to the product itself. These markings or labels should inform consumers about appropriate waste management options for the product or what type of waste disposal should be avoided for the product and general presence of plastics in the product.²²⁶

Following the CEAP 2020, in addition to measures to reduce plastic litter, the European Commission indicated several waste prevention measures to be taken. These measures would be addressing the presence of microplastics in the environment by restricting intentionally added microplastics and tackling pellets, by developing labelling, standardisation, certification and regulatory measures on unintentional release of microplastics. Additionally, these measures would include efforts to increase the capture of microplastics at all relevant stages of products' lifecycle.²²⁷

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

²²⁵ Art. 4 Single Use Plastics Directive; Annex (A) Single Use Plastics Directive.

²²⁶ Art. 7 Single Use Plastics Directive.

²²⁷ European Commission, "A new Circular Economy Action Plan - For a cleaner and more competitive Europe", 2020, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0098&from=EN>.

- 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 '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.

Finally, it is interesting to mention something what is unfortunately misunderstood as the “European plastics Tax”. More correctly, since the 1st of January 2021 the EU put in place the ‘Plastics own resource’. This consists of a national EU Member States contributions that are based on the amount of non-recycled plastic packaging waste in the respective countries. Following the European Commission, this initiative is encouraging EU Member States to reduce packaging waste and stimulate Europe’s transition towards a circular economy by implementing the European Plastics Strategy.²²⁸ This strategy lays the foundations to a new plastics economy, where the design and production of plastics and plastic products fully respect re-use, repair and recycling needs and more sustainable materials are developed and promoted. Additionally the ‘Plastics own resource’ leaves Member States the possibility to define the most suitable policies to reduce plastic packaging waste pollution. For example, a uniform call rate of €0.80 per kilogram will be applied to the weight of plastic packaging waste that is not recycled, with a mechanism to avoid excessive contributions from less wealthy EU Member States.²²⁹ These additional contributions to the EU’s budget form an excellent incentive for EU Member States to reduce the use of plastic packing waste.

Within the WFD these incentives can not only be implemented more extensively with regards to plastic packaging waste but can also be extended to other waste streams.

²²⁸ European Commission, ‘Plastics own resource’, https://ec.europa.eu/info/strategy/eu-budget/long-term-eu-budget/2021-2027/revenue/own-resources/plastics-own-resource_en.

²²⁹ Council (EU) Decision No 2020/2053 of 14 December 2020 on the system of own resources of the European Union and repealing Decision 2014/335/EU, Euratom, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020D2053&from=EN>.

Chapter 4: Recommendations to strengthen waste prevention in the waste framework directive

Section 1: Introduction

Chapter 4 contains nine recommendations to improve or strengthen waste prevention in the WFD. These recommendations consist of general recommendations (section 2) and recommended modifications to existing Articles (section 3).

First, the rationale behind each recommendation is explained. For each recommendation, a verification is conducted to ensure that it does not undermine other binding EU provisions.

The aim of the recommendations is to accelerate waste and material prevention actions in Member States through the WFD. Recent national initiatives on waste prevention, such as ‘the Catalan law on food loss and waste prevention’, ‘French law promoting bulk and reusable packaging’, ‘Ireland plan on single-use and plastic packaging’, ‘Flanders plan for household waste and comparable industrial waste’ and ‘Balearic Islands law on waste’, demonstrate that the WFD has the potential to improve waste prevention in the EU. Nevertheless, further policy initiatives and binding legislation are required to achieve the goal of creating a circular economy in the EU.

Today, the WFD is the general framework for waste prevention. Some experts advocate that the WFD must maintain that role as facilitator and state that further waste prevention measures must be imposed through waste stream specific regulation. The WFD must not become an instrument that sets rules or targets for specific waste streams. The focus of the WFD is to encourage and oblige Member States to work on overarching waste and material prevention measures: imposing targets, enforcing efficient and comprehensive WPPs, EPR schemes covering the full cost of the products, promoting circular economy and sustainable products, etc.

Section 2: General recommendations

Recommendation 1: Assess the appropriate legal basis and instrument for a revised Waste Framework Directive

As a recent tendency, when amending existing directives, the European Commission has on various occasions proposed to replace such directives by regulations. The suggestion of several interviewed experts is to adopt the same approach with regard to the WFD.

The theoretical distinction between a regulation and a directive

Definition. A regulation has general application, is binding in its entirety and is directly applicable in all EU Member States.²³⁰ A directive is binding as regards the result to be achieved by each EU Member State to which it is addressed, but leaves the choice of form and methods to national authorities.²³¹

Applicability. Regulations are directly applicable and in principle do not require transposition into national legislation. With the latter it is meant that the provisions laid out in the EU regulation are considered part of the respective national legal system. Regulations must therefore be fully and uniformly applied across the EU from the date of their entry into force and for as long as the respective regulations are in force. By reason of their nature and function in EU law, regulations generally have direct effect and are thus capable of creating individual rights which national courts must protect.²³² In order to obtain ('horizontal' and 'vertical') direct effect, a provision in a regulation must be sufficiently clear, precise and unconditional.²³³ Regulations usually cover very specific matters and are often technical in nature, but may also be politically important (for instance, with respect to sanctions against third countries). Among other characteristics, the direct effect of regulations makes EU cooperation particularly unique compared to more traditional forms of international cooperation. Regulations may have 'horizontal' and 'vertical' direct effect. A 'horizontal' direct effect implies that an individual can invoke a provision in relation to another individual, whereas a 'vertical' direct effect implies that individuals can invoke a provision in relation to the State.²³⁴

In contrast to a regulation, the provisions of a directive require transposition into national law and would only then achieve full legislative status in the domestic legal systems. Directives reflect the idea of subsidiarity and generally grant EU Member States more implementation freedom compared to regulations. However, the actual enforcement of directives generally takes a longer period of time as compared to regulations as a result of the required transposition.²³⁵ The provisions

²³⁰ Art. 288(2) of the Treaty on the Functioning of the EU ("TFEU").

²³¹ Art. 288(3) TFEU.

²³² See e.g. ECJ 14 December 1971, Case 43/71, *Politi s.a.s.*

²³³ See e.g. ECJ 5 February 1963, Case 26/62, *Van Gend en Loos*; ECJ 8 April 1976, Case 43/75, *Defrenne v Sabena* and ECJ 24 June 2004, C-278/02, *Herbert Handlbauer GmbH*.

