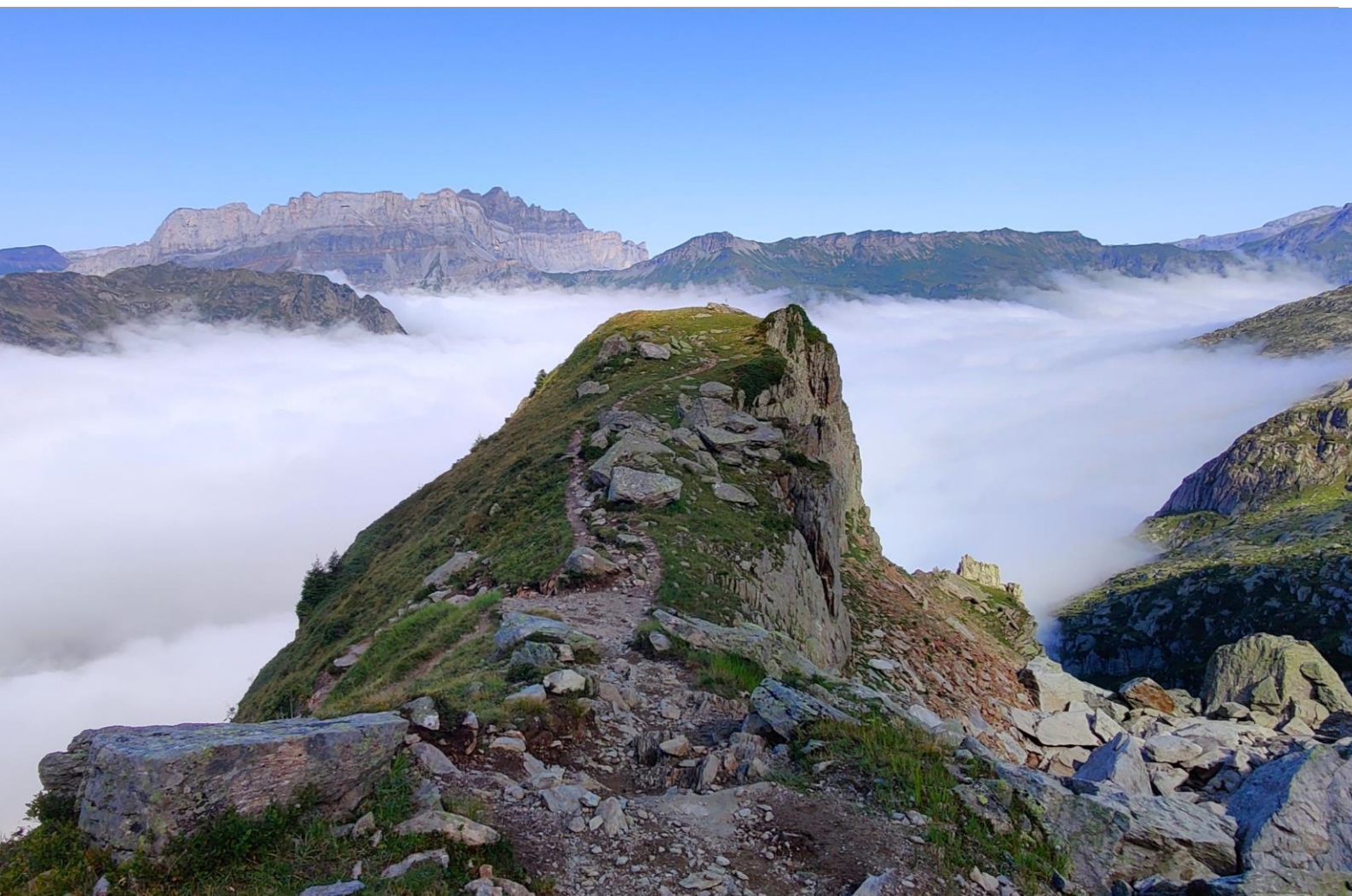


## Circular economy country profile 2024 - Italy



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## Introduction

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

- what circular economy policies are being implemented at a national level with a particular focus on elements that go beyond EU mandatory elements, and
- what are best practices with a focus on policy innovation.

With the EU Circular Economy Action Plan (CEAP 2020) "the Commission [...] encourages Member States to adopt or update their national circular economy strategies, plans and measures in the light of its ambition".

These country profiles originate in the work leading to the EEA More from less report (2016)<sup>1</sup>, that presented an overview of approaches to material resource efficiency and to circular economy in thirty-two European countries. The More from Less report was followed by the 2019 EEA Report 'Resource efficiency and the circular economy in Europe 2019 – even more from less: An overview of the policies, approaches and targets of 32 European countries'<sup>2</sup>.

It presented an updated and extended assessment of approaches and identified trends, similarities and new directions taken by countries in the connected policy areas of resource efficiency and the circular economy. These reports, comprising a compilation of extensive survey responses from countries, were accompanied by 32 country profiles.

In the second quarter of 2022 a new survey with questions and guidelines was launched. Based on information reported by the Eionet network, in particular, the Eionet Group on Circular Economy and Resource Use, and after review and editing by the European Topic Centre on Circular economy and resource use (ETC CE), the 30 2022 CE country profiles<sup>3</sup> were published alongside the EEA report 'Circular Economy policy innovation and good practice in Member States'<sup>4</sup> (2022).

These 2024 CE country profiles are an update of the 2022 ones and based on the responses of 29 countries to the survey questions and guidelines that were launched in March 2024. The information in the countries' responses was again reviewed and edited by the European Topic Centre on Circular economy and resource use. A selection of Eurostat data was made to further complement these country profiles.

The main objectives of these assessments and its updates are to: • stimulate exchange of information and share good practice examples among country experts; • support policymakers in Eionet countries, the European institutions and international organisations by providing an updated catalogue of circular economy actions being undertaken in European countries.

This circular economy country profile is based on information reported by the Eionet network and, in particular, the Eionet Group members on Resource Efficiency and Circular Economy in the second quarter of 2024. Proposals for the further development or amendment of policies represent the view of the reporting country. For Italy, all input was provided by Istituto Superiore per la Protezione e la Ricerca Ambientale (ISPRA) and Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile (ENEA). The information was reviewed and edited by the European Topic Centre on Circular economy and resource use. A selection of Eurostat data was made to further complement this country profile.

The information is current as of September 2024, when members of Eionet verified the content of this profile.

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<sup>1</sup> [More from less — material resource efficiency in Europe — European Environment Agency \(europa.eu\)](#)

<sup>2</sup> [Resource efficiency and the circular economy in Europe 2019 — European Environment Agency \(europa.eu\)](#)

<sup>3</sup> [Country profiles on Circular Economy in Europe — Eionet Portal \(europa.eu\)](#)

<sup>4</sup> [draft-report-for-dg-env\\_final.pdf \(europa.eu\)](#)

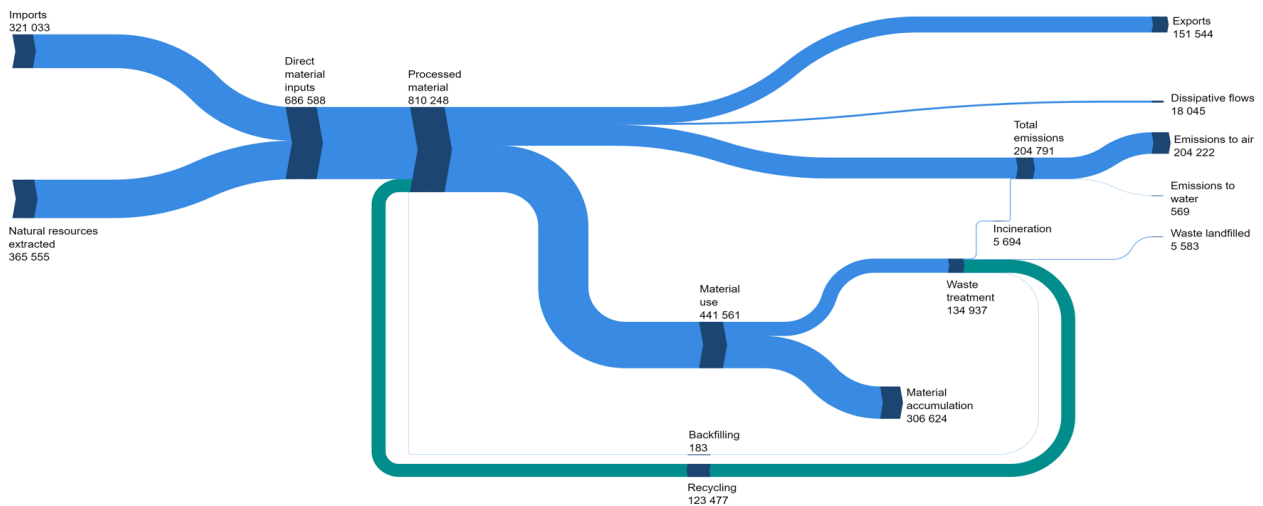
## Italy – facts and figures

 	<p><b>GDP:</b> EUR 2 085.4 billion (12.2 % of EU27 total in 2023)</p>
	<p><b>GDP per person:</b> EUR 35 350 (purchasing power standard) (96.9 % of EU27 average per person figure in 2023)</p>
	<p><b>Use of materials (domestic material consumption (DMC))</b>                      512.3 million tonnes DMC (8.0 % of EU27 total in 2022)                      8.7 tonnes DMC/person (61.0 % of EU27 average per person in 2022)</p>
	<p><b>Structure of the economy (2023):</b>                      Agriculture: 2.2 %                      Industry: 25.7 %                      Services: 72.1 %</p>
	<p><b>Employment in circular sectors:</b>                      613 339 people employed in CE sectors (14.3 % of EU total in 2021)                      People employed expressed as a percentage of total employment: 2.4 % (compared to 2.1 % for EU average in 2021)</p>
	<p><b>Surface area:</b> 302 073 square kilometres (7.2 % of EU27 total)</p>
	<p><b>Population:</b> 58 997 201 (13.2 % of EU27 total in 2023)</p>

