

Circular economy country profile – Finland



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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:

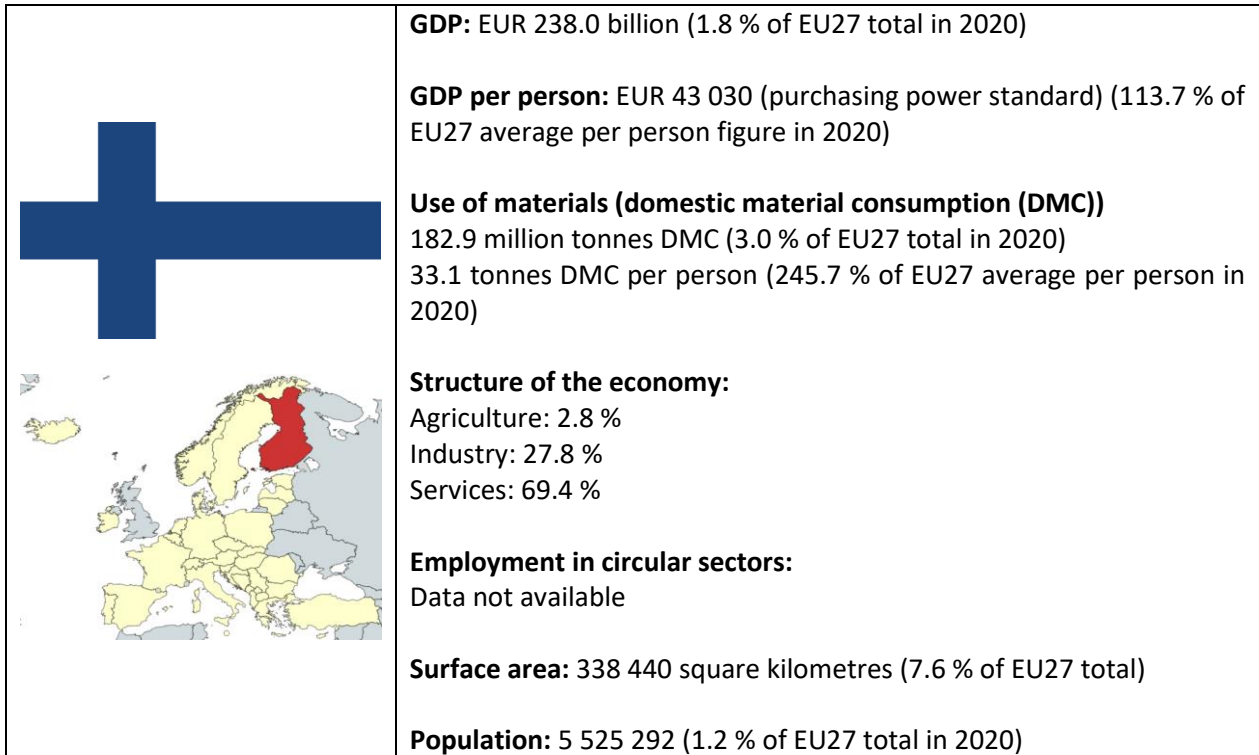
- circular economy policies being implemented at a national level with a particular focus on elements that go beyond EU mandatory elements; and
- best practice with a focus on policy innovation.

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

This circular economy country profile is based on information reported by the Eionet network and, in particular, the Eionet Group on Circular Economy and Resource Use in the second quarter of 2022. The organisations and experts involved in this process include the Finnish Environment Institute SYKE (Tiina Karppinen and Sari Piippo) and Statistics Finland (Heidi Pirtonen). The information was reviewed and edited by the European Topic Centre on Circular economy and resource use (ETC CE). A selection of Eurostat data was made to further complement this country profile.

The information is current as of 29 September 2022, when members of Eionet verified the content of this profile.

