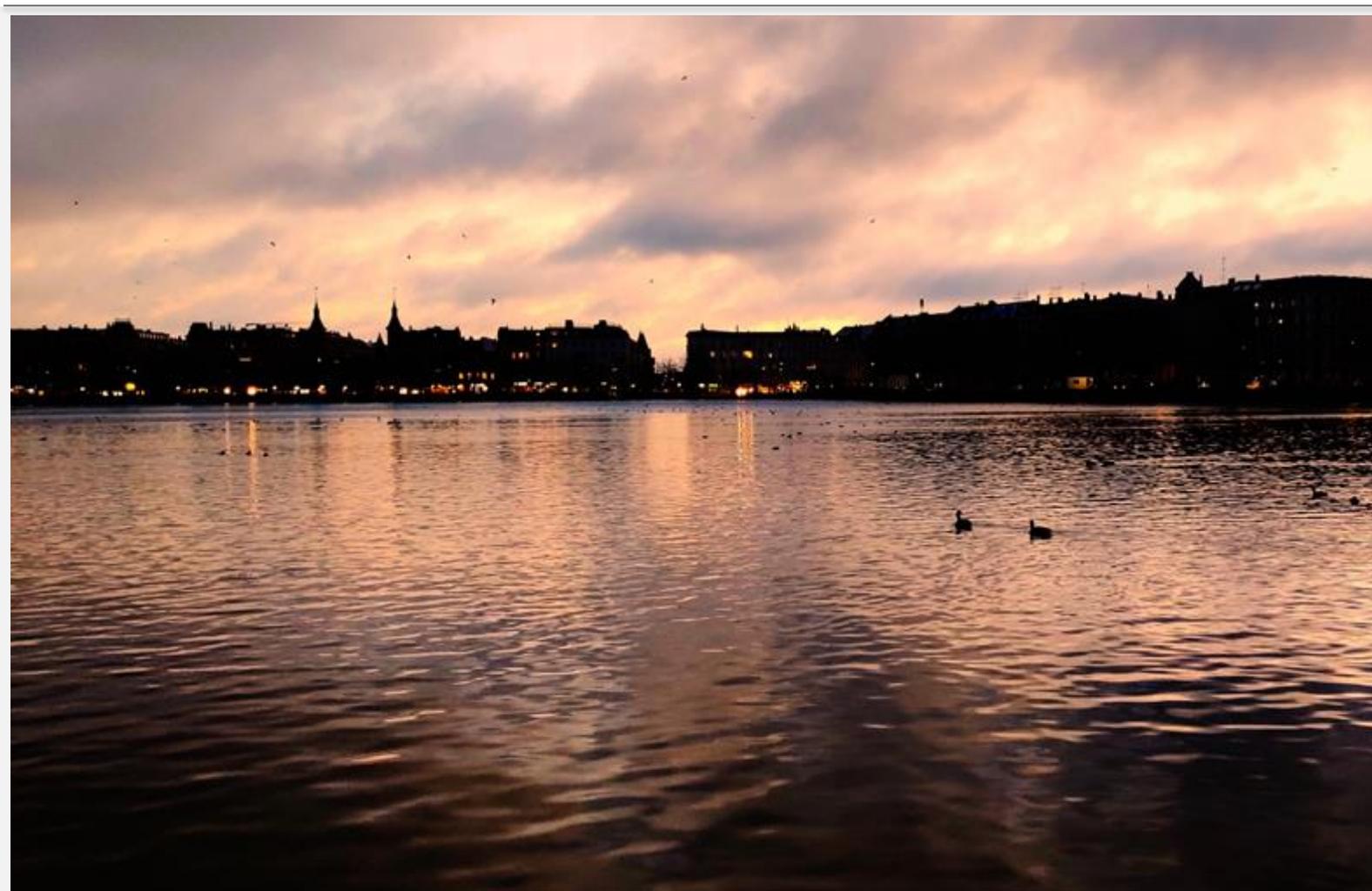


Circular Economy policy innovation and good practice in Member States



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Introduction

The European Commission requested the EEA to produce EU27 country profiles that offer an updated view of the following elements:

- 1 circular economy policies being implemented at a national level with a particular focus on elements that go beyond EU mandatory elements; and
- 2 best practice with a focus on policy innovation.

While implementing the EU Circular Economy Action Plan (CEAP 2020), Member States are encouraged to advance circularity at a national level by adopting policies and initiatives that go beyond EU regulations, while preserving the Single Market.

Country profiles are based on information reported by the Eionet network and, in particular, the Eionet Group on Circular Economy and Resource Use as a response to the survey questions and guidelines (Annex 1), in the second quarter of 2022. The information was reviewed and edited by the European Topic Centre on Circular economy and resource use (ETC CE).

This report provides an overview of the main findings after an analysis of the information available in the 27 circular economy country profiles¹.

Key messages

National circular economy strategies, roadmaps and action plans have been adopted in 20 EU Member States since 2016, with six of the remaining seven close to adopting them. Nonetheless countries report that there are major institutional challenges in developing circular economy (CE) policies. This probably reflects the effort and consensus building needed to develop and adopt such policies and that Member States consider their first policy to be a starting point only. That is also reflected in the fact that several Member States have already adopted their second CE policy. A tendency to adopt a generic CE strategy first and then define detailed action plans after wide-reaching stakeholder involvement can be observed in several countries. All EU27 Member States are integrating CE elements in other policies such as those concerned with waste management, climate and public procurement. Linking CE to climate policies and action was reported by 16 Member States.

Only a **few countries reported carrying out an overall assessment** of their transition to a CE using monitoring frameworks such as the EU Circular Economy Monitoring Framework (CEMF) or their own national frameworks. Nonetheless 15 countries have already developed their own CE monitoring frameworks, often based on or containing indicators from the EU CEMF, complemented with additional ones. Having data and indicators is a first step, more challenging is the interpretation of trends and comparisons. Compared to the EEA's *Resource efficiency and the circular economy in Europe 2019 – even more from less* report (EEA, 2019), many more countries have introduced consumption-based indicators such as on raw material consumption (RMC) and material footprints. Also, 18 countries have introduced CE (related) targets. Several countries have already adopted long-term targets for their circular material use rates (CMURs).

A shift in the **role of government**, from, traditionally, being a regulator to currently acting as a facilitator for the CE domain is ongoing, as shown by many examples of good practice in innovation and wide-

¹ <https://www.eionet.europa.eu/etcs/etc-ce/products/etc-ce-reports-2022-5-circular-economy-country-profiles-a-set-of-30-country-profiles-that-summarise-policies-and-initiatives-in-the-area-of-circular-economy>

reaching stakeholder involvement. Nonetheless a few countries have adopted generic legislation as a way of anchoring the concept of the CE in future economic development.

Regarding **innovative approaches and good practice in public policy**, research and innovation has been identified as a key area. Fourteen Member States reported examples of funding for research programmes and innovation hubs to support the testing, development and upscaling of circular solutions. Thirteen countries shared examples of educational and training initiatives, awareness raising, financial support programmes and public procurement action. Extended producer responsibility (EPR) schemes are also an increasingly used instrument.

Fewer examples of **private initiatives and policy** were provided, most come from the plastics, textile and built environment sectors.

The **institutional challenge** involved in developing policy for a complex cross-sectoral issue is still considered to be the main obstacle to transitioning to a circular economy, even though almost all EU Member States have adopted or are close to adopting a CE policy. Further, Member States perceive market reluctance to accept and/or use recycled resources as a more important barrier to circularity than companies' (in)ability to grasp opportunities. The survey of Member States also revealed that developing policies is only a first step, the real challenge is in fully implementing them.

Given the complexity and interdisciplinary nature of the transition to a circular economy and the need for co-creation of cohesion policies, the survey revealed the need for collaboration, complementary work and interdisciplinary exchanges between various institutions, institutional levels and stakeholders from different stages of the value chain to be enhanced. Even though financial support programmes were often mentioned as good practice, only two countries referred to the EU sustainable finance taxonomy.

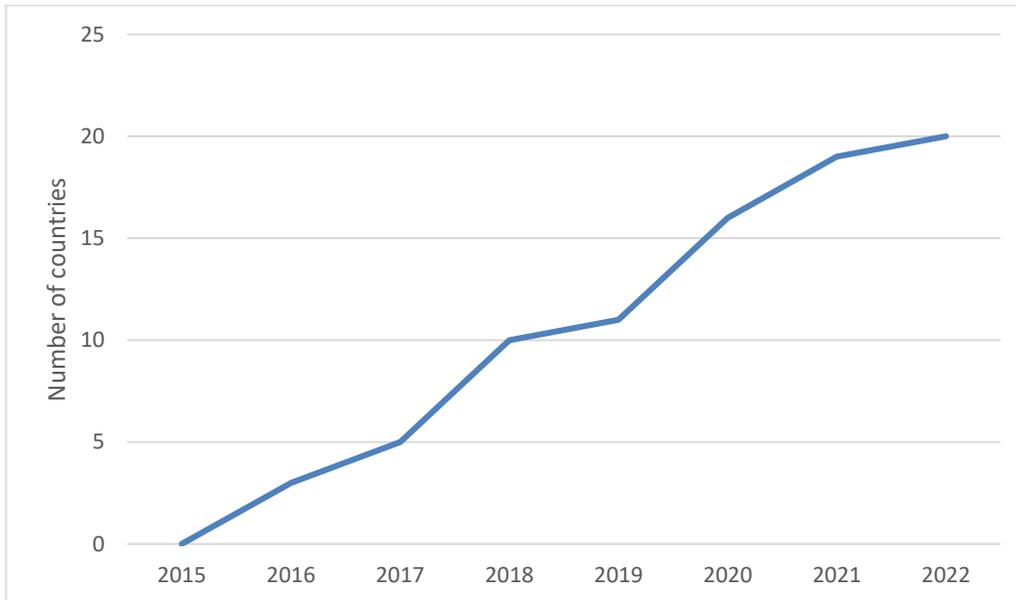
Eighteen countries are developing CE initiatives in the context of their **national recovery plans**. Several countries are also preparing measures and plans to support large, medium-sized and small enterprises, and start-ups to develop more circular business models and activities, or measures and action to stimulate and expand interdisciplinary collaboration and partnerships.

1 Existing public policy framework

1.1 Dedicated strategies, roadmaps or action plans for the circular economy

More and more Member States have responded to the encouragement in the 2015 and 2020 Circular Economy Plans (CEAPs) to adopt CE policies.

Figure 1.1 EU27 Member States that have adopted national circular economy policies, by year and cumulative total



2015	2016	2017	2018	2019	2020	2021	2022
0	3	5	10	11	16	19	20
	Belgium	Italy	Denmark	Poland	Germany	Cyprus	Romania
	Finland	Portugal	France		Latvia	Czechia	
	Netherlands		Greece		Malta	Ireland	
			Luxembourg		Spain		
			Slovenia		Sweden		

Additionally Austria, Bulgaria, Estonia, Hungary and Lithuania currently have drafts under consultation or finalisation, which are likely to be adopted either before the end of 2022 or early in 2023; while Slovakia, has already carried out quite some preparatory work. This leaves only Croatia as a Member State without a dedicated national CE policy, but this may change as it is integrating CE elements in other policies and has established a Circular Economy Committee, an interdisciplinary advisory body to the Ministry of Economy and Sustainable Development with members from 14 organisations and professional associations representing the public and private sectors, academia and civil society. The Committee’s task is to share knowledge and provide expertise to strengthen cooperation among all sectors and advocate the change of mindsets away from today’s throwaway culture to improve product longevity and recycling. One of the Committee’s initiatives is to promote the creation of a circular economy hub – a space for sharing knowledge, innovation and best practice among all stakeholders.

Several countries, including Belgium, Denmark, Finland, Italy, Luxembourg, Netherlands, Spain and Sweden, have already launched updates to their first CE policies. Many of these updates focus on or are the result of intense stakeholder consultations and active participation, and often provide a more detailed Action Plan following on from the initial CE Strategy. Figure 1.1 only shows the first adopted policies as these are indicative of a country’s formal interest in the CE. The number of countries that have adopted

second CE policies may not be particularly significant as the first ones vary in terms of the length of their validity.

Structures and naming of circular economy policies

Circular economy policies are variously named strategies, roadmaps, action plans and acts. Across the board, national CE strategies contain a selection of the following components:

- context – problem setting, some waste facts, international dimensions and rationale;
- definition of the CE;
- vision;
- objectives, including links to other policies;
- lines of action structured according to circular value chain steps, focus areas, strategic levers, consumption domains, priority sectors or policy instruments;
- governance including stakeholder involvement;
- monitoring/evaluation.

What can be observed in the country profiles is that early CE adopters, such as Belgium, Finland and the Netherlands, are following up their first policies (2016–2017) by active (sectorial) stakeholder involvement through, for example, strategic/transition agendas to identify finance and implement concrete CE measures. Other countries, including Austria, Czechia, Denmark, Estonia, Greece, Latvia, Lithuania, Romania, Spain and Sweden, that have adopted CE policies more recently or have chosen to develop a generic strategy first and simultaneously announce that action plans will follow. Strategies define main lines of action, but action plans usually contain details of 10 to around 100 measures and activities, which certainly need a governance structure to be followed up.

1.1.1 Objectives

The objectives of the CE policies range from generically stated ambitions to be achieved in the future, through contributions to other national and EU policies, to very concrete specified action/targets. Some examples are shown below.

Table 1.1 Examples of circular economy policy objectives, selected countries

Country	Generic	Contributions by the circular economy	Concrete action/targets
Belgium (Flanders)	A circular trendsetter in Europe by 2030	Response to societal challenges – poverty, climate change, loss of biodiversity and a lack of natural resources, etc.	Reduce material footprint by 30 % by 2030
Belgium (Wallonia)	Scaling up efforts	Alignment with European (European Climate Pact, Recovery and Resilience Facility (RRF), European Green Deal and CEAP) and international (the Sustainable Development Goals (SDGs)) initiatives	
Finland	By 2035, transforming the economy into one that is based on circular economy principles	A step towards achieving the government’s carbon neutrality target by 2035	Productivity of resources/gross domestic product (GDP/RMC), will double by 2035 relative to 2015

Country	Generic	Contributions by the circular economy	Concrete action/targets
	Strengthen Finland's role as a leader in the circular economy		The CMUR will double by 2035
Germany	To decouple economic growth from resource consumption as far as possible To make the German economy more future-proof and competitive, thus promoting stable employment and social cohesion.	Reduce associated environmental burdens	Total material productivity to continue the 2000–2010 trend of annual increases of 1.5 % on average until 2030
Netherlands	A circular economy by 2050		A 50 % reduction in raw material consumption by 2030
Spain	Promotion of a new production and consumption model	A sustainable, decarbonised economy, which uses resources efficiently and is competitive Aligned with the objectives of the EU's 2015 and 2020 CEAPs, as well as with the European Green Deal and the United Nations 2030 Agenda for Sustainable Development.	Targets for 2030: reducing domestic material consumption (DMC) relative to GDP by 30 %, relative to 2010; reducing waste by 15 %; reducing food waste throughout the entire food chain: 50 % reduction per person in retail and households and 20 % in production chains and supplies, all relative to 2020, thus advancing towards achieving the UN sustainable Development Goals (SDGs); promoting reuse and reuse-enabling activities until 10 % of municipal waste is reused; reducing greenhouse gas emissions to less than 10 million tonnes of carbon dioxide equivalent; improving water use efficiency by 10 %.

1.1.2 Links to climate

Sixteen countries, Belgium, Bulgaria, Croatia, Denmark, Finland, France, Germany, Greece, Ireland, Lithuania, Luxemburg, Netherlands, Portugal, Romania, Slovakia and Sweden, make explicit links between CE and Climate policy in different ways: as an objective or target for CE policy to contribute to climate policy (Spain); by involving climate ministries in aligning national initiatives (Luxembourg and the Netherlands); by launching a formal low-carbon CE agreement inviting stakeholders from different sectors, companies, regions and municipalities to join the initiative by making their own commitments (Finland); or by promoting synergetic CE/climate innovation. Compared to the previous survey for *Even More from*

Less (EEA, 2019), the link to climate is made much more often – not surprising as the Green Deal has been launched in the meantime, and several countries have updated or launched their policies recently.