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

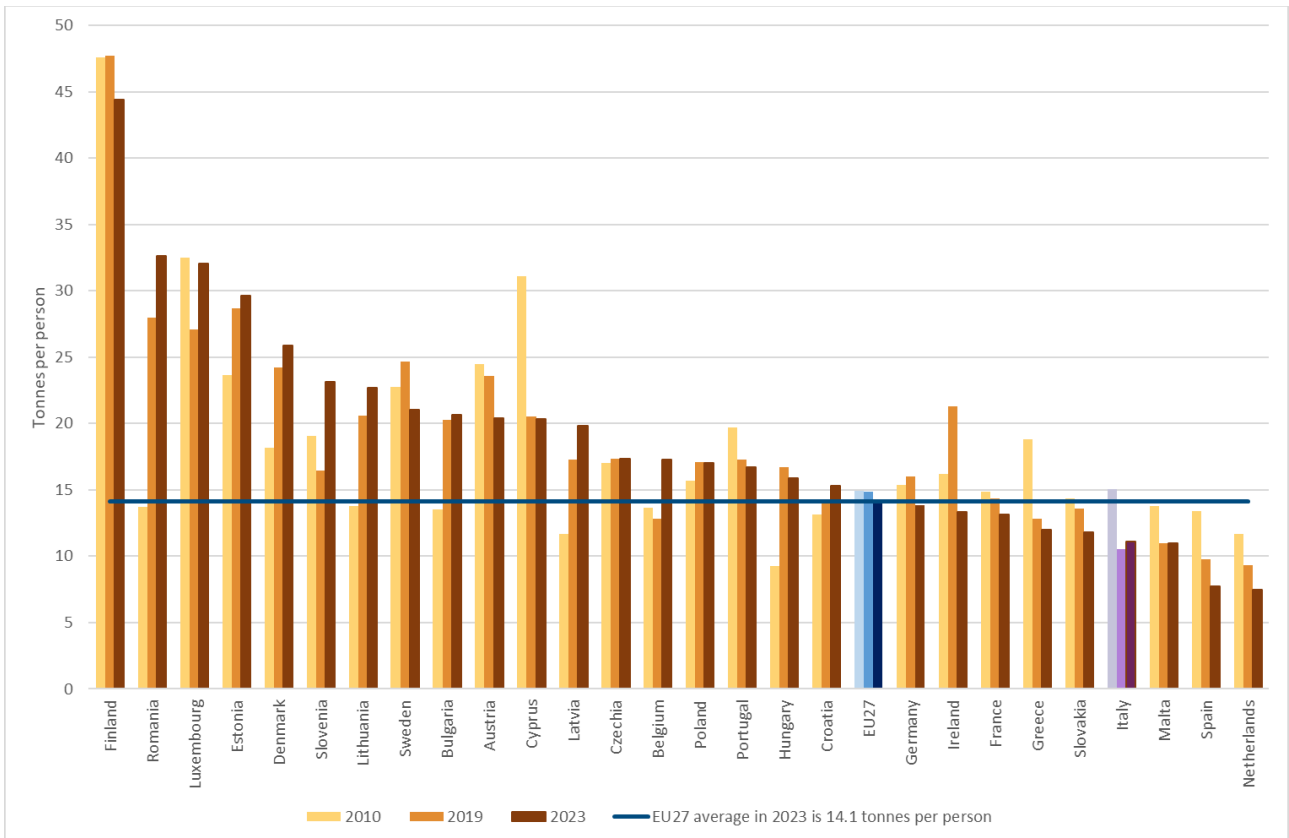
Source: Eurostat datasets, EU27 2021, EU27 2022, EU27 2023 (accessed 21 August 2024)

Figure 1 Material flow diagram for Italy in 2022, thousand tonnes



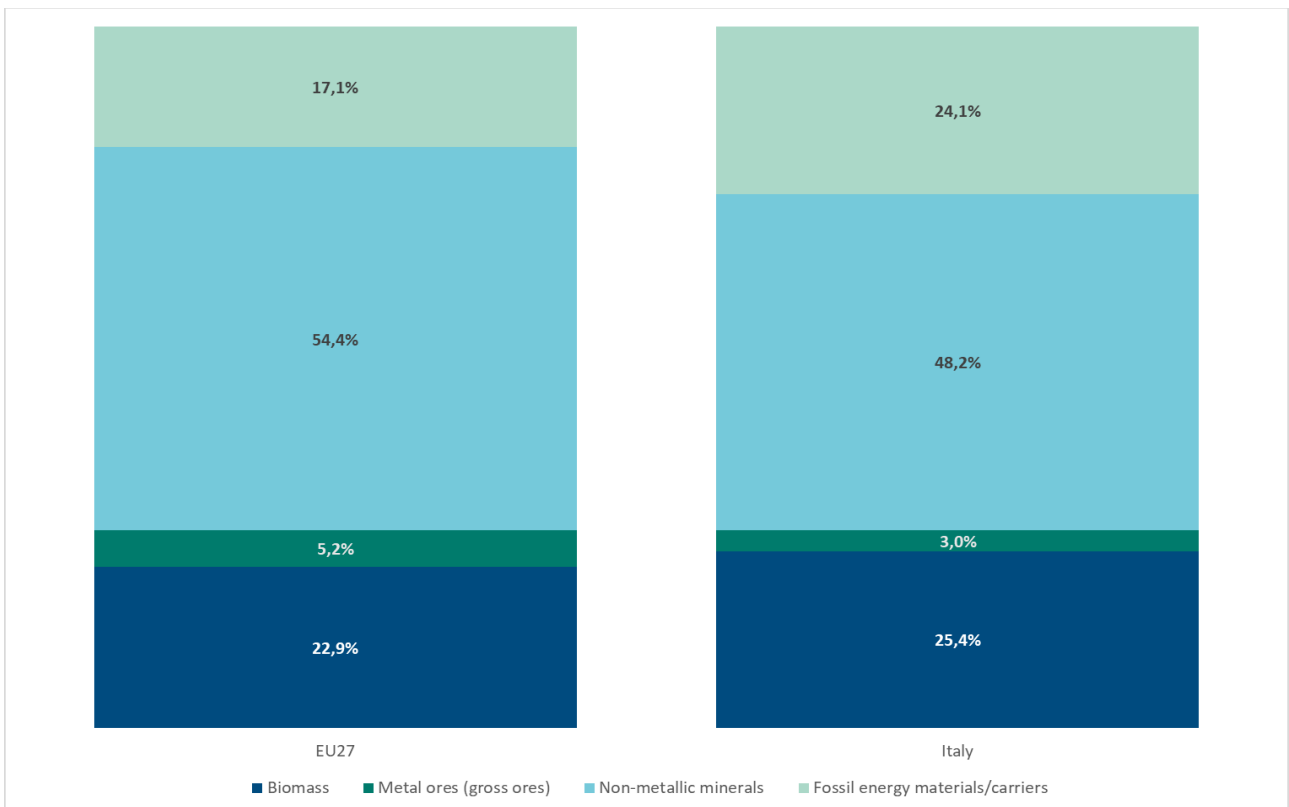
Source: Eurostat (2024) [env\_ac\_mfa], [en\_ac\_sd], [env\_wassd] (accessed 21 August 2024)

**Figure 2 Material footprint (raw material consumption), 2010,2019 and 2023, tonnes per person**



Source: Eurostat (2024) [env\_ac\_rme] (accessed 21 August 2024)

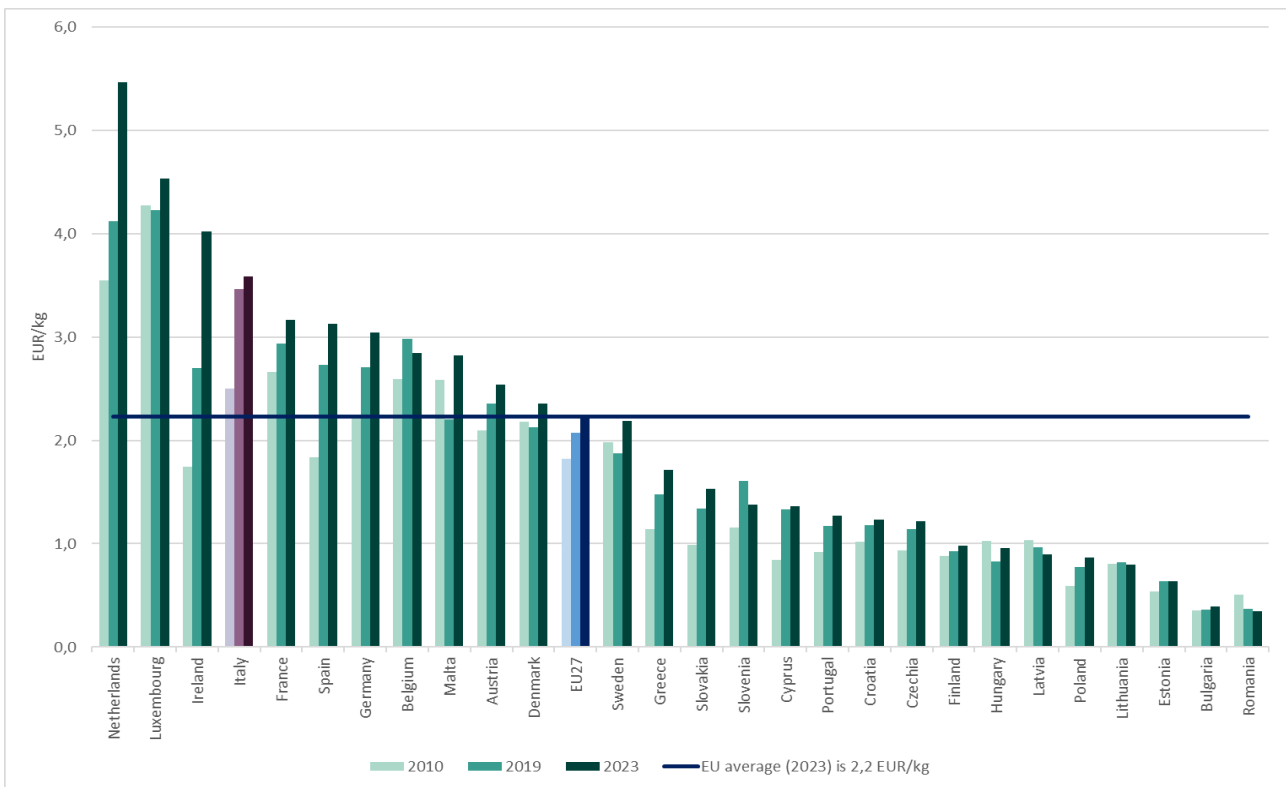
**Figure 3 Domestic material consumption by selected material category, EU and Italy, 2023, per cent**



