

Circular economy country profile – Portugal



Cover design: EEA
Cover image © Peder Jensen
Layout: ETC CE

Publication Date

EEA activity Circular economy and resource use

Legal notice

Preparation of this report has been co-funded by the European Environment Agency as part of a grant with the European Topic Centre on Circular economy and resource use (ETC CE) and expresses the views of the authors. The contents of this publication do not necessarily reflect the position or opinion of the European Commission or other institutions of the European Union. Neither the European Environment Agency nor the European Topic Centre on Circular economy and resource use is liable for any consequence stemming from the reuse of the information contained in this publication.

ETC CE coordinator: Vlaamse Instelling voor Technologisch Onderzoek (VITO)

ETC CE partners: Banson Editorial and Communications Ltd, česká informační agentura životního prostředí (CENIA), Collaborating Centre on Sustainable Consumption and Production (CSCP), Istituto Di Ricerca Sulla Crescita Economica Sostenibile, Istituto Superiore per la Protezione e la Ricerca Ambientale, IVL Swedish Environmental Research Institute, PlanMiljø, Università Degli Studi Di Ferrara (SEEDS), German Environment Agency (UBA), Teknologian Tutkimuskeskus VTT oy, Wuppertal Institut für Klima, Umwelt, Energie gGmbH, World Resources Forum Association.

Copyright notice

© European Topic Centre on Circular economy and resource use, 2022
Reproduction is authorized provided the source is acknowledged. [Creative Commons Attribution 4.0 (International)]

More information on the European Union is available on the Internet (<http://europa.eu>).

Contents

Introduction.....	1
Portugal – facts and figures.....	2
Existing policy framework	6
Dedicated strategy, roadmap or action plan for circular economy	6
Circular economy policy elements included in other policies.....	11
Monitoring and targets	17
Assessment of circular economy performance	17
Circular economy monitoring frameworks and their indicators beyond the ones from Eurostat.....	17
Circular economy targets	19
Innovative approaches and good practice	20
Examples of public policy initiatives (national, regional or local)	20
Examples of private policy initiatives (sectoral).....	23
The way forward.....	25
Addressing barriers and challenges.....	25
Ranking types of barrier	26
Future policy plans	26

Introduction

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



- circular economy policies being implemented at a national level with a particular focus on elements that go beyond EU mandatory elements; and
- 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.

This circular economy country profile is based on information reported by the Eionet network and, in particular, the Eionet Group on Circular Economy and Resource Use 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). A selection of Eurostat data was made to further complement this country profile.

The information is current as of 30 September 2022 (final review), when members of Eionet verified the content of this profile.

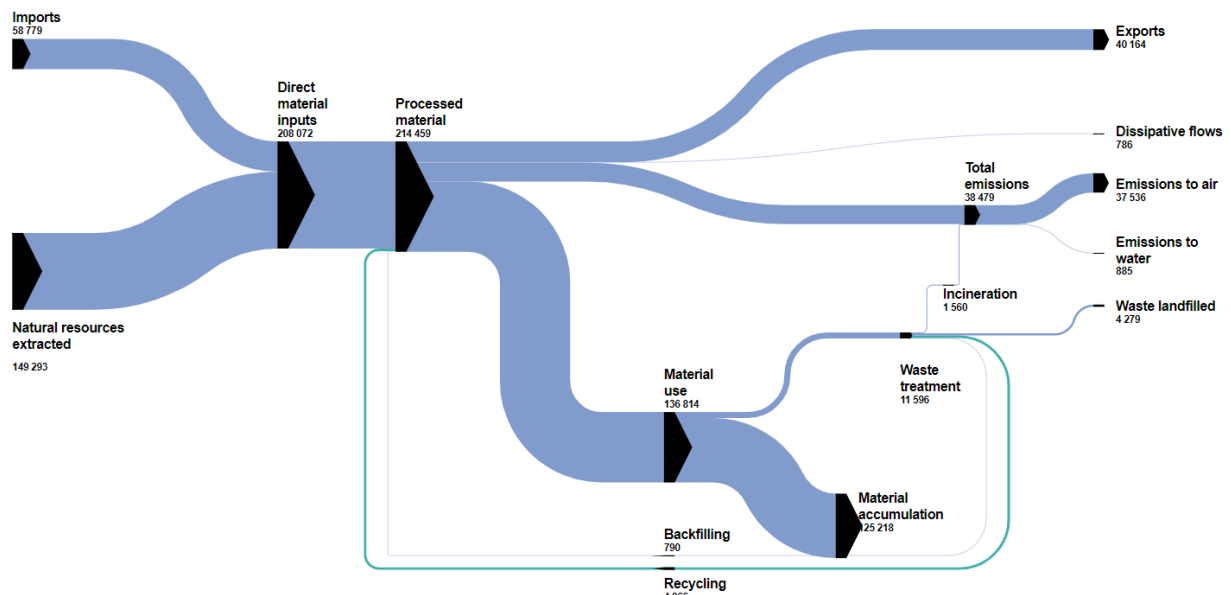
Portugal – facts and figures

 	<p>GDP: EUR 200.1 billion (1.5 % of EU27 total in 2020)</p> <p>GDP per person: EUR 19 430 (purchasing power standard) (76.3 % of EU27 average per person figure in 2020)</p> <p>Use of materials (domestic material consumption (DMC)) 167.9 million tonnes DMC (2.8 % of EU27 total in 2020) 16.3 tonnes DMC per person (121.1 % of EU27 average per person in 2020)</p> <p>Structure of the economy: Agriculture: 2.4 % Industry: 22.2 % Services: 75.4 %</p> <p>Employment in circular sectors: 92 059 people are employed in circular economy (CE) (2.6 % of EU total in 2018) People employed expressed as a percentage of total employment: 1.9 % (EU average 1.7 %)</p> <p>Surface area: 92 226 square kilometres (2.1 % of EU27 total)</p> <p>Population: 10 295 909 (2.3 % of EU27 total in 2020)</p>
--	--

Note: all definitions and metadata used in this profile are taken, as shown, from Eurostat

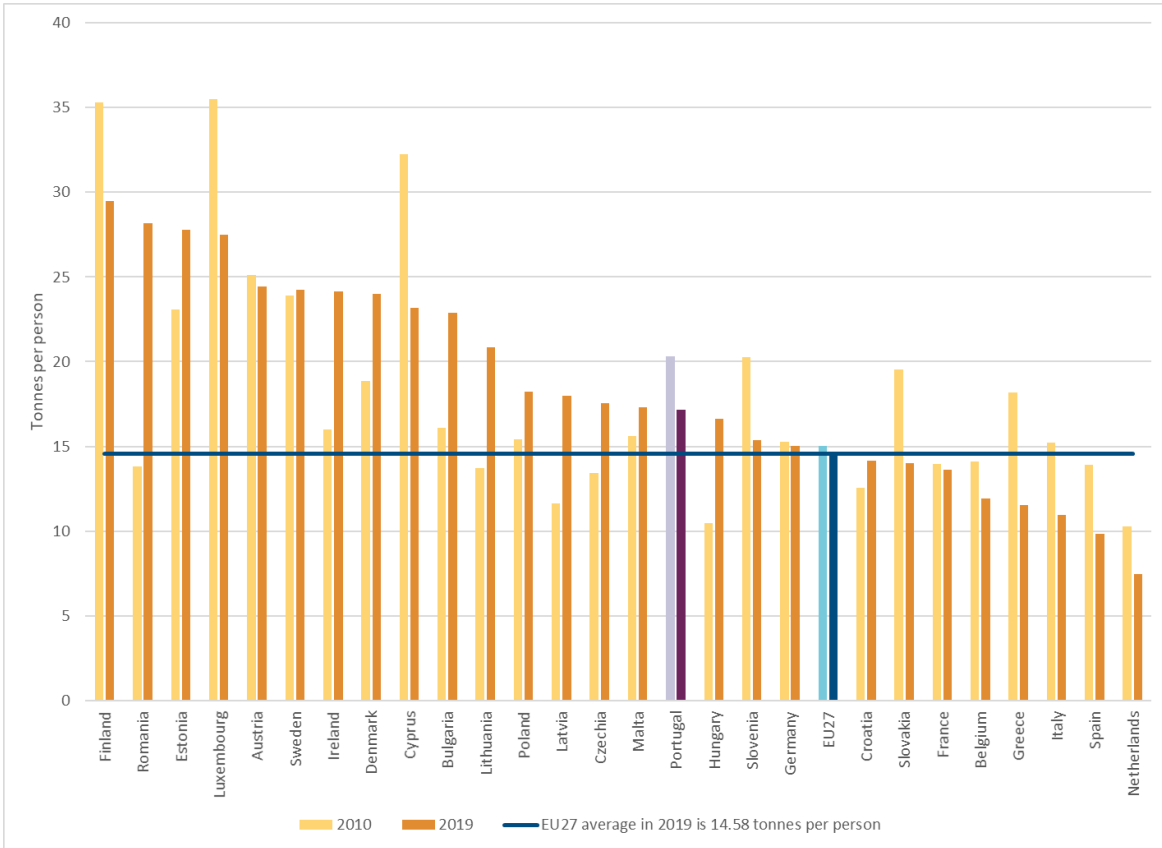
Source: Eurostat datasets, EU27 2020 (accessed 20 June 2022)