1.1.3 Priority areas and sectors

All countries reported horizontal CE action which can address all sectors or consumption domains/value chains. Several (Table 1.2) have been more explicit in indicating which key sectors or priority areas will receive more specific policy attention, which may be inspired by their national economic structure, size of the sectors, potential for improvement, link to EU policy (CEAP 2020). From this overview it becomes clear that construction, food and plastics are most often mentioned whereas bioeconomy, information and communications technology (ICT), and textiles also are frequently mentioned.

Table 1.2 Examples of key sectors and/or priority areas for policies

Country	Priority areas/key sectors
Belgium (Flanders)	Circular construction; chemistry and plastics; water cycles; bioeconomy; food chain; manufacturing.
Belgium (Wallonia)	Construction and buildings; plastics; textiles; industry and food systems; water; metallurgy (including rare/critical metals and batteries); bioeconomy.
Czechia	Industry; raw materials; construction; energy; bioeconomy and food; waste management; water.
Denmark	Biomass; a sustainable built environment; plastics in a circular economy.
Estonia	Circular bioeconomy; information exchange; sustainable culture; financing; construction; textiles; food.
Finland	Mining and extraction industries.
Germany	Consumption domains – working and living; mobility; information and communication.
Greece	Priority-product value chains that are considered resource intensive and have a high circularity potential in line with the key product value chains of the 2020 EU CEAP – electronics and information and communications technology (ICT); batteries and vehicles; packaging; plastics; textiles; construction and buildings; food; water and nutrients.
Hungary	Food/biomass; construction; plastics.
Ireland	Construction and demolition; agriculture and digital services; plus CEAP 2020 key product value chains: packaging; plastics; textiles; food, water and nutrients; construction and buildings; electronics and ICT; batteries and vehicles.
Latvia	Food; textiles; furniture.
Lithuania	Industry; bioeconomy; transport; construction
Netherlands	Plastics; consumer goods; manufacturing; construction; biomass and food.
Portugal	Construction; textiles; tourism; consumer goods; distribution and retail.
Romania	Agriculture and forestry; automotive; construction; consumer goods such as food and beverages; packaging; textiles; electrical and electronic equipment (EEE).
Slovakia	Construction sector; food and biowaste value chain.
Slovenia	Food system; forest-based value chains; manufacturing industry; mobility.
Spain	Construction; farming, fishing, and forestry; industry; consumer goods; tourism; textiles and the garment sector.
Sweden	Plastic; textiles; food; renewable and biobased raw materials; construction and the real estate sector; innovation in critical metals and minerals.

1.2 What has been implemented?

It appears that the countries found this a difficult question to answer unless a formal evaluation had taken place. The guidance was not explicit on what to consider as implementation – real changes in society or new public policy plans. Furthermore, when an action plan has 100 activities, reporting on implementation can become very extensive.

Countries that launched their (updated) CE policies at the end 2020 or 2021 usually report that measures/action have only just begun and the descriptions of them are all in the future tense, suggesting that implementation is yet to happen. This is also the case for countries that have created an action plan following up on their CE strategy. Nonetheless some of the early CE policy adopters were able to report some implementation or evaluations, which presumably fed into the process of updating their policy.

1.2.1 Country examples

Finland

Finland will develop economic incentives that promote the sparing use of natural resources, reduce carbon dioxide emissions, and increase the general adoption of CE service models.

- The recycling industry was moved into the electricity tax category for industry at the start of 2022.
Responsible organisation: Ministry of Finance.
- A tax based on net earnings is being prepared for mines.
Responsible organisation: Ministry of Finance.

France

The following measures have already been adopted and entered into force.

- Establishing four new EPR schemes for construction products, do-it-yourself (DIY) products; sports products and toys.
- Review existing EPR schemes to improve and strengthen the schemes' operations and objectives.
- A reparability index of EEE.
- A ban on the destruction of unsold new products – EEE; clothes, shoes and other textiles; furniture; ink cartridges; hygiene and childcare products; equipment for the conservation and cooking of food; leisure and educational products; books and school supplies.
- Mandatory objectives for circular public procurement on certain products.
- A ban on plastic packaging of some fresh fruit and vegetables.
- A ban of labels stuck directly on some fresh fruit and vegetables.
- A ban on the use of single-use plastic products by public authorities.
- An obligation on cable and mobile internet providers to supply consumers with information on the carbon footprint of their data consumption.
- A programme aiming to introduce an obligation on manufacturers to inform consumers about the environmental characteristics of their products.
- An obligation on the home-appliances sector to offer secondhand spare parts to maintenance and repair services.
- The establishment of minimum availability periods for spare parts for certain products.

Germany

The development of ProgRess III, the German Resource Efficiency Programme, was supported by a citizens' dialogue, which focussed on measures that are particularly relevant for citizens and for which they can be involved in the implementation. The resulting citizen's advice has been attached to the programme as an appendix.

Greece

Due to a lack of tangible results from the two-year action plan, and in the light of the recent developments at the EU level with the European Green Deal and the 2020 EU CEAP, the Hellenic Ministry of Environment and Energy drafted a **new National Circular Economy Action Plan** (National CEAP) with a 2021–2025 implementation period, which has been officially adopted by the Ministers' Council Act No. 12 of 29 April 2022.

The establishment of economic incentives and disincentives to boost the waste hierarchy and reduce municipal waste generation – a landfill tax was introduced in 2022 and will gradually increase to 2027.

Netherlands

The following initiatives have been implemented.

- 1 The 2017 Raw Materials Agreement sets out what is to be done to ensure that the Dutch economy can run on renewable resources. The agreement is signed by more than 400 parties from both government and industry.
- 2 In 2018, the government and the signatories to the Raw Materials Agreement drew up five Transition Agendas, focussing on five sectors and value chains that are important to the economy but also carry a high environmental burden – plastics; consumer goods; manufacturing; construction; and biomass and food. The Agendas set out how the sector in question can become circular by 2050, and what action needs to be taken.

Portugal

At the national level, initiatives were based on dedicated policy instruments such as green taxation, voluntary agreements and the Portugal 2020 ⁽²⁾ environmental network. On the other hand, those at the sectoral and regional levels, such as industrial symbiosis networks, circular cities and circular companies, were implemented through specific support for the development of solutions, such as planning and technological solutions, and through mechanisms designed for this purpose – for example, the Environmental Fund, the Fund for Innovation, Technology and Circular Economy and Portugal 2020. The seven macro activities, in addition to consolidating initiatives underway by the government, such as the National Strategy and Action Plan to Combat Food Waste, also introduced other complementary initiatives which aim to contribute to:

- making the classification of byproducts and the application of end-of-waste criteria more expeditious through new waste legislation that came into force on 1 July 2021;
- reducing primary consumption of single-use plastic produced from fossil sources;
- promoting the extraction and regeneration of value-added materials from waste streams, etc.

Based on an assessment made in 2021⁽²⁾, Table 1.3 shows the degree of fulfilment of the objectives of Portugal's National Action Plan for the Circular Economy (PAEC) 2018–2020, for each of the seven macro activities.

² Portugal 2020 is a partnership agreement between Portugal and the European Commission, which brings together the activities of the five European Structural and Investment Funds.

²

https://www.apambiente.pt/sites/default/files/SNIAMB_A_APA/Iniciativas_transectoriais/PAEC_RelatorioFinal.pdf (in Portuguese)

Table 1.3 Degree of fulfilment of the objectives of the seven macro activities of the Portugal’s National Action Plan for the Circular Economy 2018–2020

   very satisfactory; complies; not satisfactory

Objectives	Fulfilment
Action 1 – Design, repair, reuse: extended producer responsibility	
Reuse more products, namely those addressed by EPR schemes and others for mass consumption	
Reduce waste production	
Contribute to the view that products have multiple useful lives (less obsolescence)	
Action 2 – Incentivising a circular market	
Analyse the economic and environmental potential of gradually introducing instruments that subsidise sustainable production and consumption	
Incentivise the financial sector to seize investment opportunities in the CE	
Promote the productive sector’s adoption of the principles of circularity	
Action 3 – Educating for a circular economy	
Establish a collaborative, strategic and cohesive commitment to building environmental literacy in Portugal through the National Environmental Education Strategy (ENEA), with the CE as one of its cornerstones	
Educate the population to make environmentally-aware choices of goods and services	
Raise social awareness of the consequences for the state of the oceans of choosing goods and services that ignore the environmental impacts	
Action 4 – Eat without waste: sustainable production for sustainable consumption	
Understand and monitor the national food waste situation in the value chain	
Contribute to educating the producer/consumer	
Reduce the production of organic waste and raise productivity in the value chain, chiefly in sectors linked to the food industry, contributing to natural resource conservation	 
Action 5 – A new life for waste!	
Increase the introduction of secondary raw materials into the economy	
Reduce the need for natural resource extraction	
Reduce waste production	
Reduce context costs for companies	
Action 6 – Regenerating resources: water and nutrients	
Improve water efficiency	
Increase water reuse	
Improve the recirculation of nutrients and organic matter through their natural cycles	
Action 7 – Researching and innovating for a circular economy	
Define key research and innovation areas for speeding up the CE in Portugal	
Define, develop and enhance expertise in the key research and innovation areas identified based on the previous objective	
Identify and enhance CE knowledge networks	

In addition, the country profile of Portugal contains an extensive table with a check list of the approach, for the period 2018–2020, showing all the actions implemented to cover the **guidelines** planned by the PAEC to achieve its main objectives. In conclusion, it appears that during the three-year period (2018–2020), **of the total of 57 guidelines recommended in the PAEC, 44 were addressed** (about 77 % of cases) by the entities/bodies that are part of the PAEC Coordination Group. Action 1 – *Design, Repair, Reuse: extended producer responsibility*, was the one in which a lower percentage of guidelines was implemented

(50 %), while Action 7 – *Investigate and innovate for a circular economy* was the only one in which all the guidelines were addressed.

Sweden

The following actions have been implemented so far.

- Establishing a **national platform for sustainable fashion and textiles** which provides support to actors along the value chain and presents good examples.
- Establishing **national plastic coordination** with the aim of increasing and disseminating knowledge about plastic and microplastics, and, together with other actors, being a driver of sustainable plastic use.
- Strengthen the work with **non-toxic product design and production** through expanded guidance and support to industry as well as supervision by the authorities.
- Implementing **research and innovation funds** for reducing negative environmental effects from plastics, advanced water treatment and developing circular business models, etc.
- Financing economic grants, called **Climate Leap and Industrial Leap**, for investment in technology that contributes to reduced carbon dioxide emissions.

A separate Action Plan for Plastics has been published ⁽⁵⁾

1.2.2 Legal acts

In the previous EEA/ETC survey culminating in the EEA report *Even More from Less* (EEA, 2019) a shift in role for authorities, from regulator to facilitator, was noticed. This is still ongoing today, but an interesting new development may be that in a few countries the CE is being implemented as a legislation. Not in the sense of a transposition of EU directives into national legislation but as a way of anchoring the concept of the CE. Examples are shown below:

France

In 2020, the **law against waste and for the CE** ⁽⁶⁾ was adopted for implementing 50 measures, organised into four main overarching priorities, of the 2018 **Roadmap for the Circular Economy** as well as a few additional ones (*Loi no 2020-105 du 10 février 2020 relative à la lutte contre le gaspillage et à l'économie circulaire*).

Ireland

The Circular Economy Act 2022 ⁽⁷⁾ underpins Ireland's shift from a take-make-waste linear model to a more sustainable pattern of production and consumption to retain the value of resources in the Irish economy for as long as possible. The Act:

- defines the CE for the first time in Irish domestic law;
- incentivises the use of reusable and recyclable alternatives to a range of wasteful single-use disposable packaging and other items;
- re-designates the existing Environment Fund as a Circular Economy Fund, which will remain ring-fenced to provide support for environmental and CE projects;
- introduces a mandatory segregation and incentivised charging regime for commercial waste similar to the one that exists for households. This will improve waste separation and support increased recycling rates;
- provides for the General Data Protection Regulation (GDPR) compliant use of a range of technologies, such as close-circuit television (CCTV), for waste enforcement purposes. This will

⁵ [sveriges-handlingsplan-for-plast---en-del-av-den-cirkulara-ekonomi.pdf \(regeringen.se\)](#) (in Swedish)

⁶ <https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000041553759/> (in French)

⁷ [gov.ie - Landmark Circular Economy Act signed into law \(https://www.gov.ie/en/policy-information/528f7-circular-economy/\)](https://www.gov.ie/en/policy-information/528f7-circular-economy/)

support efforts to tackle illegal dumping and littering, while protecting the privacy rights of citizens;

- places the Circular Economy Strategy, the Circular Economy Programme and National Food Waste Prevention Roadmap on a statutory footing, establishing a legal requirement for government to develop and periodically update these documents;
- streamlines the national processes for end-of-waste and by-products decisions, tackling the delays which can be encountered by industry, and supporting the availability of recycled secondary raw materials in the Irish market; and
- consolidates the Irish government's policy of keeping fossil fuels in the ground – by introducing prohibitions on exploration for and extraction of coal, lignite and oil shale.

Luxembourg

An obligation to submit a digital material inventory for new construction.

Spain

In 2019 the Circular Economy Law (Law 7/2019) ⁽⁸⁾ of **Castille-La Mancha** was published, the first legal regulation of its type that was approved in Spain. It was issued with the aim of promoting a more innovative, competitive and sustainable development model in the region. It was followed by the adoption of the Castile-La Mancha Circular Economy Strategy 2021–2030 ⁽⁹⁾, which covers, amongst other things, the areas related to the efficient management of resources, production, consumption, waste and innovation.

Other noteworthy findings:

- Seven countries, France, Greece, Italy, Latvia, Lithuania, Malta and Portugal explicitly report the use of EPR schemes for the CE.
- Seven countries reported CE goals aligned to the SDGs, which seems surprisingly low. As, however, the CE Action Plans were launched almost simultaneously with the SDG's, there was little opportunity for much mutual influence.

1.3 Circular economy elements entering other policies

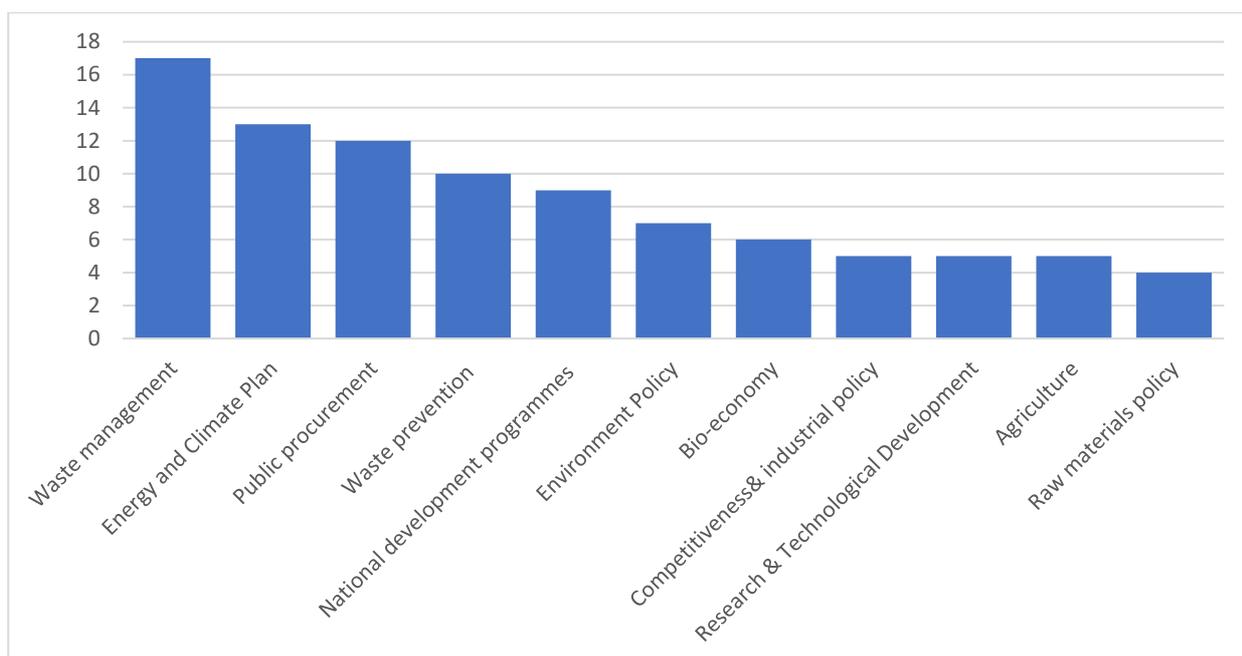
The number of CE elements reported shows the all-encompassing nature of the CE concept with its many levers. Policy elements reported typically are requirements for combining CE strategies and principles applied to materials, products, sectors, systems and consumption domains using different instruments, such as funding, promotion, reporting obligations, guidelines, bans, criteria and tools, leading to improved impacts.