²³⁴ See K. Lenaerts and P. Van Nuffel, "European Union Law", 2011, London: Sweet & Maxwell and E. Rotondo, "The legal effect of EU Regulations", *Computer Law & Security Review* 29(4), 2013, <https://doi.org/10.1016/j.clsr.2013.05.003>.

²³⁵ K. Lenaerts and P. Van Nuffel, "European Union Law", London: Sweet & Maxwell.

of a directive itself could have ‘vertical’ direct effect when the directive was not transposed within the implementation period insofar as the directive in question is sufficiently clear, precise and unconditional.²³⁶

Maximum and minimum harmonisation. With regard to directives, maximum (or full) and minimum harmonisation requirements should be distinguished. In the case of minimum harmonisation, a directive sets minimum standards, often in recognition of national EU legal systems already having adopted higher standards. In this event, EU Member States can in principle set higher standards than those contained in the directive. In the event of maximum harmonisation, the national legislation implementing a directive should not set stricter requirements than the provisions of the concerned directive.

The WFD currently adopts a minimum harmonisation approach for several elements covered by waste legislation. For example, the WFD has introduced general minimum requirements to improve harmonisation, increase transparency, cost-efficiency, accountability and better enforcement of EPR obligations at national level. Under the new rules, eco-modulation of EPR fees has become mandatory with a view to boost recyclability.

Primacy of EU law. EU law has primacy over the national legislation of EU Member States, including national constitutional provisions.²³⁷ Accordingly, when national rules are incompatible with the provisions of a regulation, the former must be set aside by national courts of EU Member States, in principle regardless of whether the national rules were adopted before or after the concerned regulation.²³⁸ The same holds true for national rules that are applied to a different or contrary effect than the provisions of a regulation.²³⁹

It is in principle not forbidden to adopt national rules in a field occupied by a regulation. Though often considered to be the most effective EU law instrument to lay down uniform rules, regulations should not (always) be associated with exhaustive harmonisation.²⁴⁰ Indeed, regulations may confine themselves to a minimum harmonisation of a specific matter.²⁴¹ For instance, regulations may replace directives intending to set out minimum harmonisation and can preserve the minimum standards prescribed therein.²⁴² Both the general wording of a regulation as well as the wording of specific provisions or targets should be assessed to determine the type of harmonisation concerned.

It is equally important to consider the legal basis suggested by the European Commission for the adoption of a regulation or directive. The WFD was adopted based on Article 175(1) of the Treaty establishing the European Community (“TEC”), now Article 192(1) TFEU. Article 176 TEC and its successor Article 193 TFEU stipulate that protective measures adopted under resp. Article 175 TEC

²³⁶ See e.g. ECJ 4 December 1974, Case 41/74, van Duyn and ECJ 5 April 1979, Case 148/78, Ratti.

²³⁷ See e.g. ECJ 15 July 1964, Case 6/64, Costa v E.N.E.L and ECJ 17 December 1970, Case 11/70, Internationale Handelsgesellschaft.

²³⁸ See e.g. ECJ 30 November 1978, Case 31/78, Bussone; ECJ 9 March 1978, Case 106/77, Simmenthal; ECJ 22 October 1998, C-10/97 to C-22/97, IN.CO.GE. and ECJ 14 December 1971, Case 43/71, Politi s.a.s.

²³⁹ See e.g. ECJ 6 December 1977, Case 55/77, Maris v Rijksdienst voor Werknemerspensionen.

²⁴⁰ A. Arena, “The Doctrine of Union Preemption in the EU Single Market: Between Sein and Sollen”, 03/2010, Jean Monnet Working Paper, <https://jeanmonnetprogram.org/paper/the-doctrine-of-union-preemption-in-the-eu-single-market-between-sein-and-sollen/>.

²⁴¹ R. Schütze, “European Constitutional Law”, Cambridge University Press, 2012, 540 p.

²⁴² A. Arena, “The Doctrine of Union Preemption in the EU Single Market: Between Sein and Sollen”, 03/2010, Jean Monnet Working Paper, <https://jeanmonnetprogram.org/paper/the-doctrine-of-union-preemption-in-the-eu-single-market-between-sein-and-sollen/>.

and Article 192 TFEU shall not prevent any EU Member State from maintaining or introducing more stringent protective measures.²⁴³ However, the European Commission may well suggest a different legal basis for a successor of the WFD which may not foresee in the same possibility.²⁴⁴

As described and compared below, the legal basis for the successor of the WFD may thus indeed influence the possibility of EU Member States to maintain or introduce more stringent protective national provisions.

For instance, as one of the potential legal bases, Article 114(1) TFEU confers upon the EU the competence to adopt harmonisation measures of national rules regarding the establishment and functioning of the EU internal market.²⁴⁵ For harmonisation measures adopted pursuant to Article 114(1) TFEU, EU Member States are, for instance, required to notify the European Commission of (more stringent) national provisions relating to the protection of the environment:

- (i) which already exist and are being maintained by that EU Member State²⁴⁶; and
- (ii) which are new and are based on new scientific evidence on grounds of a problem specific to that EU Member State arising after the adoption of the harmonisation measure.²⁴⁷

In the above situations and within six months of notification, the European Commission may approve or reject the national provisions concerned after verifying whether the latter constitute (i) a means of arbitrary discrimination, (ii) a disguised restriction on trade between EU Member States and/or (iii) an obstacle to the functioning of the EU internal market.²⁴⁸ In the event of an approval of the national provisions, the European Commission would also examine whether the harmonisation measure should be amended in any way.²⁴⁹

Should the successor of the WFD be based on Articles 192(1) TFEU, then EU Member States may have a greater ability to maintain and introduce more stringent protective national provisions.²⁵⁰ In particular, EU Member States would in that case only be required to notify the European Commission of the national provisions they intend to adopt and to ensure that such provisions are compatible with the EU Treaties.

If the successor of the WFD would be based both on Articles 114(1) and 192(1) TFEU, then the concomitant application of the mentioned legal bases may lead to legal uncertainty in the context of a potential maintenance or adoption of more stringent protective national provisions by EU

²⁴³ Article 193 TFEU also prescribes that the more stringent protective measures must be compatible with the EU Treaties and must be notified to the Commission.