Figure 1 Material flow diagram for Portugal in 2020, '000 tonnes



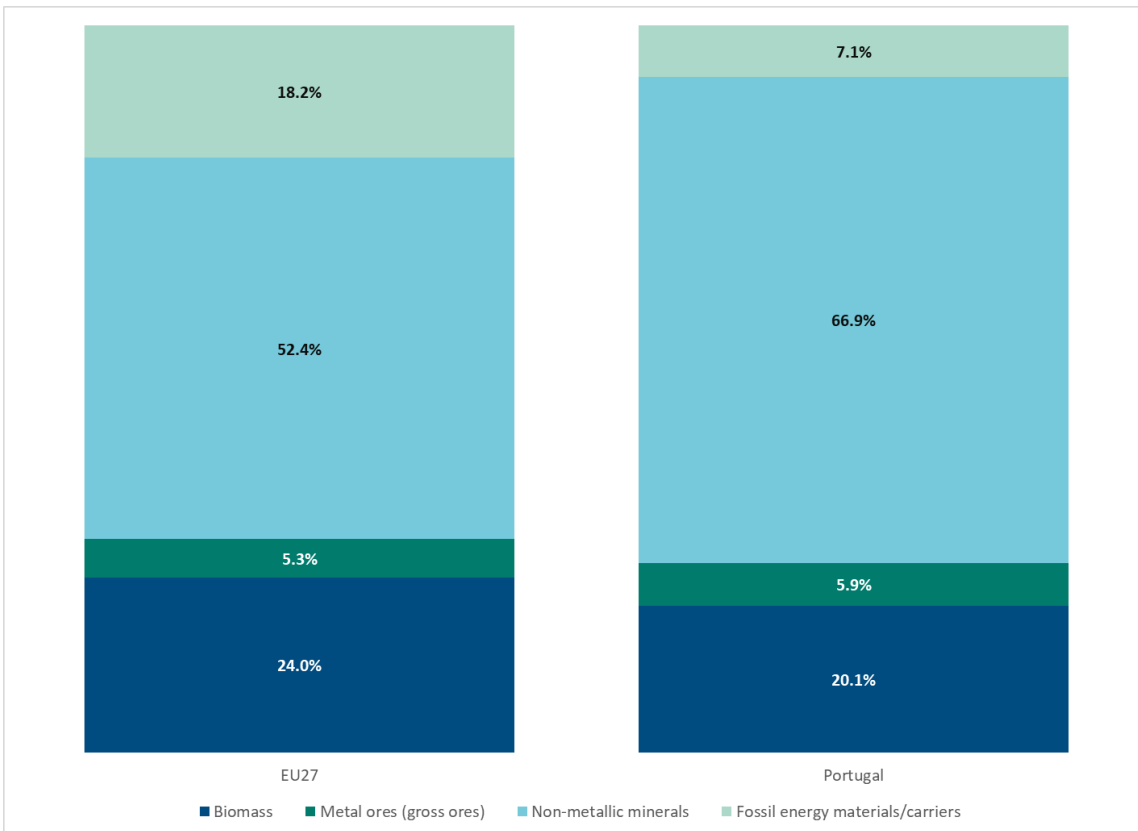
Source: Eurostat (2022) [env_ac_mfa], [en_ac_sd], [env_wassd] (accessed 20 June 2022)

Figure 2 Material footprint (raw material consumption), EU27, 2010 and 2019, tonnes per person



Source: Eurostat (2020) [env_ac_rme] (accessed 4 July 2020)

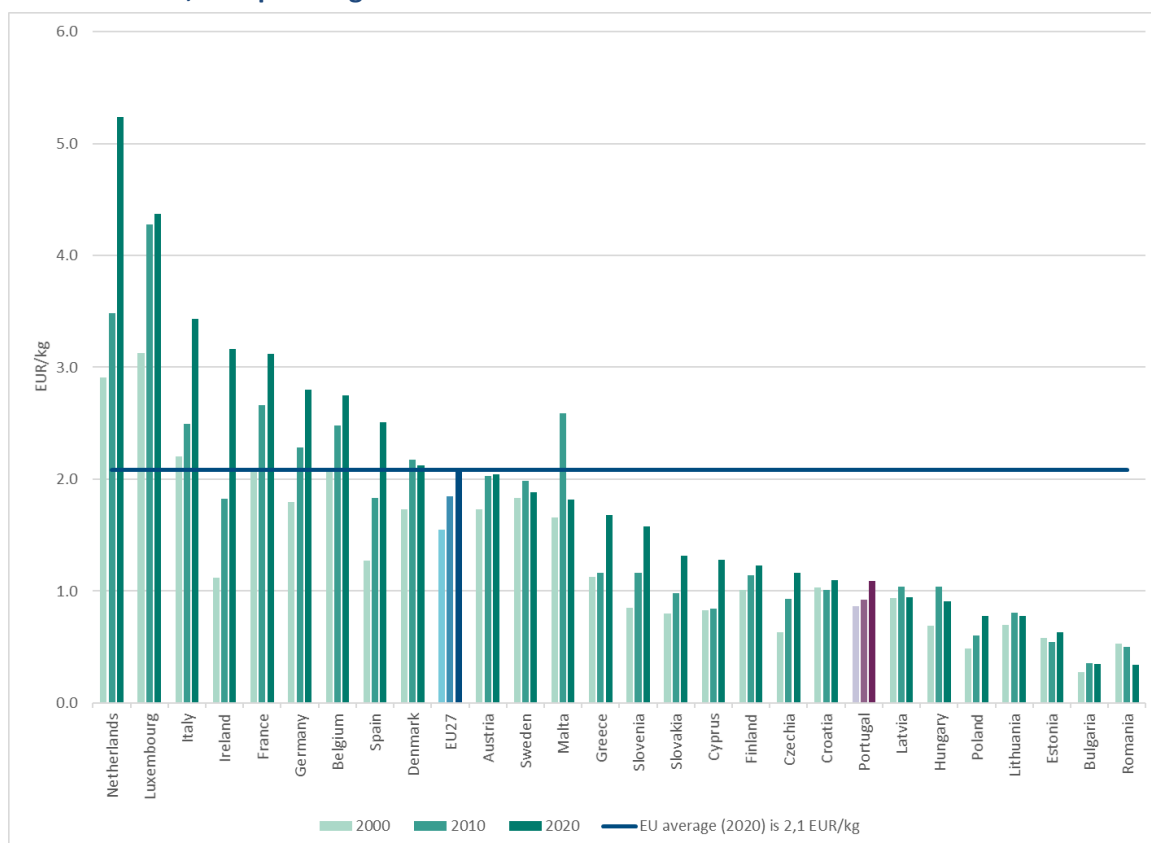
Figure 3 Domestic material consumption by selected material category, EU27 and Portugal, 2020, per cent



Note: totals may not sum to 100 % due to rounding

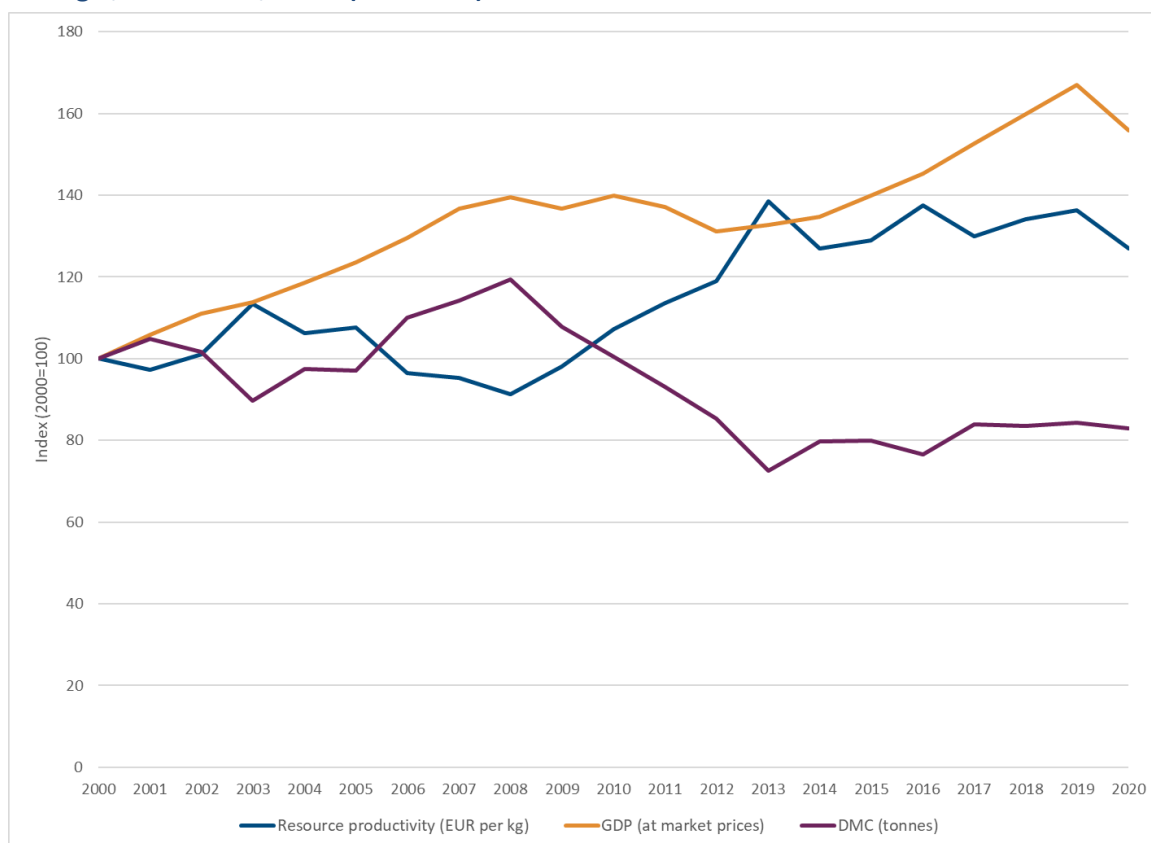
Source: Eurostat (2022) [env_ac_mfa] (accessed 20 June 2022)

Figure 4 Resource productivity (gross domestic product/domestic material consumption), EU27, 2000, 2010 and 2020, EUR per kilogram