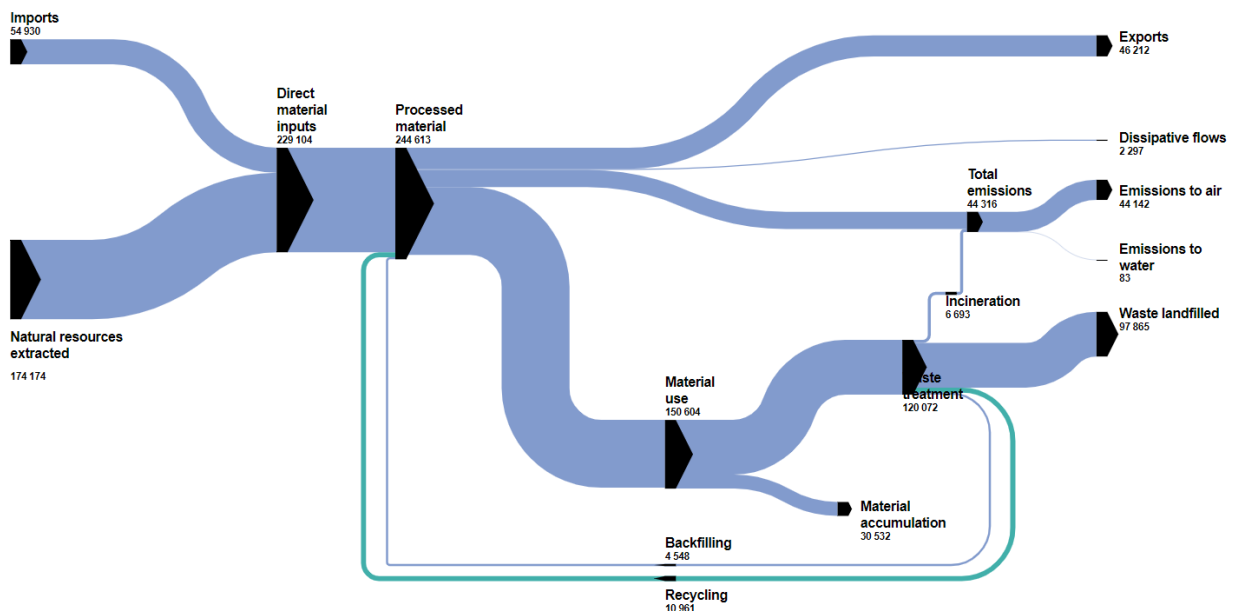
Finland – facts and figures



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

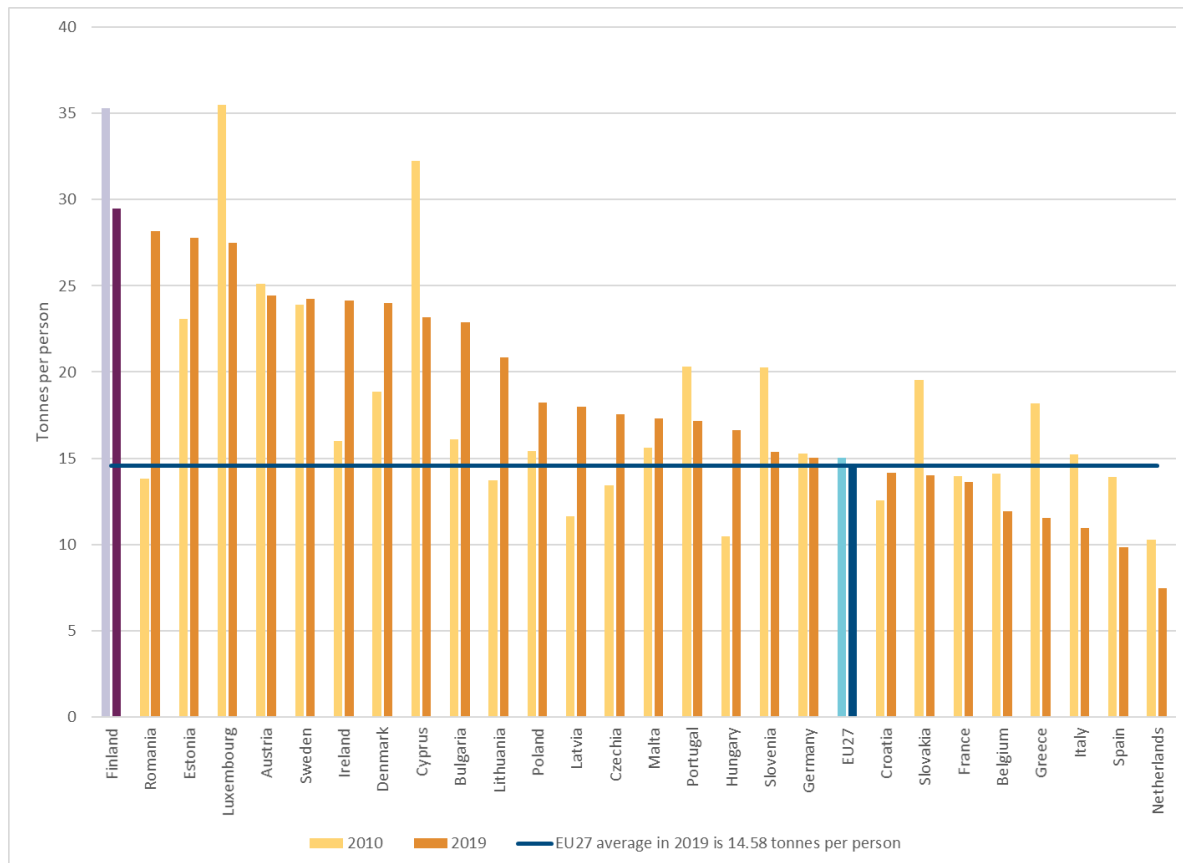
Source: Eurostat datasets, EU27 2020 (accessed 20 June 2022)