As observed in the previous survey for *Even more from less* (EEA, 2019), countries, whether or not they have a dedicated CE policy, have been introducing and continue to introduce CE elements in other policies. All countries reported integrating CE elements into five different policies on average. This process is very similar to implementing environmental issues into other policies. The number of different policies mentioned by countries is approximately 45, showing the wide horizontal scope of the CE. The number of countries that provided three or more examples for CE elements introduced in other policies are shown in Figure 1.2.

⁸ https://www.castillalamancha.es/sites/default/files/documentos/legislacion/20200331/ley_7-2019_economia_circular.pdf (in Spanish)

⁹ https://www.castillalamancha.es/sites/default/files/documentos/pdf/20210301/estrategia_economia_circular_clm_2030.pdf (in Spanish)

Figure 1.2 Number of countries providing four or more examples of introducing circular economy elements in other policies



Waste prevention seems a bit low given the fact that the CE and waste prevention have a lot in common. Public procurement is gaining in importance.

Table 1.4 Selected examples of circular economy elements integrated into other policies

Country	Circular economy element	Weblink
Croatia	Building design, construction and renovation will be carried out according to the principles of circular management of space and buildings with the use of resources coordinated with the needs and performance of buildings.	The Low Carbon Development Strategy of the Republic of Croatia to 2030 with a view to 2050 (in Croat)
Denmark	Mandatory use of total cost of ownership in state procurement for specific product groups.	National Strategy for Green Public Procurement 2020. https://oes.dk/media/39012/strategi-for-groenne-indkoeb-engelsk.pdf
Ireland	Opportunity through the National Skills Strategy for increasing skills in repair, recycling and remanufacturing to deliver a CE.	Ireland's National Skills Strategy 2025 – Ireland's Future
Italy	Through the issue of the sovereign green bonds (the first was launched in 2021), Italy finances public expenditure intended to contribute to the achievement of environmental objectives of the EU's sustainable finance taxonomy within which the transition to a circular economy.	Financial policy: Italian Sovereign Green Bonds
Lithuania	Promotion and financing the trade in secondhand goods and the development of a small business providing repair services.	The National Waste Prevention and Management Plan Annex 2, Measure 1.1.1, 2023–2025 (in Litanian)
Luxembourg	Obligation to submit a digital material inventory for new construction. A specific	Loi du 9 juin 2022 modifiant :

Country	Circular economy element	Weblink
	policy (<i>Règlement grand-ducal</i> (RGD)) is currently being prepared to set out the terms.	1° la loi modifiée du 21 mars 2012 relative aux déchets; 2° la loi modifiée du 31 mai 1999 portant institution d'un fonds pour la protection de l'environnement. (in French)
Slovenia	The CE model is based on maintaining the value of materials and products for as long as possible, replacing products with services, the transition from ownership to sharing and the use of digitisation.	Slovenian Industrial Strategy 2021-2030 (in Slovene)

2 Monitoring and targets

This chapter provides the findings based on the responses from the countries to the questions about CE assessments, monitoring frameworks, indicators and targets. The survey guidance is available in Annex 1.

2.1 Assessment of circular economy performance

Only a few countries, Finland, Netherlands, Portugal, Spain and Sweden, reported a rather complete overall assessment of their progress, as can be seen in the trends visible in the EU Circular Economy Monitoring Framework. Two countries, Finland and the Netherlands, provided references to their assessments, which suggests that the other three countries may have performed their assessments, in less details, in the context of the survey.

Netherlands

The main findings of the Integral Circular Economy Report 21 (ICER 21) ⁽¹⁰⁾ are as follows.

“Looking at how material resources are being used in the Netherlands and the effects related to this use, the ICER 21 finds that various trends are going in the wrong direction. Although it is true that resource efficiency has increased, this has not led to a sharp reduction in the use of raw materials. Since 2010, their total use has hardly changed in the Netherlands. Moreover, Dutch consumption also requires more and more land in the production chain. In addition, the amount of landfilled waste has increased since 2014, six of the seven overall national targets for waste are not expected to be achieved, and the supply risks for the Dutch economy have also increased. Manufacturers are running the largest supply risks because of their dependence on cobalt, indium, rare-earth metals, tantalum, tin and tungsten. These critical metals are used, for example, in machines, in vehicle parts and electronics, and are important for the energy transition.”

Some countries, for example, Belgium, Cyprus, Hungary, Greece and Romania, reported to be interested and to have built a structure to perform (parts of) these assessments in the future.

Belgium, Wallonia

The Soil and Waste Department of Wallonia’s Ministry of the Environment has set up a repair observatory as part of the Walloon Waste-Resources Plan; a report on the state-of-play is available ⁽¹¹⁾;

Greece

To date, there is no official procedure to assess the progress of the transition to a more circular economy in Greece. Yet, on the basis of the results of the EU Circular Economy Monitoring Framework for Greece, the **new Greek CEAP** shows the need to speed up the assessment process and has embedded **dedicated action to systematically monitor implementation progress**. To this end, a National Observatory on the Circular Economy will operate from 2023 onwards, within the framework of the integrated project LIFE-IP CEI Greece ⁽¹²⁾ that is coordinated by the Hellenic Ministry of Environment and Energy.

All in all, it seems that many countries have not used the EU CEMF yet for their own assessments of past national trends or comparisons with EU averages. Bulgaria pointed to the assessment carried out in the context of the European Semester, in the *Green transition and resource efficiency* chapter and Annex 7 *Resource Efficiency and Productivity* of a document entitled *2022 Country Report – Bulgaria* ⁽¹³⁾. Croatia is collaborating with the World Bank and Ireland with OECD on CE policy in general, including performance assessments.

¹⁰ <https://www.pbl.nl/sites/default/files/downloads/pbl-2021-integral-circular-economy-report-2021-4582.pdf>

¹¹ <https://sol.environnement.wallonie.be/home/accueil-dechets/observatoire-de-la-reparation/pagecontent.html> (in French)

¹² <https://circulargreece.gr/>

¹³ https://ec.europa.eu/info/system/files/2022-european-semester-country-report-bulgaria_en.pdf

Partial assessments are reported by many countries explaining how and why selected waste indicators are progressing nationally or in comparison to EU averages. Special attention on interpreting the CMUR indicator has been reported in varying detail by Germany, Hungary, Ireland, Latvia, Netherlands, Spain and Sweden.

Germany

With regard to the development of the CMUR in Germany, a study was published in 2021 ⁽¹⁴⁾. It shows that the development of the CMUR is relatively constant and near to the EU average. The values for the individual material groups, however, differ greatly. For fossil raw materials, which are predominantly incinerated, the CMUR is lowest at a good 2 %. For metals that can be recycled easily, the CMUR is highest, at just under 33 %. The study also compared the development of the CMUR in Germany with that in other EU countries. It concludes that different developments can be explained, on one hand, by differences in raw material consumption and waste management, and, on the other, by differences in the management of the collection and allocation of waste. In addition to this, it is stated that the trade of recycled waste accounts for a fairly small share overall. For non-metallic minerals, the share of wastes traded in Germany is lowest, at 1–2 % of the volume generated, while for metal scrap, which is imported and exported to a greater extent, the volumes traded are highest at around 40 % and 73 % respectively.

Most countries nonetheless do point to their institutions and websites on which sets of (environmental) data and indicators can be found. Having sets of indicators is a precondition for assessment, but interpreting them can be a challenge, especially, as Luxembourg reports, in small economies.

2.2 Country characteristics that explain differences from EU averages or national trends

Arguments given to (potentially) explain observed differences or national trends in waste management, CE performance, including the CMUR, can be classified by economic (structure), infrastructure and policy effects. Examples are shown below.

Economic (structure):

- High share of mining industry leading to high DMC and waste (Finland).
- High share of low-value materials production, that makes competition for recycled materials tough (Estonia).
- High share of agriculture (Ireland).
- High share of small and medium-sized enterprises (SMEs) that are hard to reach in terms of introducing the CE (Hungary).
- Products that can contain recycled content are not produced domestically (Latvia).
- Circular economy products are more expensive, so have a lower market share when income is low (Latvia).
- Large tourism share in an economy increases the net equivalent population and associated consumption (Malta).
- High income levels leading to high waste generation (Denmark).
- Increase in population together with increasing prosperity globally has led to an increase in demand. This in turn leads to increased production and thus increased demand for natural resources and chemicals (Sweden)

Finland

Many of the indicators that use DMC or other data from economy-wide material flow accounts (EW-MFA) are somewhat biased when comparisons are made between the EU Member States as Finland's material and waste flows are dominated by the mining industry.

¹⁴ Dittrich et. al (2021): *Sekundärrohstoffe in Deutschland*.
https://www.nabu.de/imperia/md/content/nabude/konsumressourcenmuell/2104-22-ifeu-studie-sekundaerrohstoffe_in_deutschland.pdf (in German)

Infrastructure:

1. Many single-family housing units leading to more garden waste (Denmark)
2. More rigorous reporting systems (Denmark)
3. Scattered population and low overall population density (Estonia)
4. No processing capacity domestically (Estonia)
5. Good/bad waste collection infrastructure (Finland, Malta)

Denmark

The high levels of waste generation may be linked, among other factors, to high income levels and associated consumption levels, and relatively large amount of garden waste generated from the many single-family housing units. It may also be linked to the rigorous registration and reporting of municipal waste data to the Danish Environmental Agency, which may not be the case in other EU Member States.

Policy effects:

To prove causality between (regional) policies and observed trends is a challenge, not only because many other factors can have an influence, but also because of data limitations. Developing policies when value chains are global is also considered a challenge. When trends are positive, authorities may assume it to be an effect of policy, when no changes are visible, survey respondents often reported that the policies had just been launched.

Belgium Flanders

It is difficult to assess the Belgian figures and evolution, and to evaluate the effect of policy measures on these figures and evolutions. Environmental policy is a regional responsibility, but EUROSTAT has Belgian statistics that cannot be split easily into three regional indicator values.

To measure the CE in Flanders, OVAM, together with the CE Centre, have developed a Flemish CE Monitor ⁽¹⁵⁾.

Sweden

Sweden's economy is **highly dependent on the extraction and processing of natural resources nationally and internationally**. A combination of measures is needed to reduce the extraction of natural resources, break linear material flows in favour of circular ones and achieve a decoupling of economic growth from material consumption. Developing policies promoting the more efficient use of resources and materials is a very complex challenge. It involves a lot of activities interwoven into global material flows with very different functions, volumes and effects on the environment and sustainability.

Cyprus

To date, no assessment has been carried out at the national level. The Eurostat Sustainable Development Goals and Circular Economy indicators (estimates in many instances) are used to monitor progress.

The **National Circular Economy Strategy** ⁽¹⁶⁾ was adopted in 2021 and has begun to be implemented. The **revised National Waste Prevention Programme** ⁽¹⁷⁾ has been finalised and will be open for public consultation prior to its adoption by November 2022, focussing on more circular approaches to consumption and production and waste management. The Programme includes indicators to enable assessment of the implemented measures and will be produced every two years

¹⁵ <https://cemonitor.be/en/indicator/>

¹⁶ https://meci.gov.cy/assets/modules/wnp/articles/202109/290/docs/sxedio_drasiskikliki.pdf (in Greek)

¹⁷ http://www.moa.gov.cy/moa/environment/environmentnew.nsf/page20_en/page20_en?OpenDocument

Spain

The CMUR indicator has gradually increased due to specific measures such as the approval of the Spanish Circular Economy Strategy and the Circular Economy Action Plan for 2021–2023. For some indicators, such as that for the generation of municipal waste per person, a gradual increase can be observed to 2018, similar to the EU, but since then Spanish volumes have diminished while they have continued to rise in the EU. This suggests that the effects of implementing the Strategy are starting to be seen in terms of the generation of waste.

2.3 Circular economy monitoring frameworks and their indicators beyond those from Eurostat

Fifteen countries reported having their own set of CE indicators for monitoring defined, which shows the considerable progress compared to the previous survey as reported in *Even More from Less* (EEA, 2019) when only France had its monitoring framework adopted and eight countries reported having frameworks at various stages of development. Thus, more countries have succeeded in developing and adopting national CE monitoring frameworks, most probably supported by the launch of the EU CE Monitoring Framework ⁽¹⁸⁾ in 2018. Most of the 15 countries also report to be developing new additional indicators that create a better understanding of underlying factors explaining macro developments.

Portugal

The **PAEC includes a set of indicators** to assess the progress of its implementation, but these are related to the metabolism of the economy, i.e., how it evolves in terms of extraction, productivity, recycling performance and emissions/effluents, and do not measure the full dimension and scope of the CE. With this in mind, the **PAEC foresees the development of a monitoring protocol**, through which complementary indicators that can translate the evolution of the transition to the national level by sector and area of intervention, will be defined.

Defining indicators is a first step but a bit more time is needed to operationalise them, as reported, for example, by Greece.

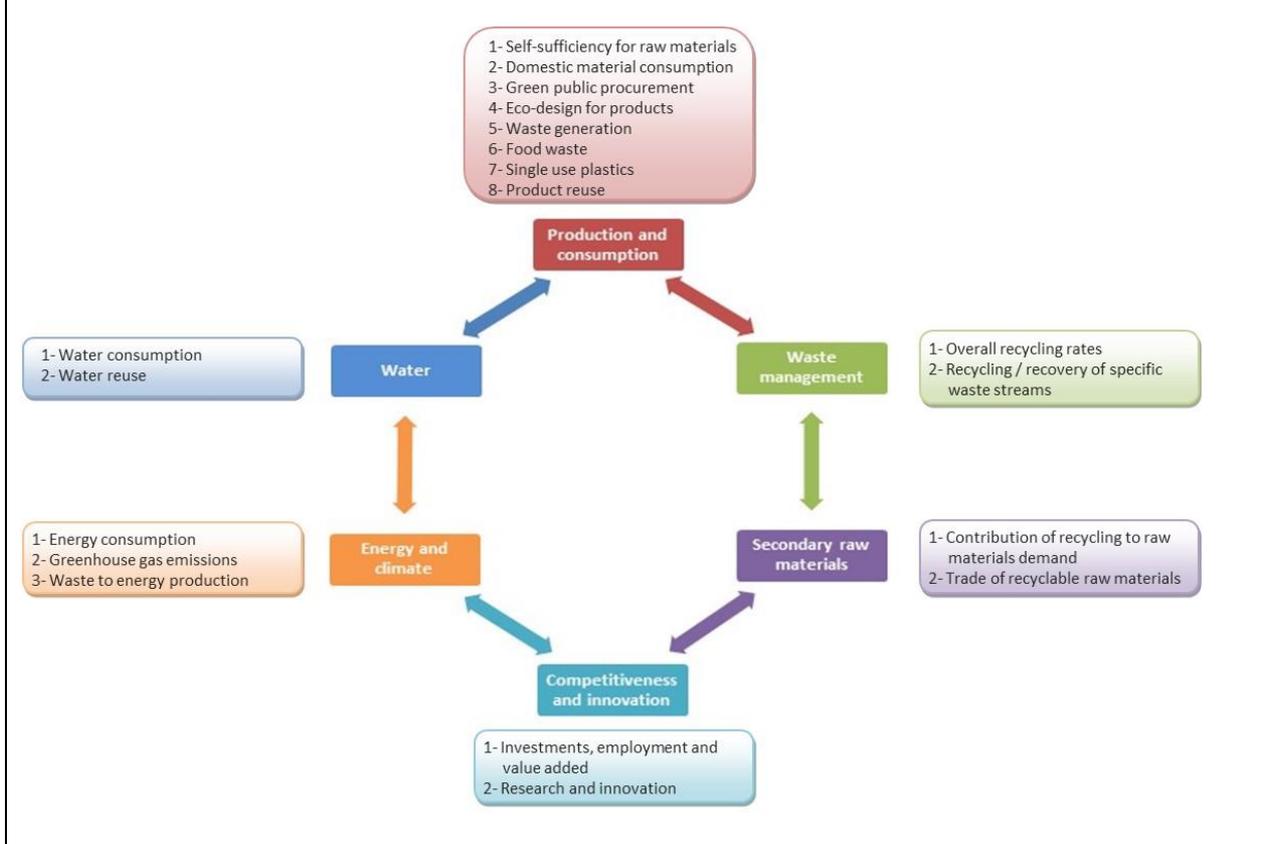
Greece

Six thematic areas were defined to structure the national CE monitoring framework. Relying on national statistics and available official data to the extent possible, **19 sets of indicators**, which include **56 individual indicators**, cover these thematic areas.

