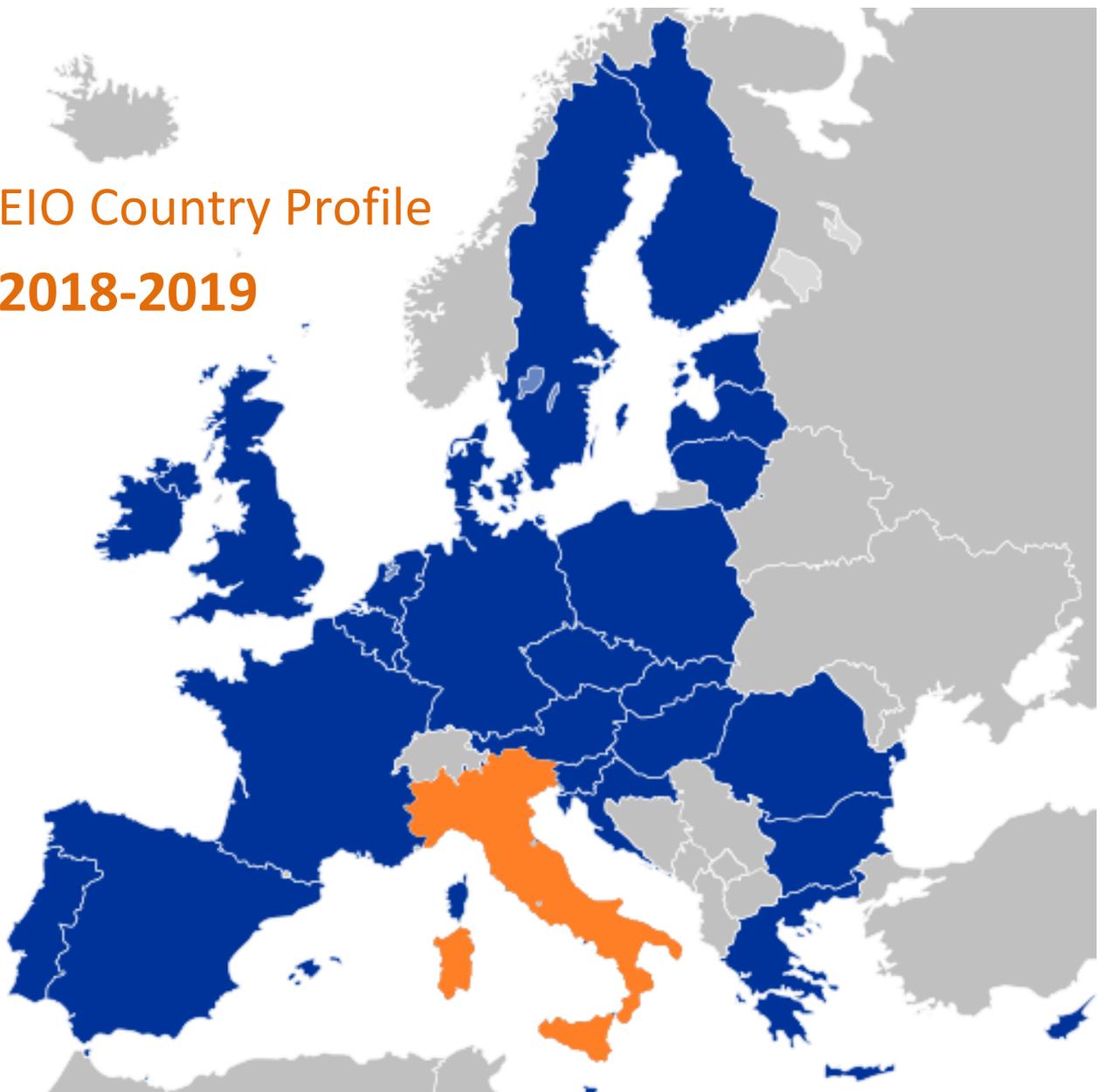




Eco-innovation in Italy

EIO Country Profile
2018-2019



Eco-Innovation Observatory

The Eco-Innovation Observatory functions as a platform for the structured collection and analysis of an extensive range of eco-innovation and circular economy information, gathered from across the European Union and key economic regions around the globe, providing a much-needed integrated information source on eco-innovation for companies and innovation service providers, as well as providing a solid decision-making basis for policy development.

The Observatory approaches eco-innovation as a pervasive phenomenon present in all economic sectors and therefore relevant for all types of innovation, defining eco-innovation as:

“Eco-innovation is any innovation that reduces the use of natural resources and decreases the release of harmful substances across the whole life-cycle”.

To find out more, visit www.eco-innovation.eu and ec.europa.eu/environment/ecoap

Any views or opinions expressed in this report are solely those of the authors and do not necessarily reflect the position of the European Commission.

Eco-Innovation Observatory

Country Profile 2018-2019: Italy

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A note to Readers

Any views or opinions expressed in this report are solely those of the authors and do not necessarily reflect the position of the European Union. A number of companies are presented as illustrative examples of eco-innovation in this report. The EIO does not endorse these companies and is not an exhaustive source of information on innovation at the company level.

This brief is available for download from https://ec.europa.eu/environment/ecoap/country_profiles_en

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Summary

The 2019 Eco-Innovation Index ranks Italy 8th, after Luxembourg, Denmark, Finland, Sweden, Austria, Germany and United Kingdom. While its performance is 12% higher than the EU average, Italy has regressed by 1.2 points compared to 2017. The overall good performance of the country on eco-innovation reflects the efforts made to develop and implement policies dedicated to eco-innovation and circular economy.

Circular economy and eco-innovation developments in Italy largely relate to eco-labelling, waste management, bioeconomy and green industry. In fact, Italy has one of the highest levels of eco-labels and EMAS in the EU. According to the 2019 Report on circular economy in Italy, the country ranks first on waste management performance. Italy is also a leader in bioeconomy, especially in the food and beverage sector. In addition, circular economy is increasingly becoming an important component of the country's industrial policy. Italy is also witnessing a growing digitalisation of the economy, although further efforts are still needed. As regards the country's policy framework, there is a growing emphasis on circular economy and sustainability as well as a support for eco-innovation.