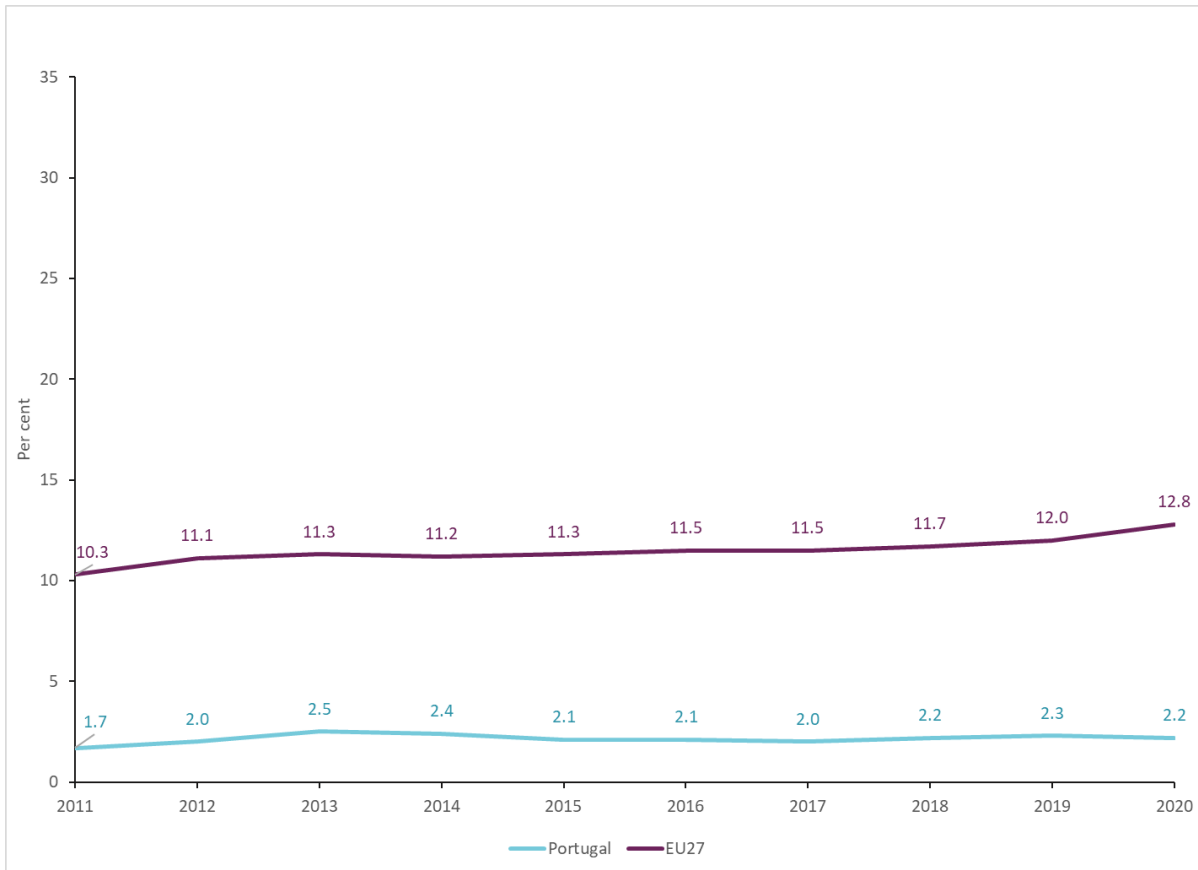
Source: Eurostat (2022) [env_ac_rp] (accessed 20 June 2022)

Figure 5 Gross domestic product, domestic material consumption and resource productivity trends, Portugal, 2000–2020, index (2000=100)



Source: Eurostat [env_ac_mfa], [env_ac_rp] & [nama_10_gdp] (accessed 4 July 2022)

Figure 6 Circular material use rate in Portugal, 2011–2020, per cent



Source: Eurostat (2022) [env_ac_cur] (accessed 20 June 2022)

Existing policy framework

Dedicated strategy, roadmap or action plan for circular economy

The Portuguese **National Action Plan for the Circular Economy 2018–2020** (PAEC) ⁽¹⁾ was adopted by the Portuguese Government in December 2017 (Resolution of the Council of Ministers No. 190-A/2017, of 23 November ⁽²⁾), later amended by Resolution of the Council of Ministers No. 108/2019, of 6 June ⁽³⁾). The PAEC was approved for the period 2018–2020 and its implementation has been ongoing over the last few years. A revision is currently being prepared to adapt it to the new challenges of the CE.

The ambition for Portugal 2050, assumed in the PAEC, was designed to leverage and boost its development, and is composed of the following elements.

- **Carbon neutrality and a resource-efficient and productive economy:** a Portuguese economy that is greenhouse gas neutral (in which emissions are equivalent to those captured and replaced); is resource-efficient in terms of extraction and importation of materials; has significantly reduced the amount of final waste produced; and has improved the management and extraction of the value of resources in circulation.
- **A push for knowledge:** investing in research and innovation to promote solutions in products, services, business models, consumption/use and behaviour, with less intensity of emissions and resources; integrated business models that promote jobs; and the efficient and effective use of resources, which prolongs their economic value.
- **Inclusive and resilient economic prosperity:** economic development across all sectors of society, resilient to price and risk volatility, progressively decoupled from negative environmental and social impacts.
- **A flourishing, responsible, dynamic, and inclusive society:** an informed, participatory and more collaborative society, guided by being and caring, as opposed to wanting and possessing, and preserving and caring for its natural capital.

The PAEC assumed three levels of operation: the national level (macro), sectoral level (meso) and regional level (micro). The **national level** was rooted in the main pillars of the 2015 EU Circular Economy Action Plan and presented seven areas in which policy orientation was embedded: i) design and reuse; ii) market; iii) education; iv) food waste; v) waste and by-products; vi) water and nutrients; vii) research and innovation. Specific objectives have been set for each pillar.

The **sectoral level** opted to focus on sectors that were either particularly resource intensive, for example, construction, or had a high exposure to exports such as textiles and tourism, or represented a high internal market impact, consumer goods and public procurement, distribution and retail⁴.

Finally, the **regional level** sought to complement national action by encouraging and guiding the regional coordination and development commissions to develop their own agendas on the CE, rooted on their regional, socio-economic context and environmental specificities. Five regional agendas for the CE were developed in the context of PAEC, covering mainland Portugal (North, Central, Lisbon and Tagus Valley, Alentejo and Algarve). An agenda was also developed in the Autonomous Region of Madeira. These agendas aim to adapt the national objectives and measures for the specific context of each region,

¹ <http://eco.nomia.pt/contents/ficheiros/paec-en-version-4.pdf>

² <https://files.dre.pt/1s/2017/12/23602/0005400073.pdf> (in Portuguese)

³ <https://files.dre.pt/1s/2019/07/12400/0331603317.pdf> (in Portuguese)

⁴ <https://www.dgae.gov.pt/servicos/sustentabilidade-empresarial/economia-circular/economia-circular-na-distribuiçao-e-no-retalho.aspx> (in Portuguese)




supported by regional characterisation studies from the perspective of the circularity of the economy, and foster collaboration networks within each region. Regional authorities were responsible for developing their agendas in coordination with the Portuguese government.










While at the national level, initiatives were based on dedicated policy instruments such as green taxation, voluntary agreements and the Portugal 2020 environmental network, those included 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 ⁽⁵⁾. The seven macro actions, 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:

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

Based on an assessment made in 2021⁽⁶⁾, Table 1 shows the degree of fulfillment of the objectives of the PAEC in the period 2018–2020, for each of the seven macro actions.

Table 1 Degree of fulfilment of the objectives of the seven macro actions of the National Action Plan for the Circular Economy 2018–2020

   very satisfactory; complies; not satisfactory

Objectives	Fulfillment
Action 1 – Design, repair, reuse: extended producer responsibility	
Reuse more products, namely those addressed by extended producer responsibility (EPR) 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	

⁵ 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.

⁶ https://www.apambiente.pt/sites/default/files/SNIAMB_A_APA/Iniciativas_transectoriais/PAEC_RelatorioFinal.pdf (in Portuguese)

Objectives	Fulfillment
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, Table 2 is a check list of the approach, in the period 2018–2020, of the **guidelines** planned by the PAEC to achieve its main objectives.

Table 2 A check list of the approach of the guidelines planned by the PAEC, 2018–2020

Implemented (✓); Not implemented (X)

Action Macro	Guidelines (summary wording)	Check list
Action 1 – Design, repair, reuse: extended producer responsibility	Develop partnerships involving national research and development (R&D)	✓
	Interact with manufacturers to develop strategies to extend products' working lives	✓
	Assess the introduction of differentiated financial allocations (eco-fee)	✓
	Cut the maximum size of family packs across the board	X
	Encourage repair and reuse	✓
	Establish partnerships with municipalities to train and disseminate repair and reuse networks	X
	Develop tools to communicate the benefits of extending the useful life of goods/equipment to consumers	X
	Develop banks of schoolbooks to be reused in the public network of educational establishments	X
Action 2 – Incentivising a circular market	Promote the creation of a network to finance solutions that speed up the transition to a CE	✓
	Promote the interaction between financial managers to invest in circularity and the related benefits.	✓
	Mobilise the investment community to analyse investment mechanisms and tax subsidy systems for circular businesses	✓
	Promote analysis of the impact of a transition from taxes on work to raw materials in Portugal	X
	Assess tax incentives associated with reducing consumption of plastic bags	✓
	Analyse barriers to adopting accredited certification that promotes efficient resource use with a view to its promotion	X

Action Macro	Guidelines (summary wording)	Check list
	Analyse the introduction of consumer and/or business subsidies that support the CE – value-added tax (VAT), income tax and corporate tax	✓
	Review tax instruments that incentivise or discourage circularity	✗
	Analyse the broadening of the <i>Sê-lo verde</i> (Go Green) award to products and companies that stand out for their integration of CE principles	✓
	Analyse the further development of the e-invoice systems to cut the paper waste associated with issuing consumers with invoices	✓
Action 3 – Educating for a circular economy	Support for national competitions on circular business ideas	✓
	Promote solutions to challenges related to extending the useful life of resources developed by citizens and applied at the local level	✗
	Strengthen academic curricula and teaching methods across the board by including CE principles	✓
	Enhance the ECO.NOMIA portal with a communication structure that can convey the CE concept to different audiences	✓
	Promote the training of people who can intervene at the public policy level and during its implementation regarding concepts of sustainable development and circularity	✓
	Promote the integration of CE principles in training and also in the context of qualifications included in the National Qualifications Catalogue	✓
	Promote communication campaigns encourage behavioural change to reduce waste and increase the maintenance of goods and services	✓
	Promote awareness campaigns on the consequences to the oceans of choosing goods and services that ignore environmental impacts	✓
	Support environmental educational programmes and activities aimed at promoting the CE, and environmental and ocean literacy	✓
	Promote national and/or international initiatives for reflection and debate on the CE	✓
Support and promote programmes and action to incentivise the reuse of schoolbooks	✗	
Action 4 – Eat without waste: sustainable production for sustainable consumption	Support action under the strategy and action plan to fight food waste in its myriad forms, with consumer- and producer-related measures bolstered by prevention and communication tools and measures to reduce waste across the whole value chain	✓
	Propose information campaigns, involving the production, distribution and retail sectors on the meaning of expiry labels	✓
	Support the development or testing of solutions oriented for reducing food waste in urban areas	✓
	Propose zero-waste areas or incentives in retail	✓
	Ensure articulation of measures with other strategies that contribute to achieving the Action 4 goal, such as the Integrated Strategy for the Promotion of Healthy Eating	✓
	Analysis of legal obstacles to the cascading use of value chain by-products, reuse and upcycling	✓
Review of legislation associated with donating/redistributing food products, in line with European guidelines ⁽⁷⁾	✗	
Action 5 – A new life for waste!	Review of the by-product classification process, namely fees, decision-making deadlines, classification conditions, simplified mechanisms and operator accountability	✓
	Digitalise, simplify and streamline by-product classification requests under a single environmental licensing (LUA) system	✓
	Develop an information registration system to monitor the by-product classification process, available to stakeholders	✗
	Work with international public authorities to establish circular agreements for the acceptance of Portuguese by-products and materials with end-of-waste status	✓