¹⁸

[Monitoring Framework for the circular economy | European Commission \(europa.eu\)](#)

Figure 2.1 The structure of Greece’s national circular economy monitoring framework



Very often the EU CE monitoring indicators are part or the basis of the national set which is complemented with other indicators.

Belgium, Flanders:

An extensive multi-layered CE monitoring framework has been created by the CE Centre and published in 2022. It provides indicators on macro and intermediate levels as well as figures for specific product groups, showing Flanders’ progress towards a CE ⁽¹⁹⁾.

The macro-level indicators provide insights into the consumption of materials, water, soil and space, and the emissions this produces. On the intermediate level, the CE monitor measures four systems of need for the economy – housing; food and water; consumer goods; and mobility. Finally, the macro- and intermediate layers are complemented by figures for specific product groups and services ⁽²⁰⁾.

Each indicator has been carefully selected and validated by scientific analyses by the CE Centre. Results have been systematically made available in both academic publications and others aimed at the general public ⁽²¹⁾. All indicators are visually attractive and are publicly available ⁽²²⁾.

Slovakia:

Slovakia uses the indicator set ⁽²³⁾ determined by the European Commission in the Circular Economy Monitoring Framework. In 2021, the indicator set was extended to include the consumption footprint.

Spain:

The **Spanish Circular Economy Strategy** has established the European monitoring and evaluation mechanisms and **indicators** as its indicator scheme. It additionally incorporates an indicator related to

¹⁹ <https://cemonitor.be/en/about/about-this-monitor/>
²⁰ <https://cemonitor.be/en/how-circular-is-the-flemish-economy/>
²¹ <https://ce-center.vlaanderen-circulair.be/en/publications>
²² <https://cemonitor.be/en/indicator/>
²³ <https://www.enviroportal.sk/indikator/321?langversion=sk> (in Slovak)

greenhouse gas emissions as the CE contributes to a reduction in these, particularly methane, through the reduction, proper management and treatment of waste, especially by increasing the biological treatment of biowaste.

Sweden:

The indicators follow Eurostat ones for the CE, with some alternations and additions. Several of the indicators follow trends from 2010, but others have shorter time series.

The number of EU Member States that use consumption based indicators, such as RMC and the material footprint, has increased considerably to 12 (Austria, Belgium, Denmark, Finland, France, Germany, Hungary, Italy, Netherlands, Poland, Sweden, Slovakia), compared to just five countries at the time of the last survey in 2019.

Two countries, Luxembourg and Spain, report the use of the Bellagio Principles ⁽²⁴⁾ for indicator development.

International cooperation on CE indicators is reported by Italy and Sweden:

- Italy contributes to the ongoing work at an international level on measuring the CE by the EU, the Organisation for Economic Co-operation and Development (OECD) and the United Nations Economic Commission for Europe (UNECE).
- More than 70 countries and partners are working together within the International Organization for Standardization (ISO) on several parallel standard proposals that will help guide, clarify and provide measurability of the CE at different levels in the transition to increased circularity. Sweden is very active in the global arena within ISO, with several participants from the Swedish group involved in international working groups ⁽²⁵⁾. Three proposed standards will form the foundation for the whole area:
 - terms, basic principles and framework for implementation (ISO 59004);
 - guidance for business models and value chains (ISO 59010);
 - measuring and assessing circularity (ISO 59020).

2.4 Specific circular economy targets

At the time of *Even More from Less* (EEA, 2019), only one specific CE target on reuse was reported, from Belgium (Flanders), as it was not developed in the context of EU-imposed waste policy. In this survey, EU-imposed waste targets were again excluded.

In this survey 18 countries reported specific CE targets, including countries that reported a resource productivity target. Some countries are still in the process of adopting them, but they have, nonetheless, described them in their strategy. Whether targets have been legally adopted or are just aspirations is often not specified. The level of CE specificity can also be debated for frequently reported targets:

- resource productivity: this can be achieved by more CE efforts but also by simply more (linear) resource efficiency during production;
- reducing food waste: this can be achieved by CE action, but also by other linear measures;
- Green public procurement (GPP) mandatory targets: GPP originates from the environmental domain and the number of products with CE criteria included is still growing.

Food waste targets are frequently mentioned, referring to commitments under SDG 12.3.

A variety of inspiring examples of reported targets are described in Table 2.1, showing also that targets are set not only at national macro level, but also for footprints, assuming global value chain responsibility, and for micro-level aspects, such as specific sectors and domains.

²⁴ <https://circulareconomy.europa.eu/platform/en/measuring-circular-economy/monitoring-progress-europes-circular-economy-bellagio-process>

²⁵ [Stardarder för cirkulär ekonomi - Svenska institutet för standarder, SIS](#) (in Swedish)

Table 2.1 Examples of reported targets

Country	Target
Austria	reduction of its material footprint to 7 tonnes per person per year ⁽²⁶⁾ by 2050.
Belgium (Flanders)	by 2030, at least 25 % of new or renovated buildings will be designed using the principles of adaptable (dynamic) construction.
Belgium (Wallonia)	to reach a minimum quantity of reused goods of 8 kg per person per year by 2025
Bulgaria	CMUR: the target value is 11.7 % with no specified target year, but the policy frame is until 2030.
Estonia	resource productivity – EUR 0.9 per kilogram in 2035.
Finland	consumption of non-renewable natural resources will decrease but the sustainable use of renewable natural resources may increase only to the extent that the total consumption of primary raw materials in Finland in 2035 will not exceed what it was in 2015. Natural resources used to manufacture products for export are not covered by the objective ⁽²⁷⁾ .
France	aim that 100 % of plastics are recycled by 2025; to create up to 300 000 additional jobs, including in new professions.
Greece	GPP targets for 15 categories of products/services (GPP National Action Plan 2021–2023), ranging from 20 % to 80 % of public procurements depending on the category. The targets are mandatory for eight product categories.
Ireland	circular economy strategy will set out targets in respect of each of the following sectors of the economy: construction; agriculture; retail; packaging; textiles; EEE.
the Netherlands	the government's objective is to achieve a fully circular economy by 2050
Poland	number of regional strategies incorporating CE aspects – minimum of seven by 2030.
Portugal	increasing the incorporation of waste ⁽²⁸⁾ in the economy – from 56 % in 2012 to 68 % in 2020 and 86 % in 2030 (Green Growth Commitment)
Slovakia	Slovakia will devote at least 70 % of the total value of public procurement to GPP. Green public procurement, in force from July 2020 for ministries and central government authorities for selected product groups, will be gradually expanded so that by 2030 the 70 % goal will be achieved. Electronic tools will be used to facilitate and monitor GPP.
Spain	a specific target has been established for reuse – at least 2 % by 2020, 5 % by 2025, 10 % by 2030 and 15 % by 2035
Sweden	The proportion of packaging placed on the Swedish market for the first time that is reusable must increase by at least 20 % between 2022 and 2026 and by at least 30 % from 2022 to 2030

Circular material use rate targets

The CMUR is a newly developed indicator in the EU CE Monitoring Framework and the CEAP 2020 has set an objective at the EU level, *“the EU needs to ... strive to reduce its consumption footprint and double its circular material use rate in the coming decade”*. Several Members States have already made commitments, but others are still considering making them.

²⁶ Based on research findings, the 7 tonnes/person/year are considered as a sustainable level of raw material consumption (BMK 2020: Resource Use in Austria 2020, Vienna. https://www.bmk.gv.at/dam/jcr:f64d9e92-fb8f-4ea2-836f-62924d3d47eb/RENU20_LF_EN_web.pdf)

²⁷ The objective takes into account Finland’s total consumption that includes imported products needed for everyday life and to run infrastructure, and the consumption of domestic raw materials. Finland’s total consumption includes raw material consumption in countries where the products are manufactured minus the raw materials used to manufacture Finnish products for export. Total consumption is shown by the RMC indicator calculated by using the ENVIMAT tool developed by the University of Oulu and Finnish Environment Institute.

²⁸ According to the Green Growth Commitment, the rate of incorporation of waste into the economy is given by the quotient of the total waste subject to recovery (except energy recovery) and the total waste produced.

Table 2.2 Examples of countries that have made commitments on circular material use rates

Country	Target
Austria	increase of the material use rate from 12 % currently to 18 % (still in the political coordination phase).
Bulgaria	CMUR: the target value is 11.7 % with no specified target year, but policy frame is until 2030.
Estonia	CMUR: 30 % in 2035
Finland	the CMUR will double by 2035, the reference year is yet to be defined.
Germany	the use of, as well as a target definition for, the CMUR in Germany is currently being discussed, but so far the CMUR rate is neither reported officially nor is its development defined.
Ireland	the Whole of Government Circular Economy Strategy 2022-2023 ⁽²⁹⁾ has an objective of bringing Ireland's CMUR above the EU average by 2030 and notes that future iterations of the Strategy will include more detailed action and targets, including sector specific targets.
Latvia	CMUR: an increase from 6.6 % in 2020 to 11.0 % by 2027.
Lithuania	implementing the strategic goal of the National Progress Plan for 2021–2030 to increase the use of recovered raw materials, the circularity index, from 4.4 % in 2020 to the EU average of 12.8 % by 2025.

²⁹

<https://www.gov.ie/en/publication/b542d-whole-of-government-circular-economy-strategy-2022-2023-living-more-using-less/>

3 Examples of innovative approaches and good practice

This chapter provides an overview of initiatives that countries reported as good practice or innovative approaches to support the CE. Countries were asked to focus on initiatives already at the implementation phase, falling within two different categories: public policy and private policy initiatives. For public policy initiatives, they could report ones ranging from national to regional and even local (city/municipality) levels. For private policy initiatives, they were asked to provide sectoral initiatives developed by specific industrial or economic actors in their country, excluding initiatives taken at the individual company level. Nonetheless, several company solutions were presented.

In total, countries reported 159 examples of good practice in public policy initiatives and 81 in private policy ones.

Some policies cover multiple areas. The titles of the initiatives and full details are available in the individual country profiles that accompany this report. Below is an overview of the major areas covered by public and private policies. Particularly innovative initiatives and/or original ones from specific countries are highlighted in boxes.

3.1 Public policies

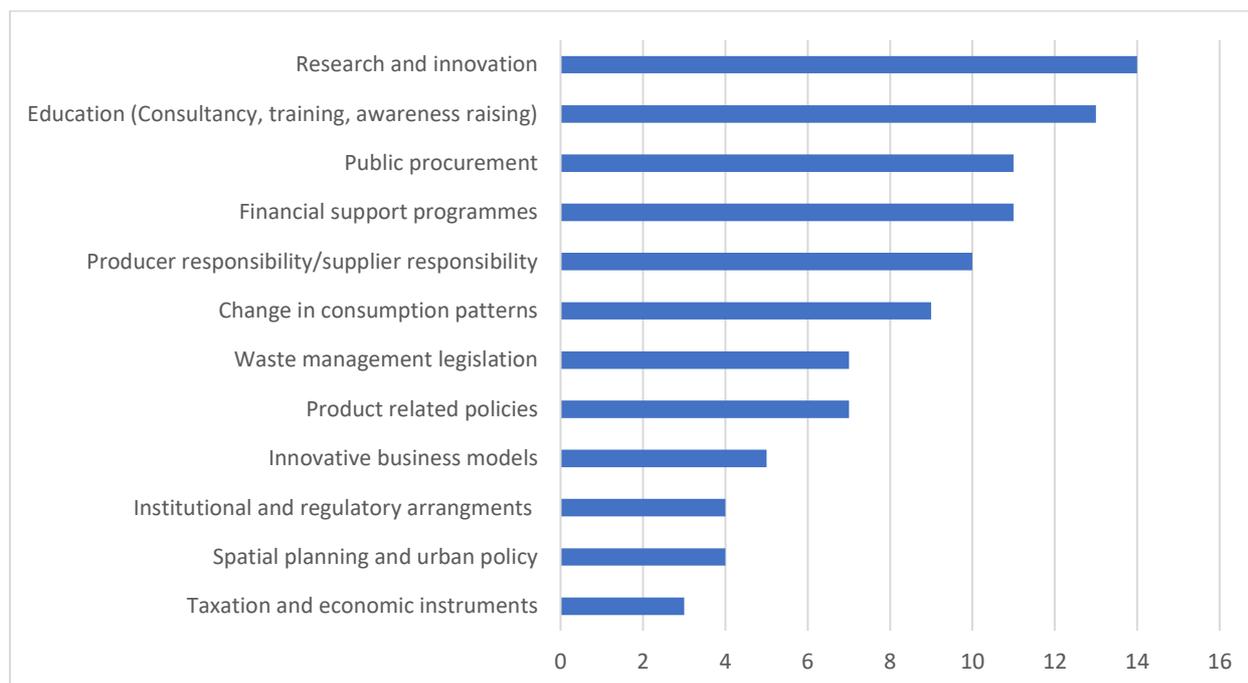
The reported innovative approaches and example of best practice in the public policy domain vary across a wide range of categories but present several commonalities across different countries. Typical examples of public policy initiatives reported include:

- financial support programmes for research and innovation funding, often aimed at testing, marketing and scaling circular solutions;
- taxation and economic incentives to shift consumption patterns towards more sustainable choices, such as taxes on single-use plastics and vouchers for repair activities;
- awareness-raising programmes for all actors in society, including public procurement offices, citizens, students and companies;
- amendments to waste management policy frameworks which aim to progressively increase the weight of circular economy principles and waste prevention policies *viz-à-viz* end-of-pipe waste management activities, i.e., more reduce, reuse and repair activities rather than just recycling.

Out of the 159 public policy initiatives reported, 133 are at the national level, 13 at the regional level and 13 at the city/municipality level. Countries that reported most initiatives at the city/municipality level are Italy, Portugal and Spain.

Figure 3.1 shows the number of countries that reported innovative approaches and best practice, divided by policy category. It can be observed that for the category of public policies, most countries reported on research and innovation, education, financial support programmes and public procurement.

Figure 3.1 Number of countries by category of policy reported



Financial support programmes

Financial support programmes aim at funding programmes and economic activities for fostering CE practices at different levels. These financial support programmes differ greatly, some being targeted at private citizens, others at companies and municipalities. Most of them are used for research and innovation funding. Other examples include supporting the uptake of repair activities, such as Austria’s Repair Bonus; expanding green financial services, for example, the Green Programme of the Central Bank of Hungary; supporting resilience in key areas such as water availability, for instance, Poland’s My Water Programme; and broader financial programmes addressing broad environmental challenges, such as Portugal’s Environmental Financial Fund. The ones with the highest financial endowment are those targeted at research and innovation funding.

Austria: Repair Bonus – eco vouchers for repair services

The repair bonus is a funding programme of the Federal Ministry of Climate Action, Environment, Energy, Mobility, Innovation and Technology for the repair of electrical and electronic devices commonly used in households. The total budget of the programme is EUR 130 million with the first funding phase running from April 2022 to December 2023 with a budget of EUR 60 million. Private people living in Austria can apply for a voucher on the funding information website ⁽³⁰⁾. The voucher provides a 50 % discount to a maximum of EUR 200 per repair and a maximum of EUR 30 for estimates. By 20 June 2022, more than 78 000 repair vouchers had been issued and 63 400 cashed in 2 300 participating repair businesses.

Poland: My Water programme

The My Water programme is aimed at owners of single-family buildings. Its objective is to minimise the effects of drought and limit the impact of heavy rainfall by increasing the collection and use of rainwater on the premises. Financial support is given for purchase, assembly and launching of installations for the collection of rainwater from impermeable surfaces, such as roofs, pavements and driveways; rainwater retention tanks; the retention of rainwater in the ground and in the drainage layer of green roofs; and the use of rainwater for domestic and farming purposes.