Despite the overall good performance of the country on eco-innovation, barriers to further progress still exist, such as the low levels of R&D investments and the large differences across regions in terms of legislative procedures and performance.

Introduction

Italy is the ninth largest economy in the world and the third largest in the EU and Eurozone, and it has been a relatively stable economy over time. With limited raw materials but a strong manufacturing industry, Italy is a country that could benefit from circular economy and eco-innovation more than most, as these could guarantee a stable and secure supply of raw materials.

According to the 2019 Circular Economy report¹, Italy is the best performing country out of the four most important European economies (France, Germany, Spain and Italy) in circular economy implementation. In particular, Italy ranks first in circularity of production and waste management, while a lower performance is shown in terms of consumption.

Despite such progress, Italy still faces some challenges in relation to eco-innovation and circular economy. The low levels of R&D investments and lack of consideration of environmental risks as a relevant risk to finance and the economy represent economic barriers to eco-innovation. Moreover, the legislative framework promoting circular economy remains incomplete and large differences persist across regions in terms of legislative procedures and performance (e.g. recycling and separate collection).

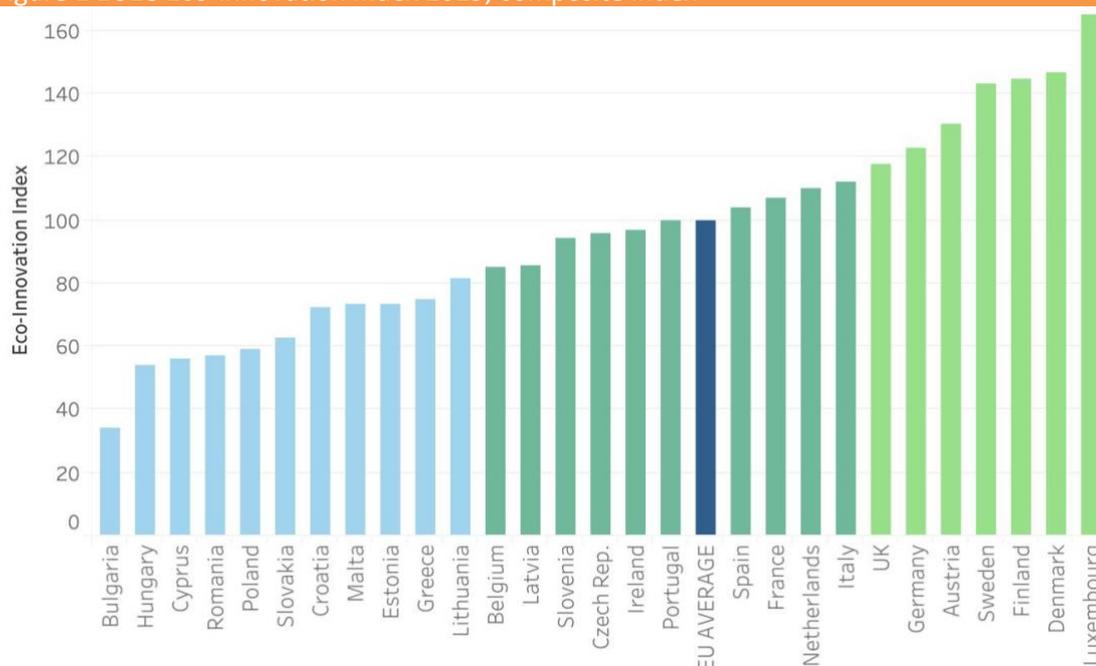
There is a growing integration of the environmental dimension in industrial policies, with a clear emphasis on efforts to stimulate the circular economy and improve digital and IT systems. However, there is scope for improvement for a successful implementation of circular economy principles in Italian processes and industries. Structural obstacles persist and solutions need to be targeted at better harmonising regulatory frameworks, increasing R&D investments and promoting the introduction of dedicated training for firms and the general public.

¹ Circular Economy Network, ENEA, 2019. Rapporto sull'economia circolare in Italia< Fondazione per lo Sviluppo Sostenibile, Rome. Available at: <https://circulareconomy.network.it/wp-content/uploads/2019/02/Rapporto-sulleconomia-circolare-in-Italia-2019.pdf>

1 | Eco-innovation performance

The analysis in this section is based on the EU 28 Eco-innovation Index (EcoI Index) for the year 2019. The Eco-innovation index demonstrates the eco-innovation performance of a country compared with the EU average and with the EU top performers. EcoI Index is a composite index that is based on 16 indicators which are aggregated into five components: eco-innovation inputs, eco-innovation activities and eco-innovation outputs as well as environmental outcomes and socio-economic outcomes.