⁷ https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.C_.2017.361.01.0001.01.ENG

Action Macro	Guidelines (summary wording)	Check list
	Promotion of experimentation and innovation areas to test the use of by-products (linked to the Responsible Business Hubs) ⁽⁸⁾	✓
	Promote needs mapping of critical materials and replacement options, and share good practice by sector	✓
	Propose the development of an agenda to classify by-products and the development of derived products under the Innovation, Technology and Circular Economy Fund (FITEC)/INTERFACE programme	✓
	Promote the rationalisation and specialisation of construction sites and shipyards through repair and dismantling	✓
Action 6 – Regenerating resources: water and nutrients	Promote water efficiency in urban residential and service buildings, and the agricultural and industrial sectors	✓
	Develop water efficiency labelling and accredited certification	✓
	Establish goals for river basin region for a more effective ratio of water volumes captured to volumes used, with sustainability targets	✓
	Promote the integration of water reuse in the planning and management of water resources as laid out in the Guidelines on Integrating Water Reuse into Water Planning and Management in the context of the Water Framework Directive	✓
	Support the development of synergies and/or technologies for establishing minimum reuse requirements	✗
	Propose awareness campaigns for water reuse involving the main stakeholders	✓
	Work on promoting biotechnologies for extracting and reusing nutrients and compost	✓
	Promote voluntary agreements to overcome obstacles to promoting water reuse, the use of extracted materials and the production/use of compost as fertiliser	✗
	Promote organic agriculture and sustainable agricultural practices as a vehicle for speeding up the regeneration of nutrients and efficient water use	✓
	Action 7 – Researching and innovating for a circular economy	Definition of the long-term research and innovation (R&I) agenda up to 2030 through a consultative process involving experts from various areas of the domestic economic system
Presentation and dissemination of the R&I agenda with a view to identifying bridges between current policies and those under development that might bolster the agenda's goals		✓
Mapping and promotion of CE R&I projects, based on the analysis and survey of projects funded through the Foundation for Science and Technology (FCT), Horizon 2020, LIFE programme, the ECO.NOMIA portal, Portugal 2020, tax credit beneficiaries under the Tax Incentive System for Business Research and Development (SIFIDE), and supported through the Environmental Fund and FITEC.		✓
Boosting of the CE R&I sector to spread the goals of the agenda and the PAEC.		✓

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.

Preparatory work for the **new PAEC cycle is currently being carried out** and the new strategy is expected by the end of 2022. The results of the PAEC 2018–2020 guidelines indicate that in Action 1 – *Design, Repair, Reuse: extended producer responsibility* and in Action 2 – *Encouraging a circular market* several of the guidelines were not implemented, highlighting that efforts in these two areas that should be intensified of in the next planning period. They also highlighted an aspect that could be changed/strengthened in the

⁸ Responsible Business Hubs are territorial areas, equipped with pre-licensed infrastructures and provided with common services that allow for a simplified, quick, and less expensive location of industries and other commercial activities. The PAEC includes an agenda for Responsible Business Hubs.

forthcoming PAEC, namely the governance model (intervention level, follow-up, monitoring and responsibility). The new PAEC should take account of the goals defined in the *Portugal 2030 Strategy* under the strategic domain *Making the economy circular*, such as reducing resource imports by 12 % by 2030 compared to 2013 and ensuring a recycling rate of 86 % of all waste.

Circular economy policy elements included in other policies

Circular economy policy element	Included in policy
<p>The Roadmap for Carbon Neutrality (RNC) 2050 identifies the main drivers of decarbonisation in all sectors of the economy together with the policy options, measures and the emission reduction trajectory required to achieve this in different socio-economic development scenarios. The CE was considered an integral part of the narrative of the socio-economic scenarios and was translated into the sectoral assumptions that support the modeling of greenhouse gas emissions.</p>	<p>Roadmap for Carbon Neutrality 2050 (RNC 2050); Resolution of the Council of Ministers No. 107/2019, of 1 July (in Portuguese)</p>
<p>The National Spatial Planning Policy Programme (PNPOT) 2030 Action Plan makes 10 commitments for the country, three of which address aspects related to promoting the transition to a CE and the development of circular economy models. The 10 commitments for are operationalised within the framework of five intervention domains, one of which is the economic domain that contributes to increasing the circularity of the economy. It includes a specific measure, Organizing the territory for the circular economy, which is supported by a set of operational objectives and monitoring indicators. Among the operational objectives are: knowing the nature, quantity and location of accumulations of by-products capable of integrating CE processes; creating new jobs associated with ecodesign, servitisation, repair, reuse, remanufacturing and reconditioning; promoting the creation of a network of circular cities; fostering the adoption of CE principles in land management tools and developing R&D projects that promote the circularity of the economy. Some monitoring indicators are provided: the number of CE awareness-raising activities by municipalities; the number of thematic inter-municipal plans on the CE; the number of Responsible Business Hubs and companies installed there; the number of established industrial symbioses; the number of projects financed under Portugal 2020, LIFE, Horizon 2020 projects, etc. framed in terms of the circular, green and/or blue economies, and sustainable consumption and production, by municipalities; the number of municipal master plans that include the concept of the CE.</p>	<p>National Spatial Planning Policy Programme (PNPOT; in Portuguese)</p>
<p>The Thematic Agenda for Research and Innovation in Circular Economy is another strategy for a transition to the CE. It is a multi-dimensional guide for medium- and long-term (2030) research and innovation covering: i) the design and development of new products, processes and services; ii) the sustainable resource management cycles; iii) governance and territory; iv) new business models, behaviour and consumption.</p>	<p>Thematic Agenda for Research and Innovation in Circular Economy (2019; in Portuguese)</p>
<p>The Thematic Agenda for Research and Innovation in Circular Economy (ENEA) 2020 aims to establish a collaborative, strategic and cohesive commitment to environmental literacy in Portugal. This strategy is being implemented through 16 measures framed by three strategic objectives: more cross-cutting, open, and participatory environmental education. The action envisaged is</p>	<p>National Environmental Education Strategy (ENEA 2020; in Portuguese)</p>

Circular economy policy element	Included in policy
<p>based on the following pillars: i) decarbonise society; ii) make the economy circular; and iii) valuing the country. The second pillar, making the economy circular, covers three areas: dematerialisation, a collaborative economy and sustainable consumption; product design and the efficient use of resources; and waste recovery.</p>	
<p>The National Strategy for Green Public Procurement (ENCPE) 2020 aims to contribute to the promotion of resource efficiency and the minimisation of environmental impacts, stimulate the supply of sustainable goods and services, and reduce the environmental impact of public works throughout their life cycle, in line with the country's environmental policies. A number of priority groups of goods and services were identified and related environmental criteria developed taking account of criteria proposed at the EU level aligned with EU Ecolabel criteria.</p>	<p>National Strategy for Green Public Procurement 2020 (ENCPE 2020; in Portuguese)</p>
<p>The National Strategy to Combat Food Waste (ENCDA) promotes a shared responsibility of producers and consumers in achieving three strategic objectives: prevent, reduce and monitor. The Strategy and the action plan are linked to other initiatives at the national level including the PAEC, the objectives of which are complementary or coincident. The strategy is structured into 14 key activities among which the following are highlighted: disseminating good practice (guidelines and success stories); promoting consumer-awareness action; promoting the development of innovative processes to prevent and reduce food waste; facilitating and encouraging food donation; implementing a collaboration platform to identify food surpluses by type of foodstuff; and promoting specific locations to sell products that are at risk of becoming waste. A National Commission for Combating Food Waste was set up to promote the reduction of food waste through an integrated and multidisciplinary approach.</p>	<p>National Strategy to Combat Food Waste (ENCDA; in Portuguese)</p>
<p>The National Programme for the Efficient Use of Water (PNUEA) is a national environmental policy instrument, the main objective of which is the promotion of the efficient use of water in Portugal. Its strategic objectives are to reduce losses in water supply systems in urban areas and agricultural irrigation systems, as well as to optimise water use in the industrial sector and limit environmental impacts associated with the discharge of industrial wastewater. An Implementation and Monitoring Commission was set up to ensure active, motivated and transparent governance that promotes the participation of the main actors in this process.</p>	<p>National Programme for the Efficient Use of Water (PNUEA; in Portuguese); PNUEA - Implementation 2012–2020 (in Portuguese)</p>
<p>The Strategic Plan for Solid Municipal Waste (PERSU) 2020 was the national strategic instrument for the management of urban waste for the period 2014–2020. PERSU 2020+ intended to realign the strategic goals to contribute to the fulfilment of the commitments made in PERSU 2020. It is seen as a process of continuous improvement and a dynamic response to the challenges in the sector, introducing measures that contribute to the transition to a CE articulated through the PAEC measures. The new Strategic Plan for Urban Waste (PERSU 2030) is under development.</p>	<p>Strategic Plan for Solid Municipal Waste (PERSU 2020; PERSU 2020+; in Portuguese)</p>
<p>National Strategy for Organic Agriculture and a Plan of Action for the production and promotion of organic food products (ENAB) aims to reinforce the economic scale and competitiveness of organic agricultural production, stimulate the supply and consumption of organic products nationally, and foster their export. The strategy aims to contribute to decarbonisation and the promotion of the CE as it fosters nutrient cycle regeneration,</p>	<p>National Strategy for Organic Agriculture and a Plan of Action for the production and promotion of organic food products (ENAB; in Portuguese)</p>