²⁴⁴ See, for instance, the proposed Batteries Regulation where the European Commission suggests a shift from the combination of Article 175 TEC (now Article 192 TFEU) and Article 95 TEC (now Article 114 TFEU) to Article 114 TFEU as a legal basis. In this regard, see also the Proposal for a Regulation of the European Parliament and of the Council concerning batteries and waste batteries, repealing Directive 2006/66/EC and amending Regulation (EU) No 2019/1020, COM/2020/798 final. That said, we understand that the European Council proposed to also include Article 192(1) TFEU as a legal basis in order to better reflect the dual purpose of the concerned Regulation.

²⁴⁵ R. Mańko, "EU competence in private law: The Treaty framework for a European private law and challenges for coherence", EPRS, 2015.

²⁴⁶ Article 114(4) TFEU.

²⁴⁷ Article 114(5) TFEU.

²⁴⁸ Article 114(6) TFEU. The Commission could extend the mentioned time limit if justified by the complexity of the matter and in the absence of danger for human health.

²⁴⁹ Article 114(7) TFEU.

²⁵⁰ Article 193 TFEU.

Member States. A potential solution could be to clearly identify which provisions of the successor of the WFD would relate respectively to Article 114(1) TFEU or to Article 192(1) TFEU.²⁵¹

Legal certainty and uniformity. Regulations generally ensure direct legal certainty and uniform application in all EU Member States. However, important differences exist in the transposition of directives into national law which lead to less legal certainty and a diminished uniform application.²⁵²

Adoption of EU legal instruments. Regulations are often adopted as implementing measures in areas where EU legislation imposes extensive administrative tasks, such as the common agricultural policy. Directives are generally used to introduce EU rules which call for existing national provisions to be amended.²⁵³

The ESPR of 30 March 2022 and the proposed Batteries Regulation of 10 December 2020²⁵⁴ are tokens of an increased trend towards the adoption of regulations. The motivation of the European Commission to transform the Ecodesign Directive into a Regulation reads as follows:

“A regulation will set direct requirements for all operators, thus providing the necessary legal certainty and scope for enforcement of a fully integrated market across the EU. A regulation also ensures that the obligations are implemented at the same time and in the same way in all 27 Member States.”²⁵⁵

Considering the large differences in effective waste prevention in the EU Member States, a regulation may reduce existing discrepancies, make rules regarding waste prevention in the EU more transparent and could render the introduction of best practices more accessible. In view of the above considerations, the following elements are of relevance to determine whether to opt for a regulation or a directive:

- **Harmonisation.** Taking into account the primacy of EU law and direct applicability of regulations, a new harmonized framework could be imposed directly in the national legal orders. A regulation has general application by virtue of Article 288 TFEU and is binding in its entirety and directly applicable in all Member States. The main consequence of this direct applicability is that overwriting or transposing a regulation is unnecessary and even prohibited. This prohibition on overwriting regulations dates back to the 1970s and is motivated in particular by the desire to make the European origin of the regulation in question clearly (re)identifiable.²⁵⁶ This would entail a reduction on intra-EU discrepancies as compared to directives.²⁵⁷
- **Process economy.** As the provisions of a regulation automatically become part of the national legal order, there is no additional time period during which EU Member States should transpose the legislation into national law. Although this may save time and (national) efforts, it should

²⁵¹ See also P. Canfin, Chair Committee of Legal Affairs EP, *Opinion on the legal basis of the Proposal for a Regulation of the European Parliament and of the Council concerning batteries and waste batteries, repealing Directive 2006/66/EC and amending Regulation (EU) No 2019/1020* (COM(2020)0798 – C9-0400/2020 – 2020/0353(COD)).

²⁵² K. Lenaerts and P. Van Nuffel, “European Union Law”, London: Sweet & Maxwell.

²⁵³ K. Lenaerts and P. Van Nuffel, “European Union Law”, London: Sweet & Maxwell.

²⁵⁴ Proposal for a regulation of the European Parliament and of the Council concerning batteries and waste batteries, repealing Directive 2006/66/EC and amending Regulation (EU) No 2019/1020, COM/2020/798 final.

²⁵⁵ European Commission, “Proposal for a Regulation on the European Parliament and of the Council establishing a framework for setting ecodesign requirements for sustainable products and repealing Directive 2009/125/EC”, COM(2022) 142 final, [COM 2022 142 1 EN ACT part1 v6.pdf](#).

²⁵⁶ ECJ 7 February 1973, C-39/72, Commission t. Italy; ECJ 10 October 1973, C-34/73, Variola v Amministrazione delle Finanze; ECJ 31 January 1978, C-94/77, Zerbone.

²⁵⁷ If the concerned regulation so requires, it may be necessary that EU Member States take certain implementing measures.

however be noted that the negotiation of a regulation may take more time compared to the negotiation of a directive (which is generally difficult to predict).

- **Accessibility** for stakeholders and policy actors. Relevant authorities, actors and stakeholders wishing to invoke the provisions of a regulation may find additional advantages in the use of a regulation: interested parties would not have to wait for the expiry of a transposition period and, as from the entry into force, citizens and undertakings alike must have adapted their activities and internal functioning in accordance with the new provisions. Depending on the elements considered above, national authorities may still be encouraged to adopt more stringent rules than laid down in the regulation (which would typically not be the case for a maximum harmonisation directive).
- **Risk assessment.** If an EU Member State fails to correctly transpose a directive in a timely manner, then the Commission may in principle initiate an infringement procedure and even proceedings before the EU courts. This may lead to the imposition of fines or the allocation of damages to disadvantaged individuals.²⁵⁸ A non-timely transposition may also lead to the ‘vertical’ direct effect of a directive. A regulation would generally not require such a transposition, although additional legislative acts may be required for its implementation, which would mitigate any risks associated with a non-timely or insufficient transposition.

The potential transition of a directive to a regulation should also take account of the specific nature of waste legislation in the EU. Under the current legislative framework, EU Member States are encouraged to take specific measures and draw up national programmes to promote waste prevention. As EU Member States have a degree of freedom in implementing the various obligations under the WFD, waste prevention measures at the national level are at times fragmented across jurisdictions.

In light of the above, it is recommended for the European Commission to thoroughly assess the appropriate type of instrument and legal basis for a revised Waste Framework Directive.