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

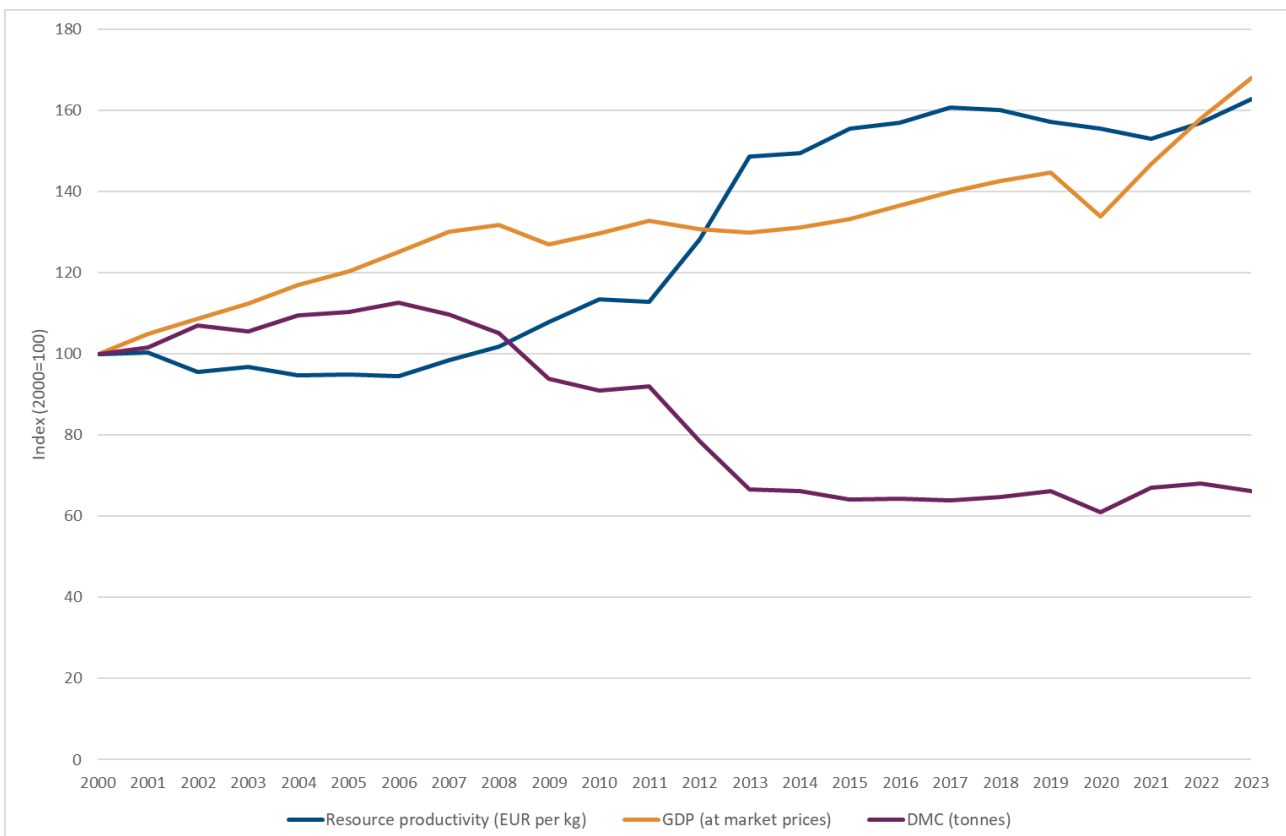
Source: Eurostat (2024) [env\_ac\_mfa] (accessed 21 August 2024)

**Figure 4 Resource productivity (gross domestic product/domestic material consumption), EU27, 2010, 2019 and 2023, EUR per kilogramme**



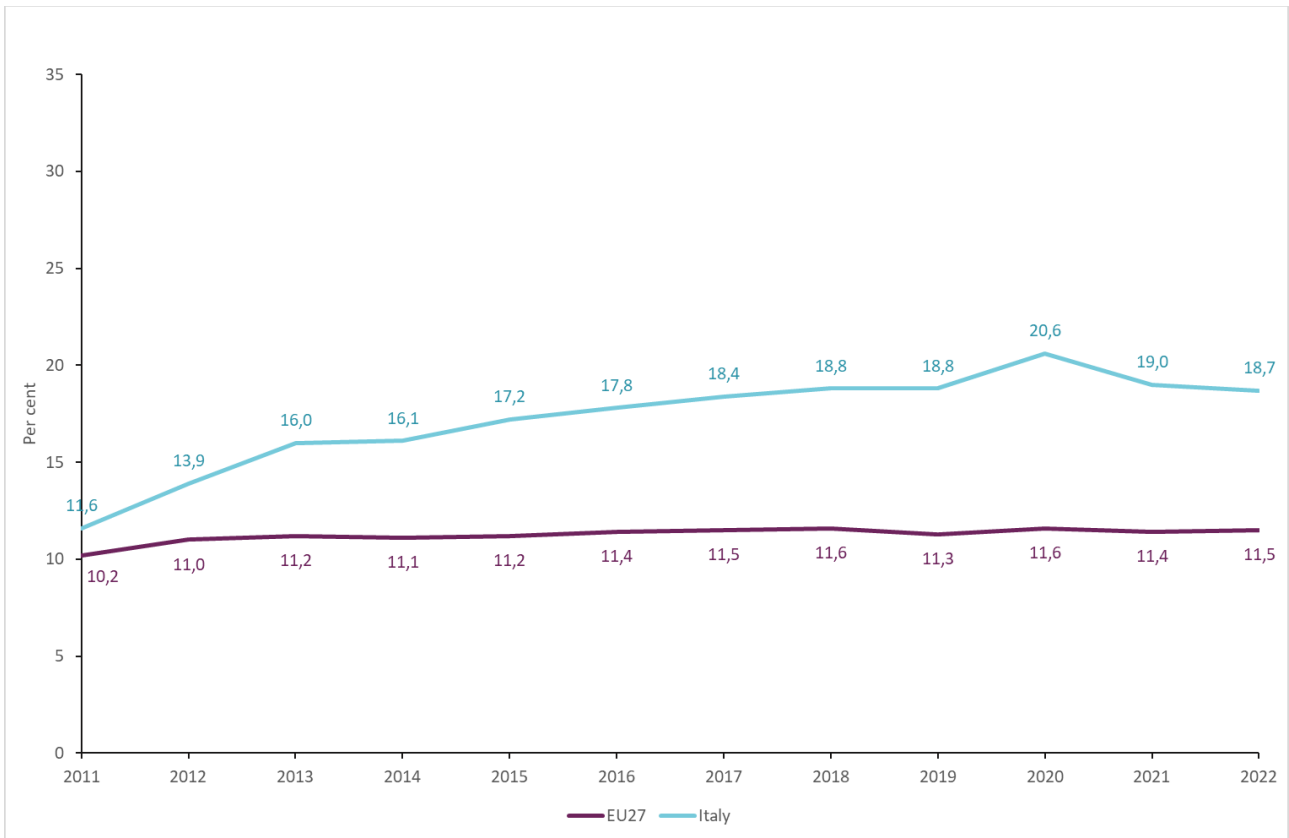
Source: Eurostat (2024) [env\_ac\_rp] (accessed 21 August 2024)

**Figure 5 Gross domestic product, domestic material consumption and resource productivity trends, Italy, 2000–2023, index (2000=100)**