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



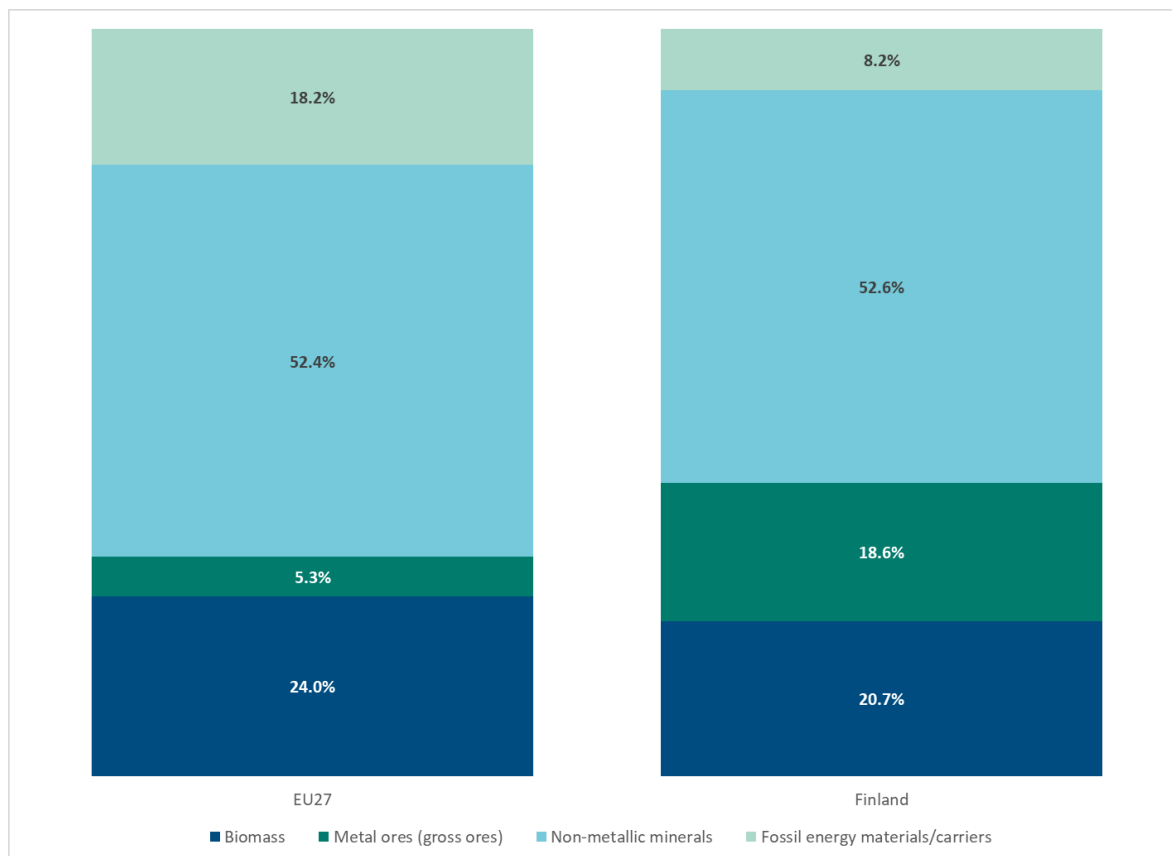
Source: Eurostat (2022) [env_ac_mfa], [en_ac_sd], [env_wassd] (accessed 20 June 2022)