Figure 1 EU28 Eco-innovation Index 2019, composite index

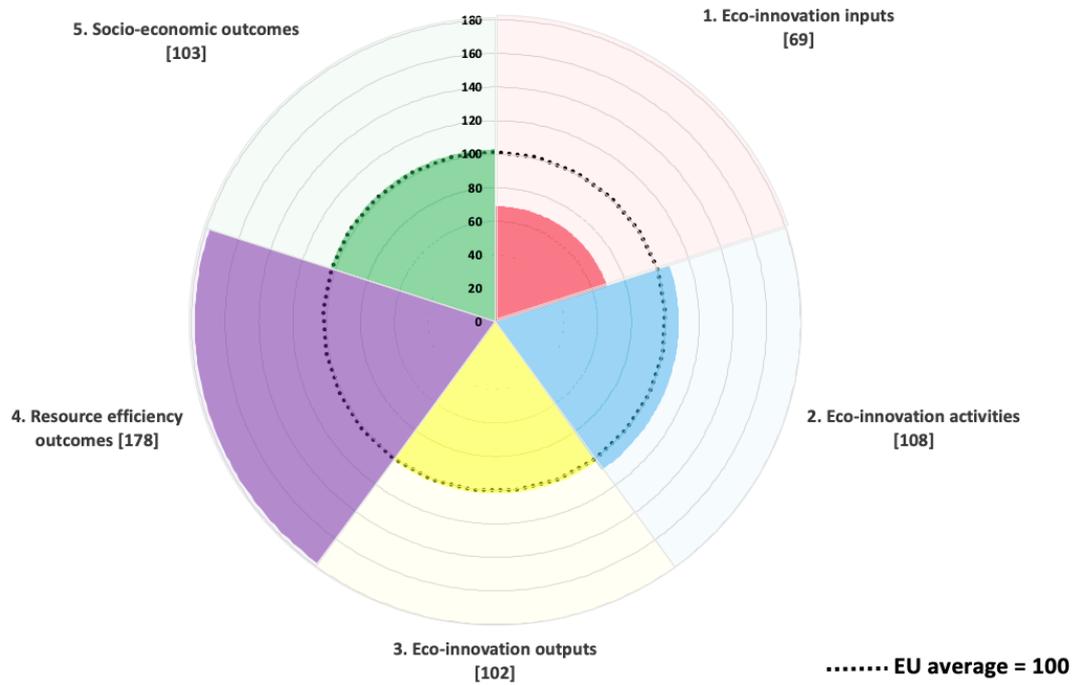


Source: EIO, 2019

As illustrated in figure 1, with a score of 112, Italy is above the EU average of 100 in terms of eco-innovation performance. This places the country in eighth position in the EU-28 ranking of eco-innovation countries. Compared to the 2017 index (with a score of 113.2 and in seventh position), Italy has decreased its performance on eco-innovation by 1.2 points. While the index reflects the efforts made in the country to develop and implement policies dedicated to eco-innovation and circular economy, barriers to further progress still exist in the economic, social, regulatory and policy frameworks.

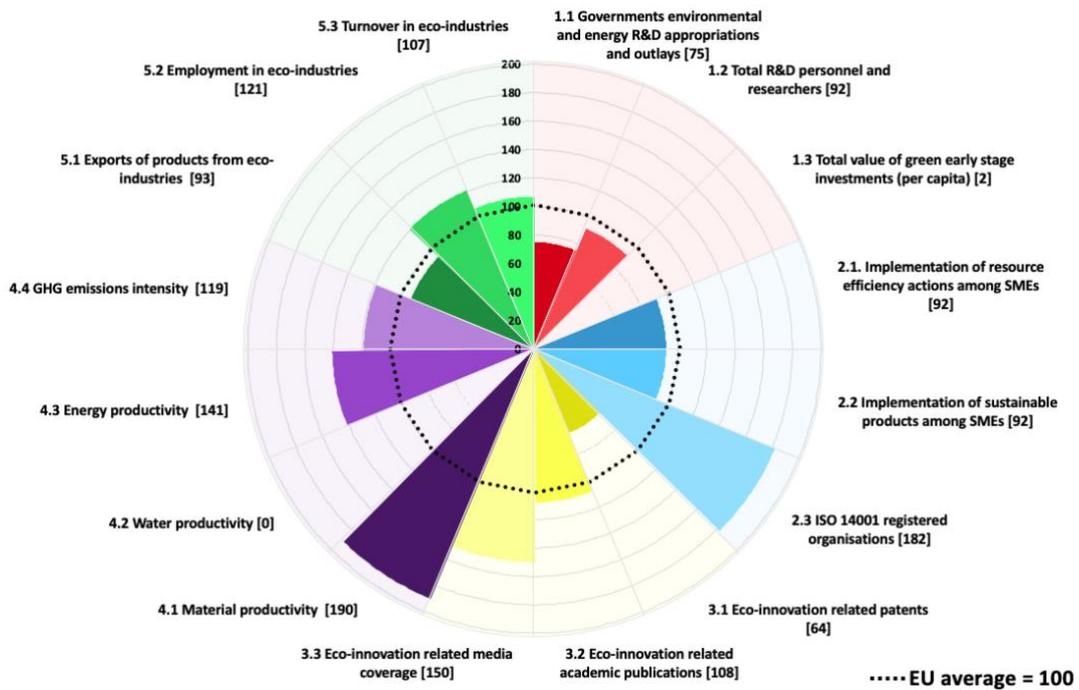
Figure 2 shows the performance of Italy in the five different dimensions of the Eco-innovation index compared to the EU average. Italy's best performance is in resource-efficiency outcomes where, with 178 points, the country ranks fifth after Luxembourg, Malta, UK and Ireland. As regards eco-innovation activities, eco-innovation outputs and socio-economic outcomes, Italy's performance is just above the EU average. The worst performance of the country is in the first dimension, eco-innovation inputs, where the country ranks well below the EU average with 69 points.

Figure 2 Five components of the Eco-innovation index for Italy 2019



Source: EIO, 2019

Figure 3 All indicators of the Eco-innovation index for Italy, 2019



Source: EIO, 2019

- **Eco-innovation inputs**

Italy scores well below the EU average on eco-innovation inputs with a score of 69. However, compared to 2017, the country has seen an increase of 3 points. The main factor in the low performance of the country in terms of eco-innovation inputs is the level of green early-stage investments. In fact, the level of green investments overall remains low in the country. However, the situation is expected to change in the near future given the emphasis of the 2020 Budget Law and the Transition 4.0 Plan on green investments.

- **Eco-innovation activities**

Italy scores 8 points above the EU average on eco-innovation activities. In particular, the country scores above the EU average on the indicator for the number of ISO 14001 registered organisations, which reflects Italy's level of environmental awareness and management capability among businesses.