Recommendation 2: Promoting circular business models, especially XAAS (Everything-as-a-service)

As noted above, the amount of waste generated within the various Member States is substantial. Products are often still designed in an unsustainable way, which makes them more prone to defects and subsequently cease to function, and which makes them more prone to replacement. This poor quality generates a lot of waste and its impact on the environment is not minimal. In light of this, the use of circular business models is recommended.

The industry, in particular the producers, must look for alternative ways to offer their products and services to the consumer. Research demonstrates that consumers are willing to invest in sustainable projects.²⁵⁹ In order to decouple our economic prosperity from resource consumption, inevitably

²⁵⁸ ECJ 19 November 1991, C-6/90 and C-9/90, Francovich.

²⁵⁹ A trend that coincides with this is sustainable (or socially responsible) investment, which is a form of investment that takes into account the consequences for people and the environment; GroeneZaken, “Nederlandse beleggers willen steeds meer beleggen in duurzame producten”, [Nederlandse beleggers willen steeds meer beleggen in duurzame producten \(groenezaken.com\)](https://www.groenezaken.com/nederlandse-beleggers-willen-steeds-meer-beleggen-in-duurzame-producten).

for waste generation, there must be a greater focus on resource productivity and service systems as a means to achieve a circular economy. There is a great need for an absolute reduction in primary raw material consumption and associated impacts. To achieve this goal, the European market needs (more) innovative business models that are increasingly service-oriented and reduce our dependency on primary resource extraction.²⁶⁰ Circular business models will play a crucial role in decreasing resource consumption and the full scope of CO₂ emissions. These business models can entail sharing platforms, the use of product-as-a-service and the introduction and facilitating of circular consumer platforms focusing on food, textiles etc.

Moreover, the introduction of circular business models has high potential for consumer utility. Together, a sustainable impact ambition and a consumer-oriented value proposition form the basis for the configuration of the XaaS models. Digitalisation provides several opportunities for product, service and system innovations that can drive these models.

From an economic perspective, the introduction of circular business models is interesting, as experts already stated in 2012 that conversion to the circular economy will bring many business opportunities. There is a need to look for new and alternative business models that support and promote sustainability, as the alteration of traditional models must enable materials and products to be re-used and remain in the economy as long as possible. Many initiatives and models have been launched in the last decade for this purpose. An emerging trend is the concept of “Everything-as-a-Service” (XaaS), XaaS models are expected to grow annually until 2025 (see below).²⁶¹

The renewal of our business models is, in part, included in the WFD. However, these are mainly indirect references to ways of generating less waste. This is also (mostly) the focus of the new business models. Think mainly of the provisions regarding re-use and the examples of waste prevention that are included in Annex IV of the WFD. Yet these recommendations all remain rather on the surface.

The EEA identifies three important elements to implement and upscale the circular business models. First, there must be circular goals for re-use, recycling and prevention. The current EU legal framework partially complies with this condition. Concrete binding conditions for re-use and recycling have already been imposed by the WFD, and these have also been tightened up since 2008. For example, in Article 9, second paragraph, the Directive imposes several stringent targets on the Member States. It is somewhat remarkable that the targets for re-use and recycling are imposed together, while re-use falls under waste prevention measures, whereas recycling falls under waste management. Secondly, there must be business model innovation. New business models need to be developed through innovation by companies (cfr. XaaS- models). Finally, business models need to be supported by technical and social innovation in companies. It is stressed by the EEA that business models should be facilitated. Policies should be put in place to support the innovation and circular business models by reshaping the opportunity space for industrial companies. Companies should thus (continue to) be stimulated by European policy makers to develop and implement new business models.

²⁶⁰ T.C. McAloone and D.C.A., “Configuring New Business Models for Circular Economy through Product–Service Systems”, *Sustainability* 11 (13), 2019, <https://www.mdpi.com/2071-1050/11/13/3727/htm>.

²⁶¹ Veritis “Understanding XaaS: Everything as a Service and its Advantages”, 2022, <https://www.veritis.com/blog/understanding-xaas-everything-as-a-service-and-its-advantages/>.

Everything-as-a-service (XaaS)

In XaaS models, producers (typically) maintain product ownership instead of the users, and lifecycle responsibility is consequently incentivised towards adopting circular economy strategies. Most XaaS models are powerful climate compatible solutions that are able to generate large environmental benefits, if they are constructed on the basis of parameters that lead to sustainable products and services. Since the producer remains the owner of a product, producers are often incentivized to provide long-lasting and circular design, use phase intensification, reduce maintenance (costs) or repair and to re-use, remanufacture, refurbish and recycle. As a result of the foregoing, less waste will be produced since consumers will start sharing the same products instead of buying products individually. Producer ownership is therefore one of the most efficient ways to drive sustainable product design choices.

However, the promotion of XaaS models will in itself not suffice. Even if the products will be returned to the service provider or manufacturer, this is not a guarantee that the returned product, or components thereof, will be re-used, re-furbished or recycled. The principles of Extended Producer Responsibility (EPR) can help in this regard. The EPR could be extended by means of introducing incentives to²⁶²:

- design products so that they can easily be disassembled, recycled, or used for a longer period;
- create an additional value stream for parts, materials or other products so that additional revenue streams can be generated;
- organize return logistics for old or broken products;
- use re-furbished products, for example by lowering taxes on labour and raising taxes on the use of new materials or by lowering VAT for re-furbished products.

Therefore, shifting ownership, control and responsibility to producers in a XaaS model, combined with the principles of EPR, at the end of the usage cycle, makes it possible to either re-use the product itself or to remanufacture and recycle valuable raw materials into other products. The advantage is that the XaaS models, if combined with EPR, result in less waste and the production of more sustainable products. Finally, consumers will also need to play their part in XaaS models and will need to be incentivised to treat these products well, as if these products would be their own.