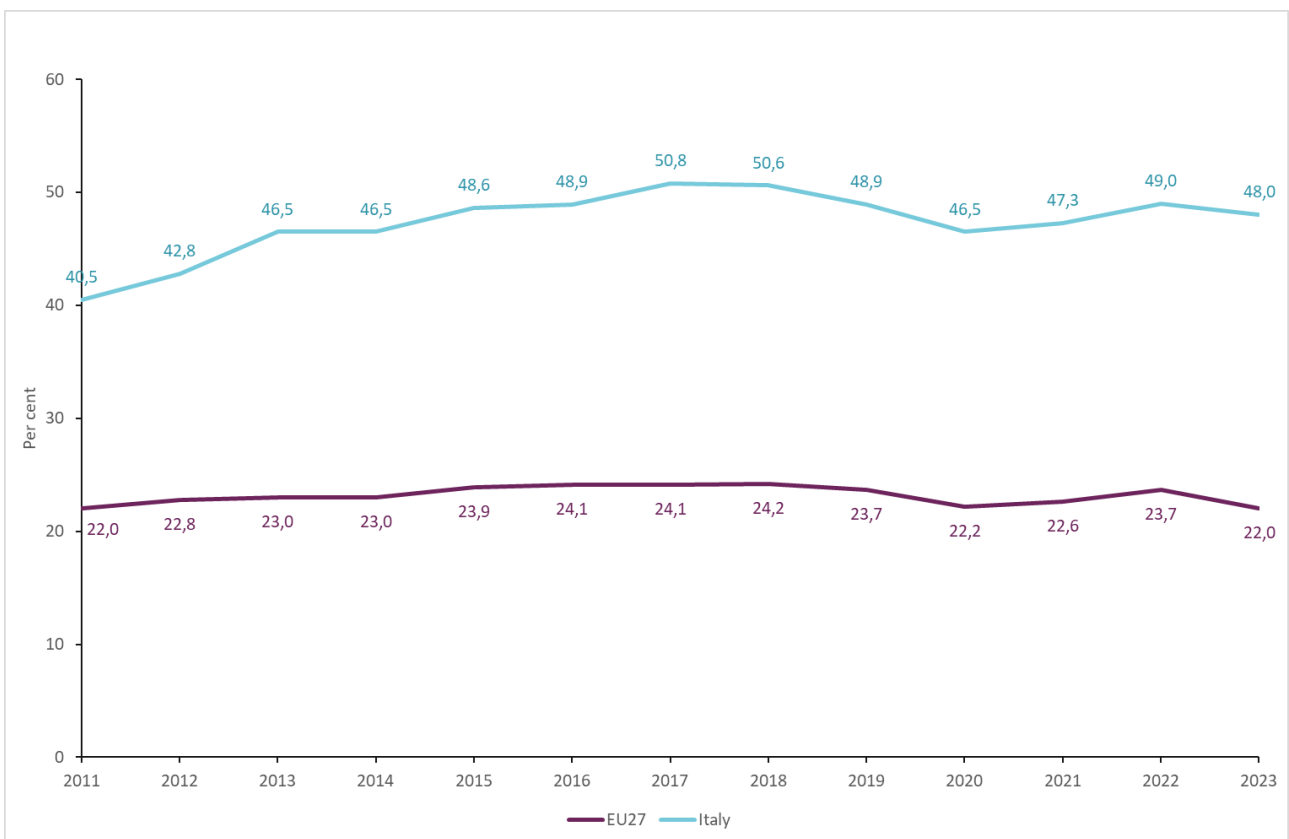
Source: Eurostat (2024) [env\_ac\_mfa], [env\_ac\_rp] & [nama\_10\_gdp] (accessed 21 August 2024)

**Figure 6 Circular material use rate in Italy, 2011–2022, per cent**



Source: Eurostat (2024) [env\_ac\_cur] (accessed 21 August 2024)

**Figure 7 Material import dependency in Italy, 2011-2023, per cent**



Source: Eurostat (2024) [cei\_gsr030] (accessed 21 August 2024)



## Existing policy framework

### Dedicated national and/or regional strategy, roadmap or action plan for circular economy

- June 2022: adoption of the **National Circular Economy (CE) Strategy** <sup>(5)</sup>.  
The **macro goals** to be pursued in the National Strategy for the Circular Economy are the following:
  - develop secondary markets for raw materials to replace traditional raw materials;
  - strengthen and consolidate the principle of Extended Producer Responsibility;
  - develop taxation that promotes the transition to the circular economy;
  - strengthen actions aimed at upstream circularity (eco-design, extension of product life, reparability and reuse, etc.);
  - develop and disseminate methods and models for assessing the life cycle of products and waste management systems and their overall environmental effects;
  - improve the traceability of waste streams;
  - develop CE skills and education in the public and private sectors to promote the employment of young people and women.

With the adoption of its CE Strategy, Italy has placed CE transition at the centre of its environmental policy agenda. Within the context of country-specific policy reform projects and in collaboration with the European Commission's Directorate General for Structural Reform Support, the **OECD has supported Italy's efforts through policy analysis and advice on accelerating the transition to a circular economy** (Project 21IT01 'Advanced policy instruments to accelerate the circular economy', 2022-2024). The Project has included three focus areas: the role of economic instruments in promoting the transition towards a circular economy, indicators and monitoring framework for the circular economy, and possible behavioural interventions that may be piloted to accelerate the circular transition.
- To complement the National CE Strategy, in 2022, the **new National Waste Management Programme** (PNGR) 2022-2028 <sup>(6)</sup> was adopted, a strategic policy tool settings the macro-objectives and defining the criteria and strategic lines that the Regions and Autonomous Provinces shall follow in drawing up the Regional Waste Management Plans. The PNGR is one of the implementation pillars of the National Circular Economy Strategy, together with the National Waste Prevention Programme, currently under revision.
- September 2022: adoption of the **Implementing Act** <sup>(7)</sup> of the **National CE Strategy**, with the timeframe of the actions and measures to be implemented by 2026, and consistent with the timeframe of the National Recovery and Resilience Plan.
- October 2022: **establishment of the CE Observatory** tasked with coordinating and monitoring the implementation of the National CE Strategy. The Observatory is chaired and coordinated by the Ministry of environment with the scientific and technical support of the Italian Institute for Environmental Protection and Research (ISPRA) and Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA).
- **New waste traceability system** (R.E.N.T.R.I) <sup>(8)</sup>: within the newly implemented initiatives, the new waste traceability information system, envisaged by the National Strategy for the Circular Economy, represents a meeting point between the ecological and digital transitions, enabling the acquisition and monitoring of environmental data for the purpose of surveillance and control and planning of environmental policies.

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<sup>5</sup> [https://www.mase.gov.it/sites/default/files/archivio/allegati/PNRR/SEC\\_21.06.22.pdf](https://www.mase.gov.it/sites/default/files/archivio/allegati/PNRR/SEC_21.06.22.pdf) (in Italian)

<sup>6</sup> [https://www.mase.gov.it/sites/default/files/archivio/allegati/PNRR/PNGR\\_Finale.pdf](https://www.mase.gov.it/sites/default/files/archivio/allegati/PNRR/PNGR_Finale.pdf) (in Italian)

<sup>7</sup> [https://www.mase.gov.it/sites/default/files/archivio/allegati/PNRR/Cronoprogramma\\_della\\_Strategia\\_nazionale\\_pe\\_l%E2%80%99economia\\_circolare.pdf](https://www.mase.gov.it/sites/default/files/archivio/allegati/PNRR/Cronoprogramma_della_Strategia_nazionale_pe_l%E2%80%99economia_circolare.pdf) (in Italian)

<sup>8</sup> [RENTRI](#) (in Italian)

## Dedicated local strategy, roadmap or action plan for circular economy

Italy currently has **331 cities that have adopted the zero-waste strategy**, involving a total population of 7.210.059 inhabitants (data updated to 20 December 2023) <sup>(9)</sup>. Some of the main goals of the zero-waste program consist in the promotion of good practices for repair-reuse and/or waste reduction and in the creation of a Zero Waste Observatory to perform impartial monitoring with the support of 'Zero Waste'. This initiative supports the achievement of the National CE Strategy goals concerning the promotion of waste traceability and the development of methodologies to assess the environmental impacts over the lifecycle of a product and throughout the waste management system.

The Italian cities of Capannori and Lucca participate in the **Circular Cities and Regions Initiative (CCRI)**. Capannori is included in the Pilot Group, while Lucca participates as a Fellow. Capannori has recently approved the guidelines for the development of a Local Action Plan for Circular Economy, that will be adopted in the next months. The new plan will also include actions to implement local industrial symbiosis processes.

## Circular economy policy elements included in other policies

Circular economy policy element	Included in policy
<ul style="list-style-type: none"> <li>- The highest levels of preparation for reuse, recycling and recovery of waste;</li> <li>- Adapting the network of installations necessary for integrated waste management;</li> <li>- Minimizing final disposal as the ultimate and residual option;</li> <li>- Establishing monitoring systems;</li> <li>- Tackling low collection of waste;</li> <li>- Discouraging landfilling and ensuring complementarity with regional waste programmes;</li> <li>- Enabling the achievement of European and national waste legislation objectives;</li> <li>- Tackling illegal waste dumping and open-air burning.</li> </ul>	<a href="#">National Waste Management Programme 2022-2028</a> (in Italian)
Improving material use efficiency and reducing waste generation for the promotion of circular economy models.	<a href="#">Action Plan for the Environmental Sustainability of Consumption in the Public Administration</a> (Edition 2023 – it includes Green Public Procurement and Minimum Environmental Criteria; in Italian)
The Catalogue aims to identify, analyse, and evaluate fiscal erosion, tax expenditures, as well as existing tax breaks and incentives. A knowledge of environmentally relevant subsidies is advantageous in designing ambitious and efficient environmental and economic policies, including policies for the CE.	<a href="#">Catalogue of environmentally harmful subsidies and environmentally favourable subsidies</a> (2022 edition; in Italian) <sup>(10)</sup>
The National Ecological Transition Plan responds to the challenge that the European Union with the Green Deal has launched to the world: to promote a growth model that preserves the health, sustainability and prosperity of the planet, through the implementation of a series of social, environmental, economic and political measures, with the objectives, in line with EU	<a href="#">National Ecological Transition Plan</a> (2022, in Italian)

<sup>9</sup> The the full list of all the involved municipalities is provided at: <https://www.zerowasteitaly.org/comuni-rifiuti-zero/zero-waste-municipalities-national-guarantee-board-for-zero-waste-italy/>

<sup>10</sup> See also: <https://www.mase.gov.it/pagina/catalogo-dei-sussidi-ambientalmente-dannosi-e-dei-sussidi-ambientalmente-favorevoli> (in Italian). See p. 17 for the executive summary in English.