³⁰ <https://www.reparaturbonus.at/> (in German)

Education – curricula, training and awareness-raising campaigns

Public policies in the educational domain encompass the development of curricula and study programmes, training programmes to develop specific skills and capabilities, awareness-raising initiatives and informational campaigns. As such, the educational activities reported are addressed at a variety of stakeholders, including public procurement offices, citizens, students, companies and municipalities. Data sharing for informational purposes, such as through the creation of databases with good practice examples, for example, Circular Flanders' case database, is another policy initiative. Awareness-raising activities also include demonstration projects, which are aimed at spreading information about the principles of the circular economy, encouraging citizens to change their habits and perceptions. Finally, this category also includes the creation of knowledge exchange programmes through which industry peers can learn from each other and collaborate in their joint circular economy transitions.

Belgium, Flanders: Circular Flanders case database

A case database of organisations that are taking concrete CE action in Flanders aims to provide inspiration for starters, peer pressure from sector colleagues, and a podium for leading examples. Circular Flanders has created a searchable database of so-called doers – organisations that are taking CE action. It allows searches by sector, geographical location, etc.

Rhineland-Palatinate Network, Germany: Rhineland-Palatinate as a place of learning

A concept of extracurricular places for learning about waste or recycling management developed by the Ministry for Climate Protection, Environment, Energy and Mobility of the Federal State of Rhineland-Palatinate, in cooperation with Heidelberg University of Education. The concept was developed through experiential education, project teaching, value education and neurophysiological findings. Some of the activities are located at waste management facilities, with the facilities themselves included in the teaching.

Portugal: ECO.NOMIA portal

An initiative of the Ministry of the Environment, which aims to inform consumers and public and private institutions about projects, business models, funding opportunities, good practice, events, products and services focussed on the implementation of the principles of the CE. The portal aims to be a knowledge aggregator, to inform and assist consumers and companies on the interpretation of the CE concept and associated benefits.

Innovative business models

This category includes policies which are very diverse, and have clear overlaps with research, innovation and education. It includes the creation of platforms for peer exchange to encourage the development of innovative business models, such as Estonia's Accelerate Estonia programme, Germany's Circular Economy Initiative Germany, Greece's Business Innovation Greece and Luxembourg's Fit 4 Circularity, and the funding of pilot projects to test, implement and scale innovative business models. As such, it has strong overlaps with research and innovation policies and financial support programmes.

Estonia: the Accelerate Estonia programme

Accelerate Estonia (aEstonia), initiated by the Ministry of Economic Affairs and Communications in 2018, brings the private and public sectors together to develop the business and regulatory environment to create new business models, products and services. It is defined as a "*testbed for moon-shot ideas*", and aims to combine innovative solutions from start-ups with the power of the public sector to test, validate and build solutions to complex global problems. In this context, several CE linked projects have already been implemented or are currently under development.

Product related policies

This category includes policies related to specific products, which involve financial schemes, taxation instruments and economic incentives for discouraging the use of certain products/materials and facilitates the uptake of more sustainable alternatives and consumption models. Some examples include bans on

single-use plastics or deposit-refund schemes for bottles. Such product related policies often aim at preventing waste, by decreasing the amount of polluting products, for example, single-use plastics, on the market. In the same category, countries report several policies focused on R-strategies, such as repair, reuse and remanufacturing. The category also includes the establishment of repair and reuse centres, and policies that overlap with producer/supplier responsibility, with a focus on EEE, plastics and construction products.

Belgium: reverse metallurgy platform

A platform of industrial, technological and scientific excellence is developing a new portfolio of projects which aims at pursuing a metallurgy of the future, based on the CE, to promote the upcycling of materials on the one hand, and increase the selective collection and recovery of metal waste on the other.

France: reparability index of electric and electronic products

Since 1 January 2021, a reparability index is compulsory in France for five categories of electronic products and home appliances. This tool, introduced by the law against waste and for the CE (AGEC), aims to ensure that better information is available to the consumer about the reparability of purchases. Thanks to the display of a score of 1 to 10, the index informs customers about the reparability of the products concerned. Initially, the following product categories were affected, front-loading washing machines, smartphones, laptops, TV monitors and electric lawn mowers. From 4 November 2022, the index has been enlarged to include four new categories, vacuum cleaners, top-loading washing machines, dishwashers and pressure washers.

Public procurement

It is estimated that public procurement accounts for 15% of global greenhouse gas emissions ⁽³¹⁾, hence there is high potential in transforming public procurement towards more sustainable and circular choices. Initiatives reported show different levels of ambitions that range from more ambitious ones, with, for example, mandatory requirements, such as in the case of Denmark, France, Latvia, Malta and Portugal, to less ambitious ones involving non-binding informational campaigns and procurement criteria. Other major differences relate to the product categories which are targeted in such public procurement policies. In many cases these relate to products used in public buildings – office supplies, lights, cleaning services, etc. – while it is much less common to see these criteria applied to large-scale infrastructure and construction works. As a good example, Dutch regional authorities have used their purchasing power to promote approximately 150 civil engineering CE projects. In Latvia, where there are mandatory requirements in place for several product categories, the share of GPP for the most necessary items and services in district administrative centres reached 61 % of all public procurement in 2019.

Denmark: mandatory use of ecolabels and total cost of ownership in public procurement ⁽³²⁾

For state procurement, from the end of 2022 it will be mandatory to purchase products with ecolabels or those that meet similar requirements for product groups for which the government assesses that there is adequate competition and no significant price difference. This is expected to apply to 14 product groups, including paper and printed matter, cleaning and cleaning agents, soap and some hygiene products, standard batteries and indoor paints. The list of product groups will be updated once a year and expanded on an ongoing basis. Furthermore, the government is making it mandatory to use total cost of ownership (TCO) as the economic price parameter wherever possible and appropriate for state procurement. In this way, the focus will shift from the acquisition price to costs throughout a product's lifecycle. The requirement will initially apply to 25 product groups for which official tools are available to assess the TCO. In addition, the government is strengthening its efforts to develop TCO tools for more procurement areas and to make existing tools more user-friendly.

³¹ United Nations Convention on Climate Change greenhouse gas data 2019

³² <https://oes.dk/indkoeb/strategy-for-green-public-procurement/> (in Danish)

France: circular public procurement

The law against waste and for the CE (AGEC) of 2020, requires that a percentage of goods acquired annually by central and local authorities must come from reuse or incorporate recycled materials. There is list of products, including laptops, paper, desk furniture and textiles. The measure was adopted on 9 March 2021, with objectives and thresholds tailored for the different product categories. An evaluation will be carried out in 2022.

Malta: Green Public Procurement 2nd National Action Plan

This came into force on 1 January 2022 and provides a series of targets and measures with a level of ambition that has never existed before in Malta. The Second GPP Action Plan aims to progressively increase the share of greener products and services in government procurement to 90 % by 2025 – a target which, although not set by the European Commission, will drive action on the ground, promoting sustainable consumption and production. An ambitious but realistic approach is considered the best way forward in order to coax the market into a smooth transition. Consequently, the Plan sets targets for 17 product and service groups, 14 of which are mandatory.

Research and innovation

Research and Innovation have been identified as key areas in the public policy domain, mostly related to funding the setting up research programmes and innovation hubs to support the testing, development and upscaling of circular solutions. Most innovation programmes aim to improve products, services and processes in a wide range of sectors and areas. Such programmes differ in funding capacity and sectoral focus. Initiatives that manage to foster cooperation among innovation actors, such as research centres, competitiveness clusters, companies and universities, appear particularly promising. On the research side, Danish Green National Accounts research programme, which aims at providing a new modelling of environmental and economic factors in macro-economic models, is notable. In Ireland, researchers are carrying out studies to analyse consumer behaviour and track changes due to the adoption of policies.

Denmark: modelling of environmental and economic links

The Danish government is developing GreenREFORM, a new environmental and climate economic model for the Danish economy. The modelling framework will supplement existing macro-economic models to provide an integrated and consistent assessment of the environmental and climate effects of economic policies, as well as the socioeconomic effects of environmental, energy and climate policies. The development of GreenREFORM is focussed on developing sub-models, which, among other things, describe the energy, transport, agricultural and waste management sectors. This innovative approach to modelling is being followed closely internationally.

Ireland: behavioural insights studies

Ireland's Environmental Protection Agency's Circular Economy Programme has, to date, carried out attitudinal and behavioural surveys – online surveys of nationally representative samples of the population aged 16+ on plastics, food waste and textiles. The report *Plastics: Attitudes and Behaviours in Ireland 2019–2021* ⁽³³⁾ was recently published. The ambition of this work is to provide baseline evidence on attitudes and behaviour of the population that can be monitored over time as policy initiatives are introduced, and will be used to inform policy and behavioural interventions and targeted communication campaigns.

Producer responsibility/supplier responsibility

Several EPR schemes have been introduced for specific product categories and/or materials. These include, amongst others, mattresses, packaging, end-of-life vehicles, EEE, oil, batteries, and tyres. Single-use plastics and EEE are the two categories of products that are receiving the most attention. The concept of

³³ <https://www.epa.ie/publications/circular-economy/resources/plastics-attitudes-and-behaviours-in-ireland-2019---2021.php>

responsibility and its application are starting to broaden from mere recycling to reusability and repairability. Notably, some countries are starting processes through which producers become responsible for ensuring not only that the products sold can be recycled, but also that they are designed in such a way, from a materials and business model point of view, that they can be reused and repaired.

Belgium, Flanders: Green Deal Anders Verpakt

On 11 March 2022, about 80 organisations signed the Green Deal Anders Verpakt ⁽³⁴⁾. With this Green Deal, OVAM, Comeos, Fevia, VIL, Detic and the other stakeholders want to shift the focus from increasing the collection and recycling of waste to paying more attention to other distribution and consumption models. With a focus on prevention, omitting packaging, and the reuse of packaging, the Deal aims to reduce single-use packaging and thereby decrease environmental impacts. The Green Deal focusses on a chain approach in which companies, governments, knowledge institutions and citizens work together and make an effort to take steps towards common objectives, ensuring an efficient approach. Green Deals are part of a specific approach in Flanders.

Bulgaria: part of the Waste Management Act

The introduction of the EPR principle and placing responsibility on people placing products on the market to organise separate collection, reuse, recycling and recovery activities for six groups of common waste – packaging, end-of-life vehicles, EEE, oils, batteries, and accumulators and tyres. Achieving targets for recycling and recovery, which may be met individually, or through participation in collective systems organised by recovery organisations is with the scope of the obligations.

Waste management legislation

EU Member States have had waste management legislation in place for several years. The most innovative approaches in this domain relate to amendments of previous regulations and overall policy frameworks that aim to including CE and waste-prevention measures, including holistic solutions and such specific interventions as deposit-return schemes. Alongside measures that aim to increase the efficiency of waste management processes, including sorting criteria, collection schemes and infrastructure, legislative progress has been made in areas related to the extraction of raw materials and energy from waste.

Ireland: A National Waste Management Plan for a Circular Economy

This National Plan will replace the three existing regional waste management plans. As set out in the Waste Action Plan for Circular Economy, the National Waste Management Plan will include CE targets. The OECD 2022 report on the CE in Ireland states, “*local authorities and cities are well placed to lead the transition from the bottom up with their planning, economic and community development responsibilities*”.

Ireland’s **National Hazardous Waste Management Plan 2021–2027** ⁽³⁵⁾ recognises that the CE concept is the overarching framework driving resource and material sustainability at EU and national levels, and includes objectives that support the CE, such as the prevention of hazardous waste, and the promotion of safe reuse and recycling pathways.

Malta: Long-term Waste Management Plan 2020

The Long-term Waste Management Plan 2021–2030 aims to maximise the resource value of waste through holistic waste management solutions by adopting a collaborative approach whilst fostering the necessary behavioural change. This Plan is intended to be the cornerstone of a process that will strengthen the transition towards a CE. The Plan identifies various measures to promote resource efficiency and reduce waste generation across sectors. These measures seek to incentivise greener business processes, and prompt societal change towards smarter consumption patterns. Furthermore,

³⁴ <https://ovam.vlaanderen.be/web/green-deal-anders-verpakt/in-de-kijker> (in Dutch)

³⁵ <https://www.epa.ie/publications/circular-economy/resources/national-hazardous-waste-management-plan-2021---2027.php>

such measures seek to maximise the intrinsic resource value of waste as well as reducing pressure on Malta's waste logistics and infrastructure, and the islands' dependence on either exporting waste or landfilling

Spatial planning and urban policy

Only few countries reported on policies related to spatial planning and urban policy, and none can be defined as holistic. In light of the well-recognised key role that cities are called to play in the transition to a CE, the lack of reporting on ambitious urban planning policies, such as infrastructures for a CE or site planning for circular material use, is surprising. In this category, countries reported activities related to specific buildings, construction products, such as EPR schemes for buildings in France, or circular construction projects, such as bridges built with circular criteria in the Netherlands.

Poland: repair/maintenance shops at civic amenity sites

Every municipality can create repair/maintenance shops at civic amenities sites which are financed with funds from the fee paid by every property owner participating in the municipal waste collection system. These sites must be created within easy reach every citizen and information about them, the address and working hours, must be available online. These sites, in addition to their repair activities, can also be educational centres featuring facilities to help with the reuse of products. Although the waste fees are the main source of funds, there are various other sources which can be used to set these shops up.

Taxation and economic instruments

Taxes and economic instruments are used to both discourage unsustainable choices and to encourage sustainable ones. In the former case, it is common to see taxes on single-use products, such as plastics; and in the latter, economic incentives for repair activities. Only four countries reported example of good practice in this domain. This is remarkable taking into account the key role that taxation plays in national economic policy. It might, however, be the result of a perception of taxation as an area not particularly prone to innovation. Positive economic incentives, on the other hand, have great potential for facilitating the uptake of sustainable consumption models. Both Sweden and Czechia have reduced VAT for repair services; in Sweden, it decreased from 25 % to 12 %.

Czechia: reduction of value-added tax on the repair of bicycles, shoes, clothing and textile products

From 1 May 2020, by the amendment of the Act No. 235/2004 Coll. on Value Added Tax, VAT on a range of goods and services, including the repair of bicycles, shoes, clothing and textile products, was reduced from 21 % to 10 %. This is a nation measure that should contribute to waste prevention.

Change in consumption patterns

Public policies for changing consumption patterns are targeted at both producers and consumers. One such innovative policy initiative is the environmental labelling for products, which aims to increase transparency and awareness in consumers by showing the environmental performance of products on the packaging. Other initiatives include voluntary agreements with producers to provide more sustainable choices to consumers, targeted consumer campaigns and awareness-raising programmes.

France: consumer product environmental labelling

The Climate And Resilience Law mandates the provision of quantitative environmental information on consumer products. Two pilot phases have been organised for two key sectors: food and textiles. The first concluded that the measure was feasible with some methodological adjustments while the second one is still on-going. Measures will be adopted in the near future on the basis of the results of the pilot phases, and in line with the EU framework, notably the Product Environmental Footprint (PEF).

Institutional and regulatory arrangements

Institutional and regulatory arrangements relate to overarching policy frameworks, such as Bulgaria's Waste Management Act and Ireland Circular Economy Act, or regulatory schemes for specific sectors, such

as construction in Denmark. From an institutional point of view, such frameworks also include circularity targets to be reached within pre-defined timelines.

Denmark: decreasing threshold limit values for the climate footprint from buildings

Through the National Strategy for Sustainable Construction, the government introduced a decreasing mandatory threshold limit value for life-cycle analysis based climate footprints for new buildings in the Building Code. A mandatory threshold limit value applies to buildings of more than 1 000 square metres from 2023. From here, the limit value will be introduced gradually ⁽³⁶⁾:

- mandatory for new buildings above 1 000 square metres from 2023: maximum 12.0 kilograms of carbon dioxide equivalent per square metre per year (kg CO₂e/m²/year);
- from 2025 for all new buildings: maximum 10.5 kg CO₂e/m²/year;
- from 2027 for all new buildings: maximum 9.0 kg CO₂e/m²/year.

Ireland: Circular Economy Act

The Act was published in July 2022 to provide a statutory basis to several key measures including the Circular Economy Strategy, the Circular Economy Programme and the National Food Waste Prevention Strategy. The Act defines the CE for the first time in Irish domestic law (Part 2, Interpretation). The legislation provides that the statutory version of the Circular Economy Strategy can feature both economy-wide and sectoral targets and specify sectors which its future versions must adopt as targets in relation to construction, agriculture, packaging and EEE. The Act will also end the issuing of new licences for the exploration and mining of coal, lignite and oil shale.