²⁶² Rabobank “Wat is er nodig om Product as a Service (PaaS) circulair te maken?”, 2022, <https://economie.rabobank.com/publicaties/2020/oktober/wat-is-er-nodig-om-product-as-a-service-paas-circulair-te-maken/>

Section 3: Modifications to existing Articles and introduction of new provisions

Recommendation 3: Defining a “circular economy”

The European Green Deal, CEAP 2015 and CEAP 2020 are characterised by the shift towards a “circular economy”. The concept of a “circular economy” was defined in the CEAP 2015 as:

*“an economy that aims to keep (the value of) products, components, resources and raw materials in the economy for as long as possible, by returning them into the product cycle at the end of their use, while minimising the generation of waste”.*²⁶³

The concept of a “circular economy” has also been enshrined in European legislation, namely in the EU Taxonomy Regulation.²⁶⁴ The EU Taxonomy Regulation entails a classification system, establishing a list of environmentally sustainable economic activities and has an important role in helping the EU scale up sustainable investment and implement the European Green Deal. Article 2 (9) EU Taxonomy Regulation defines ‘circular economy’ as:

“‘circular economy’ means an economic system whereby the value of products, materials and other resources in the economy is maintained for as long as possible, enhancing their efficient use in production and consumption, thereby reducing the environmental impact of their use, minimising waste and the release of hazardous substances at all stages of their life cycle, including through the application of the waste hierarchy”.

Given that “circular economy” is already mentioned several times in the current WFD, and in light of the upcoming revision of the WFD, it is recommended to also define “circular economy” in Article 3 (22) WFD by referring to Article 2 (9) of the EU Taxonomy Regulation.

Recommendation 4: Improving quality of data on waste prevention

Sound monitoring and evaluation of waste prevention activities in the EU is critical. It allows policy makers to build their strategic plans and ensure that waste prevention initiatives are effective and

²⁶³ European Commission, “Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Closing the loop - An EU action plan for the Circular Economy”, 2015, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52015DC0614&from=EN>; European Commission, “Circular Economy”, [Circular economy \(europa.eu\)](https://european-council.europa.eu/media/en/press-communications/infographic/infographic-circular-economy).

²⁶⁴ European Parliament and Council Regulation (EU) 2020/852 of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088, OJ L 198, 22/6/2020, <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32020R0852>.

deliver actual behavioural change. It is thus crucial to develop reliable methods to monitor, measure and evaluate waste prevention in the EU.

*“setting the targets – without first developing and agreeing on the appropriate methodology for calculating and verifying them – can create uncertainty on whether the targets can be met”.*²⁶⁵

The desk research conducted for this study demonstrates that waste prevention is currently mainly monitored by calculating the total waste generated (parallel with GDP and population). However, this does not give a complete understanding of which measures are effective waste prevention measures. An efficient waste prevention policy is a mix of several instruments. However on the basis of the existing indicators, it is currently not possible to determine which measures included in Member States’ WPP are more efficient than others. A sound methodology to measure waste prevention will, however, be needed to monitor prevention per waste or product stream in a detailed manner.

Consequently, it is **crucial to develop reliable methods to monitor, measure and evaluate waste prevention**.²⁶⁶ We understand that the European Commission is developing a proper methodology to measure waste prevention however we currently have no further details regarding this methodology.

To improve the quality of data on waste prevention in the EU, an Annex could e.g. be added to the WFD with a template to be completed by Member States annually with data on waste prevention and one (or more) calculation methods to measure waste prevention in their respective Member States. A standard, uniform template would facilitate an objective comparison of data at Member State level.

As to the waste prevention calculation method to be adopted, literature analysis demonstrates that several methods are used by Member States to measure waste prevention²⁶⁷:

(a) **Direct quantification of source reduction** referred on reported measurements of changes in waste stream quantities, either by volume or weight. This method includes direct monitoring programmes through case studies, audits and/or waste sorting studies.

(b) **Source reduction cost analysis**, which generally incorporates two financial factors: the cost of undertaking the source reduction effort and the savings in purchasing and disposal costs, combined to calculate the realised total costs of the effort. The basic steps include the identification of the source reduction and the direct cost of implementing the source reduction as well as the costs to

²⁶⁵ Nickel Institute, “EU Batteries Regulation: Where do we stand?”, 03/02/2022, <https://nickelinstitute.org/en/blog/2022/february/eu-batteries-regulation-where-do-we-stand/>.

²⁶⁶ Measuring waste prevention is a complex and difficult task. Unlike recycling, where the amount of material transferred from the “garbage can” to a “recycling bin” can be quantified, waste prevention often results to the elimination of the material. In this case there is nothing to weigh or evaluate. However, several other aspects and tangible parameters could be considered. For example: more efficient monitoring of the amount of products put on the market from each product group and the amount that is re-used. Throughout this process, efforts need to be made to aim for an overall reduction in the waste stream, regardless of population growth and including selectively collected streams of waste. In addition, the use of primary raw materials should always be minimised. It can be recommended to require producers to explain why they use primary raw materials or introduce a primary raw materials tax for polluting raw materials, pushing producers towards re-use.

²⁶⁷ A.A. Zorpasa and K. Lasaridi, “Measuring waste prevention”, Waste Management 33 (5), 2013, 1047-1056.

be measured (such as purchasing, disposal, labour and other relevant factors) before and after implementation of the source reduction.

(c) The use of **indicators** (determined on either an economic, resource, or waste basis) to establish both the baseline potential for WPPs and to measure the effectiveness of the program after implementation. Such indicators could include per capita waste generation, per employee waste generation, or tonnes of waste per wage dollars.

(d) The use of **resource productivity ratios**, which are simple measurements of a product or service divided by the resources required to produce the product or service. Each ratio is a measure of the efficiency with which resources are used. For example, product sales divided by raw material costs provide a measure of whether improvements in raw material use are effective. If raw materials are conserved, the ratio of sales to raw materials will be increased.

(e) **Side management** is used for designing approaches to evaluate waste prevention, reliance on existing methods and approaches to the evaluation of waste prevention, as well as the results and costs of evaluations undertaken elsewhere would seem logical.

All of these methods have their own challenges.²⁶⁸ However researchers of the University of Ausburg conclude that *“activity-based measurement is an adequate approach for measuring reduction of waste generated and the related environmental effects of waste prevention activities”*.²⁶⁹

If a template on waste prevention data were to be included in the WFD, it is advisable to also include one or more calculation methods which can be adopted by the Member States per product group / waste stream to ensure that waste prevention data are collected in a uniform way.²⁷⁰ It is argued that otherwise too little information can be extracted from the collected data.

An alternative approach could be to only include a general provision in the WFD on waste prevention data collection requirements and leave the determination of the precise calculation method up to the waste stream specific regulations.

However necessary, the exact modalities of the calculation method fall outside the scope of this study.