Circular economy policy element	Included in policy
<p>efficient water management and soil rehabilitation, and a reduction in the use of mineral fertilisers and pesticides. A National Observatory for Organic Production was set up to monitor compliance with the objectives set in the ENAB with a view to assessing the impact of the strategy and its eventual revision.</p>	
<p>The Water Supply and Wastewater Sanitation Plan 2020 (PENSAAR) 2020 was developed around five strategic objectives that support the vision for the sector and constitute the pillars of the strategy, which is to be implemented in the period 2014–2020: 1. environmental protection, improvement of the quality of the water bodies; 2. improvement of the quality of the services provided; 3. optimisation and efficient management of resources; 4. economic, financial and social sustainability; 5. basic and cross-cutting conditions. Nineteen operational objectives were defined for each of the five strategic pillars, supported by 48 measures and 133 activities. A new Strategic Plan for Water Supply and Wastewater and Rainwater Management (PENSAARP 2030) is in preparation.</p>	<p>Strategic Water Supply and Wastewater Sanitation Plan 2020 (PENSAAR 2020 – Volume I and Volume II; in Portuguese)</p>
<p>The Resource Efficiency Programme in Public Administration (ECO.AP) 2030 aims to promote the decarbonisation and energy transition of activities developed by the State and contribute to the targets established at a national level for 2030 for greenhouse gas reduction, reduction of energy, water and material consumption, incorporation of renewables into the gross final energy consumption, as well as the promotion of the efficient management of these resources in public administration.</p> <p>ECO.AP 2030, which replaced the previous Energy Efficiency Programme in Public Administration, is more ambitious in presenting measures to reduce the consumption of energy, water and materials, and the respective emissions of greenhouse gases. These will be verified in buildings; equipment; vehicle fleets and infrastructure, including mobility infrastructure; and electricity, and energy production capacity and energy storage solutions, under management or use by Public Administration entities, directly and indirectly, including central and peripheral bodies. By 2030, the state has to fulfill a set of goals:</p> <ul style="list-style-type: none"> – reduce primary energy consumption by 40 %; – contribute so that 10 % of energy consumption is ensured by self-generating solutions originating from renewable energy sources; – reduce water consumption by 20 %; – reduce the consumption of materials by 20 %; – yearly renovate 5 % of the buildings covered by ECO.AP 2030 by improving their energy and water-related performance. <p>The targets will be monitored with the support of the ECO.AP barometer. The entities covered by the ECO.AP 2030 will, every three years, prepare an efficiency plan, taking account of the objectives and targets related to the consumption of energy and other resources.</p>	<p>Resource Efficiency Programme in Public Administration (ECO.AP 2030; in Portuguese); Resolution of the Council of Ministers no. 104/2020, of November 24 (in Portuguese)</p>
<p>The National Ocean Strategy (ENM) 2021–2030 is the instrument that defines the course for the public ocean policy for the next decade. The Strategy is organised around ten major strategic objectives, one of which is fostering jobs and the circular and sustainable blue economy. The Action Plan of the ENM 2021–2030 contains a set of measures associated with each strategic objective, such as: a focus on the development of sustainable and</p>	<p>National Ocean Strategy 2021–2030 (ENM 2021–2030); Resolution of the Council of Ministers no. 68/2021, of June 4 (in Portuguese) and Resolution of the Council of Ministers No. 120/2021, of 1 September (in Portuguese)</p>

Circular economy policy element	Included in policy
<p>circular aquaculture; promoting business models based on the logic of the CE, developing product lifecycle studies, from the extraction of the raw material from the sea through its transformation, the reduction of consumption and the reuse and recycling of the final product; promoting the financing of entrepreneurship and innovation projects in the blue economy that promote decarbonisation, sustainability, circularity, efficiency and have a positive impact on biodiversity; investing in the enhancement of products and by-products resulting from fishing and aquaculture, promoting the circularity, efficiency and valorisation of these, as well as the certification of their sustainability.</p>	<p>National Strategy for Tourism 2027 (ET2027; in Portuguese) ⁽⁹⁾</p>
<p>The National Strategy for Tourism 2027 (ET2027), adopted in 2017, aims at establishing tourism as a hub for economic, social and environmental development throughout the country, positioning Portugal as one of the most competitive and sustainable tourism destinations in the world. One of the five strategic pillars of the Strategy is to boost the economy, and a line of action of this pillar is stimulating the CE in tourism. The priorities included in this line of action are: creating standards for sustainable tourism in Portugal with regard to economic, environmental and social aspects, as well as governance, allowing for circular flows of reuse, restoration and renovation, in an integrated manner; initiatives for promoting the sustainability of destinations, along with communications and the inclusion of non-financial variables (environmental, social and governance) in tourism investment projects; projects that stimulate energy efficiency in the tourism value chain and the integration of the CE in the value chain, namely in terms of reducing, reusing, restoring and recycling materials and energy; inclusion of a sustainability dimension as an element in the classification system for tourism establishments.</p>	<p>National Programme for the Promotion of Healthy Eating (PNPAS; in Portuguese)</p>
<p>The National Programme for the Promotion of Healthy Eating (PNPAS) was introduced in 2012 and aims to contribute to making foods that promote health and well-being available to the entire population; create citizens capable of making informed decisions about healthy foods and culinary practices; encourage the production of food that is healthy while contributing to boosting employment, balanced spatial planning and local economies; encourage consumption and local production methods that reduce impacts on the environment; reduce inequalities in demand and access to nutritionally adequate food; and improve the qualification of professionals who can influence the food consumption of the population. The new strategic guidelines of the PNPAS will be published in 2022 and will be developed in the context of the new National Health Plan 2030 and will fall within one of the goals of the Recovery and Resilience Plan.</p>	<p>National Water Plan (PNA; in Portuguese)</p>
<p>The National Water Plan (PNA) is a framework plan for national water resources management policies, endowed with a strategic vision of water resources management and based on a logic of resource protection and sustainability of national socio-economic development. It covers two planning cycles, 2016–2021 and 2022–2027 and pursues three fundamental objectives, including the promotion of sustainable, balanced and equitable use of good</p>	

⁹ See also: <https://www.turismodeportugal.pt/SiteCollectionDocuments/estrategia/estrategia-turismo-2027-eng-jul-2021.pdf>

Circular economy policy element	Included in policy
<p>quality water, with its allocation to the various types of uses, taking into account its economic value, based on a long-term protection of available water resources. The PNA includes measures aimed at the efficient use of resources such as: the imposition of adequate labelling of devices' water consumption; and the legal imposition of minimum levels of reuse in compatible uses of treated urban effluents.</p>	
<p>The Strategy for Sustainable Cities (ECS) 2020 is a territorial development policy that seeks to affirm and respond to the urban structural needs of the country and act to strengthen and consolidate the prospects and vision of territorial development shared among the relevant stakeholders, contributing to the promotion of the necessary conditions for competitiveness, sustainability and national cohesion.</p> <p>The Circular Cities National Initiative (InC2) is an instrument for the implementation of the ECS 2020, contributing to Axes 2 – Sustainability and Efficiency and 4 – Territorialisation and Governance, and also of the PAEC and PNPOT. It aims to support and empower municipalities and their communities in the transition to a CE, aiming at the promotion of sustainable urban development and the achievement of specific public policy objectives.</p>	<p>Strategy for Sustainable Cities 2020 (ECS 2020) Circular Cities National Initiative (InC2; in Portuguese) Resolution of the Council of Ministers No. 61/2015, of 11 August (in Portuguese)</p>
<p>The Action Plan for a Sustainable Bioeconomy – Horizon 2025 (PABS) is a strategic document that frames the main measures to accelerate the transition of the Portuguese economy to a sustainable and circular bioeconomy model.</p> <p>The implementation of PABS has the six guiding principles of the European Bioeconomy Strategy and five axes of action.</p> <p>From Axis 1: <i>Encouraging sustainable production and intelligent use of regionally-based biological resources</i>, the measure to promote the use of biologically-based secondary raw materials through the dynamisation of material markets and the improvement of management systems is highlighted. This aims to improve the management systems of secondary raw materials, respecting the principles of the CE and promoting new business areas.</p> <p>In Axis 2: <i>Promoting Research, Development and Innovation and valuing the national scientific and technological capacity of excellence</i>, the measure to promote ecodesign in biologically based products can be highlighted. This aims to promote ecodesign strategies in which the development of new production concepts is prioritised based on the principles of the circular bioeconomy.</p> <p>Axis 3: <i>Develop a circular and sustainable bio-industry: Innovation in the value chain and processes</i>, includes a set of 11 measures that aim to contribute to the development of a bio-based, circular and sustainable industry, promoting the transition from existing traditional sectors to the bioeconomy through a new approach either to the origin of resources and material efficiency, or to innovative technologies and services, promoting networking and knowledge transfer.</p> <p>From Axis 4: <i>Society: Promoting knowledge and the development of skills through education and training</i>, the measure to promote the integration of the principles of sustainable and circular bioeconomy in academic curricula and in the references relating to qualifications can be highlighted.</p>	<p>Action plan for a sustainable bioeconomy – Horizon 2025 (PABS; in Portuguese); Resolution of the Council of Ministers No. 183/2021, of 28 December (in Portuguese)</p>

Circular economy policy element	Included in policy
<p>The PABS also includes specific action and financing, foreseen under the Recovery and Resilience Plan, for three of the sectors that in Portugal have great potential for the bioeconomy: textiles and clothing; shoes; and natural resin, as well as identifying future high potential sectors. Investment in the textile and clothing sector is supported by several strategic intervention pillars, including a circularity pillar, which aims to improve the circularity of the sector, promoting research and innovative business models based on the reprocessing recycling and reuse of biological raw materials. The promotion of the bioeconomy in the footwear sector is supported by five pillars of intervention, one of which is dedicated to the CE. This aims to promote management models for by-products, waste from production and end-of-life footwear, as well as the development and production of new materials and products that allow the recovery of by-products and waste and the transition of the footwear and fashion cluster to the CE.</p>	
<p>In 2015, the Portuguese Government adopted the Green Growth Commitment (GGC), a strategic document that aims to promote a structural transformation of the development model capable of reconciling economic growth with the efficient use of resources, environmental protection and social justice. This strategy encompasses 16 sectors and 111 initiatives integrated in 14 goals for 2020 and 2030 of which the following are highlighted.</p> <ul style="list-style-type: none"> - Increase productivity of materials: from EUR 1.14 of GDP/kg of material consumed in 2013, to EUR 1.17 in 2020 and EUR 1.72 in 2030 (reaching the European target of 30 % growth by 2030). - Increase the incorporation of waste into the economy: from 56 % in 2012, to 68 % in 2020 and 86 % in 2030. <p>In 2017, the GGC initiatives were updated.</p>	<p>Green Growth Commitment (GGC; in Portuguese); GGC Executive summary; Green Growth Commitment – update of initiatives (in Portuguese)</p>

Monitoring and targets

Assessment of circular economy performance

Below some indicators for analysing Portugal's performance in the CE are presented, with reference to the 2019.