3.2 Private policy initiatives

Countries were also asked to share examples of good CE practice developed by specific industrial and economic sectors. They were asked to provide details of the sectors, main CE objectives and milestones. In many cases, information is not been very detailed, and several policies at the individual company level have also been reported, even though they were not asked for. As a general remark, based on the answers received, it seems that countries had some difficulty in sharing private policy initiatives. This may be due to several reasons. For instance, public authorities might struggle to keep track of and report on initiatives by private sector actors, or they might feel reporting on private initiatives is less urgent compared to public policies. This may suggest the need to engage with the countries to ask whether and why this has been the case.

Interesting insights can, however, be drawn from the information provided, such as the sectors with the highest number of initiatives and a few innovative sectoral initiatives that could be taken as examples and replicated across different countries.

³⁶

https://im.dk/Media/637602217765946554/National_Strategy_for_Sustainable_Construktion.pdf

Figure 3.2 Distribution of private sector policies by individual sector

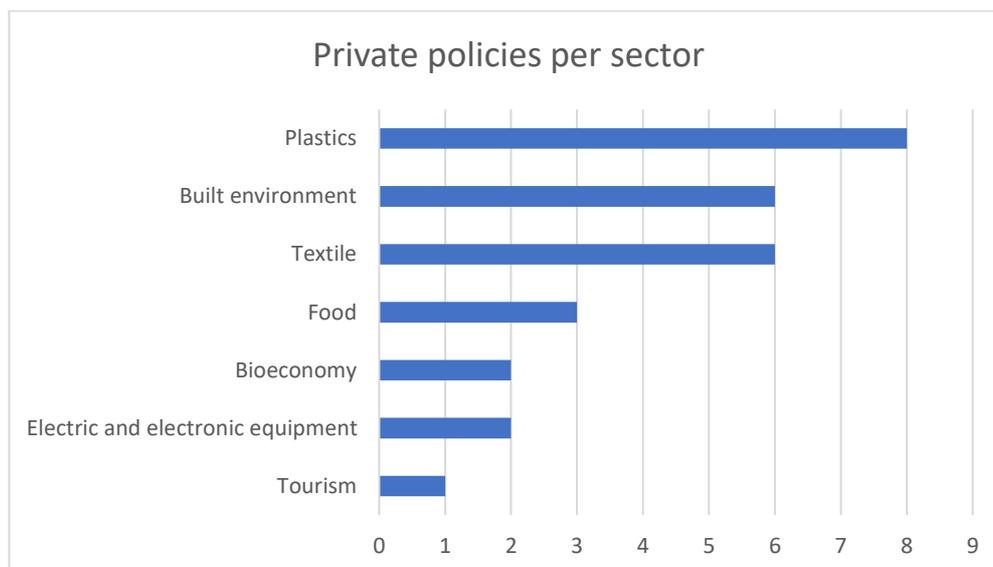


Figure 3.2 only includes private policies which are focussed on one specific sector. That is, cross-sectoral initiatives and company-level initiatives are not included. The analysis shows that the three sectors with the highest number of reported initiatives are plastics, the built environment and textiles. Some initiatives from these three sectors are reported below. Remarkably, only one country, Cyprus, reported an initiative for the tourism sector, despite the key economic role that tourism plays in several European countries and island destinations.

Textiles

Innovative approaches in the textiles industry include solutions at every stage of the value chain, including design, production materials, consumption models and end of life. Additional reported solutions include traceability of textiles and digital platforms for tracking and trading textile waste. The Netherlands has reported several innovative initiatives in this sector.

Netherlands – Green Deal Circular Denim

On 29 October 2020, the Green Deal Circular Denim (Denim Deal) was concluded between the State Secretary of Infrastructure and Water Management; various parties from the textile value chain, including textile waste processors, fibre spinners, weavers, production companies, brand owners and retailers; the municipalities of Amsterdam, Zaanstad and the Metropolitan Region of Amsterdam; and the Minister of Economic Affairs and Climate Policy. Under the Denim Deal, it was agreed that, through cooperation along the value chain, the signatory brand owners and retailers would produce 3 million pairs of denim jeans in the next three years that incorporate 20 % post-consumer recycled cotton. In addition, a minimum standard of 5 % post-consumer recycled material will be introduced that will apply to all denim garments.

Plastics

Industry participation has been reported for both commitments, such as the Plastics Roadmap for Finland, and for initiatives aimed at avoiding and substituting plastics. There are applications in the marine environment, including Greece’s Blue Municipalities Network and to improve the circularity of plastics in specific sectors, such as healthcare. Sectoral initiatives are often aimed at introducing reusable and recycled plastics to the market.

Greece – Blue Municipalities Network

Created in 2021, with a donation from the Stavros Niarchos Foundation (SNF), the Network operates under the auspices of the Hellenic Ministry of Environment and Energy. It is based on a memorandum

of cooperation between Aegean Rebreath, a multi-sectoral organisation working on the protection and renewal of the marine environment, and municipalities that have installed marine litter collection stations to respond to the urgent need to clean the seabed, whilst encouraging recycling and upcycling of marine plastic litter along CE principles. The Network contributes to the collection of marine plastic litter from the seabed, the sea and the coasts; its distribution to companies involved in upcycling, with the aim of using it in the production of new plastic products; and cooperation with recyclers and waste management companies. To date, the Network consists of 15 member-municipalities throughout Greece.

Netherlands – Plastic Pact NL

Plastic Pact NL is an agreement between the national government in the Netherlands and 110 companies to place plastics that are reusable on the Dutch market where possible and appropriate, and ensure that they are, in any case, 100 % recyclable and that one-time packaging uses 20 % less plastics. Furthermore, the agreement will ensure that at least 70 % of all single-use plastics that reaches the disposal stage is recycled to a high standard and that single-use plastics contain at least 35 % recycled material.

Portugal: Portuguese Pact for Plastics

In 2020, the Portuguese Pact for Plastics was created with close to 50 full members and several dozen institutional members. This platform brings together stakeholders from the entire plastics value chain, establishes a collaborative network that favours the sharing of best practice and promotes innovation. Since its launch, this voluntary agreement has been sponsored by the Portuguese government. The Portuguese Plastics Pact's Roadmap 2025 represents the collective strategy of the members to achieve its five goals by 2025:

- 1) eliminate single-use plastics considered problematic and/or unnecessary;
- 2) ensure that 100 % of plastic packaging is reusable, recyclable or compostable;
- 3) ensure that 70 % or more of plastic packaging is effectively recycled through increased collection and recycling;
- 4) incorporate, on average, 30 % recycled plastic in new plastic packaging; and
- 5) promote awareness and develop educational activities on the circular use of plastics for consumers.

Built environment, also reported as construction and buildings

The creation of a market for secondary raw materials, the tracking of demolition waste and platforms for exchange for materials recovered in the pre-demolition stage all aim to extend of lifetime of materials.

Austria: BauKarussell

BauKarussell is the concept developer and first provider of social urban mining, which aims for extended value creation of components and materials from demolished buildings. It extends the lifetime of these, creates regional employment and helps build a market for secondhand components. Pre-demolition deconstruction work includes the removal of reusable components, securing recyclable materials and the (partial) removal of pollutants and contaminants. The revenues generated from reuse and recycling finance the operational work carried out by local social enterprises. Thus, disadvantaged people within the labour market are employed, trained, and qualified in deconstruction.

Several countries reported cross-sectoral initiatives that aim at gathering stakeholders from the public and private sector together to collaboratively advance circularity in a variety of sectors. Some examples of such public-private partnerships include:

- a) Circular Wallonia, Belgium;
- b) Denmark's Climate Partnership on waste, water and the circular economy;
- c) Hungary's Circular Economy Platform and Circular Economy Technology Platform;

- d) Ireland's Circulaire;
- e) Italy's Circular Economy Platform and Phosphorus Platform.

4 Barriers, challenges and future developments

This chapter presents overall findings of country responses to three questions.

1. In your country, what are the main barriers and challenges, perceived or discussed, to the implementation of a CE?
2. Can you indicate the order in which the previously identified barriers exist in your country today?
3. What new (types of) policy initiatives could address the main barriers and challenges?

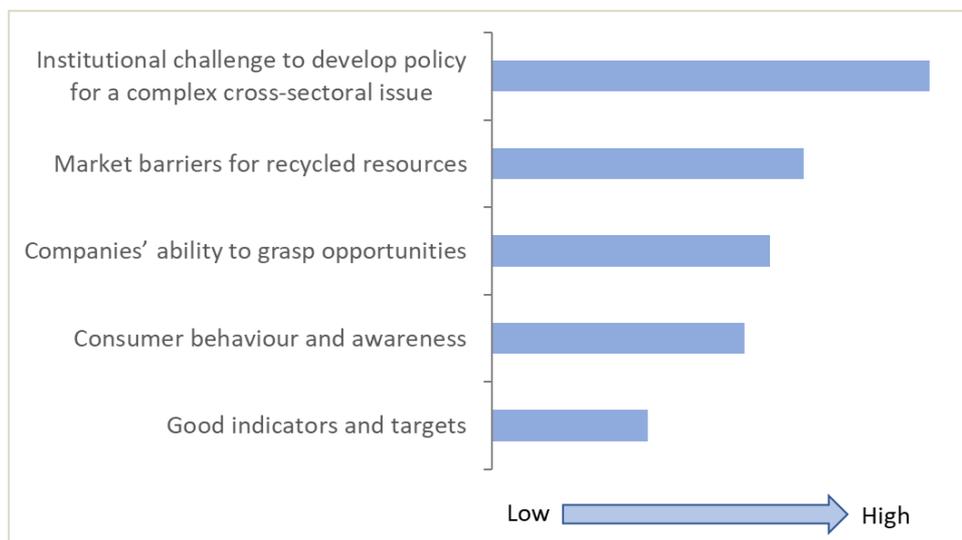
All 27 countries responded to these questions highlighting the relevant key challenges and providing views and recommendations on how they could be overcome. In addition to the above questions, countries were asked to define any CE related activities that are still to be further developed in their National Recovery Plans ⁽³⁷⁾. The details of these answers can be found in the individual country profiles. In this chapter, summary of countries' feedback is organized into the following sub-sections:

- Challenges of and barriers to the implementation of the circular economy
- Suggested solutions to overcome these challenges
- The way forward

4.1 Challenges and barriers to the implementation of the circular economy

Based on a previous survey and the subsequent report *Resource efficiency and the circular economy in Europe 2019 – even more from less* (EEA, 2019) ⁽³⁸⁾, five challenge areas were identified as the most relevant ones. In the current survey, participants were asked to indicate the order and importance of these in their countries. The result of this ranking exercise is presented in Figure 4.1. It can be observed that in 2022, in contrast to the 2019 survey, market barriers for recycled resources has gained importance for the over companies' ability to grasp opportunities. As shown in Figure 4.1, the institutional challenge to develop policy for a complex cross-sectoral issue remains as the main challenge to the implementation of a CE.

Figure 4.1 Key challenges ranked on their importance by the respondents



Four countries, **Austria, Greece, Netherlands and Spain**, presented the results of their national surveys conducted between 2019 and 2021 on the challenges associated with transitioning to a CE. The key results are presented in Box 4.1.

³⁷ [Recovery and Resilience Facility | European Commission \(europa.eu\)](https://www.eea.europa.eu/publications/even-more-from-less)

³⁸ <https://www.eea.europa.eu/publications/even-more-from-less>

Box 4.1 Result of three national surveys on challenges for transitioning to a CE

The 405 responses to **Austria's** online survey, conducted by the Austrian Society for Environment and Technology (ÖGUT), identified the following challenges: consumer awareness, international framework conditions, political willingness, business willingness, involvement of stakeholders, and data and information exchange.

Greece: within the framework of the integrated project LIFE-IP CEI Greece, that is coordinated by the Hellenic Ministry of Environment and Energy, a nationwide survey on the CE was carried out in December 2020 and January 2021. It covered a broad range of players, from public authorities, through waste management bodies and industry actors, to academic and research institutions, and other organisations representing the companies, businesses and civil society. The results show that administrative barriers and consumer behaviour are considered to be the most significant factors hindering the transition to a CE in Greece. Other important barriers are associated with economic and legislative obstacles that largely influence companies' opportunities for moving to a CE.

Netherlands: in a recent survey conducted by the Versnellingshuis with participation of companies active in the CE transition, the following eight barriers were highlighted:

1. policies, laws and regulations;
2. coordination of the transition;
3. price *versus* value – the valuation of environmentally harmful effects;
4. direction of the transition, for example, operational targets;
5. market for circular products and services;
6. financing;
7. trade in secondary products, materials and raw materials;
8. cost of labour.

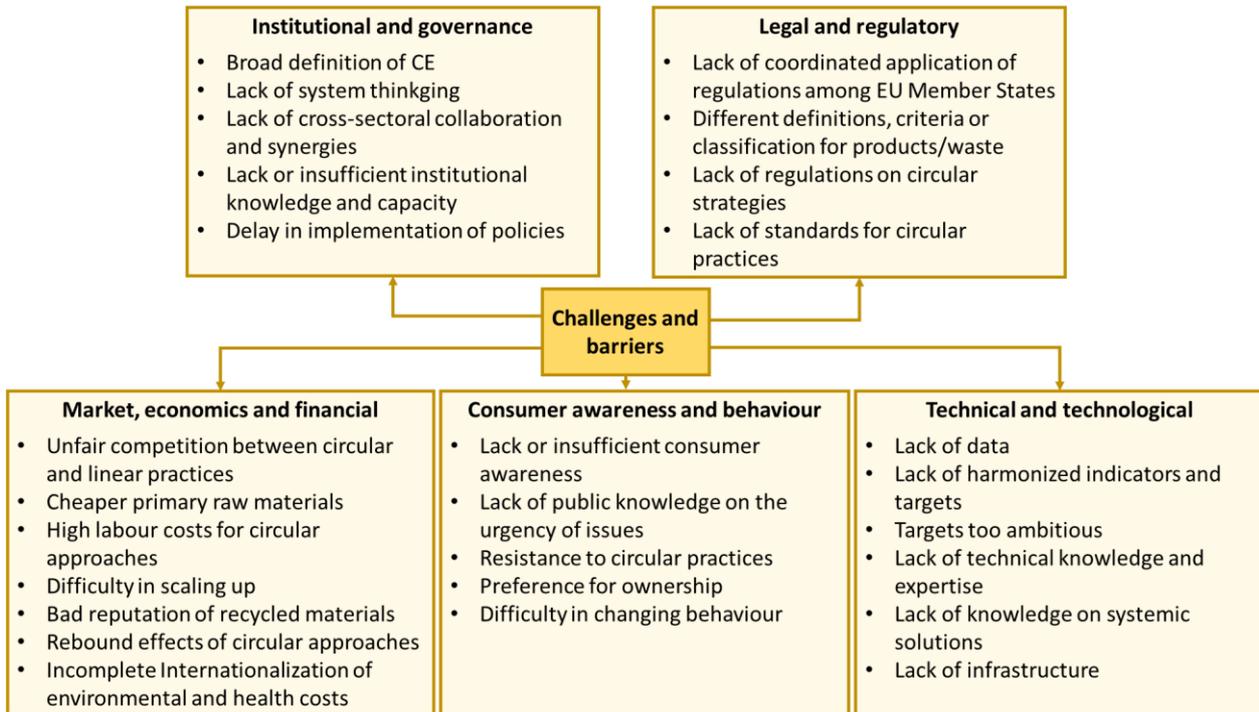
Spain: in the first and second *Catalogues of Best Practice in the Circular Economy*, the ranking of all CE barriers, as perceived by companies, are presented. Based on the first Catalogue, the most highly ranked challenges are:

1. lack of regulation;
2. harmonization of legislation;
3. behavioural change/lack of awareness or cooperation;
4. recognition of byproducts/secondary raw materials;
5. lack of circular infrastructure/technical or logistical;
6. absence of legal standards and definitions;
7. administrative burden;
8. complex process to make it circular;
9. high initial investment;
10. quality problems.
- 11.

Note: only the top 10 challenges are listed here, the full list is available in the Spain's country profile.

In line with the key challenges identified in the survey conducted by EEA in 2019 and based on the additional insights provided by respondents to the current study, the challenges and barriers reported could be clustered into five key categories based on their topics, as shown in Figure 4.1, and discussed in the following sub-sections.