²⁶⁸ A.A. Zorpasa and K. Lasaridi, “Measuring waste prevention”, *Waste Management* 33 (5), 2013, 1047-1056.

²⁶⁹ P. Hutner, C. Helbig, D. Stindt, A. Thorenz and A. Tuma, “Transdisciplinary Development of a Life Cycle–Based Approach to Measure and Communicate Waste Prevention Effects in Local Authorities”, *Journal of Industrial Ecology* 22 (5), 2018, <http://dx.doi.org/10.1111/jiec.1278=lm1>. They have developed a life cycle-based approach to calculate the effects of waste prevention in local municipalities. This approach features an activity-based analysis that facilitates the assessment of both reduction of waste generated and the related environmental effects. The methodology of life cycle assessment, used to calculate environmental impacts, is adapted to the specific requirements and constitutes an essential step in the measurement approach.

²⁷⁰ This trend can already be seen in the recentest Packaging Waste Directive (Article 10) and the Battery Regulation (via multiple delegated acts). There is also, for instance, a delegated decision regarding a common methodology and minimum quality requirements for the uniform measurement of levels of food waste.

Recommendation 5: Establish ambitious and binding waste prevention targets in Article 9

Waste prevention sits at the top of the waste hierarchy. Nonetheless, this priority given to waste prevention in the waste hierarchy is not reflected in the WFD in terms of binding measures or targets. The latter are primarily focused on waste *management* solutions. Consequently, the current provisions in the WFD do not provide sufficient incentives for Member States to focus on enhancing waste prevention in their respective territories.

The EEA, for example, is calling for a cap on residual (non-recycled) waste of 120 kg per capita by 2030 and of 100 kilograms per capita by 2035, including residues from sorting and recycling processes. In light of this, Flanders has already posed the objective to reduce residual waste to 100 kg/ resident in its regional Energy and Climate plan, which would impose the obligation on Flanders to comply with the set target of 120 kg.²⁷¹ Activities reaching that target would directly contribute to the increase of separate waste collection and recycling efficiency, while indirectly also incentivizing (residual) waste prevention.²⁷²

It is recommended for the Commission to identify separate product streams, and to introduce a **separate waste prevention target per product stream**.

The experts state that targets should be expressed in **percentages**, as for recycling, and not (as often suggested in the literature) in kilograms. Continuing to use percentages is a more hands-on approach, allowing better consideration of each Member State's situation. It ensures that Member States who lag behind are incentivised to improve on the current situation, and pushes Member States that are already ahead to develop new techniques and methods. Essentially, it ensures that the burden remains the same on all Member States.²⁷³ Hence, it addresses the diversity in the waste prevention landscape in different Member States.

For some experts, residual waste requires most urgently binding target on the short term. In contrast to other waste streams, there are already figures on residual waste in the EU Member States which makes it possible to analyse these figures and create a concrete target.

When formulating these binding targets, the intended contribution to other societal (environmental/socioeconomic) goals (e.g. combating global warming, towards zero pollution, (international) social justice, etc.) could be taken as a starting point.

²⁷¹ Flemish Government, "Vlaams Energie- en Klimaatplan (VEKP) 2021-2030", 9 December 2019, <https://www.energiesparen.be/vlaams-energie-en-klimaatplan-2021-2030?language=nl>.

²⁷² European Environmental Bureau, "Environmental impact of waste management – revision of the Waste Framework Directive (WFD)", 2022, 6p, [EEB-Feedback-WFD-revision-Feb-2022-.pdf](#).

²⁷³ Specifically, Member States should aim to do X% better within X number of years than they do today, with the zero point being different for each Member State depending on how they are doing at the zero point of measurement.

Recommendation 6: Incorporating measures included in Annex IV WFD as binding waste prevention measures in Article 9 WFD

Annex IV of the WFD contains several waste prevention measures. However, given the current non-binding character of this Annex IV, Member States cannot be enforced to implement these measures. Consequently, it can be recommended to **transform (some of) these measures into binding requirements** for Member States, preferably in Article 9. By doing so, Member States can be held accountable for their lack of initiative and compliance with the compulsory measures and the European Commission can expect a minimum set of efforts to pursue waste prevention. Additionally, this amendment would also reduce the rather general character of Article 9 as the provision would contain a more in-depth scope considering the specific enforceable obligations. Furthermore, additional measures could be included in Annex IV. It is recommended for the Commission to assess the inclusion of circular business models, as referred to in Recommendation 2 above, as possible waste prevention measures to be implemented by Member States.

There is however recognition from some experts and stakeholders that imposing the current Annex IV in its entirety on Member States is not obvious because there is no scientific or empirical evidence that every waste prevention measure included in Annex IV is effective. Hence, prior to the selection of the binding measures, a **study should be conducted to verify the effectiveness of these waste prevention measures and identify the no regret measures.**²⁷⁴

An alternative could be to implement a more gradual approach, with a **stronger monitoring and enforcement role for the European Commission**, similar to the system of National Energy and Climate Plans introduced by the Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action. The WFD could for example provide that Member States must periodically report on the waste prevention measures from Annex IV that they will implement. The Commission can then monitor the progress made by the Member States. If the Commission establishes that insufficient progress is made, it could provide recommendations on certain waste prevention measures to be taken into account by the Member States.

Recommendation 7: Prioritise and expand the role of waste prevention within extended producer responsibility schemes in Article 8 WFD

EPR and eco-modulation of fees must play a crucial role in supporting the ambitious waste prevention and re-use targets that must be set in the revised WFD. To this end, EPR requirements and fees criteria must be redefined to expand their scope and cost coverage to include waste prevention and to use eco-modulation of fees to incentivise more circular products.

²⁷⁴ The expert panel indicates that without a monitoring system, this will be a difficult balancing act.

There is still much room for improvement with the functioning of EPR schemes as a tool to drive circular economy, particularly in better aligning the criteria with the waste hierarchy and linking them with EU-wide eco-design criteria as well as in strengthening the implementation and enforcement across the EU (*e.g.*, ensure that EPR requirements apply also to online sales). EPR requirements and eco-modulation criteria are currently focused almost exclusively on end-of-life aspects while they largely overlook the higher levels of the waste hierarchy. That is why the European Commission should introduce EPR requirements and modulation criteria for waste prevention and extending products' lifetime, such as reusability, durability and repairability. This could be achieved by introducing a general obligation in the WFD for 'ecomodulation', which in further stages will be transposed and implemented into specific sector legislation applicable to certain waste streams.