- **Eco-innovation outputs**

With a score of 102, Italy scores just above the EU average on eco-innovation outputs. In particular, Italy performs well in relation to the indicators on both eco-innovation-related publications and eco-innovation-related media coverage, while for the indicator on eco-innovation-related patents it scores below the EU average. Despite the clear increase in public interest in eco-innovation, the lower performance in eco-innovation related patents is likely to result from the low rate of R&D investments in the country. So far, investments in circular economy processes are pursued only by a small percentage of firms.

- **Resource efficiency outcomes**

Out of the five dimensions, this is the one where Italy performs best. However, with 178 points scored in 2019, the country has decreased its performance by 2 points, and is now ranked fifth, compared to second in 2017. Italy's high score in resource efficiency outcomes is due primarily to the high performance of the country on material productivity, second only to the UK. The national and EU policy frameworks are gradually incentivising the adoption of more sustainable consumption patterns and production processes, as well as supporting businesses to invest more productively in the environmental field, which is contributing to making SMEs more resource efficient.

- **Socio-economic outcomes**

With a score of 103, Italy scores just above the EU average on socio-economic outcomes. In particular, the country performs well on the indicators of both employment and value added in environmental protection and resource management activities. This reflects the growing number of firms operating in the circular economy in the country and the increasing interest in and integration of sustainability principles which increasingly require new professional profiles with specific skills, such as in the field of circular economy and resource efficiency.

2 | Selected circular economy and eco-innovation areas and new trends

Italy has the second highest number of firms (699) financed by the H2020 EIC Accelerator (the former 'SME Instrument') in the EU, after Spain, with 668 projects funded and over EUR 182 million allocated between 2014 and 2019. The EIC Accelerator addresses SMEs and start-ups with radically new ideas underpinned by a business plan for rolling out marketable innovation solutions and with ambitions to scale up. It provides grant-only support, as in the SME Instrument, as well as support in the form of blended finance. The main topics funded through the instrument in Italy are construction and transport networks, closely followed by nanotechnologies and energy. In terms of SMEs funded under the EIC Accelerator, Italy is also second, after Spain, in the topic of eco-innovation and raw materials (EUR 19.7 million)².

Italy's eco-innovation and circular economy development are characterised by the following innovation areas.

Eco-labelling

Ecolabelling is a voluntary ecological certification based on a system of selective criteria. The EU Eco-label is the EU certification for products and services characterised by a low environmental impact throughout the entire life cycle. Italy has one of the highest levels of eco-labels and EMAS in the EU.

EMAS is a voluntary instrument for companies to adopt and implement plans on environmental management which contribute to more environmentally sound and efficient production processes. According to data from ISPRA, in 2018 Italy counted 936 organisations and 4,832 sites with an EMAS certification, almost three times higher the number of sites in the previous year. More than half of the certifications are concentrated in the northern regions and a great majority of registrations was requested from organisations in the waste sector, followed by the energy sector and public administration.

As regards eco-labels, Italy obtained 325 licenses, second only to France. Also in terms of total products certified by eco-labels, Italy comes second (9,406) after Spain. Overall, ecolabelling gained a discrete success in Italy, but there is still scope for improvements in its application. For instance, in certain sectors of industrial value to Italy, there are no certifications, such as in the footwear, textiles and wood sectors.

Waste management

Italy has witnessed an overall progress in separate collection and recycling. In 2018, recycling rates for municipal waste reached 49.8%, slightly above the EU average of 47%³ and in line to achieve the EU target of 50% in 2020. Less favoured waste management options have been declining in Italy in favour of more environmentally sound treatment strategies. Landfilling of municipal waste has been declining in the past years, with 23% landfilled in 2017, below the EU average of 24%. Incineration has also decreased, reaching 19% in 2017 and below the EU average of 28%. In 2019, a new agreement on end of waste which allows for the reuse of

² EIC Accelerator Data Hub: <https://sme.easme-web.eu/#>

³ https://ec.europa.eu/eurostat/databrowser/view/sdg_11_60/default/table?lang=en

waste was reached and included in the decree-law on economic growth and resolution of crisis situations.

The 2019 Report on circular economy in Italy⁴, produced by the Circular Economy Network and ENEA, shows that Italy ranks first, together with Germany, on waste management performance.

Despite the consistent progress in waste management in Italy, large differences persist across regions, with the northern regions generally out-performing the centre and south on separate collection, recycling, and reduction of landfilling.

Green industry

The circular economy is a key component of “Industria 4.0”, now called “Transizione 4.0”, the national industrial policy programme for 2020-2022. The plan includes clear incentives to stimulate the circular economy and IT systems. Already in 2017, Italy counted 5,873,422 firms operating in the circular economy and 2,846,663 in the sharing economy. The circular economy also featured as a priority in the 2018 budget law which introduced a number of incentives for companies to purchase products derived from recovered plastic materials, recycled packaging or urban waste. In addition, the most recent 2020 Budget law clearly includes environmental objectives, such as the envisaged establishment of a plan for public investments for the development of an Italian Green New Deal and the introduction of a plastic tax.

The country is also witnessing a growing digitalisation of the economy which is leading to the development of new innovative business models for Italian industry, and generating opportunities for the green and circular economy. In 2017, the firms operating in digitalisation and IoT amounted to 1,555,034. Nevertheless, further efforts are needed to increase the still generally low development and uptake of digital skills across the population.

Bioeconomy

Italy is a leader in bioeconomy, the set of all sectors that deal with renewable raw materials of biological origin. The Italian bioeconomy is worth €328 billion with 2 million jobs, third in Europe after Germany and France. The most important sector in terms of production value is that of the food, beverage and tobacco industries, which is one of the main specializations of the Italian economy.

In 2019, Italy updated its Bioeconomy Strategy “Bioeconomy in Italy: A Unique Opportunity to reconnect Economy, Society and the Environment”, which was initially approved in 2017. The goal of the strategy is to increase the current turnover and employment of the Italian bioeconomy by 15% by 2030.