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



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

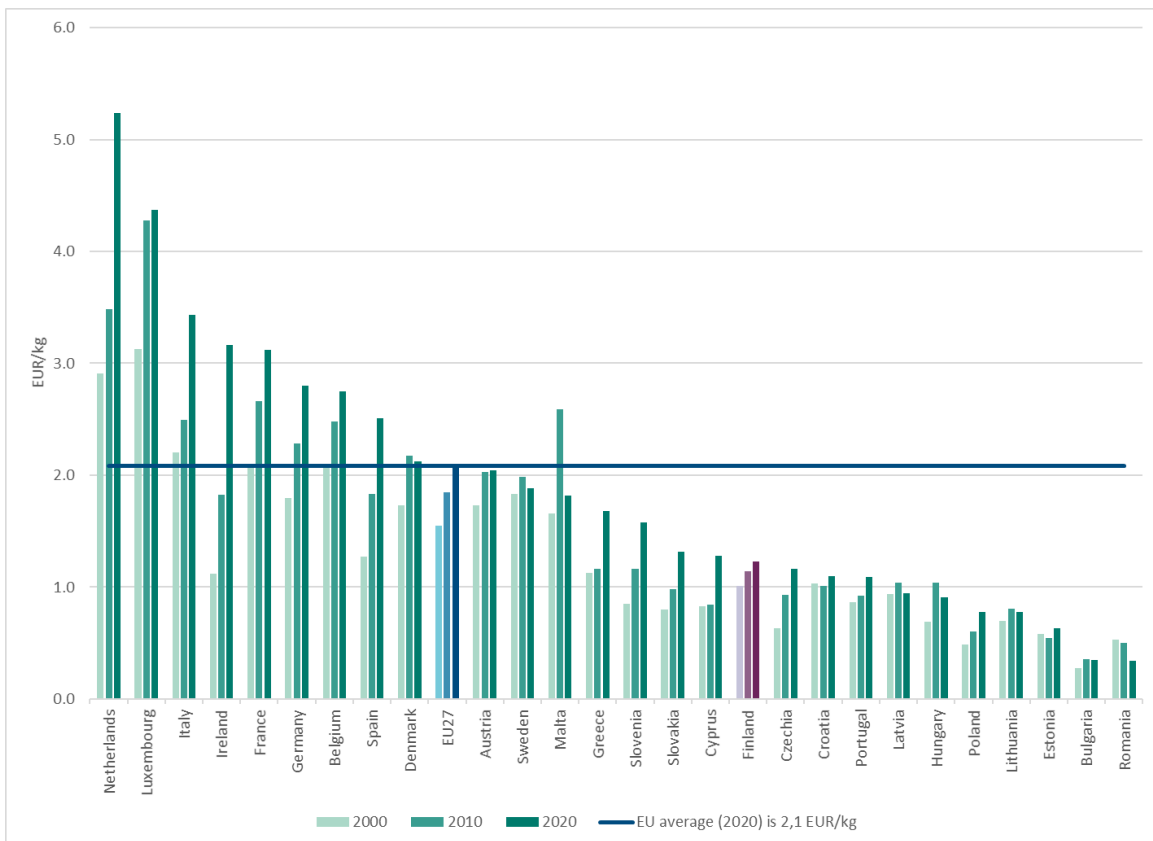
Figure 3 Domestic material consumption by selected material category, EU27 and Finland, 2020, per cent