<p>policy of climate neutrality, zero pollution, adaptation to climate change, restoration of biodiversity and ecosystems, and transition to the circular economy and the bioeconomy.</p> <p>Theme 08. Promotion of the circular economy, bio-economy and sustainable agriculture.</p>	
<p>In the context of policies for natural capital and biodiversity, since 2017 the Ministry of Ecological Transition has published the Report on the State of Natural Capital in Italy. The document represents a tool for monitoring and qualitative-quantitative evaluation of the state of natural capital in Italy. The information contained therein are fundamental for defining environmental policies aimed to improving and conserving natural capital, biodiversity and ecosystem services and a necessary effort to design ambitious and efficient environmental and economic policies, including policies for the circular economy.</p>	<p><a href="#">Report on the State of Natural Capital in Italy</a> (2022 edition, in Italian)</p>
<p>Four working groups, supervised by the Ministry of Economic Development and the Ministry of the Environment, were identified to work on four macro-objectives:</p> <p>WG1 'Needs Analysis': it has the objective of estimating future needs for critical raw materials, both direct and indirect, also analysing the gap between demand and supply.</p> <p>WG2 'Mining': its objective is to identify the potential for primary and secondary mining activities (recovery from mining waste) by verifying the possibilities for sustainable mining in Italy, including the recovery of raw materials from previously abandoned sites and mining waste.</p> <p>WG3 'Eco-design': it aims to analyse the potential of eco-design to reduce the demand for critical raw materials. Adequate product design encourages the reuse and recovery of components and materials at the end of their life cycle.</p>	<p><a href="#">National Committee on Critical Raw Materials</a> (2022, in Italian)</p>

## Monitoring and targets

### Assessment of circular economy performance

The European Commission has set up a [monitoring framework](#) to keep track of progress towards a circular economy. This framework provides a holistic view as it:

- measures direct and indirect benefits of 'becoming circular' and
- values the contribution of a circular economy in living well within the limits of the planet
- addresses energy and material supply risks.

It consists of **5 thematic sections** with a total of **11 statistical indicators**, some of which have additional sub-indicators. In some cases policy targets exist which should be achieved in the future, and the indicators monitor progress towards these targets. The current monitoring framework is a revision of the original framework which was set up in 2018.

This section elaborates on the assessment of Italy its progress in terms of observed trends over the last 5 years and what country characteristics or policy actions may explain differences between the country its performance and the average EU performance.

Italy shows good progress in a number of important CE indicators, while others show the need for further improvement.

#### *Material consumption*

- Italy's **resource productivity**, in the period 2018-2022, registered a slight decrease of 7.5% (EU average increased by 4 % over the same period). Still Italy's value for 2022 is 7.7% higher than the EU-27 average.
- Italy's **material footprint** increased by 1.8% in the period 2018-2021 (EU average decreased by 0,7%), but in 2022 the increase was 6.6% higher than in 2021 (EU average increased by 0,4%). Still Italy's value for 2022 is 14.3% lower than the EU-27 average.

#### *Waste generation*

- Italy's **generation of municipal waste per capita** in 2021 was 37pp lower than the EU-27 average and in the period 2017-2021 it showed a slight increase of 1.4% whereas the EU-27 average increased by 6.6% <sup>(11)</sup>.
- Italy's **generation of waste** excluding major mineral wastes per GDP unit (kg per thousand-Euro, chain linked volumes, 2010) increased from 69 to 74 in the period 2016-2020, with an increase of 7.2%, while the EU-27 figure decreased by 3.0% (from 66 to 64).
- Italy's **generation of packaging waste per capita** shows an increase of 5.2% in the period 2017-2021, less than the EU-27 increase of 9.2%.
- Italy's **generation of plastic packaging waste per capita** shows an increase of 2.3% in the period 2017-2021, less than the EU-27 increase of +10,6%.

#### *Overall recycling rates*

- The **overall recycling rate of municipal waste** in 2021 was 2pp higher than the EU-27 average and in the period 2017-2021 it showed an increase of 4.1 pp (the EU average increased by 3.5 pp over the same period).
- The **overall recycling rate of all waste** excluding major mineral waste in 2020 was 14 pp higher than the EU-27 average and in the period 2016-2020 it showed an increase of 4 pp (the EU average increased by 3 pp over the same period).

#### *Recycling rates for specific waste streams*

- The **recycling rate of overall packaging** in 2021 was 9 pp higher than the EU-27 average and in the period 2017-2021 it showed an increase of 5.8 pp (the EU average decreased by 3.5 pp over the same period).
- The **recycling rate of plastic packaging** in 2021 was 14 pp higher than the EU-27 average and in the period 2017-2021 it showed an increase of 13 pp (the EU average decreased by 1 pp over the same period).
- The **recycling rate of separately collected WEEE** was 14 pp lower than the EU-27 average, but in the 2017-2021 period, it showed an increase of 5.8 pp (the EU average decreased by 1.8 pp over the same period).

#### *Contribution of recycled materials to raw materials demand*

Italy's **circularity rate** was 18.7% in 2022, while EU-27 average was 11.5%, with a five-year stable trend. Both Italy's value and the EU average value suffered from a loss of 0.1 percentage points in the 2018-2022 period.

#### *Trade in recyclable raw materials*

- Italy's **imports from non-EU countries** decreased by 3.9% over the 2019-2023 period, while EU-27 average decreased by 2.3% over the same period.
- Italy's **exports to non-EU countries** increased by 5.2% over the 2019-2023 period, less than the EU-27 average increase of 10.2% over the same period.

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<sup>11</sup> More data on waste are available at [https://www.isprambiente.gov.it/en/activities/waste?set\\_language=en](https://www.isprambiente.gov.it/en/activities/waste?set_language=en)

- Italy's **intra EU trade** increased by 6.6% over the time 2019-2023, while EU-27 average decreased by 2.7% over the same period.

*Private investment, jobs and gross value added related to circular economy sectors.*

The percentage value related to the indicators concerning **private investments, persons employed, and private investment and gross added value related to circular economy sectors** are very similar to the EU-27 average, being less than 0.5 pp.

*Innovation*

The number of **patents related to recycling and secondary raw materials** shows a decrease of 26.7% from 2016 to 2020. An exception was the year 2019, in which the indicator almost doubled its value compared to the previous year. In 2020, the values fell, in line with the years before 2019. EU-27 average values also show a decrease of 36.6% over the same period.

*Global sustainability from circular economy*

- Italy's **consumption footprint** index in 2022 was 103 (same value of 2019). In 2020 and 2021 the values were lower (95 and 96 respectively), possibly as an effect of the Covid-19 pandemic. The EU-27 average index was slightly higher (109 in 2022) and showed the same pattern in 2020 and 2021.
- Italy's **GHG emissions from production activities** (kg per capita) decreased by 0.2% in the period 2019-2022, while the EU-27 average showed a decrease of 5.8% over the same period.

*Resilience from circular economy*

Italy's **material import dependency** was 46.8% in 2022, 2.1 pp less than 2019, while EU-27 average value was 22.4% with a decrease of 1.3 pp from 2019.

*Country characteristics or policy actions that may explain differences between Italy and the EU-27 average performance*

Italy has a long history of environmental laws on waste; separate collection has been carried out for many decades now and several recycling companies have been established and evolved over time. However, as some of the above-mentioned indicators show, further improvements need to be made to achieve a better level of circularity.

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

As mentioned in 2022 CE Country Profile <sup>(12)</sup>, **the Italian National CE Strategy includes a list of indicators for monitoring purposes**. Many of these are indicators developed annually by statistical and research organisations (ISTAT, ISPRA, ENEA), others are newly formulated quantitative or qualitative indicators.

However, one of the outputs of the OECD/DG REFORM in-country support project (see the section on the 'Existing policy framework') focuses on CE monitoring. It highlights measurement challenges and identifies opportunities to expand the Italian monitoring framework to measure progress towards a circular economy. Three sets of policy recommendations are provided: i) align the future Italian CE monitoring framework with the objectives of the CE Strategy and with the conceptual framework of the OECD/UNECE Guidelines for measuring CE <sup>(13)</sup>; ii) set up a governance system that can strengthen co-ordination amongst agencies in charge of collecting and analysing data; engage stakeholders and improve transparency; iii) promote the collection of granular data at micro-level to support effective place-based policies.

In addition, the Circular Economy Network <sup>(14)</sup>, a national initiative under the patronage of the Ministry of the Environment, since 2018, in collaboration with ENEA, annually produces the '**Report on the Circular Economy in Italy**' for the public <sup>(15)</sup>. This report presents an analysis of the European and national context

<sup>12</sup> [https://www.eionet.europa.eu/etcs/etc-ce/products/etc-ce-products/etc-ce-report-5-2022-country-profiles-on-circular-economy/italy-ce-country-profile-2022\\_for-publication.pdf](https://www.eionet.europa.eu/etcs/etc-ce/products/etc-ce-products/etc-ce-report-5-2022-country-profiles-on-circular-economy/italy-ce-country-profile-2022_for-publication.pdf)

<sup>13</sup> <https://unece.org/statistics/publications/guidelines-measuring-circular-economy-part-conceptual-framework-indicators>

<sup>14</sup> <https://circulareconomynetwork.it/> (in Italian)

<sup>15</sup> 2024 Report available at: <https://circulareconomynetwork.it/rapporto-sulleconomia-circolare-in-italia-2024/> (in Italian); Executive summary: [https://circulareconomynetwork.it/wp-content/uploads/2024/05/CEN2024\\_SINTESI-ENG\\_DEF.pdf](https://circulareconomynetwork.it/wp-content/uploads/2024/05/CEN2024_SINTESI-ENG_DEF.pdf)

on circular economy strategies and policies and an assessment of CE performance through a set of indicators related to the circularity of production, consumption, waste management and secondary raw materials, as well as innovation, investment, and employment in three typical circular economy activities: recycling, repair, reuse. Italy's results are compared with those of the EU average and the four largest European economies.