⁴ Circular Economy Network, ENEA, 2019. Rapporto sull'economia circolare in Italia< Fondazione per lo Sviluppo Sostenibile, Rome. Available at: <https://circulareconomy.network.it/wp-content/uploads/2019/02/Rapporto-sulleconomia-circolare-in-Italia-2019.pdf>

Good practices

Catalyst Group



Catalyst Group is a start-up from Florence that has developed a new, all-circular construction system. The process starts with the recovery of materials from the demolition of existing buildings. After being subject to chemical controls, the recovered materials are mixed and cold-pressed on-site to make new bricks. This process enables a reduction of the use of land and raw materials, increases material recycling and reduces transport. CO2 emissions are saved so as the energy required to fire the bricks.

An example of end products is the Carrara-block, which is produced from recovered waste of Carrara marble and processed dust from Carrara marble excavations.

Key words: sustainable construction, recycling, reuse

Links: <http://www.catalyst-group.it/>

<https://www.symbola.net/approfondimento/presentazione-100-italian-circular-economy-stories-a-bruxelles/>

Picture source: <http://www.catalyst-group.it/>

RiceRes project – Valorising waste from rice production

The National research Council, and the associated research institutes, have been working extensively on material circularity and waste reutilisation.

The Institute of Science and Molecular Technologies, in collaboration with the Institute for the study of macromolecules, started the RiceRes project. The overall objective of the project is to valorise waste from rice production. The production of a ton of rice is associated with 70kg of chaff and 200kg of husk going to waste during the whitening process, and 1.35 tons of straw left unused. The biomass could instead be put to use. For instance, the straw can be useful to improve the mechanical properties of insulating materials, the husk can be used to make bio-plastics, and oil can be extracted from the chaff through a technology developed by the researchers. The extracted oil can be used for bio-adhesives and for chemical, alimentary and cosmetic products.

Key words: waste valorisation, reuse, biomass

Link: <http://www.ismac.cnr.it/en/2018/05/ismac-partner-di-riceres-che-rientra-tra-i-100-progetti-piu-rilevanti-legati-alleconomia-circolare>

GIDA water purification plant



Gida is public-private partnership between the Municipality of Prato and the Regional Industrial Confederation. The purification plant manages all the wastewater from industry and the public and to date represents a good practice in terms of water management and sewage treatment.

As the area of Prato is largely involved in the textile industry, water represents a resource in high demand. Of the 50 million cubic metres of liquid that Gida manages per year, 11% goes back to the textile industry through the industrial water aqueduct. Through the system, 4.5 million cubic metres stay in the natural water system, while the rest flows back to the surface water system. This allows the industry to use unlimited water and at the same time increases the water quality standards, as the water is treated above the legal requirements.

Key words: wastewater treatment, water consumption, waste management

Links: <https://www.gida-spa.it/depurazione-calice.php?area=cosa&l=eng>

<https://www.gida-spa.it/depurazione-calice.php?area=cosa&l=eng>

picture source: <https://www.gida-spa.it/depurazione-calice.php?area=cosa&l=eng>

3 | Barriers and drivers to circular economy and eco-innovation in Italy

Regulatory and policy framework: One of the main barriers to circular economy in Italy is the incomplete legislative framework to encourage reuse, recycling and substitution with secondary raw materials. Italy is still lacking a circular economy strategy. A document of strategic positioning⁵ was published and a draft monitoring of circular economy was produced by the Ministry of Environment in collaboration with the Ministry of Economic Development, which has not yet been approved. Waste policies in Italy are implemented at regional, provincial and municipal levels under national umbrellas. The need of simplification of the authorisation procedures for recycling and the non-harmonisation of different laws represent an obstacle to Italy's transition to a circular economy. Moreover, environmental policies implemented at regional or municipal level translate into differing and confusing waste management approaches, as well as considerable divergencies in waste management performance from one region to another (especially north-south). This is also reflected in the heterogeneous distribution of recycling centres across the countries. More recently the circular economy has started to feature increasingly in legislative documents, such as the most recent budget law, generating opportunities for improving the existing legislative framework.

Economic barriers: An important obstacle to eco-innovation in Italy is the low rate of R&D investments. In the field of circular economy, Italian industries are third among the five major EU economies (EU-28) to rely on auto-financing. Overall, Italy has the lowest level, after France, of access to external funding (11%), especially in the context of funds for circular economy related initiatives, with 20% of Italian SMEs denouncing significant difficulty in access to funding. While environmental and social impacts represent the sustainability elements most considered by industries, only 13.4% of firms showed investments in circular economy processes in 2017. Overall, environmental risk is still not sufficiently considered as a one of the most relevant risks to the financial economy (Circular Economy Network, 2019).

Human resource and knowledge capital: The growing interest and integration of sustainability principles in Italy increasingly requires new professional profiles with specific skills, such as in the field of circular economy and resource efficiency. In recent years, the Italian education system has invested in new strategic topics that reflect the national and European sustainability objectives. This has resulted in the introduction of new courses in the field of environment and sustainability, aimed at developing and strengthening new professional skills in the field. In addition, the development of digital skills is increasingly considered as a valuable contribution to sustainability objectives. However, more than half of Italians lack basic digital skills and only 11.3% of SMEs has an advanced level of digitalisation. These skills will be increasingly requested in the context of Industry 4.0 as well as of the circular economy model (Mybes, 2017).]

Natural capital: Italy is highly dependent on imports of raw materials from other countries. In terms of weight, imports of materials have continued to increase in recent years compared to exports, indicating an increase in Italy's dependence on other countries for its resources. At the same time, in 2017 Italy became one of the first four EU countries for performance on resource productivity. Eco-innovative initiatives provide an opportunity to further increase

⁵ https://circulareconomy.europa.eu/platform/sites/default/files/strategy_-_towards_a_model_eng_completo.pdf

the productivity of the resources employed and favour eco-innovation of process, product and consumption methods.