According to the statistical indicators defined by the European Commission (EUROSTAT), the material flow diagram for 2019 shows that in Portugal 21.4 tonnes of materials per person are processed, of which 0.48 tonnes are secondary materials. The circularity rate is estimated at 2.2 %, while in the EU27 the average is 9.5 %. In turn, outflows – air emissions and landfilled waste, which total 4.0 tonnes per person – are equivalent to 18.6 % of materials processed per person, compared to 45.7 % on average in the EU27.

In terms of production and consumption, there has been an increase in the production of urban waste per inhabitant, with Portugal recently exceeding the EU average. The consumption of materials per inhabitant also showed an increasing trend over the recent past, presenting a value above the EU average. Resource productivity has stabilised, Portugal's average of EUR 1.16/kg below the EU average of EUR 2.09/kg.

With regard to waste management, progress has been limited, with Portugal's performance, in terms of recovery/recycling of urban waste, below the EU average – 28.9 % in Portugal as opposed to 47.7 % in the EU.

In terms of competitiveness and innovation, and taking into account the recycling, repair and reuse, rental and leasing services sectors, gross value added (GVA) in Portugal at 0.8 % is below the EU average, while employment accounts for 1.9 %, above the EU average of 1.7 %. The distance between these two indicators reflects the potential for the development of activities with higher levels of productivity. Although investment in Portugal is at the level of the EU average, the return in terms of the number of patents in Portugal, with 0.5 patents/million inhabitants, is below the EU's performance of 0.8 patents/million inhabitants.

Despite the multiple initiatives that took place and the dynamics effectively generated across many activities, the indicators show that Portugal presents, as a general rule, **a performance below the EU average**, maintaining the characteristics of a slow metabolism and low resource productivity. In terms of the CE, Portugal's performance suggests that there are still many challenges to overcome, in order to accelerate the transition towards what is intended to be a new economic, social and environmental model.

Circular economy monitoring frameworks and their indicators beyond the ones from Eurostat

The Portuguese **PAEC includes a set of indicators** to assess the progress of its implementation (see Table 3), but these are indicators related to the metabolism of the economy, i.e. how it evolves in extraction, productivity, recycling performance and emissions/effluents, that do not measure the full dimension and scope of the CE. Having 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.

Table 3 The Portuguese Circular Economy Action Plan indicators

AREA	Indicator
RESOURCES	PRODUCTIVITY Resource productivity (EUR/kg) Defined as gross domestic product (GDP) divided by domestic materials consumption.
	Productivity of artificial areas (PPP (purchasing power parity) millions per km²) (2009 (corresponds to just 23 countries, not including Bulgaria, Cyprus, Croatia, Hungary, Malta, Romania); 2012) Defined as a country's gross domestic products (GDP) divided by its total artificial areas. Artificial areas: urbanized areas (surfaces covered with buildings and greenhouses) except towns (roads and sealed surfaces). Shows whether the productivity of built artificial areas is used efficiently to generate added economic value.
ENVIRONMENTAL IMPACT	MATERIALS Domestic materials consumption (tonne/person) Defined as the total amount of materials used directly in the economy and is equal to direct material input (domestic extraction plus imports) less exports.
	ENERGY Energy productivity (EUR/kg of oil equivalent) Defined as GDP divided by gross domestic energy use in a certain calendar year. Share of renewable energy (%) Percentage of renewable energy compared to total energy consumed.
	EMISSIONS Greenhouse gas intensity in energy use (index 2000=100) (-; 2015) Ratio of energy-related greenhouse gas emissions (carbon dioxide, methane and nitrous oxide) to gross domestic energy use. Per person greenhouse gas emissions (tonnes of CO₂ eq. per person) (-; 2015)
TRANSFORMING THE ECONOMY	TRANSFORMING WASTE INTO A RESOURCE Waste production excluding mineral waste, dredging waste and contaminated soils (kg per person) (2004; 2014) Landfilling rate with the exclusion of mineral waste, dredging waste and contaminated soils (%) (2010; 2014) Defined as the volume of waste sent to landfill (directly or indirectly) divided by the volume of treated waste (exclude mineral waste, dredging waste and contaminated soils). Urban waste production (kg per person) (-; 2014) Urban waste landfilling rate (%) (2010; -) Urban waste recycling rate (%) (-; 2014) Packaging waste recycling rate (%) (-; 2014) Electrical and electronic waste recycling rate (%) (2008; 2014)
	SUPPORTING RESOURCE AND INNOVATION Eco-innovation index (EU=100) (2010; -) Index with 16 indicators (e.g. green investments, jobs, patents).

Portugal uses several indicators, including annual reports and online comparison of trends to targets, to monitor the evolution of the state of the environment, including the effective use of resources. The following indicators are provided by the State of Environment Portal ⁽¹⁰⁾.

Economy and the environment:

- internal material consumption;
- taxes with environmental relevance (including resource taxes and pollution taxes);
- environmental management tools (the EU Eco-Management and Audit Scheme (EMAS) and ecolabels).

Waste:

- production and management of municipal waste;
- recycling of packaging waste;
- recycling of specific waste streams.

¹⁰ <https://rea.apambiente.pt/?msckid=873c90c6cee811eca15a5391438816a0> (in Portuguese)

Circular economy targets

Portugal has established **CE related goals and targets in several national plans** that will benefit from the measures developed by the PAEC:

- increasing productivity of materials – from EUR 1.14 GDP/kg materials consumed in 2013 to EUR 1.17 in 2020 and EUR 1.72 in 2030 (Green Growth Commitment);
- increasing the incorporation of waste ⁽¹¹⁾ in the economy – from 56 % in 2012 to 68 % in 2020 and 86 % in 2030 (Green Growth Commitment);
- achieving a selective waste collection rate of 47kg/year per person by 2020 (Strategic Plan for Municipal Solid Waste – Strategic Plan for urban solid waste, Green Growth Commitment);
- decoupling economic growth from waste production: reducing it from 0.10 tonnes of produced waste/'000 EUR GDP in 2008–2012 to 0.082 tonnes in 2020 (National waste management plan);
- reducing waste production by 15 % by 2020 compared to 2012 (National waste management plan);
- progressive elimination of waste disposal in landfill, with the overall aim of eradicating landfilling by 2030 (Strategic Plan for urban solid waste);
- achieving a minimum 7.6 % reduction by weight of waste generated per person by 31 December 2016, relative to 2012 (Strategic Plan for urban solid waste);
- achieving a minimum 10 % reduction by weight of waste generated per person relative to 2012, and ensuring that this does not exceed 410 kg/year per person by 31 December 2020 (Strategic Plan for urban solid waste);
- at a national level, ensuring recycling of at least 70 % of packaging waste by weight by 31 December 2020 (Strategic Plan for urban solid waste).

¹¹ According to the GGC, the rate of incorporation of waste into the economy is given by quotient of the total waste subject to recovery (except energy recovery) and the total waste produced.

Innovative approaches and good practice

Examples of public policy initiatives (national, regional or local)

- ➔ *Good practice example: sharing information about the circular economy and related funding opportunities, education and networking*

ECO.NOMIA portal

The portal ECO.NOMIA ⁽¹²⁾, dedicated to the CE, is an initiative of the Ministry of the Environment which launched in 2016. It 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. It also supports and promotes initiatives that, directly or indirectly, contribute to promoting the transition to a CE. The portal aims to be a knowledge aggregator, to inform and assist consumers and companies in the interpretation of the CE concept and associated benefits; disseminate policies and cases; contribute to the dissemination of existing funding opportunities and, in a reserved access space, promote interaction between agents that can leverage ideas, projects and business models.

State of the Environment Portal

The State of the Environment Portal ⁽¹³⁾ was launched in December 2016 to support the understanding and dissemination of data from the *State of the Environment Report*, a national reference document. The portal houses a wide variety of indicators on the state of the environment, presented in 49 thematic pages, distributed across eight environmental domains: economy and environment, energy and climate, transport, air, water, soil and biodiversity, waste and environmental risks. This digital and interactive platform, aimed at decision makers, organisations and citizens, provides easy, fast and more transparent access to the latest data and environmental trends, helping to improve understanding of the complexity of crosscutting environmental challenges.

- ➔ *Good practice example: financial support programmes*

Environmental Financial Fund

The Environmental Financial Fund (FA) ⁽¹⁴⁾ is a financial instrument created to respond to the environmental challenges that arise at any given moment, allowing action to preserve natural resources, prevent risks and repair ecological damage. The FA's purpose is to support environmental policies that promote sustainable development and contribute to achieving national and international goals and commitments, in particular those related to climate change, water resources, waste, nature conservation, biodiversity, environmental awareness, environmental research and development, and the transition to a CE. In the field of the CE, support should focus on action that promotes the removal of market barriers and that are innovative in terms of the ecological design of products.

The FA budget comes, for example, from: auctions relating to European Emissions Trading System; water resources fees; waste management fees; the fees on low energy efficiency lamps; compensation for non-compliance with the obligation to incorporate biofuels into fuels for road transport; and the fees on financial guarantees constituted to assume the environmental responsibility inherent to an occupational activity. The annual plan for the provision of support and use of revenues is defined by order of the Minister of the Environment. The annual plan includes a call for applications.

The FA **supported more than 100 CE projects** between 2017, the year it began operating, and 2020, worth a total value of EUR 14 million. In the following years, the area of waste and the CE had an increase in

¹² <https://eco.nomia.pt/> (in Portuguese)

¹³ <https://rea.apambiente.pt/?msclkid=873c90c6cee811eca15a5391438816a0> (in Portuguese)

¹⁴ <https://files.dre.pt/1s/2016/08/15501/0000300011.pdf> (in Portuguese); <https://www.fundoambiental.pt/> (in Portuguese)

funding from the FA, with EUR 8 million being allocated in 2021 and more than EUR 33 million being planned for 2022.

The FA also launched a call for the constitution of **consortia** to promote integrated projects in the area of **sustainable bioeconomy** in three sectors, textiles and clothing, footwear and natural resins, with a view to supporting the restructuring and adaptation of these industries through the creation of new value chains and more ecological and circular industrial processes. Three consortia were selected in February 2021, one for each sector, made up of 160 companies which received investments of EUR 253 million. The signing of the contracts and the start of the integrated projects will take place in 2022 and the projects must be concluded by the end of 2025.