Figure 4.2 Summary of challenges and barriers reported by countries clustered into five categories



While analysing the responses, it was revealed that, despite the common topics, there are differences in the level of barriers and challenges identified by each country. While for some countries, the main challenges are related to implementation, improvement or monitoring of existing approaches, in some other countries, the key challenges are related to the development of policies, strategies and building relevant institutional capacity and knowledge.

4.1.1 Institutional and governance barriers

One of the overarching challenges mentioned and highly ranked by countries was related to the fact that the CE is a very broad term that is not uniformly defined. It can be understood or perceived in different ways by different organisations, institutions and sectors. As mentioned by many respondents, including from **Belgium, Germany, Luxembourg, Malta** and **Poland**, this can lead to the development of various strategies, programmes and regulations in silos without considering a cross-sectoral perspective. Some look at the CE from the point of view of waste and recycling, while others focus on consumption or energy efficiency.

Related to the challenge mentioned above, another key barrier often highlighted was a lack of collaboration and coordination in developing coherent policies among responsible authorities and institutions. This can result in inconsistencies and a lack of synergies between strategies developed by different governance sectors and levels. The countries also referred to a lack of institutional knowledge and administrative capacity to develop CE strategies or implement and manage them in a systemic and effective way.

While one country referred to lack of political willingness to develop new CE strategies, others mentioned that while there are currently enough policies, strategies and roadmaps available, the challenge is that they are not fully implemented.

4.1.2 Legal and regulatory barriers

One country reported that the lack of coordinated application of regulations among EU Member States and regions on key aspects of the CE has led to ineffective or complex solutions and a lack of a level playing field among countries. Such examples as various definitions of waste, different criteria for end-of-life of

products and differences in the classification of hazardous waste were mentioned. Furthermore, it was stressed that a lack of harmonisation between legal aspects in individual sectors and product flows can cause barriers to implementing circular approaches. As an example, the legislative (and economic) hurdles that prohibit the use of materials classified as waste from being (re)used as secondary resources were highlighted by **Belgium, Flanders**.

Another typical challenge mentioned by **Belgium, Malta and Portugal** is that the current regulatory frameworks are more aligned to the principles of a linear economy, and these can hinder the implementation of business opportunities for moving towards a CE. Rental and purchase regulations, for example, are not suitable for use-oriented business models and there is a lack of regulation for the sharing economy. Moreover, it was reported that a lack of regulations on eco-innovation, ecodesign and design for reparability or a delay in implementing existing policies can hinder the mainstreaming of circular practices.

As indicated by **Ireland and Poland**, a lack of consideration of regional needs and specifications, such as differences in income, population density and access to services, in national strategies can be considered as an obstacle to implementing these plans.

The importance of standardisation process, quality standards and mandatory requirements was mentioned by many countries, including **Austria, Belgium, Bulgaria, Greece, Italy, Malta, Netherlands, Poland, Romania and Spain**. In some countries, such as **Italy**, national policy mainly uses voluntary instruments which might ultimately be insufficient to meet the ambition to switch to a full CE.

4.1.3 Market, economic and financial barriers

Circular strategies such as repair and remanufacturing cannot financially compete with massive-scale linear production practices. A lack of incentives or positive taxation environments for these circular strategies leads to unequal competition between these and new products. Furthermore, raw materials prices are cheaper when the cost of labour for labour-intensive activities such as repair is taken into consideration. Many respondents, including **Austria, Belgium, Cyprus, Czechia, Germany, Hungary, Italy, Netherlands, Portugal and Spain**, mentioned that the challenge of unequal competition is also relevant for price ratios between primary and secondary (recycled) materials, when the latter are relatively more expensive than the primary alternatives.

The respondents reported that currently most circular innovation is confined to niche markets as, in many cases, there are difficulties in scaling up and transitioning from research and development (R&D) to large-scale production and thus decent returns on investment.

Other concerns, such as market failure of certain recyclates, the poor reputation of recycled materials, direct and indirect rebound effects of some circular approaches, including the sharing economy and 3D printing, the cost of reverse logistics and incomplete internationalisation of environmental and health costs, were also mentioned.

Among other countries, respondents from **Belgium, Bulgaria, Cyprus, Greece, Hungary, Ireland, Poland and Sweden** reported on specific challenges that companies and SMEs encountered, such as the need for high initial investment, a lack of access to finances, low returns on investment, the complex and time-consuming transition process and the cost of labour. One of the main obstacles highlighted was the lack of knowledge, experience, expertise and administrative capacity for implementing circular solutions at the company level. Among others, a lack of knowledge about the possibilities of new business models and good practice, material flows and in-use stocks, alternative sustainable materials and redesigning production processes were mentioned. While larger companies might have greater capacity to overcome these challenges, respondents believed that SMEs are more affected by these obstacles. **Belgium** also highlighted that, in many cases, SMEs are not aware of available funding schemes and opportunities.

4.1.4 Consumer awareness and behaviour

A lack or low levels of consumer awareness about the CE, the related environmental and sustainability benefits and the lack of information and knowledge about the urgency of these issues were reported by most countries. Furthermore, there appears to be some resistance among consumers to circular practices, such as reuse, sharing and repairing, and an absolute preference for ownership. More importantly, the difficulty in changing consumer behaviour was highlighted as a key obstacle.

4.1.5 Technical and technological challenges

In this area, the key obstacles mentioned by many countries were a lack of data, such as on materials stocks and waste created, and the lack of harmonised indicators and targets for monitoring and assessing circular practices. It was also highlighted that too ambitious targets and indicators at the EU level could discourage those Member States that have fewer resources and less capacity for implementing the proposed circular solutions.

Other issues, such as a lack of general and technical knowledge, education and training on the CE, as well as a lack of knowledge for developing innovative, sustainable and systemic solutions, such as design for circularity, recycling technologies, redesign of production processes and alternative materials, were mentioned. Another technical challenge highlighted was the lack of infrastructure for implementing CE solutions.

4.2 How to overcome obstacles and suggested action

The participating countries provided many recommendations and solutions for overcoming the identified challenges. Some of these solutions have already been implemented in some countries and others have been suggested for future uptake. Two countries, Austria and Belgium, presented the results of their national surveys on perspectives, knowledge and expectations regarding the transition to a CE (Box 4.2).

Box 4.2 Results of two national surveys on challenges to transitioning to a CE conducted between 2019 and 2021

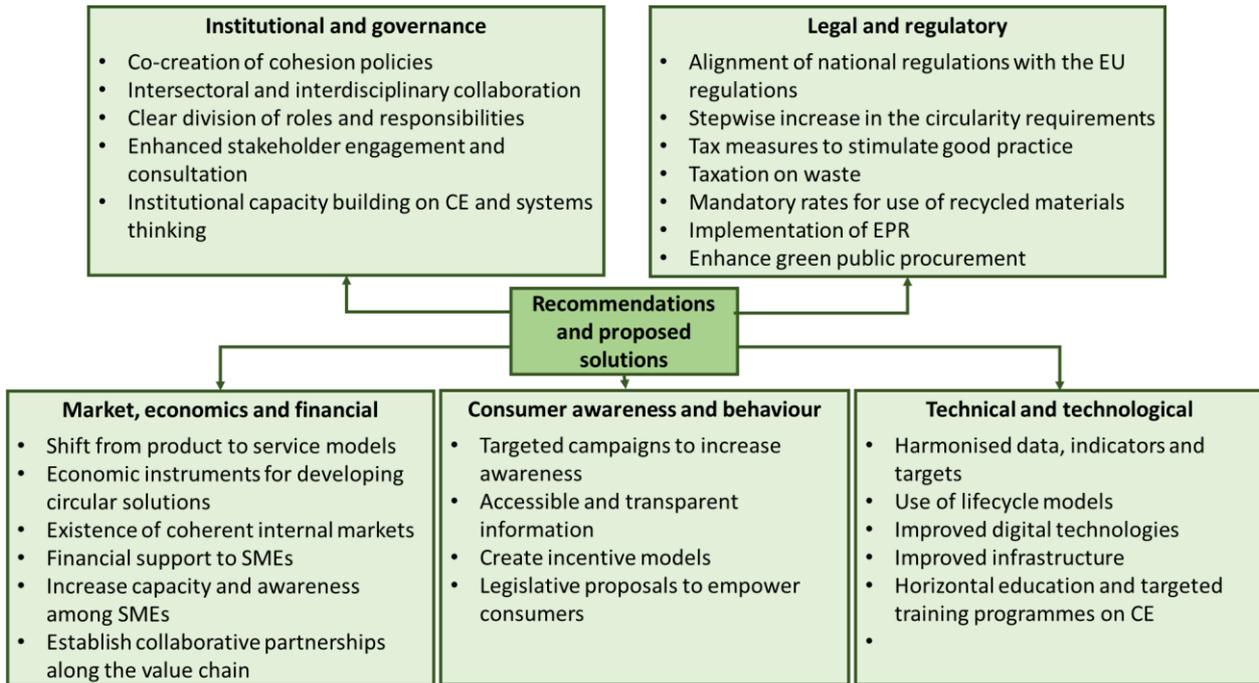
Austria: the result, of nine thematic workshops, organised by the Austrian Society for Environment and Technology (ÖGUT) with about 250 participants, identified a combination of awareness raising, governance, standardisation and promotion tools, as well as the involvement of all relevant actors along value chains, as key success factors.

Furthermore, the Circular Economy Forum Austria organised an online survey and received 350 responses between March 2019 and March 2020. The results show the need of organisations to meet CE challenges: knowledge (80 responses), know-how inside a company (69 responses), mutual exchange with stakeholders (58 responses), interdisciplinary expert networking (57 responses), a national political framework (54 responses), European legislation (51 responses) and best-practice examples (51 responses).

Belgium (Flanders): based on a poll held by Circular Flanders and VITO in June 2022, 540 respondents formulated their biggest need for support to become more circular. Among many others, the following can be highlighted: tax measures that stimulate circular goods and services (61 %), innovation and cooperation support (subsidies) (59 %), public procurement for circular goods and services (57 %), elimination of regulatory barriers (48 %), more access to information and expertise (45 %), more education and training (43 %) and more access to circular communities of practice (39 %).

Figure 4.2 presents a summary recommendations and solutions to the challenges proposed by respondents, which are then discussed further in the following sub-sections.

Figure 4.2 Summary of recommendations and solutions to barriers proposed by countries



4.2.1 Recommended action to overcome institutional and governance issues

Given the complexity and interdisciplinary character of the CE and the need for co-creation of cohesion policies, respondents suggested that the collaboration, complementary work and interdisciplinary exchange between various institutions, institutional levels and stakeholders from different stages of the value chain should be enhanced. This collaboration could be strengthened were there a clear division of roles between the various stakeholders involved in the creation and implementation of these policies. Examples were given by **Wallonia, Belgium** where an institutional platform is being established to bring together federal and regional institutions for developing and implementing more coordinated approaches and by **Bulgaria**, which plans to establish a Coordination Council, with representatives from various ministries and agencies to develop CE policies. The work of the Coordination Council will be supported by sectoral working groups, which will include representatives from state institutions, local authorities, associations, trade unions and non-governmental organisations (NGOs).

Other action, such as improving institutional capacity on the CE, systems thinking, enhancing practices for stakeholder engagement, consultation, interdisciplinary expert networking and dialogue were reported.

4.2.2 Recommended action to overcome legal and regulatory issues

The **Netherlands** has provided some overarching recommendations related to this topic, which are presented in Box 4.3.

Other countries highlighted the importance of harmonised definitions and applications of CE policies among EU Member States. **Denmark**, for example, suggested that the existing regulatory challenges could be overcome by implementing or adopting ambitious EU policies such as the Ecodesign for Sustainable Products Regulation (ESPR) (2022).

Box 4.3 The **PBL Netherlands Environmental Assessment Agency** has made the following overarching recommendations for the transition to a CE.

- Ensure that environmental damage is factored into the prices of products and services and that legislation and regulation no longer cause disadvantages for circular initiatives compared to the already established linear practices.
- Make more use of coercive measures in CE policy, such as taxation and regulation, including standardisation. Important in this respect is the awareness that elaboration and implementation of regulating or guiding economic and legal instruments often take a long time. It is therefore important to start the process early.
- Implement stepwise increases in the circularity requirements used in government purchasing and procurement, including those in the context of producer responsibility. Examples include a minimum recycling rate that is subsequently adjusted upwards, over time, and setting preconditions on purchasing and procurement that go beyond recycling. In this way, the quality of recycle and high-quality reuse of material resources become benchmarks for designing production processes.
- Develop an elaborated vision for the CE that is widely supported by companies and civil society organisations and turn this vision into concrete goals. These goals can differ by transition theme, chain or product group, which calls for a differentiated approach. At the end of 2020 the government of the Netherlands started a process of developing such differentiated goals for relevant product groups together with involved stakeholders for each theme.
- Ensure a clear division of roles between the various stakeholders involved in the implementation of CE policy. What, for example, are the responsibilities and powers of the various transition teams and what is the role of the national government in these teams? These questions are currently being debated.

Further approaches reported are tax measures that stimulate circular goods and services, such as repair and refurbishment practices; tax on waste; measures to create competitiveness for recycled materials; mandatory minimum rates for the incorporation of recycled material in certain products; implementation of EPR schemes for new products, and measures to enhance role of GPP and industrial symbioses. Moreover, the elimination of regulatory barriers and the simplification of complex regulatory processes were mentioned.

4.2.3 Recommended action to overcome market, economic and financial issues

Key solutions highlighted by respondents were a shift from product to service models; the provision of economic instruments and incentives for developing sustainable products and services; and the existence of coherent internal markets.

Some countries highlighted the importance of companies in general, and SMEs in particular, in transitioning to a CE and reported that there is a need to support them by building up their knowledge and skills, and providing them with financial support. Financial measures, such as bank guarantees for investment, access to risk capital and liquidity support for implementing circular projects, were proposed. Furthermore, a need to increase awareness amongst SMEs and entrepreneurs about the existing funding opportunities was mentioned. In this regard, the **Wallonia, Belgium**, is planning to launch a website as the first information gateway about public assistance for transitioning to circular practices.

Furthermore, it is stressed that, in order to present a positive CE business case, companies must think beyond their core business and collaborate with others in adopting a value-chain approach.

4.2.4 Recommended action to overcome obstacles related to consumer awareness and behaviour

Many countries, including **Belgium, Bulgaria, Cyprus, Estonia, Germany, Greece, Hungary and Luxembourg**, mentioned that, to increase the knowledge and awareness of consumers and support them in making informed decisions, it is important to develop targeted campaigns with tangible and clear messages. In addition to targeting consumers, they suggested developing such targeted communication and awareness campaigns for companies and public authorities as well.

To have a positive impact on consumer behaviour, it is essential to provide citizens with easily accessible and transparent information and create incentive models and legislative proposals aimed at empowering them to participate in the CE transition. **Poland** highlighted that countries with more income and wealth, and therefore higher consumption rates, can learn from countries which have experienced wars and communism and are more familiar with the concept of collective ownership and sufficiency.

4.2.5 Recommended action to overcome obstacles related to technical and technological obstacles

One key action area highlighted by many countries including **Belgium, Denmark, Germany, Hungary, Luxembourg, Malta, Netherlands and Portugal** is the need to develop and introduce harmonised data, indicators and targets to enable monitoring and assessing the effectiveness of CE approaches. Furthermore, the use of lifecycle methods in analyses of supply and demand, and improved digital technologies and infrastructure, such as digital product passports for better materials and waste management, were proposed.

To overcome the challenges related to the lack of expertise and skills, respondents suggested including interdisciplinary study of the CE in higher education rather than it being taught in isolation. This can be complemented by providing targeted training programmes for government authorities. **Estonia** is planning to include these types of programme as part of its Multi-annual Financial Framework 2021–2027 measure.

4.3 The way forward

This section provides an overview of CE-related activities that countries are planning to develop in their National Recovery Plans, either as stand-alone action, in combination or as part of their climate and digitisation priorities. Additionally, countries were asked to provide information about any other CE initiatives not included in the recovery plans.

Of the 27 participating Member States, 25 provided answers to these questions. Out of these, 21 referred to activities and measures that are included in their National Recovery Plans and 8 reported on additional strategies embedded in other broader national plans. The full details of the measures and strategies to be taken by Member States are available in the individual country profiles that accompany this report. An overview of the major national activities that are planned in relation to the CE or are going to be further developed, including examples from countries, are presented in the following three sections – cross-sectoral activities, specific thematic areas and future action.