Italy's 2019 State of Natural Capital Report⁶ emphasises the need to adequately integrate natural capital in monitoring and evaluations, as well as in economic policies and territorial planning. The report includes a recommendation to encourage firms to quantify and report on the natural capital they manage and on the ecosystem services they benefit from (Comitato Capitale Naturale, 2019).

Social, cultural and organisational capital: Social awareness on environmental matters has increased in Italy and has found interest among citizens and industries. In 2019, 32% of Italians showed a good knowledge of sustainability, 10% more than in the previous year. However, 36% and 33% still state respectively lack of knowledge or limited knowledge on sustainability issues (Lifegate, Eumetra MR, 2019). In addition, the Italian government and local authorities normally lack procedures to engage the local population interested in environmental issues. The theme where action is considered most crucial by Italians is the use of plastics and the most common practice is separate collection of waste. Nevertheless, the focus largely remains on recycling. There is still lack of awareness towards waste prevention strategies from both producers and consumers. Moreover, large differences on the uptake of recycling and separate collection persist across regions, with the northern regions significantly outperforming the centre and south of the country. Recycling plants are distributed heterogeneously over the country, leading to high transport costs and therefore disincentivising usage.

⁶ Comitato Capitale Naturale, 2019. Terzo rapporto sullo stato del capitale naturale in Italia. Ministry of Environment, Rome. Available at: https://www.minambiente.it/sites/default/files/archivio/allegati/sviluppo_sostenibile/iii_rapporto_stato_capitale_naturale_2019.pdf

4 | Policy landscape in Italy

4.1 Strategic policy framework

National Strategy for Sustainable Development: The Italian National Strategy for Sustainable Development⁷ was approved in December 2017. The strategy is the result of a collaboration between the Ministry of Environment, the Presidency Council of Ministers, the Ministry of Foreign Affairs and International Cooperation, and the Ministry of Economy. It provides an instrument to define the direction of environmental, economic and social policies in line with the principles and objectives of Agenda 2030 in the national context. Building from the updated Strategy on Environmental Action for Sustainable Development, the strategy provides a broader perspective of strategic sectorial and territorial policies and emphasises the key role of institutions and civil society. The implementation of the national strategy requires an alignment with existing documents such as the National Programme of Reform and the Document of Economics and Finance. An important part of the implementation of the strategy is the document defining the strategic positioning of Italy on the circular economy⁸. The latter represents a starting point for the future realisation of a “National Action Plan on the Circular Economy”.

National Strategy for the technological innovation and digitalisation of the country: The strategy⁹ was developed by the Italian Ministry for technological innovation and digitalisation. It builds on the UN SDGs and focuses on three key challenges: the digitalisation of society; the innovation of the country; and the sustainable and ethical development of society. The strategy defines a structural transformation process for the country. It aims to introduce and apply technology and innovation in cities and small centres to improve the quality of life. By developing digital infrastructure and data centres, it promotes the use of alternative energy sources and contributes to reducing energy consumption. In addition, the strategy aims to ensure and maintain the economic, social and environmental sustainability of all innovations.

Transition 4.0 Plan: Transizione 4.0 is the new national industrial policy plan for the years 2020-2022, following the Industria 4.0 Plan. The current plan presents greater emphasis on green investments, circular economy and innovation and it includes budget allocation to research and development projects in “Digital Agenda” and “Sustainable Industry”.

Product environmental footprint monitoring: In 2018 the implementing regulation for the “Made Green in Italy” scheme entered into force. Made green in Italy is a voluntary national scheme with the intent of certifying pure Italian brands complying with determinate standards. In a context of increasing demand for products with high environmental standards on the national and international markets, the scheme represents an instrument that can increase the competitiveness of the Italian production system. It uses the EU methodology for the Product Environmental Footprint, defined in the Commission Recommendation 2013/179/UE.

National Action Plan on Green Public Procurement: The Green Public Procurement (GPP) National Action Plan (NAP) document¹⁰ outlines the strategy for the diffusion of GPP in Italy, the commodity categories, the reference environmental targets to be attained – both qualitative and quantitative – and the general methodological aspects. From 2016, the Law

⁷ https://www.minambiente.it/sites/default/files/archivio_immagini/Galletti/Comunicati/snsvs_ottobre2017.pdf

⁸ https://circulareconomy.europa.eu/platform/sites/default/files/strategy_-_towards_a_model_eng_completo.pdf

⁹ https://innovazione.gov.it/assets/docs/MID_Book_2025.pdf

¹⁰ Approved through Interministerial Decree 11 April 2008 and updated with the Decree 10 April 2013.

n.221 of 28 December 2015, established the compulsory commitment for the Italian Public Administration to the GPP. Italy thus became the first country in the world to adopt such an obligation. No further changes have been made to the NAP in the period of 2018-2019.

The new Code of Public Contracts¹¹ had further reinforced the statement by defining more specifically the Environmental Minimum Criteria (EMC) for the eligibility of applicants to participate in public tenders.¹² The EMCs are the environmental requirements defined for the various phases of the purchasing process, aimed at identifying the design solution, the product or the best service from an environmental point of view along the life cycle, taking into account the availability of the market. The EMCs are defined within the framework of the Plan for the environmental sustainability of consumption in the public administration sector and are adopted by Decree of the Minister of the Environment for the Protection of Land and Sea. In Italy, the effectiveness of the EMCs has been ensured thanks to the art. 18 of Law 221/2015 and, subsequently, to art. 34 on “Energy and environmental sustainability criteria” of Legislative Decree no. 50/2016 “Procurement Code” (modified by Legislative Decree 56/2017), which made it mandatory for all contracting authorities to apply.