Accordingly, the size of the modulation should vary depending on the proximity to the highest levels of the waste hierarchy.²⁷⁵ EPR requirements and modulation criteria, defined according to the waste hierarchy, should be adapted to the specificities of the targeted streams and should be harmonised at EU level, while leaving some flexibility for Member States to add complementary criteria. In terms of coverage, the EU calls for the extension of EPR systems as a policy tool to other product categories such as textiles, furniture, nappies, oils and mattresses.

For EPR to play its role in supporting the reduction of waste generation, it will also be essential to expand the scope of fees beyond the current limited understanding of the "necessary costs" (which only considers costs incurred to improve recycling), to include the costs needed to adopt waste prevention measures (*e.g.*, for repair activities). In the pursuit of cost minimization, the fees can become too low to encourage producers to design products with better environmental performance regarding waste prevention and reusability. This is currently the case for WEEE, batteries and textiles for which EPR fees are insignificant compared to product price.²⁷⁶

EPR fees must instead be set at a significant level to cover all real end-of-life costs as well as the product's social and environmental costs, while the magnitude of EPR fees modulation must be sufficient to incentivise producers to invest in improved product design. However, if the contribution must also cover 'social and environmental costs', the question of the use of the contribution does arise. For instance, if costs are charged for environmental damage caused by the extraction of raw materials abroad, this also presupposes that the EPR system modulates compensation for that damage. This may also raise the question to whom the damage is compensated (local residents, local authorities...). There is a potential risk that the contribution becomes an environmental tax collected by a private PRO. Therefore, it should be emphasized that the EPR fee must be limited to a certain extent, based on indicators that show which instances suffer the costs or which actors experience most influence of the waste generation and processing.

This necessary increase in EPR fees should be supplemented with visible fees to provide increased access to information for consumers. For products where the size of the modulated fees would remain extremely low (*e.g.*, packaging) consumers could instead be provided with clear information on reusability, recyclability, and other relevant environmental impacts. Deposit-Return Systems DRS

²⁷⁵ *E.g.* criteria leading to waste prevention and re-use should lead to lower fees than criteria focusing only on recyclability.

²⁷⁶ European Environmental Bureau, "Environmental impact of waste management – revision of the Waste Framework Directive (WFD)", 2022, [EEB-Feedback-WFD-revision-Feb-2022-.pdf](#).

is one of the policy tools to maximise collection. It should, however, provide incentives for producers to move to refillable systems. With this we can expect a decrease in packaging waste (e.g. beverage containers).²⁷⁷

Importantly, the ‘polluter pays principle’ must be reinforced by expanding EPR schemes to other product categories (e.g. textiles and oils). This could be an opportunity for businesses that address increasing concerns about natural resource availability and environmental degradation. Companies would, other than in most EPR schemes, fully benefit from the value, durability and quality of design of their products. This actually regards a shift from a general EPR scheme to a producer ownership scheme. This producer ownership would enable the development of innovative and profitable business models such as deposit-return and leasing or service-based models. These practices in turn could lead companies to develop new and better relationships with customers throughout the usage lifetime of a particular product, and beyond. Finally, the policy would substantially reduce costs of publicly funded waste management, which could reduce overall costs for society. In order to achieve these benefits, the producer ownership principle would need to be supplemented. by clear legislative guidance on the management of end-of-life products. Current legislation on different waste streams serves as a base, as not all waste streams are the same.²⁷⁸

Nevertheless, according to some experts, the EPR schemes and eco-modulation of fees should not be seen as a ‘silver bullet’. This is inferred from the way this method is used today, with too little measurement and verification of compliance with all predefined conditions. Moreover, the cost of waste can only be transmitted to the producer to a certain extent, which is often lost out of sight when thinking about reviewing EPR schemes.

Experts also note that the business-to-business (B2B) market is more accessible to control than the business-to-consumer (B2C) market. For example, in the B2B market, a significant increase in the number of reusable packaging can be observed, with an advantage thus established to place fees on packaging to market reusable packaging. In the B2C market, collection is a bottleneck. This makes experts and stakeholders doubt the usefulness of ecomodulation and EPR at B2C level. In the end, with B2C, it is the consumer that decides what he or she will do with the product (keep it, return it to the producer, take it to a container park, throw it away, etc.) at the end of its lifecycle. It is argued that influencing the consumer behaviour regarding the product at the end of use is very difficult. The experts argue that if EPR schemes want to increase their influence in the future, they will have to focus more on consumer behaviour.

Recommendation 8: Digital Product Passports as facilitator of waste prevention

²⁷⁷ European Environmental Bureau, “Environmental impact of waste management – revision of the Waste Framework Directive (WFD)”, 2022, 6p, [EEB-Feedback-WFD-revision-Feb-2022-.pdf](#)

²⁷⁸ Systemic, “Making Materials Work for Life – Introducing Producer Ownership (project LAUNCH)”, 2019, [Producer-Ownership-Project-LAUNCH-White-Paper.pdf \(systemiq.earth\)](#).

In the future, legislation on sustainable product policy and the WFD should be aligned in such a way that prevention already happens during the design and production process. This will require reciprocal cross-references from the WFD to the Ecodesign for Sustainable Products Regulation. Highly integrated cooperation and coordination between these two legal instruments will be very important to counter waste prevention. One aspect of this interlinkage could be an integrated hierarchy that not only encompasses the waste phase, but also the production phase. Further, the current proposal of the ESPR gives some interesting tools, such as the product passport, which can have an important impact on waste prevention. In some experts' view, it is not because the two European frameworks relate to different product life phases (i.e. production phase on the one hand and end-of-life phase on the other) that the tools are not multi-transferable. The European Commission defines a 'product passport' as a product-specific data set, which can be electronically accessed through a data carrier to "electronically register, process and share product-related information amongst supply chain businesses, authorities and consumers".²⁷⁹ A Digital Product Passport (hereafter: "DPP") would provide information on the origin, composition, and repair and disassembly possibilities of a product, including how the various components can be recycled or disposed of at end of life. Since the DPP will (most likely) become a tool of the ESPR, it is not useful to also include it in the WFD. Nevertheless, the tool has the ability to create waste prevention and waste minimisation. DPP has to be monitored according to product category.