Within the scope of the **National Environmental Education Strategy** (ENEA 2020) and since 2017, the **Environmental Fund** has made available around EUR 8 million to support programmes, projects and action. A first call was launched in 2017 dedicated to education for the CE, with an allocation of EUR 500 000, with 17 applications approved. In 2019, a new call, dedicated to education for the CE was launched, with an allocation of a further EUR 500 000, with 13 applications approved. In 2020, a call dedicated to sustainable production and consumption was launched with the aim of contributing to a more circular economy, with another allocation of EUR 500 000, with 15 applications approved. In 2021, a new call dedicated to sustainable production and consumption was launched, again with an allocation of EUR 500 000 and 21 applications approved. Beneficiaries eligible to receive support can central public administration entities, associations and foundations, companies, educational establishments and environmental non-governmental organisations.

In the context of the implementation of the PAEC, between 2018 and 2020 the Environmental Fund supported the development of **six regional agendas** for the CE with a total investment around EUR 600 000 ⁽¹⁵⁾.

"Vale Economia Circular"

In the framework of the System of Incentives for the qualification of SMEs, "Vale Economia Circular" ⁽¹⁶⁾ made available to companies the elaboration of a diagnosis, which is the first step to the definition of an action plan, leading to the implementation of management and growth models aligned with national and international strategies and commitments assumed by Portugal, with particular relevance for a circular economy.

The first call was launched on 31 July 2019 (99 applications, 92 decided and 61 favourable decisions with EUR 586 000 investment and EUR 436 000 approved incentive). In 2020, seven projects were approved corresponding to an investment of EUR 76 300 and an incentive of EUR 50 600.

➔ *Good practice example: public procurement*

Requirement for the incorporation of recycled material under the Public Contracts Code

Since 2011, there is a requirement for construction contractors and those involved in infrastructure maintenance under the Public Contracts Code to ensure that, where technically feasible, 5 % of materials used are recycled with the objective of promoting the recycling of waste and the circularity of recycled materials. This obligation is not established under GPP legislation, but under waste legislation. A form was developed on the public contracts portal to assess the fulfilment of this obligation. Non-compliance is an infringement of the law.

¹⁵ See, for instance, the Regional Agenda of Central Portugal: <https://agendacircular.ccdrc.pt/agenda-regional/?msclkid=a6d457bfceee11ec87c585f718375e0a> (in Portuguese)

¹⁶ <https://www.iapmei.pt/PRODUTOS-E-SERVICOS/Incentivos-Financiamento/Sistemas-de-Incentivos/Incentivos-Portugal-2020/Vale-Economia-Circular.aspx> (in Portuguese).

The new waste management legislation (Decree-Law No. 102-D/2020, of December 10) amended the terms of the aforementioned obligation with effect from 1 July 2021, establishing a mandatory usage of at least 10 % of recycled materials and eliminating the proviso of “whenever technically feasible”. The law also foresees the gradual growth of the incorporation of recycled materials in public works.

→ *Good practice example: digitalisation of waste tracking*

SIMPLEX programme

The SIMPLEX programme was launched in 2006 and aims to simplify administrative and legislative processes, making life easier for citizens and businesses in their relationship with public services and, at the same time, increasing internal efficiency. One example of measures developed under the SIMPLEX programme is the digitalisation of waste tracking. Before 2018, all waste tracking notes were physical, i.e., these had to be bought and filled every time a waste transfer took place. Following a long discussion and technical development process, on 1 January 2018, the Portuguese Environmental Agency made available the necessary infrastructure (electronic platform) for waste producers and managers to generate electronic waste tracking notes (eGAR) ⁽¹⁷⁾, enabling the dematerialisation of the whole waste transfer process. Besides saving resources and simplifying the process for the parties involved, the eGAR has enabled a significant improvement in the reliability of Portugal’s waste statistics, decreasing the risk of human error and possible misconduct. Authorities can check in real time if a waste transfer has been registered on the tracking platform or compare observed with reported quantities. The platform has been subject to improvements in order to better serve its objective of allowing the traceability of waste movements and ensuring greater control, inhibiting illegal deposition. Traceability and control are key factors in waste management, indirectly contributing to improving the principles of the CE, especially through confidence in the quality of recycled materials.

→ *Good practice example: local initiatives*

Prato Certo

Prato Certo is a pilot project developed in the Algarve region in 2019 in partnership with the University of the Algarve, the Regional Health Administration of the Algarve, the Association of Municipalities of the Algarve, and the Faro District Centre of the Institute of Social Security, and Infrastructures of Portugal (I.P.), to promote the right to healthy, delicious and economical food, based on the principles of the Mediterranean lifestyle. Through the web platform, local producers and suppliers of local foodstuff can register their interest on the Bank of Products and Producers, facilitating direct access by consumers to local suppliers of vegetables. By providing information on local producers, the project is promoting short production and consumption value chains, less intensive in carbon emissions, and also valuing the local communities and contributing to a more CE in the use of resources. The project now covers several regions of the country.

Vamos fechar o ciclo

Vamos fechar o ciclo (Let’s close the cycle), a project for the recovery and recycling of textiles and protective (face) masks launched in 2022 in the Sintra municipality, is an innovative circular economy solution to give new life to textile waste ⁽¹⁸⁾. The collection of textiles and masks will be carried out through the provision of dedicated containers. The project aims to respond to the problem of the discarding of and pollution from masks, used during the COVID-19 pandemic. The polypropylene (plastic) extracted from the used masks will be used as raw material to produce new products. In addition to contributing to economic, social and environmental sustainability, the project will also, after a sorting process, make clothing in good

¹⁷ <https://apoiosiliamb.apambiente.pt/content/enquadramento-eGar?language=pt-pt> (in Portuguese)

¹⁸ <https://www.smas-sintra.pt/reciclar-texteis/> (in Portuguese)

condition available to the municipality's population through an online store, supported by the ToBeGreen App.

Reuse of water for irrigation

Since March 2022, some areas of Lisbon have been equipped with a pioneering sustainable irrigation system reusing treated wastewater for irrigation of municipal gardens, promoting more circular sanitation services. Águas do Tejo Atlântico, responsible for the management and operation of the multi-municipal wastewater sanitation system in Greater and West Lisbon, is strongly committed to the use of treated wastewater, having developed the Água+ brand – recycled and non-potable water, a rational and sustainable alternative for compatible uses of grey water, such as watering green spaces, washing streets and equipment, and other agricultural and industrial uses. Through this, Águas do Tejo Atlântico has established partnerships with public and private entities from different sectors.

Examples of private policy initiatives (sectoral)

- **CERTAGRI** ⁽¹⁹⁾ – *Labelling of water and energy efficiency of national productive sectors for the CE*: the Agência para a Energia (ADENE) in partnership with the Instituto Superior de Agronomia (ISA), and with the support of the Environmental Fund, developed between 2018 and 2019 the CERTAGRI project which aimed to introduce a circular product label for the agri-food sector. CERTAGRI seeks to define the necessary requirements for the design of an integrated water, energy and resource efficiency labelling system for the national manufacturing sectors. The circular product label provides clear and precise information to about the product's energy, water and resource circularity performance along the value chain, with a simple and easily understandable colour guide for the user. This project, which is intended to be replicated in the future in other Portuguese industrial sectors, aims to ensure circularity and the development of competitive advantages for the different stakeholders along the stages of production, transformation, transport, logistics and retail. Calibration pilots were developed for rice, potatoes and corn (maize). The project received the second-place award in the Support for the Development of Ecological Markets and Resource Efficiency category of the national edition of the European Enterprise Promotion Awards.
- **BETTER PLASTICS** (2020-2023) ⁽²⁰⁾: the project aims to be the mobilising project for the plastics sector in Portugal and to leverage the sector's transition to a CE by ensuring the sustainability of a new value chain for the plastics sector, through the creation of an Innovation and R&D strategy, aimed at the development of new materials, products, processes, systems, technologies and services, which respond to current and future challenges and ensure the circularity of plastics. There are project activities along the following lines of R&D:
 - Circularity by material design – development of high performance film for food products with the incorporation of recycled and functional additives; development of biodegradable films for the acceleration of biodegradability.
 - Circularity by product design – development of products/packaging for food which use smaller amounts of material and incorporate recycled and recyclable material; development of lightweight products based on composite materials – recycled materials + natural fibres + nanoparticles – and recyclables.
 - Circularity by recycling – development of pre-treatment systems to remove organic contaminants, paints and odours to increase the quality of plastics sorted for mechanical recycling; development of new raw materials through mechanical recycling of highly contaminated materials;

¹⁹ <https://eco.nomia.pt/pt/exemplos/adene> (in Portuguese);
<https://www.youtube.com/watch?v=EmzpyxN7rGE> (in Portuguese)

²⁰ <https://www.betterplastics.pt/en/>

development of chemical and thermochemical recycling solutions for high-purity raw materials and food-contact materials.

- Circularity by alternative feedstocks – Development of biodegradable materials based on the recovery of food waste and biomass; development of sustainable materials from agroforestry by-products; development of sustainable functional additives).
- **Portuguese Pact for Plastics** ⁽²¹⁾: in 2020, the Portuguese Pact for Plastics was created, which has close to 50 full members and several dozen institutional members. This platform brings together stakeholders from the entire plastics value chain, establishing 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 education activities on the circular use of plastics for consumers.
- **NextLap** ⁽²²⁾: this is an innovation programme that seeks large-scale solutions from the recycling of market-ready tyres and brings innovators, industry and experts together. The project started in 2020/2021 and the second edition was launched in 2022. It is an acceleration programme for start-ups and innovators to turn their ideas into scalable businesses. Focussing on circular solutions, NextLap aims to find the next life for tyres and their components – rubber, steel and textiles. The previous edition of NextLap selected 14 start-ups to pilot innovative and ready-to-implement solutions focussed on end-of-life tyres and their derived components.

²¹ <https://www.pactoplasticos.pt/?msclkid=8bf9b89ccef111ecb571a18532043ad2> (in Portuguese)

²² <https://nextlap-program.com/>

The way forward

Addressing barriers and challenges

The years 2018 and 2019 were marked by a growing interest in the CE, with many companies adopting its principles with the support of instruments such as the Environmental Fund, although **most innovations are confined to niche markets and are struggling to scale up** to global innovations. In 2018–2019, examples show that there have been attempts to establish sustainable businesses. The country has shown a significant leap forward in eco-innovation since the 2016–2017 period and has indeed introduced policy instruments to help implement CE projects across private and public organisations. Portugal needs to address several **barriers to eco-innovation**, such as the lack of private-sector leadership or investment in eco-innovation efforts, and a lack of specific policies to promote eco-innovation. Portugal, however, benefits from several drivers that have and will contribute to eco-innovation efforts, such as the definition of regional agendas for the CE and the creation of the collaborative laboratories to create critical mass in specific R&D fields and foster knowledge transfer.