Legislative measures: with the Law n. 221 of 28 December 2015, called “Collegato Ambientale”, and the issuing of some norms, the Italian government introduced policies to promote circular economy. Additional legislative measures were introduced in recent years with clear references to the circular economy. The main measures between 2018 and 2020 are the following:

- Decree-law (L. 128/19) of 3 November 2019 which updated end-of-waste criteria (article 14-bis). The law introduced significant revisions to the dispositions to be applied to the ‘end of waste’ category. The key change in the new law concerns the possibility for regions and provinces to give authorisations to waste recovery plants on the basis of their own authorisation procedures, as long as no specific national indications exist.
- Budget Law 2018 which introduced specific agevolations for firms that purchase products made of materials from recovered plastics, plastic packaging, or urban waste. By law, firms get a tax credit of 36% of their spending in the years 2018, 2019 and 2020.
- Budget Law 2020 which foresees measures to create an investment plan for the development of an Italian Green New Deal. In addition, the law envisages the introduction of a tax on the consumption of single use plastics, excluding compostable items, medical devices and medicine containers.

4.2 Policy instruments, measures, programmes

Direct financial support for eco-innovation

A number of measures have been introduced in Italy which are providing financial support to eco-innovation.

The **National Innovation Fund**, set out in the 2019 Budget Law, has a starting budget of EUR 1 billion. It operates through venture capital, an elective financial instrument for direct and indirect investments in qualified minorities within the capital of innovative companies, aiming at supporting start-ups, scale-ups and innovative SMEs. Particular attention is

¹¹ Legislative Decree 18/04/2016, n. 50.

¹² Consultation paper on “Bioeconomy in Italy” from the Agency of Territorial Cohesion

dedicated to technological change, as well as AI, new materials, mobility and sustainable industry.

In addition, the 2020 Budget Law introduced a **tax credit for R&D, innovation and design**, with the objective of stimulating investments in these areas and sustaining the competitiveness of Italian firms. The activities for technological innovation aim to create and improve products and production processes. In particular, a tax credit is applied to technological innovation activities aimed at reaching an ecological transition or digital innovation, which amounts to 10% of eligible expenses with maximum annual amount of EUR 1.5 million.

In 2017, the region Friuli-Venezia-Giulia introduced an **innovation voucher**. SMEs can request the voucher for 50% of their project expenses (between EUR 2,500 and 20,000), for the acquisition of services finalised at promoting technological, strategic, commercial and organisational innovation.

Indirect support for eco-innovation

CONAI Extended Producer Responsibility scheme obliges packaging producers and importers to pay an environmental contribution (“Contributo Ambientale”), which depends on the type of packaging posed on the market. As of 2018, CONAI introduced an eco-modulation of fees for plastic packaging based on criteria of sortability and recyclability, with non-sortable/recyclable waste charged the highest fee. The fees were further augmented in 2019, as shown in the dedicated case box below.

The 2019 Budget Law introduced a new system of **ecobonuses and ecotaxes on vehicles**. The 2019 ecobonus system, valid until 2021, promotes the scrapping of cars (class Euro 1,2,3 or 4) through a financial incentive to purchase newest, less environmentally damaging vehicles. The ecobonus is applied to vehicles with emissions between two ranges, 0 to 20 g/Km and 21 to 70 g/km, as well as to hybrid cars. On the other hand, the 2019 ecotax aims to disincentivise people from purchasing high-emission cars. A tax is imposed on car purchases based on their emissions, between EUR 1000 and EUR 2500 depending on the range of emissions.

Training, information support and awareness raising

Italy has introduced several initiatives aimed at promoting information to the public and to businesses on the principle of a circular economy and the related benefits.

An example is the **“Circular Camp” training on circular economy** for banks and firms, which aims at promoting the transition to a circular economy through information sharing on the implications and benefits for businesses and people and on how to put in practice the circular economy principles.

Another relevant platform for information support is the **Italian Circular Economy Stakeholder Platform**, established in 2018 to mirror the European initiative. By gathering key actors and stakeholders in the field, the platform allows for communication and exchange of information, as well as identification of best practices.

In order to further promote best practice in eco-innovation and circular economy, the **Sustainable Development Prize** was established in 2019. While the focus is on sustainable development overall, the prize competition is open also to firms that have realised innovation projects in industrial symbiosis, repairability and durability of products, use of secondary raw materials, recycling, ecodesign and bioeconomy.

Collaborative platforms and clusters

As regards collaborative platforms supporting eco-innovation, ENEA – the Italian National Agency for new technologies, energy, and sustainable economic development – has created the

Symbiosis User Network and the **Symbiosis Platform**, both presenting a dedicated focus on eco-innovation. The former is dedicated to encourage collaboration between different public and private users that intend to promote industrial symbiosis as an instrument of eco-innovation and transition to circular economy. The latter aims to bring together the key operators in industrial symbiosis and connect the demand and supply of resources across firms.

Good practices

Circular Economy Initiative for ENEL Suppliers Engament

The Circular Economy Initiative for ENEL Suppliers Engagement was launched by the Italian energy company ENEL in 2018. The objective of the initiative is to improve the sustainability of the supply chain, its efficiency and circularity. The suppliers, 200 in total, can insert their data through an IT tool to determine the circular economy index of their company as well as targets and benchmarks for improvement.

The initiative is based on the adoption of an Environmental Product Declaration, to calculate and assess the environmental impacts of products and services of ENEL suppliers throught the entire life cycle. Declarations of this kind already exist and are made on a voluntary basis.

The initiative is expected to lead to changes in design and innovation and cost savings.

Key words: circularity, sustainable supply chain

Links: <https://www.enel.com/stories/a/2020/01/enel-procurement-sustainability-sustainable-supply-chain>

<https://circulareconomy.europa.eu/platform/en/good-practices/getting-suppliers-involved-better-assess-circularity-throughout-value-chain-project-enel>

CONAI – Plastics contribution diversification

CONAI introduced a contribution diversification system for plastic packaging in its extended producer responsibility scheme. The objective is to incentivise the use and putting on the market of more recyclable packaging.