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

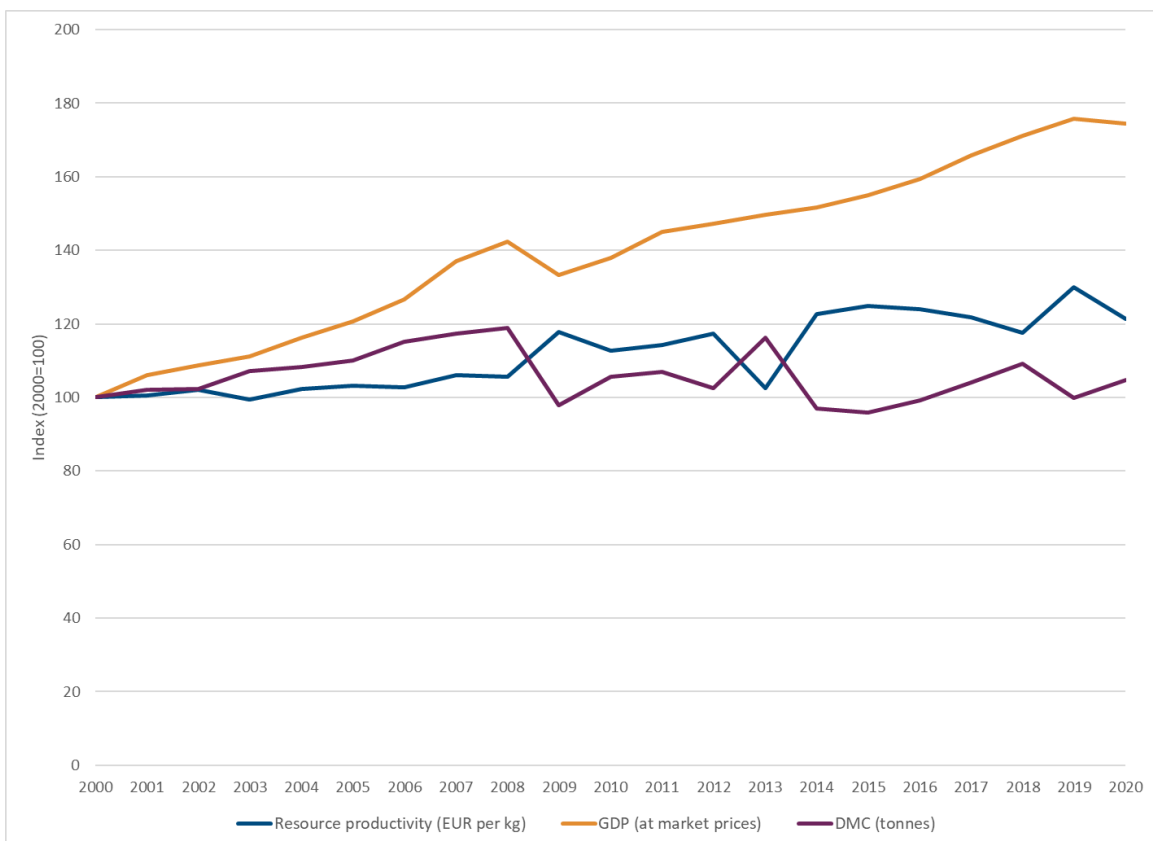
Source: Eurostat (2022) [env_ac_mfa] (accessed 20 June 2022)

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



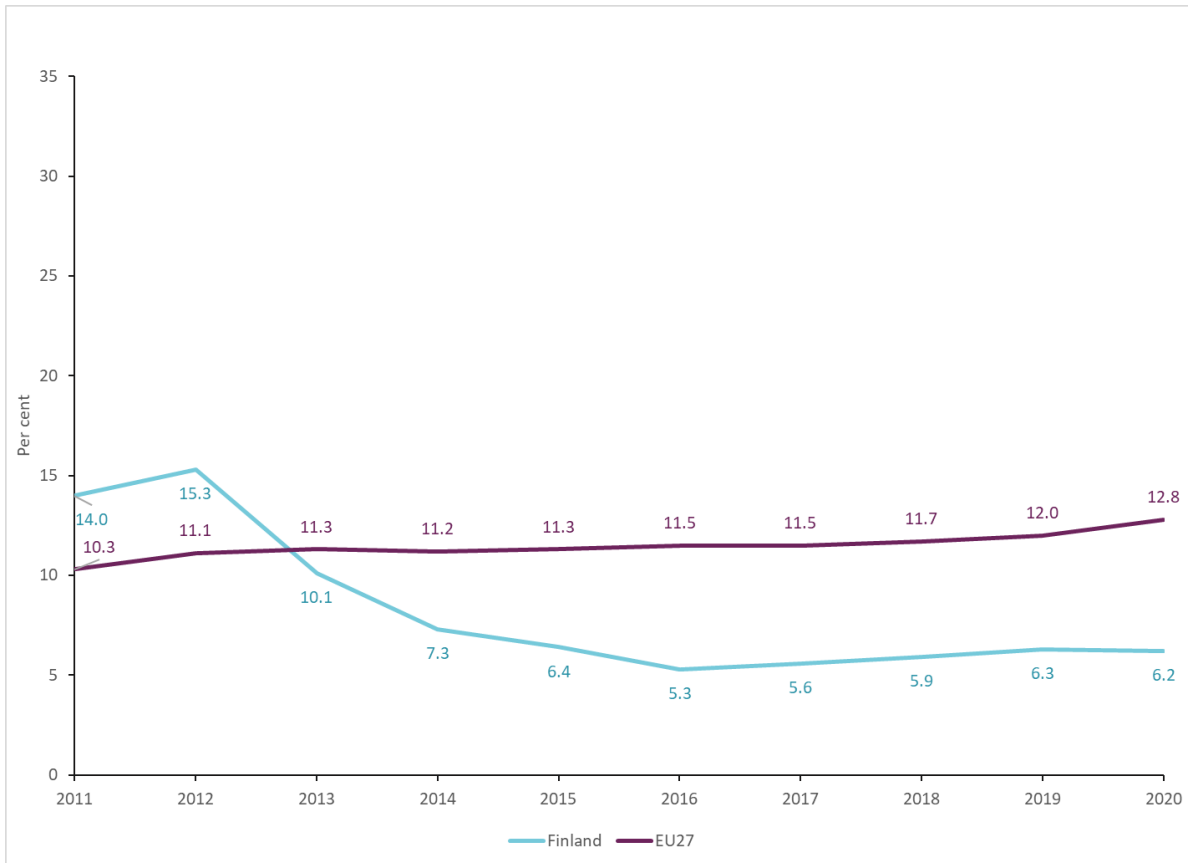
Source: Eurostat (2022) [env_ac_rp] (accessed 20 June 2022)