Following the EU's ESPR, the European Commission will likely put in place a generic basic design for DPPs that is applicable to most materials and products, complemented by sectoral modulations to adapt the design to the core elements of different product groups. The DPP will need to be interoperable with other similar systems as products and materials may pass through various industries and applications during their lifetime. This could have an important impact on waste prevention in terms of circular economy as through the DPP the EU can track which materials are being used by producers and put on the market and can track the durability of these products.

This monitoring concept is already being implemented or proposed within other legal frameworks regarding other waste streams. For example, the EU Batteries Regulation proposed the establishment of an electronic exchange system and a DPP for rechargeable industrial and electric vehicle batteries with an internal storage capacity above 2 kWh. Moreover the EU Strategy for Sustainable and Circular Textiles, mentioned above, aims that by 2030 textile products placed on the EU market will be long-life and recyclable. The EU Strategy recommends textiles to be put on the market that will be made as much as possible from recycled fibres, free of hazardous substances and produced respecting social rights and the environment. Measures proposed by the EU Strategy can include specific ecodesign requirements for textiles to minimise overall carbon and environmental footprints, an extended mandatory producer responsibility scheme, more user-oriented information and a DPP. Nevertheless, these measures will be implemented in several sector specific legislative initiatives. More interestingly, combined, these measures can ensure the accuracy of 'green' claims and provide a boost for circular business models through re-use and repair services.²⁸⁰

²⁷⁹ Proposal for a Regulation of the European Parliament and of the Council establishing a framework for setting ecodesign requirements for sustainable products and repealing Directive 2009/125/EC, COM(2022) 142 final.

²⁸⁰ We Mean Business Coalition, "Digital Product Passport: The ticket to achieving a climate neutral and circular European economy?", 2022, https://www.corporateleadersgroup.com/files/cisl_digital_products_passport_report_v6.pdf

Finally, the recent proposal for a Directive on Corporate Sustainability Due Diligence was introduced by the EU. Accordingly, a DPP could be beneficial to ensure that companies receive reliable information on their suppliers' operations and to cover their whole business activities throughout complex global supply chains, including data on the environmental footprint and human rights track record of products. The introduction of the DPP within the WFD would serve as a pertinent legal basis for several waste streams to provide the EU Member States with a basis of design requirements for products within several markets.

In summary, the DPP is a crucial tool in promoting sustainability and waste reduction. To achieve a more effective and holistic approach, it is essential to establish an "integrated cooperation" between two legislative instruments, namely the ESPR and WFD. This integration can be achieved through three key methods. Firstly, the implementation of an integrated hierarchy, which is currently lacking, would prioritize waste prevention and establish a clear framework for decision-making. Secondly, incorporating ecodesign requirements that contribute to waste prevention would ensure that products are designed with reuse and recycling in mind, reducing overall waste generation. Finally, the DPP enables better monitoring of material flows and waste streams, providing valuable information on opportunities for reuse, recovery, and recycling. By combining these three approaches, we can foster a more sustainable and circular economy focussing on waste prevention.

Recommendation 9: Introduce a separate Article for Re-use

Re-use today does not have a separate Article in the WFD. Moreover, it is mentioned 62 times in the WFD, of which three times in the Annex.

Re-use is considered by the European Commission as an important measure to combat waste generation, as a component of waste prevention. This is also clearly reflected in the WFD. However, given the fragmented use in the WFD, we recommend bundling the different provisions into a single provision.

Following Article 9, a new Article 10: 'Re-use' could be introduced. All existing re-use measures and incentives mentioned in the current WFD and other sector legislation could be bundled here. In addition, new measures on re-use could be introduced here as well.

In essence, Article 10 would include a non-exhaustive list of re-use measures, following the separate Article for re-use mentioned in Directive 94/62/EC on packaging and packaging waste, *i.e.* Article 5 Directive 94/62/EC.

Although some Member States already have binding targets for re-use in place, such as those with regards to second-hand shops, these usually only represent part of the actual re-use figures. In essence, the question should be raised how the European Commission arrives at comparable figures across the different Member States in order to set these re-use targets. Studies recommend that the EU should design a comprehensive re-use indicator. While this is usually applied, it is said that re-use indicators should be based on a parameter other than weight (*i.e.* kg of re-use). In particular, since product lifetime seems to lie at the core of circular re-use, an alternative re-use indicator may want to shift away its focus from reusing more to using longer. This could be achieved by broadening the focus to the following pillars important for circular re-use: the right to repair, extended producer responsibility or EPR, preparation for re-use and a re-use fee. While there are some pragmatic difficulties to address these pillars since they are hard to capture or measure, theoretically, important factors related to these aspects might improve the measurement of circular re-use. In particular, the quality of inflow seems to play a major role in the potential for re-use, e.g. the preparation for re-use and the lifetime of goods. It has become clear that e.g. lower quality of furniture and textile are important barriers for re-use.²⁸¹

Some experts note that an alternative re-use indicator should be implemented into product-specific legislation. However, the entire framework around the waste hierarchy mentioned within the WFD includes preparation for re-use as one of the highest-priority stages within the waste framework. A re-use provision can thus certainly be given a prominent role within an amended WFD or a new waste regulation. Experts and stakeholders suggest that the WPP should have a firmer focus on the supply of repair to incentivize re-use. An urgent professionalisation is needed boosted from the

²⁸¹ CE Center, Policy Research Center, 'Re-use. The understudied circular economy strategy, 2020, <https://ce-center.vlaanderen-circulair.be/nl/publicaties/download-2/13-re-use-the-understudied-circular-economy-strategy>.

social economy such as second-hand shops, repair cafés, etc.²⁸² In light of this an amended WFD or new waste regulation could implement new incentivising measures for re-use that are implemented on Member States seeing that should be more incentivised to engage in re-use and should be able to consider further possibilities, such as taking fiscal measures (e.g. there is already the VAT Directive that allows 6% VAT to be applied to re-use), informing consumers more about the benefits of repairing products and which products can be repaired, and defining targets for re-use without setting a European threshold.

²⁸² This includes having products repaired by players other than the manufacturer (possibly without losing the warranty on the product). In addition, reference is also made to establishing new business models, which is discussed in more detail in the last recommendation. But once more: it is ultimately the consumer who decides.

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