Portugal sees the following main barriers and challenges when it comes to the implementation of the CE:

- Regulatory-related bureaucracy and associated costs and delays.
- Avoid individual decisions and increase common ground between different policies.
- Improve the capacity of the state and its agencies to address innovation adequately, in particular as regards the response times to new issues and legal frameworks that prevent the emergence or maintenance of innovation.
- The transition from R&D and innovation activities to the adoption of circularity practices tested on a larger scale and even their transition to a stage of productive investment.
- Collaboration between companies for a shared purpose.
- Citizen participation in the transition process.
- Improve the competences both within companies and within state bodies responsible for developing and implementing policies.
- The application of appropriate fiscal instruments to make circular businesses more competitive than linear ones.
- Legal regimes associated with consumer rights in this paradigm shift from product to service (property rights versus the provision of services, etc.).
- Implementation of green/circular agreements and their execution.

With regards to the **ways of tackling barriers** for implementation of the CE, Portugal sees the following opportunities:

- Simplify legislation and processes with an impact on circularity, such as licensing, declassification of waste, waste shipments, water reuse, and food donation.
- Encourage the involvement of stakeholders in new legislative processes, avoiding additional barriers.
- Create or leverage economic instruments that enhance CE, e.g. waste management fee, PAYT, VAT reductions, eco-fee modulation.
- Definition of mandatory minimum rates of incorporation of recycled materials in materials or products.
- Regulatory or tax incentives to support the use of waste, by-products, recycled and reused materials, enabling the use of secondary raw materials given the price of virgin raw materials.
- Extended producer responsibility (EPR) for new products.
- Enhance the role of green public procurement in the transition to a more circular economy.
- Establish circular agreements to address regulatory barriers.
- Promote industrial symbioses and chain approach.
- Financing circularity, including R&D, innovation and investment support for production.
- Support companies in identifying and accessing relevant financing opportunities.
- Increase consumers' and also companies' awareness about the circular transition.

- Harmonization of legislation between Member States, including targets, regulations, technical standards, certification, and labelling systems.
- Improve the monitoring system to measure progress of the transition to a circular economy.
- Make inspection measures more effective, e.g. with regards to greenwashing and product imports.

The next action plan for the circular economy in Portugal, at an early stage of preparation, should seek to overcome the identified barriers and challenges in the articulation with other policies initiatives.

Ranking types of barrier

No information available.

Future policy plans

The **Portugal 2030 Strategy**, approved by the Resolution of the Council of Ministers No. 98/2020 of 13 November 2020, establishes the strategic agendas and intervention priorities to be implemented in the operational programming of the instruments that implement it, namely the Recovery and Resilience Plan (PRR). It is organised around four **central thematic agendas** for the development of Portugal's economy, society and territory by 2030. **Agenda 3 Climate transition and resource sustainability covers the strategic domain Making the economy circular** which encompasses four dimensions that constitute the mainstays of action:

- the efficiency/effectiveness of technical cycles;
- the regeneration of natural systems through the circulation of nutrients;
- the treatment and management of materials at their end of life; and
- the financial and communication instruments that shape the context to favour circular options.

The axes of intervention in this domain are to:

- make the economy more efficient;
- transform waste into resources;
- make the economy regenerative; and
- promote a more sustainable society.

Some examples of the goals to be pursued in this domain are reducing resource imports by 12 % by 2030 compared to 2013 and ensuring a recycling rate, in relation to total waste, of 86 %.

The objectives outlined in the 2030 Strategy within the scope of the strategic domain of making the economy circular, as well as the priorities established in the government programme and in the recently approved Portuguese **Recovery and Resilience Plan (RRP)**, form the basis of the roadmap to be developed for the next planning horizon for the CE.

The RRP is organised into **three dimensions** of structural intervention: resilience, climate transition and digital transition, each comprising a set of components as shown in the Table 4. For each of the dimensions/components, a set of reforms and investments were identified.

Table 4 The dimensions of the Portuguese Recovery and Resilience Plan

RESILIENCE	C01 – National health service
	C02 - Housing
	C03 – Social responses
	C04 - Culture
	C05 – Capitalisation and business innovation
	C06 – Qualifications and competencies
	C07 - Infrastructure

CLIMATE TRANSITION	C08 - Forests
	C09 – Water management
	C10 - Sea
	C11 – Decarbonisation of industry
	C12 – Sustainable bioeconomy
	C13 – Energy efficiency in buildings
	C14 – Hydrogen and renewables
	C15 – Sustainable mobility
DIGITAL TRANSITION	C16 - Business 4.0
	C17 – Quality and sustainability of public finances
	C18 – Economic justice and business environment
	C19 – Public administration – digitalisation, interoperability and cybersecurity
	C20 – Digital schools

The **resilience dimension** concentrates 67 % of future investment in the national PRR. One of the components of the **resilience dimension**, Component 9 **Water Management**, includes aspects directly related to the CE. This aims to mitigate water scarcity and only includes the reform *Integrated and Circular Management of Water Resources in Situations of Scarcity*, which contributes to the objective of promoting the circular use of water resources through the use of treated wastewater. The foreseen investment in this is EUR 390 million in 2021-2026.

One of the investments to be implemented in Component 9 concerns the Algarve Regional Water Efficiency Plan (EUR 200 million) which includes the objective of promoting the use of treated wastewater by identifying potential users of such non-potable (grey) water, especially in economic activities linked to tourism, agriculture and public spaces. One of the targets defined for Component 9 is to have four wastewater treatment plants capable of producing treated wastewater by 2026.

The **Climate Transition dimension** accounts for 18 % of the total planned investments in the national PRR. Three of the six components of the *Climate Transition* dimension encompass aspects directly related to the CE, as described below.

Component 10 **Sea** aims to develop a structural, lasting and impactful response paving the way for the construction of a more competitive, cohesive and inclusive economy of the sea, but also one that is more decarbonised and sustainable, with a greater capacity to take advantage of the opportunities arising from the climate and digital transitions. This component includes only one reform, *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 digitization, with planned investment of EUR 252 million. One of the areas of this investment is the *Green and Digital Transition and Fisheries Safety* (EUR 21 million) providing support for development of projects aimed at innovation, process modernisation, carbon footprint reduction, marine litter collection and the CE of companies and organisations in the fish sector. One of the milestones defined for Component 10 is a final report on the 50 projects approved within the scope of support for innovation, energy transition and reduction of environmental impact, aimed at entities in the fish sector (2025).

Component 11 **Decarbonisation of industry** 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), a central strategic objective in the PRR, in the sense that it contributes to accelerating the transition to a carbon neutral economy and, at the same time, to promoting the competitiveness of industry and companies by reducing energy consumption and promoting renewable energy sources. The main reform of the industry sector aims "to develop innovative and competitive

industry" through a set of activities, including "promoting the CE in industry, through the promotion of the circular and low carbon economies, industrial symbioses and new circular, low-carbon products and services". The investment planned for this component, EUR 715 million, is intended to promote and financially support the initiative of national industry for multidimensional action in the environmental plan, structured for the development of projects in four aspects. These include the aspect of "processes and technologies of low carbon in industry" through the use of industrial symbioses and CE measures, incorporating innovation. The targets defined for Component 11 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). Milestones defined for Component 11 include the opening of a tender for financial support to industry decarbonisation projects related to at least one of the following typologies: low carbon processes and technologies in industry; adoption of energy efficiency measures; and incorporation of energy from renewable sources and energy storage (2021).

Component 12 – **Sustainable Bioeconomy** intends to develop the necessary initiatives to accelerate the production of high added-value products from biological sources as alternatives to fossil-based materials. Through a transition to a sustainable bioeconomy, it is possible to support the modernisation and consolidation of industry through the creation of new value chains and more ecological industrial processes, potentially an opportunity for the whole of Europe. This reform is implemented through the Action Plan for a Sustainable Bioeconomy, which includes macro-action measures divided into five axes , including the axis "Developing a circular and sustainable bioindustry: innovation in the value chain and in the processes". The investment of EUR 145 million will have as its main objective the incorporation of bio-based materials, as an alternative to fossil-based ones, in three sectors of national economic activity – textiles and clothing, footwear and natural resin. In the textile and clothing sector, investment is supported by several strategic intervention pillars, including improving the sector's circularity by promoting innovative business models based on the reprocessing of biological, recycled and reused raw materials. The activities to be developed are intended to improve waste management, helping Portugal achieve its goals in this area. In the footwear sector, investment is based particularly on:

- biomaterials and sustainable components: promote the use and recycling of agri-food or industrial by-products and bio-waste, enhancing the carbon-neutral circular bioeconomy and industrial and regional symbioses;
- waste management and the CE: this aims to promote models for managing by-products and waste from the production of footwear, at its end of life, the end-of-waste status, and the development and production of new materials and products that allow the recovery of by-products and waste, and the transition of the footwear and fashion cluster to a CE.

With regard to the promotion and enhancement of natural resin, the aim is to encourage the national production of natural resin, reinforce the sustainability of its manufacturing industry and positively differentiate natural resin and derived products.

Goals defined for Component 12:

- Total number of adhesions to the Surveillance Resiners Programme ⁽²³⁾: 253 (2025);
- Improvement of *Pinus pinaster* stands with the potential of resining, which includes the following interventions: use of natural regeneration and resinous pruning, and the formation of pruning hardwoods: 8 500 ha (2025).

²³ The Surveillance Resiners Program aims to integrate resin workers in the exercise of surveillance actions in strategic locations, in areas under management by the resin maker and contiguous areas, taking into account the risk of fire.

Milestones defined for Component 12:

- entry into force of the New General Waste Management Regime (2021);
- signature of the Surveillance Resiners Programme Protocol (2021);
- approval of projects presented by the Consortia for the Development of the Bioeconomy in the textile and clothing, footwear and natural resin sectors (2022);
- review of the National Strategy for Green Public Procurement, with the introduction of manuals and mandatory criteria for the purchase of products that integrate bio-based materials (2022);
- production of an annual evaluation report on the implementation of the integrated projects in three sectors of national economic activity – textiles and clothing, footwear and natural resin) (2025).

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.

European Environment Agency
European Topic Centre
Circular economy and resource use