4.3.1 Cross-thematic activities

Some countries reported on overarching and horizontal measures and plans, which have a multi-level and multi-sectoral perspectives and act as levers for the implementation of circular solutions while boosting economic development. Two activities highlighted by several countries include providing support to companies in transitioning to circular business models (**Box 4.4**) and enhancing collaboration and partnership among relevant stakeholders in the value chain (**Box 4.5**).

Box 4.4 Measures and plans to support the introduction of more circular business models by large, medium-sized and small enterprises and start-ups

Bulgaria: Fund 2 (*Green Transition and Circular Economy*) of the National Economic Recovery and Resilience Plan, is structured in two directions. The first aims to support the transition to carbon neutrality by improving energy efficiency and independence at the corporate level. The second focusses on access to finance for large companies and SMEs to support the transition to a CE through the introduction of circular models for production and consumption, environmental standardisation and the promotion of technologies related to the recycling and reuse of waste, repair and the use of bio-based products. Support is provided in the form of grants.

Croatia: the country's Recovery and Resilience Plan foresees a programme to support the transition to an energy- and resource-efficient economy aiming at companies with up to 3 000 employees, as SMEs make up 99 % of economic entities in the country.

Estonia: under its Recovery and Resilience Plan, the country has a development programme for green technologies that aims to contribute to the transition of companies by fostering the development and spreading of innovative green technologies. This plan consists of support to start-ups and development clusters, with a focus on integrated green technology solutions through various development services, including accelerators, incubators, business development, prototype development and piloting.

Hungary: one of the objectives in its national CE strategy, which is in preparation, is to provide support mechanisms for the implementation of innovation and new business models. Hungary aims to increase the number of circular jobs by 30 % across the industrial, agricultural and service sectors to achieve their making up 2.5 % of total employment.

Poland: a key part of the country's National Recovery Plan is to create a framework for the development of the secondary raw materials market. In addition, the reform will be complemented by investment particularly aimed at supporting the SMEs in the green transition and the development of technologies, including new ones, to enable the wider use of waste as secondary raw materials. The purpose of the funding programme, organised by Polish Agency for Enterprise Development, is to support SMEs to develop and introduce or apply environmentally-friendly innovative technologies.

Spain: one of the investment opportunities introduced under the Strategic Projects for Economic Recovery and Transformation (PERTE) aims to promote the CE at an enterprise level. The aid provides finance investment in four main categories: reduction of consumption of virgin materials, eco-design, waste management and digitalisation.

Sweden: as part of its National Recovery Plan and with the aim of increasing competitiveness of companies that invest in green technologies, state support will be provided to companies for a limited period.

Box 4.5 Measures and activities to develop and expand interdisciplinary collaboration and partnerships

Belgium (Flanders): one of the CE-related reforms in the National Recovery Plan is the New governance Circular Flanders (*Vlaanderen Circulair*). This has a central platform, the mission of which is to facilitate the transition to a CE in collaboration with industrial partners, knowledge institutions, government, banks and civil society. Based on this reform, public-private partnerships have renewed governance and will now focus on and invest in a combination of strategic agendas on circular construction, chemistry/plastics, the bioeconomy, other product chains in manufacturing industry, the food chain and

the water cycle, and a number of strategic levers – financing, innovation, circular procurement, research and awareness.

Belgium (Wallonia): one of the objectives defined in Wallonia’s Recovery Plan is to set up innovation partnerships. This is currently planned for two of six priority value chains – metallurgy and building materials.

Croatia: the Circular Economy Committee is an interdisciplinary advisory body to the Ministry of Economy and Sustainable Development composed of all key sectors, public, private, academia and civil society organisations. One of the Committee’s initiatives is to promote the creation of a Circular Economy Hub – a space for sharing knowledge, innovation and best practice among all stakeholders. In the future, the Hub could have a physical location where circular technologies could be demonstrated, scaled and recreated in mini-household or production-line settings.

4.3.2 Thematic areas

In addition to the cross-sectoral action outlined above, respondents referred to various reforms, investments or measures that are either directly or indirectly related to the CE and cover a wide range of thematic areas. The key topic areas highlighted by countries are listed and explained below.

Waste management including investment opportunities and measures at various stages of the value chain from waste collection and recycling to improving waste regulations and standards (Box 4.6).

Box 4.6 Measures and investment plans related to waste management

Austria: as part of its National Recovery Plan, Austria is planning to include investment opportunities in reverse vending systems, measures to increase the quota for multi-use beverage containers and for construction and the retrofitting of sorting systems.

Belgium (Flanders): with its Recycling Hub project, one of the four CE-related activities in its National Recovery Plan, the region aims to achieve at least six major investments in new recycling facilities to enable local recycling and closed loops. It focusses on missing links in a number of value chains, for example, investment in the recycling of diapers, mattresses and textiles, and the processing of asbestos cements removed from buildings. Investment is also needed in the plastics and chemical sectors. The programme will focus on projects that demonstrate a substantial environmental gain.

Belgium (Wallonia): one of the two main aspects considered in Wallonia’s Recovery Plan is the prevention, reuse and recycling of waste. Among others, some examples of action related to this objective are the continuation and acceleration of the digitisation of data communication processes and the use of data related to waste management; support for the development of recycling centres in Wallonia in collaboration with the *Fédération Ressources*; strengthening controls, in particular on illegal waste management practices and channels; and developing an approach that promotes the prevention of waste and the reuse of materials within companies.

Bulgaria: as part of the Fund 2 (*Green Transition and Circular Economy*) of the National Economic Recovery and Resilience Plan, the country has plans to support projects related to technologies for processing waste generated by enterprises own activities, including textiles, polymers and rubber waste and electrical appliances.

Cyprus: in its National Recovery and Resilience Plan, Cyprus has considered financial support for the installation of autonomous mechanical composters in remote and semi-remote areas; the construction and operation of green kiosks for dry recyclables; and improvement and extension of the Cyprus Green Points Network and creation of a network of collection points and recycling corners. Furthermore, the

country has included several waste-management programmes under the Structural Funds, mainly focussing on the prevention, reduction and management of municipal waste, as well as programmes for the improvement and development of new infrastructure for the treatment of organic or other wastes. A specific structural fund will be dedicated to the creation of a coordination body between central and local government for waste management.

France: under its National Recovery Plan, the country includes support for some CE activities including the modernisation of waste management and recycling infrastructure, and investment in reuse and recycling, notably for plastic products.

Greece: under component 1.4 (*Sustainable use of resources, climate resilience and environmental protection*) of the country's National Recovery Plan, there is an action to revise existing waste management legislation with a view to enabling the transition to a CE – the updated legislative package on waste is already in force. In particular, the reform has introduced incentives for municipalities to achieve higher recycling rates; enforced the separate collection of biowaste, metal, paper, glass and plastic; extend existing EPR schemes; upgraded the operation of recycling sorting facilities, and simplified the legislation around green points, i.e., centres that collect recyclable waste and used items separately.

Italy: Mission 2, component 1 (*Circular economy, agri-food and green transition*) of the Italian Recovery and Resilience Plan includes two reforms and two areas of investment in waste management and a circular economy. These include the implementation of new waste management plants and the modernisation of existing plants with investments to improve and mechanise municipalities' separated waste collection networks; building new treatment/recycling plants for organic waste, multi-material waste, glass and paper packaging as well as innovative treatment/recycling plants for dealing with the disposal of personal adsorbent items, wastewater sludge, leather waste and textile waste. Furthermore, under Mission 2, component 4 (*Implementation of an advanced and integrated monitoring and forecasting system*) of the Italian Recovery Plan, a global monitoring system, using satellites, drones and artificial intelligence technologies, will be developed to address illegal dumping of waste.

Malta: as part of its National Recovery and Resilience Plan, Malta is planning to conduct a study on the feasibility of extending EPR obligations, which are currently in place for some waste streams, to additional ones. The outcome of the study will determine the feasibility of establishing EPR schemes for additional waste streams through new legislation.

Slovenia: among various reforms reported under Component 5 (*Circular Economy – Resources Efficiency Objective*) of the Recovery and Resilience Plan, the country plans to renew the programme for waste prevention and efficient waste management.

Sweden: the local and regional investment measures in Swedish National Recovery Plan aim to address challenges in reducing greenhouse gas emissions. Among others, the plan provides support investment for recycling practices, such as plastic recycling.

Circular construction is the other thematic area which is either directly or indirectly included in some country's National Recovery Plans or other relevant initiatives. The scope of measures and investments cover a broad range from the management of construction and demolition waste (CDW), to training programmes, the development of standards and the future design and construction of buildings (Box 4.7).

Box 4.7 Measures and investment plans related to *circular construction*

Belgium (Flanders): circular construction in Flanders is one of the CE related activities in the National Recovery Plan which pays attention to two important aspects: urban mining of construction waste and forward-looking buildings. The region aims to increase the renovation rate of buildings by a factor three

to make them more energy efficient and, at the same time, to reduce the environmental impact of construction materials and their treatment as waste.

Germany: one of the focal points of the German National Recovery Plan (*1st focal area – Climate policy and energy transition*) has a component on climate-friendly building and refurbishment in which CE related activities – substitution and recycling – are included. According to the Plan, this will contribute to the energy transition and the achievement of the German 2030 climate targets. One main measure in this component is the further development of climate-friendly construction using wood. A second measure, *Carbon dioxide building refurbishment: Federal funding for efficient buildings*, aims to stimulate investment in increasing energy efficiency and the share of renewable energy for heating and cooling in residential and non-residential buildings and reducing the carbon dioxide emissions of the building sector.

Greece: Component 1.2 (*Renovate*) of the Greece National Recovery Plan comprises targeted investment in the renovation of buildings, i.e., energy renovation of residential buildings, improvement of buildings' energy efficiency and energy upgrades of public sector buildings. The programme requires economic operators to carry out construction work to ensure that at least 70 % (by weight) of non-hazardous construction and demolition waste from a construction site is prepared for re-use, recycling and other material recovery, in accordance with the waste hierarchy and the EU Construction and Demolition Waste Management Protocol.

Luxemburg: even though there are no key objectives directly related to CE in its National Recovery Plan, Pillar 1 (*Cohesion and social resilience*) of the plan, contains two components with indirect links to circular construction. In Component 1A, which focusses on '*skilling, reskilling and upskilling*', ideas for specific training offers are being developed related to the construction sector such as for modular construction, deconstruction, bio-based materials and reuse. Furthermore, in Component 1C, which is about the housing challenge, there are two of large urban projects that include circular construction and resource recovery principles in their concept.

Malta: in its Recovery and Resilience Plan, the country includes measures to adopt the Construction and Demolition Waste Strategy, in line with the main aims of EU waste legislation and the EU Construction and Demolition Waste Protocol. More specifically, in 2022, the country implemented a measure to establish standards for the construction industry in the form of mandatory guidelines for economic operators within the sector. Furthermore, Malta is planning to introduce a new regulatory framework for the management of construction and demolition waste.

Slovakia: Component 2 of Slovakia's National Recovery and Resilience Plan focusses on the renovation of buildings and includes reforms for achieving the goal of increasing the potential of the CE in the construction sector by improving the recycling rate and the prevention of construction waste. In addition to the National Recovery and Resilience Plan, with the amendment of its Waste Act, Slovakia aims to support these objectives through an obligation to ensure so-called selective demolition. This will prioritise the recovery of construction waste and ensure its use on the construction site.

Water and/or wastewater management: planned activities on this topic were reported by some countries (Box 4.8). The activities vary from the circular management of water resources to wastewater treatment and reuse, as well as investment in innovative solutions across the value chain.

Box 4.8 Measures and investment plans related to water and/or wastewater management

Portugal: the Portuguese Recovery and Resilience Plan is organised into three dimensions of structural interventions: Resilience, Climate Transition and Digital Transition, each comprising a set of components. Component 9 (*Water Management*) of the resilience dimension includes the reform *Integrated and Circular Management of Water Resources in Situations of Scarcity*, which plans

investment in promoting the circular use of water resources through the use of treated wastewater. Moreover, component 10 (*Sea*) of the Climate Transition includes a reform called *Reform of the Blue Economy Support Infrastructure Ecosystem*, which aims to develop new sectors of the blue economy, such as the blue bioeconomy, aquaculture, fish processing, robotics and ocean digitisation.

Slovenia: The country's National Recovery and Resilience Plan will support measures for adapting to the inevitable consequences of climate change and improving the quality of public services in the fields of drinking-water supply. and wastewater discharge and treatment.

Green and circular industry and manufacturing: As an overarching topic, the plans described in this section might overlap with other thematic areas ([Box 4.9](#)).

Box 4.9 Measures and investment plans related to green and circular industry and manufacturing

Belgium (Flanders): in the context of Circular Flanders, a strategic agenda on circular manufacturing is being developed for, amongst others, electronic waste, textiles and batteries. The challenge is to stimulate every company to function in a circular ecosystem, including SMEs. This project sets up specific calls to distribute funding in line with innovation and entrepreneurship in Flanders Innovation & Entrepreneurship (VLAIO) instruments, in particular for studies, within collective instruments and for pilot and demonstration projects, in accordance with the roadmap to be developed in its strategic agenda.

Portugal: Component 11 (*Decarbonisation of industry*) of the National Recovery and Resilience Plan aims to decarbonise the industrial and business sectors and promote a paradigm shift in the use of resources, implementing the measures of the National Energy and Climate Plan 2030 (PNEC). The targets defined for this component include financial support to at least 300 projects related to at least one of the measures that actively contribute to the decarbonisation of industry – low carbon processes and technologies in industry; adoption of energy efficiency measures; and incorporation of energy from renewable sources and energy storage (2025).

Slovakia: Component 4 (*Decarbonisation of industry*) of the National Recovery and Resilience Plan is a reform to ensure the cost-effective reduction of greenhouse gas emissions by industry. The reform will, in particular, provide support to innovative energy- and material-intensive operations that produce greenhouse gas emissions through projects with medium- to long-term returns.

Spain: the purpose of Component 12 (*Industrial Policy of Spain 2030*) of the National Recovery, Transformation and Resilience Plan is to lay the foundation for more modern and competitive industry that definitively incorporates the climate and environmental considerations. The Component includes a plan to support the implementation of the of the Spanish Circular Economy Strategy and waste regulations in Investment 3, which is configured as one of the Ministry for the Ecological Transition and the Demographic Challenge's (MITECO) fundamental planning instruments for the country's transition to a CE.

Resource efficiency, energy efficiency, renewable energy and e-mobility: Examples are provided in [Box 4.10](#).

Box 4.10 Measures and investment related to resource efficiency, energy efficiency, renewable energy and e-mobility

Greece: the Product-E Green investment in Component 1.3 of the country's National Recovery Plan, provides support, among other things, to the supply side of e-mobility. More specifically it provides support for the development of more than 10 sites with research and development departments for innovative products and services, such as the recycling of electric-car batteries and the regular reuse of

raw materials, including lithium and cobalt, or the design of electric vehicles and regular or high-power charging points.

Slovenia: among others, the country's Recovery and Resilience Plan will contribute to attaining the goals of the National Energy and Climate Plan (NECP) and the commitment to achieving climate neutrality by supporting reforms and investment in energy efficiency, the use of renewable energy sources and sustainable mobility.

Portugal: as explained in **Box 4.7**, Component 11 of the National Recovery Plan includes financial supports for projects that are related to the adoption of energy efficiency measures and the incorporation of energy from renewable sources and energy storage.

4.3.3 What is going to happen in the near future?

Ireland reported that the next iteration of its CE Strategy is in preparation and will be published in 2023.

Latvia is currently focussing on the implementation of the Action Plan for the Transition to a Circular Economy and the National Waste Management Plan.

Netherlands has not yet submitted its National Recovery and Resilience plan, although a first draft was discussed in the National Parliament on 28 March 2022.

To ensure **Romania's** transition to a CE by 2030, it expects the approval of its CE Action Plan by the third quarter of 2023.

Annex 1 Survey questions and guidelines

European Topic Centre on
Circular economy and resource use
<https://www.eionet.europa.eu/etcs/etc-ce>

The European Topic Centre on Circular economy and
resource use (ETC CE) is a consortium of European
institutes under contract of the European
Environment Agency.