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



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

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



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

Existing policy framework

Dedicated strategy, roadmap or action plan for circular economy

Finland's two main CE strategies are:

- **The Critical Move – Finland's Roadmap to the Circular Economy 2.0** ⁽¹⁾. This is the updated version to Finland's first roadmap to circular economy launched in 2016;
- **Strategic Programme to Promote a Circular Economy** ⁽²⁾. In this report, answers are mostly from this programme since it is the most recent CE strategy in Finland. It was adopted by the Finnish Government on 8 April 2021 ⁽³⁾.

The main aim of the Strategic Programme to Promote a Circular Economy is *“to transform the economy into one that is based on the principles of circular economy by 2035”*. It also aims to *“strengthen Finland's role as a leader in the circular economy”* and it is seen as a *“step towards achieving the government's carbon neutrality target by 2035”*.

The visions of the CE Programme are:

“In the year 2035 our economic success is founded on a carbon-neutral circular society”:

- sustainable products and services will be the mainstay of the economy and the sharing economy is part of everyday lives;
- choices are future-proof, and they strengthen a fair welfare society;
- more for less: the use of natural resources is sustainable, and materials remain in circulation longer and more safely;
- the breakthrough of a CE has been achieved through innovation, digital solutions, smart regulation, and responsible investors, businesses and consumers;
- with a CE, Finland is a strong player in the global arena and a provider of sustainable solutions on the international market.

Turning this vision into reality requires the sustainable and efficient use of natural resources. This will be guided by the following steps and objectives:

- consumption of non-renewable natural resources will decrease but the sustainable use of renewable natural resources may increase only to the extent that total consumption of primary raw materials in Finland in 2035 does not exceed what it was in 2015. Natural resources used to manufacture products for export are not covered by the objective ⁽⁴⁾;
- productivity of resources (GDP/RMC) will double by 2035 from what it was in 2015.
- the circular material use rate (CMU) will double by 2035.

¹ <https://www.sitra.fi/en/projects/critical-move-finnish-road-map-circular-economy-2-0/#the-challenge>

² [Strategic Programme to Promote a Circular Economy](#)

³ <https://ym.fi/documents>

⁴ The objective takes into account Finland's total consumption that includes imported products needed to run everyday life, infrastructure and the consumption of domestic raw materials. Finland's total consumption includes raw material consumption in countries in which products are manufactured minus the raw materials used to manufacture Finnish products for export. Total consumption is shown by the RMC indicator calculated by using the ENVIMAT tool developed by the University of Oulu and Finnish Environment Institute.

Circular economy incentives

How Finland is implementing its circular economy programme

The use of natural resources may cause emissions or harm ecosystems without those causing the harm paying for any of the costs incurred. Both companies and consumers often lack economic incentives to make choices that would benefit the CE. To make the transition to the CE, Finland funds research, development and innovations (RDI). At its best, public RDI funding directs innovation to new areas and spurs the private sector to finance experiments and innovation that support the CE. The public sector can support low-carbon and CE solutions by procuring products, services and contracts with fewer negative environmental impacts than the alternatives would have. The public sector can also create new markets by procuring energy- and resource-efficient solutions.

What Finland is doing and where it is now

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

- The recycling industry was moved into the electricity tax category for industry at the start of 2022. Responsible organisation: Ministry of Finance.
- A tax based on net earnings is being prepared for mines. Responsible organisation: Ministry of Finance.
- Plans have been made to expand the waste tax base. The global consultancy Ramboll has examined the possibilities of expanding the waste tax. Responsible organisation: Ministry of the Environment.
- The need to promote the CE and recycling objectives by means of a waste incineration tax will be assessed. A voluntary Green Deal will be prepared to reduce emissions from waste incineration and increase recycling. Responsible organisation: Ministry of the Environment.

Finland will **increase low-carbon CE solutions** in, for example, construction, energy and infrastructure projects and in service procurement in the public sector.