## Circular economy targets

There are not specific CE targets legally adopted at the moment. Targets are, however, adopted for the CE-related reforms and investments in the National Recovery and Resilience Plan (<sup>16</sup>).

Annex 4 of the Plan for the Ecological Transition (<sup>17</sup>) provides for a 'circular economy' objective with the indicator 'Circular material use rate' set at 30% by 2030.

## Innovative approaches and good practices

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

- *Good practice examples: initiatives by the Ministry of the Environment and Energy Security and the National Agency for New Technologies, Energy and Sustainable Economic Development*

#### **Cooperation Agreement between MASE and ENEA**

The Ministry of the Environment and Energy Security (MASE) introduced various lines of intervention in the National Integrated Plan for Energy and Climate concerning the Circular Economy Strategy.

**Projects aimed at eco-design and eco-innovation of production models and products within the relevant supply chains at national level, promotion of eco-districts and Industrial Symbiosis (IS)** have been developed.

In December 2022, an agreement was developed between ENEA and MASE; at the end of the collaboration, forecasted to be at the end of 2025, it is expected to produce the following results:

- Application of secondary raw materials through an IS system that will help practitioners to trade and exchange their by-products;
- Creation of a digital platform for the IS and a central digital dashboard for the PA;
- Application of IS for the regeneration of brown areas and for the creation of circular eco districts, as an evolution of sustainable industrial areas;
- Deepening of cooperation mechanisms for IS;
- IS facilitation and knowledge transfer and sharing;
- Standardization and certification tools for IS;
- Skills and training for IS;
- Elaboration of implementation scenarios and of a draft Industrial Symbiosis Program.

#### **Arcadia Project- Italian Life Cycle Assessment Database**

Life Cycle Assessment (LCA) is a standardised method (ISO 14040-2021 and ISO 14044- 2021), internationally recognised as the best framework to evaluate the potential environmental impacts of products, services, technologies and more in general production systems, along their entire life cycle. LCA is, therefore, a useful tool which can support the transition towards circular economy because it enables companies to assess their products' environmental impacts, to evaluate improvement options and mitigation actions and to improve resource efficiency, while decreasing emissions and waste production.

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<sup>16</sup> For further information, see the section on 'Future policy plans'.

<sup>17</sup> <https://www.mase.gov.it/pagina/piano-la-transizione-ecologica> (in Italian)



The Territorial Cohesion Agency (Agenzia di Coesione Territoriale), in the framework of PON Governance and Institutional Capacity 2014-2020, financed in 2019 the Arcadia project (<sup>18</sup>), coordinated by ENEA, which finished in 2023 and was aimed at:

- Promoting the life cycle approach in Green Public Procurement and strengthening the skills of Public Administrations (PAs) in this area, and
- Developing an Italian LCA database, covering several national supply chains, as a source of life cycle data representative of the Italian context for PAs and for companies which want to carry out LCA studies of their products and services.

The main result of the project is **the creation of the Italian LCA Database** (Banca Dati Italiana LCA, BDI-LCA). BDI-LCA is available free of charge, upon registration (<sup>19</sup>); it is continuously updated and currently **contains over 180 datasets related to 23 national production chains** (energy, agrifood, building and construction, wood furniture, etc.).

The BDI-LCA is based on the SODA4LCA software developed by the Joint Research Center of the European Commission; the datasets and their metadata are in ILCD - International Life Cycle Data System - format. Each dataset is accompanied by metadata, specific documentation to support the user to choose the most appropriate dataset to evaluate its temporal, geographical and technological representativeness. ENEA has also developed the MEdit (Metadata Edit) tool (<sup>20</sup>) for verifying, compiling, and managing the metadata of the dataset in ILCD format.

The BDI-LCA can also host data about products and processes of individual companies, specific data for a territorial area (e.g. region/district) and it allows the capitalization of datasets developed within specific projects, as well as the inclusion of 'Environmental Footprint (EF) compliant' datasets to carry out Product Environmental Footprint (PEF) studies according to the European PEF method. The datasets available in the database were developed on the basis of supply chain LCA studies on 23 national production chains. The methodology for supply chain LCA studies is based on ISO 14040-14044 standards and aims to obtain robust, clear, reproducible, and sufficiently representative inventory data, from the time, technological and geographical points of view, of the materials and processes for each analyzed supply chain.

A **collaboration agreement** was signed, in January 2024, **between ENEA and the Ministry of the Environment and Energy Security for a period of five years, with the aim of maintaining, updating, expanding, and promoting the BDI-LCA**, as well as disseminating the results achieved within the Arcadia project. In particular, the activities aim to increase the availability of datasets representative of national production by collaborating with ongoing projects/activities and developing new project opportunities.

### **The National Scheme 'Made Green in Italy'**

The **voluntary national scheme for the evaluation and communication of products environmental footprint**, called 'Made Green in Italy' (MGI) was established in 2015 by art. 21, par. 1 of Law n. 221 (<sup>21</sup>). The scheme is managed by the Ministry of the Environment and Energy Security and is based on the Product Environmental Footprint (PEF) method, as defined by the European Commission in the Recommendation 2021/2279/EU.

'Made Green in Italy' aims to enhance the market of Italian products with good/excellent environmental performance (guaranteed by a scientifically robust system) and, with its logo, aims to make the products recognizable to consumers, in order to encourage more conscious purchases. The quantification of the environmental performance of a product, based on a complete PEF study and verified and validated by an independent third party, provides three performance classes: A (value higher than the benchmark); B (value close to the benchmark); C (value lower than the benchmark). **Only products in classes A and B can obtain the use of the logo** (based on a commitment by the company to improve its performance).

<sup>18</sup> <https://www.arcadia.enea.it/> (in Italian)

<sup>19</sup> <https://bancadatiitalianalca.enea.it/Node>

<sup>20</sup> <https://medit.enea.it/> (in Italian)

<sup>21</sup> <https://www.mase.gov.it/pagina/lo-schema-nazionale-made-green-italy> (in Italian)

The MGI **can be applied to all products (goods and services)** which, according to existing laws (EU Regulation 952/2013), are **produced in Italy**. This means that a product that is not 100% made in Italy and involves other countries in its manufacturing can join the scheme only if the last substantial transformation takes place in Italy. As of May 2024, 13 products of different product categories (plastic bags, washing and rental of textiles and hospital sterilized kits, olive oil) have adhered to the scheme <sup>(22)</sup>, whereas 30 Product Category Rules, i.e. the methodological rules and guidelines to be followed in order to adhere to the scheme, have been published and are still valid <sup>(23)</sup>.

### **RECiProCO project**

The RECiProCO project <sup>(24)</sup> was carried out by ENEA from 2020 to 2022 in the framework of an agreement with the Italian Ministry of Economic Development for the ‘Development of circular economy tools and initiatives for consumers’.

In the **project**, a new methodology and a related ICT tool tailored to companies, in particular Small and Medium Enterprises (SMEs), were developed by ENEA with the final **aim to measure product circularity and water use, through a simplified and easy to apply set of indicators which follow a life cycle approach**.

The activities carried out led to the final identification of a **set of 28 indicators** of circularity and water use, which are significant, easy and quick to be calculated. The set of indicators can be used by organisations to measure and monitor over time the circularity and water use of their products and to communicate them to other companies (for example customers and/or suppliers) and to final consumers, in a B2B and B2C approach. Furthermore, 11 of these indicators were chosen for communication purposes, because they were considered to be clearly understandable by final consumers, who can use the QR code information as support and guidance for responsible and environmentally conscious purchases.

**A special focus was given to the indicators related to the paper, textile, and construction sectors.** Moreover, a free of charge web Platform was developed <sup>(25)</sup>, targeting companies, especially SMEs, aimed at the acquisition, normalization and visualization of data relating to the circularity and water use of products. The Platform contains the whole set of indicators and can be used directly by organisations to calculate the level of circularity of their products, to identify areas of potential environmental improvement.

### → *Good practice examples: local initiatives*

#### **The Economy of Francesco - The young, a pact, the future – Assisi 2022 The Global Event <sup>(26)</sup>**

Sisifo Benefit Society, on behalf of the Organizing Committee of ‘**The Economy of Francesco - Global Event**’, has created a **Custody of Creation Plan aimed at significantly reducing the environmental impact of the event**, during which young entrepreneurs and changemakers gathered in Assisi from 22 to 24 September 2022 to sign the pact for a new economy with Pope Francis. At the end of the event, Sisifo calculated the carbon footprint of the event and drafted the impact report <sup>(27)</sup>.

The encyclicals ‘Laudato si’ and ‘Fratelli tutti’ have traced an organic path of integral human development and constitute the essential guidelines for planning every human activity. Economy of Francesco has followed these lines to become a sign of the common Pilgrimage to Integral Ecology. This intent was translated into Custody of Creation Actions aimed at the creation of a sustainable event both from an environmental and a social and economic point of view.

These fundamental choices made the adoption of a circular model natural for a community of value bearers, coming from the worlds of Ethical Finance and Circular Economy in Italy.