In 2018, three new fees were introduced, diversified based on the criteria of sortability and recyclability of packaging. These fees were further augmented in 2019 and again in 2020. As of 1 January 2020 the following fees are in place:

Product group	Fees
A – Industrial packaging with consolidated recyclability and sortability of the industrial supply chain	150 €/t
B1 – Household packaging with consolidated recyclability and sortability of the industrial supply chain	208 €/t
B2 – Household and/or industrial packaging with recyclability and sortability of the industrial supply chain in consolidating and development phase	436 €/t

C – Packaging where sortability and recyclability is in experimenting phase or currently non-recyclable and non-sortable packaging	546 €/t
<p>Key words: recyclability, extended producer responsibility, eco-modulation of fees.</p> <p>Link: http://www.conai.org/impresse/contributo-ambientale/contributo-diversificato-plastica/</p>	

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ANNEX: Policy strategies and instruments

Table A1: National Policy strategies						
Name of the policy document (strategy, action plan, roadmap)	Relevance for eco-innovation	Relevance for Circular Economy	Relevance for the innovation chain	Input and process targets	Outcome and impact targets	Relevant implementation or governance system
1 Italian National Strategy for sustainable development (2017) https://www.minambiente.it/sites/default/files/archivio_immagini/Galletti/Comunicati/snsvs_ottobre2017.pdf	<i>Eco-innovation included among other objectives</i>	Cross-cutting	Cross-cutting			Yes
2 National Strategy for the technological innovation and digitalisation of the country (2019) https://innovazione.gov.it/assets/docs/MID_Book_2025.pdf	<i>Eco-innovation included among other objectives</i>	N/A	Cross-cutting	R&I investment for mobility, robotics, AI and cyber security: EUR 60 million Engagement of SMEs through right to innovate: no number specified.	SDGs Non-binding	Yes
3 National Action Plan on Green Public Procurement https://www.minambiente.it/sites/default/files/archivio/allegati/GPP/all.to_21_PAN_GPP_definitivo_EN.pdf	<i>Eco-innovation included among other objectives</i>	Cross-cutting	Cross-cutting			
4 Transizione 4.0 2020-2022 https://www.mise.gov.it/index.php/it/transizione40	<i>Eco-innovation included among other objectives</i>	Cross-cutting	Cross-cutting			

Table A2: Policy instruments and measures

Category	Name of instrument	Overall relevance for eco-innovation	Relevance for CE	Relevance for the innovation chain
Direct financial support for eco-innovation				
Grant funding				
Innovation vouchers	Friuli Venezia Giulia Innovation voucher 2017 http://www.regione.fvg.it/rafvg/cms/RAFVG/economia-imprese/industria/FOGLIA802/#id1	Eco-innovation included among other topics	Cross-cutting	Cross-cutting
Loans and credits	Tax credit on research, development, innovation and design 2020 https://www.mise.gov.it/index.php/it/incentivi/impresa/credito-d-imposta-r-s	Eco-innovation included among other topics	Cross-cutting	Idea development, R&D and design, experimentation
Publicly co-funded venture capital funds (e.g. start-ups)	National Innovation Fund 2019 https://www.sviluppoeconomico.gov.it/index.php/it/incentivi/impr esa/fondo-nazionale-innovazione	Eco-innovation included among other topics	Design	Idea development, R&D and design, experimentation
Fellowships and postgraduate loans and scholarships				
Equity financing from public banks				
Other (indicate)				
Indirect support for eco-innovation				
Tax incentives/relieves for eco-innovation		Eco-innovation included among other topics	Design	Cross-cutting

Category	Name of instrument	Overall relevance for eco-innovation	Relevance for CE	Relevance for the innovation chain
(businesses, R&D activity)	CONAI Extended Producer Responsibility Scheme for packaging http://www.conai.org/impresce/contributo-ambientale/			
Tax relief for consumers adopting/purchasing green technology/products				
Taxation of environmentally harmful technologies	Eco-taxes for cars based on emissions 2019 https://www.automobile.it/magazine/in-primo-piano/ecotassa-12521	Eco-innovation included among other topics	N/A	Commercialisation
Regulations, targets				
Green public procurement				
Demand subsidies (e.g. eco-vouchers/subsidies for green products)	Eco-bonus for vehicles based on emissions 2019	Eco-innovation included among other topics	N/A	Commercialisation
Labeling, certification, standards	Made green in Italy scheme 2018 https://www.minambiente.it/notizie/pubblicato-il-bando-made-green-italy	Eco-innovation included among other topics	Cross-cutting	Cross-cutting
Debt guarantees and risk sharing schemes				
Training, advisory, information support, awareness raising				
Technology transfer and business advisory services				

Category	Name of instrument	Overall relevance for eco-innovation	Relevance for CE	Relevance for the innovation chain
Business incubation/ accelerations				
Eco-innovation challenges, prizes, awards	2019 Sustainable Development Prize 2019 https://www.fondazioneviluppo-ostenibile.org/premio-sviluppo-sostenibile-2019-imprese-e-citta-green/	Eco-innovation included among other topics	Cross-cutting	Cross-cutting
Training for companies, consumers,	Circular Camp training on circular economy for banks and firms https://www.circular.camp/	Eco-innovation included among other topics	Cross-cutting	Cross-cutting
Public awareness campaigns, platforms, and outreach activities	Italian Circular Economy Stakeholder Platform (ICESP) 2018 https://www.icesp.it/	Dedicated focus on eco-innovation	Cross-cutting	Cross-cutting
other				
Collaborative platforms and infrastructure				
Clusters, networks, platforms (e.g. industrial symbiosis platforms)	ENEA Symbiosis Platform http://www.industrialsymbiosis.it/	Dedicated focus on eco-innovation	Cross-cutting	Cross-cutting
Dedicated support to new research infrastructure (piloting facilities)				
other				

About the Eco-Innovation Observatory (EIO)

The Eco-Innovation Observatory (EIO) is the initiative financed by the European Commission's Directorate-General for the Environment. The Observatory is developing an integrated information source and a series of analyses on eco-innovation trends and markets, targeting business, innovation service providers, policy makers as well as researchers and analysts.

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