- The network-based Competence Centre for Sustainable and Innovative Public Procurement in Finland (⁵) promotes low-carbon CE solutions in numerous ways. These include the KEINO Academy (⁶), regional change agents, CE development groups, Green Deal agreements, and dialogue among market stakeholders. Responsible organisation: Ministry of Economic Affairs and Employment.
- A project for distributing risk in sustainable and innovative public procurement (⁷) produced information and recommendations for risk distribution mechanisms and how to implement these. The KIRI project⁸, which runs until February 2023, is part of the Government's analysis, assessment and research activities. Responsible organisation: Prime Minister's Office.
- Finland will prepare a digital information platform for sustainable procurement. The platform will enable the recording, co-creation and use of sustainable procurement criteria in different procurement processes. The platform pilot will begin in 2023. Responsible organisation: Ministry of Economic Affairs and Employment.
- Motiva Oy (⁹) drew up a report on procurement criteria and the need to develop them for low-carbon infrastructure construction in support of the CE. The report (¹⁰) was published in April 2022.

⁵ Competence Centre for Sustainable and Innovative Public Procurement in Finland, KEINO Academy, [link](#).

⁶ <https://www.interregeurope.eu/good-practices/keino-academy-for-sustainable-procurement-management>

⁷ <https://tietokayttoon.fi>

⁸ <https://hankkeet.ekokumppanit.fi/kiri-hanke/>.

⁹ <https://www.motiva.fi/en/motiva>

¹⁰ <https://www.motiva.fi> (in Finnish)

The aim is to have the first criteria in use in 2023. Responsible organisation: Ministry of the Environment.

Finland will **increase funding for RDI and ecosystem activities** that promote a low-carbon CE and for investment in demonstration facilities.

- Finland's Sustainable Growth Programme ⁽¹¹⁾ has earmarked EUR 110 million to Business Finland for financing CE solutions and demonstration facilities for industry. Responsible organisation: Business Finland.
- The EU regional and structural policy programme Innovation and Skills in Finland (2021-2027)¹² aims to promote energy efficiency and the CE, and to reduce greenhouse gas emissions. Funding will also be targeted at measures related to preparation for climate change. Responsible organisations: Ministry of Economic Affairs and Employment and Ministry of the Environment.
- The Ministry of the Environment awards EUR 1 million in grants to municipalities for climate and circular economy projects ⁽¹³⁾. The projects aim to reduce greenhouse gas emissions and to promote the sustainable use of natural resources. Responsible organisation: Ministry of the Environment.

Circular economy market

How Finland is implementing its circular economy programme

Estimates on the value of the global market supporting the circular economy are in hundreds of billions of euros. The circular economy and technological advances are an opportunity for Europe to improve the productivity of resources by up to three per cent annually and increase its GDP by about 0.5 per cent by 2030. In Finland, the growing circular economy market will create new and environmentally sustainable economic growth in the long term. The circular economy market can be promoted with a suitable combination of policy instruments such as product eco-design legislation, economic incentives, and cooperation between the authorities in circular economy projects. The circular economy market will grow even faster once the people find the services and consider them appealing.

What Finland is doing and where it is now

Finland is active in developing legislation and product policy measures that support the CE in the European Union.

- Proposals for legislation and sustainable products policy in the EU's Circular Economy Action Plan ⁽¹⁴⁾ discussed by the Member States in March 2022. Responsible organisations: Ministry of Economic Affairs and Employment, Ministry of Justice and Ministry of the Environment.

Finland will develop cooperation between authorities in CE projects.

- The Pirkanmaa Centre for Economic Development, Transport and the Environment organised a series of workshops for developing cooperation between authorities in the autumn of 2021. Recommendations for developing cooperation between authorities in circular economy projects completed ⁽¹⁵⁾. Responsible organisations: Ministry of the Environment and Pirkanmaa Centre for Economic Development, Transport and the Environment.
- In February 2022, Finland organised a workshop for representatives of the Centres for Economic Development, Transport and the Environment and the Regional State Administrative Agencies. The theme was how to promote the CE through cooperation: what kind of structures, operating models, skills and support will be needed. Responsible organisation: Ministry of the Environment.

11 <https://www.businessfinland.fi/en/campaign-sites/sustainable-growth-program-for-finland>.

12 <https://valtioneuvosto.fi>

13 <https://ym.fi> (in Finnish)

14 https://ec.europa.eu/environment/strategy/circular-economy-action-plan_fi

15 <https://www.ely-keskus.fi> (in Finnish)

Finland will promote a stronger market for recycled materials.