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<sup>22</sup> <https://www.mase.gov.it/pagina/prodotti-made-green-italy> (in Italian)

<sup>23</sup> <https://www.mase.gov.it/pagina/rcp-corso-di-validita#> (in Italian)

<sup>24</sup> <https://www.reciproco.enea.it/> (in Italian)

<sup>25</sup> <https://simulatore.reciproco.enea.it> (in Italian)

<sup>26</sup> <https://www.sisifo.eu/progetti/the-economy-of-francesco/> (in Italian)

<sup>27</sup> <https://www.sisifo.eu/progetti/the-ecology-of-francesco/> (in English and Italian)



*Main results:* the impact report highlights **significant results in terms of environmental, social, and economic sustainability**, namely:

- Separate waste collection rate: 93%, with 75% of organic fraction collected and transferred to a composting plant;
- Climate-changing emissions avoided thanks to Custody of Creation actions: 116 tons of CO<sub>2</sub> equivalent. Climate-changing emissions actually generated by the event: only 27 tons of CO<sub>2</sub> equivalent;
- Significant reduction in food waste: of the 3,437 meals distributed, the surplus of approximately 440 meals was delivered to organizations present in the area involved in helping families and people in need.

#### **SOS4LIFE - Save our soil for life** <sup>(28)</sup>

The **project**, which was developed in 2020, in addition to activities of **measuring and mapping the consumption and waterproofing of soils** and the mapping and evaluation of the related ecosystem services, envisages the **implementation of demonstration de-sealing interventions** (de-sealing of areas currently waterproofed) with restoration to greenery through **reuse of topsoil** in three different areas of the Emilia Romagna Region: Forlì, Carpi and San Lazzaro di Savena <sup>(29)</sup>.

Soil is a precious and essentially non-renewable resource. It is therefore necessary to preserve it so that, in the event of residual transformations, the ecosystem services it offers are not lost in whole or in part. In order to apply the circular model to this resource, it is important to reuse abandoned areas, so as not to consume new soil, just as it is important not to lose the topsoil, if removed, and reuse it in green restoration interventions on currently waterproofed surfaces.

*Main results:* the benefits deriving from the de-sealing and recovery of the topsoil, which can currently be calculated, are the surfaces and the percentage of permeable soil that is formed for the three interventions:

- **Municipality of Forlì:** the surface of green areas has increased to 4,500 m<sup>2</sup> and the permeable surface has increased from 6% to approximately 70%;
- **Municipality of Carpi:** a waterproofed area of approximately 1,670 m<sup>2</sup> has been restored to permeable soil;
- **Municipality of San Lazzaro di Savena:** an area of 17,450 m<sup>2</sup> was chosen whose waterproofing level has dropped from 76% to 37% thanks to de-sealing and the filling of soil and topsoil. The non-quantifiable benefits, however, are the better quality of the soil, the increase in the capacity to retain water and, therefore, reduce hydrogeological emergencies, the contribution to the mitigation of the effects of climate change due to greenhouse gas emissions into the atmosphere, the improvement of the microclimate.

#### **Reduction of food waste and packaging** <sup>(30)</sup>

This initiative, which has been developed by the **municipality of Brescia** since 2010, consists in **stipulating agreements with some large-scale retail trade (GDO) companies** for the installation, within their sales points, of equipment and machinery dedicated to the **distribution of loose products** (detergents, cereals, etc.). The practice was accompanied by a monitoring activity concerning all the points of sale participating in the experiment, aimed at calculating the overall quantity of packaging waste avoided.

This good practice contributes to circular economy processes through the reduction of the use of natural resources, encouraging the reuse of packaging through the consumption of loose products.

*Main results:*

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<sup>28</sup> <https://www.sos4life.it/en/>

<sup>29</sup> <https://www.sos4life.it/en/documents/>

<sup>30</sup> See: <https://www.regione.lombardia.it/wps/wcm/connect/452b2e46-6b02-407b-b43a-a3e7e4d56013/9+Comunicazione+di+prodotti+meno+imballati%401-16.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-452b2e46-6b02-407b-b43a-a3e7e4d56013-m36eheD> (in Italian)

- Economic savings, as the loose product costs less than the packaged product because it is not branded and has no packaging. The Brescia experience (since 2010) has allowed savings ranging from 0.35 to approximately 0.70 €/kg for detergents, and even over 2 €/kg for breakfast cereals;
- **In the 18 months of monitoring, a total of 6,807.38 kg of waste avoided by the GDO was recorded.** The weight of primary and secondary packaging waste that is avoided by selling one kg of loose detergents in GDO is approximately 71 g;
- Purchasing the product in bulk makes the consumer the absolute protagonist of the act of consumption, allowing him to have access to measured quantities and, therefore, to choose according to his needs.

### **Recovery of fruit and vegetable surpluses <sup>(31)</sup>**

The **Emilia-Romagna Region** has been identified as a privileged partner for its consolidated activities in the **prevention of food waste** and for the experience gained in the **computerized system for managing withdrawals from the market and donation of fresh fruit and vegetables**, considered extremely cutting-edge on the European scene in the implementation of EU Regulations 1308/2013, 2021/2115 and implementing regulations.

The innovation consists of the use of software to promote and facilitate withdrawals from the market in relation to the CAP (Common Agriculture Policy) fund for crisis prevention and management: the system allows food to be donated to accredited charities and to constantly monitor the quantities of food donated.

The **S.I.R. platform** (Withdrawals Information System) is an online IT tool created for the management of 'Withdrawals from the Market' to encourage contacts and collaboration between producer organizations and charitable organizations and institutions.

*Main results:*

- To date, since 2012, **over 148 thousand tonnes of fruit and vegetables have been allocated to charities in Emilia-Romagna**, of which over 120 thousand tonnes from regional producers;
- Elimination of paper documentation;
- Total transparency and traceability at every stage of the process;
- Management flexibility especially in times of crisis;
- **System open to all operators in the sector** who meet the EU requirements;
- Reduction of the impact of transport and logistics for the delivery of collected fruit and vegetables through the use of shared platforms (Agri-Food Centres);
- Zero cost for both producer organizations and charitable bodies;
- Large amount of data archived and managed over the years, which can be used as a basis for the management and prediction of future crises;
- Possibility to extend the S.I.R. to other Italian and European regions.
- S.I.R. as a Good Practice has become part of a project proposal on food waste 'European Project Horizon 2020 – LOWINFOOD'.

### **CENTOCE' - Development of an integrated model of urban smart district <sup>(32)</sup>**

The project, which was implemented between 2016 and 2018 and was financed by the MISE - Ministry for Business and Made in Italy (Electricity System Research Programme), dealt with the **implementation of circular economy models within a community of citizens through the Urban Living Lab approach**. The objective of the Urban Living Lab is to **identify circular economy practices on an urban scale** as key factors for the transition towards more sustainable socio-economic models.

<sup>31</sup> <https://agricoltura.regione.emilia-romagna.it/ocm/ortofrutta-crisi-ritiri/crisi-ritiri-dal-mercato> (in Italian)

<sup>32</sup> <https://www.aisec-economiacircolare.org/progetto-centoce-lesperienza-enea-nella-valutazione-delleconomia-circolare-comunita/> (in Italian)

Through the involvement of citizens and associations, it was possible to obtain a multi-stakeholder commitment towards the identification of a Smart District model in the **Centocelle district of Rome**, selected as a demonstration district.

*Main results:*

The Urban Living Lab (ULL) approach, aimed at the analysis and implementation of circular economy practices within a smart community, has achieved **multi-stakeholder involvement**, a key factor in the transition process towards a more sustainable, low-emission and circular smart community. During the ULL meetings, **14 circular economy practices** already present in the neighbourhood were identified, through interviews and mapping, of which: 7 were civic agriculture (urban vegetable gardens/vegetable gardens), 2 coworking, 3 resource optimization practices (0 km restaurant, shared purchasing group and water house – i.e. a drinking water dispenser), 2 closing cycle practices (second-hand market and collection of bulky goods) and, through brainstorming and surveys which encouraged exchange and connection between the various stakeholders, it was discussed how it would be possible to improve existing models and implement others in the area.

### Examples of private policy initiatives (sectoral)

The **Italian Circular Economy Platform (ICESP)**, launched in 2018, bringing together in a ‘virtual space’ all the sectors of society (quintuple helix approach):

- Institution,
- Research and education,
- Civil society (citizens and associations),
- Companies.

The platform, consisting of **more than 300 organizations**, aims to bring in Europe the ‘Italian way to Circular Economy’, as well as to **collect good practices** and write position papers, documents and guidelines for encouraging the transition towards Circular Economy. The activities are carried out within six Working Groups (WGs): i) Research and innovation; ii) Regulatory and economic tools; iii) Measuring CE; iv) Circular and sustainable value chains; v) CE at local level; vi) Good practices. Stakeholders’ innovative approaches and good practices are available in ICESP database of good practices, a repository where Italian good practices are collected (in voluntary way through online procedure) and published after evaluation.

WG4 is dedicated to industrial sectors, namely:

- Waste Electrical and Electronic Equipment (WEEE);
- Sustainable Mobility;
- Plastics;
- Textiles, clothing, and fashion;
- Construction & Demolition;
- Agrifood

Most of these value chains have been already described in a report on the state of play and all documents are available on the ICESP website <sup>(33)</sup>.

As the whole ICESP, WG4 works with quintuple helix approach; each sector is also mentioned in the National Strategy for Circular Economy and most of them contribute also to the Critical Raw Material Strategy, carried out by the Italian CRM platform.

From 2022 to 2024 the working groups have developed documents with a focus on Critical Raw Materials, as a consequence of 2023 EU Critical and Strategic Raw Materials List and Critical Raw Materials Act.

The **Italian Phosphorus Platform (IPP)**, which was launched in 2019 and restarted its work in 2023-2024, involves **more than 60 organizations** and includes 3 WGs, namely:

- Market and policy,
- Technologies and good practices,
- Regulatory tools

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<sup>33</sup> <https://www.icesp.it/GdL/4> (in Italian)

Stakeholders' innovative approaches, technologies and good practices are available on the web <sup>(34)</sup>. As ICESP, the platform works with quintuple helix approach and the value chain is considered as a whole, in this case per material, i.e phosphorous (listed in 2023 CRM List).

## The way forward

### Identifying and addressing barriers and challenges

In 2021 the ICESP platform <sup>(35)</sup> carried out a survey in 28 municipalities to qualify the main barriers perceived by municipal and local administrations in the transition to a circular economy <sup>(36)</sup>.

*Main barriers perceived by municipalities*

- **Economic barriers:** the transition to a circular economy requires adequate investments and incentives. The cities that responded to the ICESP questionnaire face 'constraints in terms of insufficient or difficult-to-access financial resources; high financial risks; lack of critical scale for business and investment to support experimentation; and low private sector involvement'.
- **Administrative and regulatory barriers:** the administrative and regulatory framework is often described in the survey as 'inadequate'. Public administrations often find it difficult to implement what is planned 'due to rigid internal processes and confusing regulatory changes that discourage the use and reuse of by-products'. Furthermore, the cities surveyed show problems related to limited human resources and the absence of adequately trained technical staff.
- **Political barriers:** the lack of a holistic vision is an obstacle encountered by several cities.
- **Technical/technological barriers:** they are mainly related to lack of data and poor circulation of information.
- **Awareness barriers:** cultural barriers represent the most relevant challenge for most of the interviewed cities, together with the lack of awareness on the part of private individuals and public administration.

With regards to the ways of tackling the above barriers, both the **National Circular Economy Strategy and the National Recovery and Resilience Plan deploy a wide range of policy instruments and measures to overcome or mitigate most of these obstacles.**

Nevertheless, certain types of barriers (e.g. barriers of corporate culture, lack of capital for initial investment in innovative technologies, increased administrative burden, lack of technical know-how, lack of support in exploiting the circular approach from the network of suppliers and customers), in order to be reduced, also require investing in technology and human capital and a long-term industrial vision.

### Future policy plans

**Italy's National Recovery and Resilience Plan** <sup>(37)</sup> is composed of seven Missions, i.e. the main thematic areas it addresses, identified in full coherence with the six pillars of the Next Generation EU. The Missions are divided into components, i.e. areas of intervention that address specific challenges, which are in turn composed of Investments and Reforms <sup>(38)</sup>. Progress on the implementation of the Plan is available online, both with regard to reforms and investments (amount and timeline) <sup>(39)</sup>.

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<sup>34</sup> <https://www.piattaformaitalianafosforo.it/en/>

<sup>35</sup> <https://www.icesp.it> (in Italian)

<sup>36</sup> <https://economiecircolare.com/economia-circolare-citta-paper-icesp/> (in Italian)

<sup>37</sup> [https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility/country-pages/italys-recovery-and-resilience-plan\\_en](https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility/country-pages/italys-recovery-and-resilience-plan_en)

<sup>38</sup> More info at <https://www.italiadomani.gov.it/content/sogei-ng/it/en/home.html>

<sup>39</sup> <https://www.italiadomani.gov.it/content/sogei-ng/it/en/strumenti/andamento-sull-attuazione-del-piano.html?orderby=%40jcr%3Acontent%2FyearAndSemesterLabel&sort=desc;>  
<https://www.italiadomani.gov.it/content/sogei-ng/it/en/Interventi/investimenti/ricerca-avanzata.html?orderby=%40jcr%3Acontent%2Fjcr%3Atitle&sort=asc>

## **MISSION 2, COMPONENT 1 Circular economy, agri-food and green transition**

It covers investments and reforms in waste management, circular economy, support for agri-food value chains and green transition. These reforms and investments are complemented by reforms to increase competition in waste management and local public services in the ‘business environment’ reform component and improve water consumption for agriculture.

### **Specific CE-related Reforms:**

#### **Reform 1.1 National Strategy for the Circular Economy**

It consists in the adoption of a broad National Strategy for the Circular Economy covering a new digital waste traceability system, tax incentives to support recycling activities and the use of secondary raw materials, a revision of environmental taxation, the right to reuse and repair, the reform of the EPR (Extended Producer Responsibility) and Consortia system <sup>(40)</sup>, support to existing regulatory tools (such as the End-of-Waste legislation and Minimum Environmental Criteria under Green Public Procurement) and support to the industrial symbiosis project. Adopted in June 2022 (see the section ‘Dedicated national and/or regional strategy, roadmap or action plan for a circular economy’ for key objectives of the Strategy).

#### **Reform 1.2 National Program for Waste Management**

It consists in the adoption of a broad National Programme for Waste Management (adopted in 2022) aiming at the highest levels of preparation for reuse, recycling and recovery of waste, adapting the network of installations necessary for integrated waste management, minimizing final disposal as the final and residual option, establishing monitoring systems, preventing the opening of new infringement procedures against Italy, tackling low collection of waste, discouraging landfilling and ensuring complementarity with regional waste programmes, enabling the achievement of European and national waste legislation objectives and tackling illegal waste dumping and open-air burning.

### **Specific CE-related Investments**

#### **Investment 1.1 - Implementation of new waste management plants and modernization of existing plants:**

this investment covers improving and mechanising municipalities’ separated waste collection network, building new treatment/recycling plants for organic waste, multi-material waste, glass and paper packaging and innovative treatment/recycling plants addressing disposal of personal adsorbent items, wastewater sludge, leather waste, and textile waste.

**Investment 1.2 - Circular economy ‘flagship’ projects:** this investment supports the improvement of separate collection networks, including through the digitalisation of the processes and/or logistics, and treatment/recycling plants for the following sectors:

- WEEE, including wind turbine blades and photovoltaic panels;
- paper/paperboard industry;
- plastic waste recycling, mechanical and chemical recycling, and Plastic Hubs <sup>(41)</sup>, including marine plastic litter. Industrial symbiosis projects will be encouraged in the form of circular districts to assure the complete reuse of by-products from plastic recycling and produce high added-value goods;
- textiles (Textile Hubs) <sup>(42)</sup>.

**Investment 2.3: Innovation and mechanization in the agricultural and food sectors:** identification of at least 10,000 final recipients for investment in innovation in the circular economy and bioeconomy.

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<sup>40</sup> The Consortia system ensures the achievement of recycling and recovery targets for specific waste flows throughout the country and, at the same time, guarantees the implementation of targeted management policies, including those concerning waste prevention.

<sup>41</sup> Plastic Hubs are networks aimed at improving the collection and reuse of plastic by-products and waste using a systemic perspective.

<sup>42</sup> Textile Hubs are networks aimed at improving the collection and reuse of textiles by-products and waste using a systemic perspective.

**Investment 3.3 - Culture and awareness on environmental topics and challenges:** this investment consists in the design and production of digital content to raise awareness of environmental and climate challenges (rules of transition, energy mix and renewable's role, climate change, the sustainability of the atmosphere and global temperatures, the hidden role of oceans, water reserves, individual and organizational ecological footprint, circular economy and new agriculture).

#### **MISSION 2 COMPONENT 2: Energy transition and sustainable mobility**

This component of the Italian Recovery and Resilience Plan covers investments and reforms in energy transition. It includes reforms to facilitate the permitting of projects on renewable energy sources. The component contains investments in renewables supply chain, hydrogen power, bio-methane facilities, and smart grids. It also covers investments and reforms in sustainable mobility. It includes reforms to facilitate the permitting of projects on sustainable mobility. The component supports the guidelines issued to Italy on the implementation of its National Energy and Climate Plan <sup>(43)</sup>, which invited Italy to promote, revamp and repower existing renewable installations, in particular existing wind power plants and to explore innovative offshore energy across the Mediterranean.

#### **CE-related Investments**

**Investment 1.4 - Development of bio-methane, according to criteria for promoting the circular economy:** this investment consists of the following: - Support for the construction of new plants for the production of bio-methane; - Reconverting and improving the efficiency of existing agricultural biogas plants (including Organic Fraction of Urban Solid Waste – OFUSW).

**Investment 3.4: Remediation of orphan sites:** the aim of this intervention is to restore these lands reducing the environmental impact and promoting the circular economy.

**Investment 5.4 – Support to start-ups and venture capital active in the ecological transition:** this investment consists of a public investment in a Facility, the Green Transition Fund (TF), in order to incentivize private investments. The Green TF shall invest in the following areas of intervention: renewables, circular economy, mobility, energy efficiency, waste management and energy storage.

#### **MISSION 4 COMPONENT 2: From research to business**

This component of the Italian Recovery and Resilience Plan aims to support investment in research and innovation, to promote innovation and technology diffusion, to strengthen skills, and promote the transition to a knowledge-based economy.

#### **CE-related Investments:**

**Investment 1.3: Partnerships extended to universities, research centres, companies and funding of basic research projects:** the investment aims at financing at least 14 major basic research programmes carried out by widespread networks of public and private subjects. The investment is expected to strengthen national technology chains and promote their participation in strategic European and global value chains. Possible examples are the following: sustainable mobility (sustainable batteries, materials, logistics, etc.); alternative energies (i.e. not coming from fossil fuels), superconductors, climate change monitoring and prevention; circular economy in the fashion industry, industrial symbiosis, eco-design and design for sustainability; waste management, recycling and upcycling; biodiversity; green production processes; self-driving vehicles; vaccines; bioreactors; new raw materials; water management and water resource conservation; cultural heritage.

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[https://energy.ec.europa.eu/document/download/fdef191e-db18-4397-a6a0-08481e15b7db\\_en?filename=staff\\_working\\_document\\_assessment\\_necp\\_italy\\_en.pdf](https://energy.ec.europa.eu/document/download/fdef191e-db18-4397-a6a0-08481e15b7db_en?filename=staff_working_document_assessment_necp_italy_en.pdf)

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.