- A working group on developing new products out of recovered materials ⁽¹⁶⁾ was set up. It will monitor decision making in different cases and develop practices and legislation for determining when waste material is no longer waste. Responsible organisation: Ministry of the Environment.
- Opportunities related to the obligation to use recovered materials in new material and product groups, especially with respect to plastics, will be examined. The work will be completed in early 2023. Responsible organisation: Ministry of the Environment.
- The utilisation of models adopted for the circular economy in mining and extraction industry will be promoted ⁽¹⁷⁾. The aim is to utilise quarried materials more effectively either on site or by processing them into new products. Dialogue between the extraction industry and stakeholders started with a workshop in March 2022. Responsible organisations: Ministry of Economic Affairs and Employment and the Lapland Centre for Economic Development, Transport and the Environment.

Finland will help citizens find CE services and improve their appeal.

- Together with the Intelligent Transportation Society of Finland – ITS Finland, a report and guide for cities on promoting the wider use of shared electric vehicles will be drawn up. The work started in April 2022 and was completed by the autumn. Responsible organisation: Ministry of the Environment.
- The wider introduction of repair services through cooperation projects with the Centre for Consumer Society Research of the University of Helsinki and Turku University of Applied Sciences will be promoted. Responsible organisations: Ministry of the Environment and Ministry of Economic Affairs and Employment.

Circular economy in key sectors

How Finland is implementing its circular economy programme

Various stakeholders and sectors in society must adjust their operating methods and create innovations to make the circular economy a reality. In particular, the construction and real estate sector has significant potential in this regard, because it is one of the largest consumers of natural resources.

Municipal and regional administrations are key players in the circular economy. They have considerable potential to promote services and solutions e.g. in urban planning and procurement that support the circular economy. Municipalities and regions have helped to create cooperation between operator networks and ecosystems that support the circular economy and have collaborated to develop new solutions in actual operating environments.

What Finland is doing and where it is now

Finland will conclude an agreement on a low-carbon CE.

- **The low-carbon circular economy agreement** ⁽¹⁸¹⁹⁾ promotes the transition to a CE society in different sectors, companies, regions and municipalities. These stakeholders are invited to join the initiative by making their own commitments. An analysis of material flows in Finland and scenarios will be drawn up in support of assessing the effectiveness of the objectives and measures. The

¹⁶ <https://ym.fi/hankesivu?tunnus=YM045:00/2021> (in Finnish)

¹⁷ <https://valtioneuvosto.fi> (in Finnish) <https://ym.fi/vahahiilinen-kiertotaloussopimus>

¹⁸ <https://ym.fi/kiertotalousohjelma> (in Finnish)

¹⁹ <https://valtioneuvosto.fi/-/1410903/ministeriot-hakevat-kumppaneita-vahahiiliseen-kiertotaloussopimukseen>

work started in March 2022 and will continue until the summer of 2023 ⁽²⁰⁾. Responsible organisations: Ministry of the Environment and Ministry of Economic Affairs and Employment.

Finland will establish a national talent network to support the work of corporate, municipal, and regional ecosystems in promoting a circular society.

- **The national talent network for the circular economy** ⁽²¹⁾ established in March 2022 brings together experts on the CE, disseminates information and good practice, and improves the capability of stakeholders to promote the circular economy. The network is coordinated by **Motiva Oy and Finnish Environment Institute SYKE** ⁽²²⁾, and it was further developed during 2022 together with stakeholders. Responsible organisation: Ministry of the Environment.

Finland will increase awareness and skills related to the CE in the real estate and construction sectors.

- Finland will implement the Circular Economy in Construction Growth Path together with Kasvu Open ⁽²³⁾. This programme is targeted at companies working on the CE. The aim is to offer support for the growth and development of construction sector companies that apply sustainable development in their operations. The programme was ran from April to October 2022. Responsible organisation: Ministry of the Environment.
- Awareness of the CE in the real estate and construction sectors is promoted as part of **the low-carbon CE agreement** ⁽¹⁹⁾.

Finland will develop land-use planning principles and the guidance of construction and the use of premises to support the CE.

- This measure is still at an early planning stage. Responsible organisation: Ministry of the Environment.

Circular economy innovation, digitalisation and skills

How Finland is implementing its circular economy programme

Digitalisation is essential for making the CE a reality. **New business practice and operating methods** of the CE are built through cooperation between different sectors and by combining new kinds of technology and operator networks. Connecting these networks together and their operation require a compatible data architecture that enables open data to be shared reliably.

The interoperability of digital solutions for the CE must be coordinated at the national level. In addition, the data sharing infrastructure should develop alongside the CE market.

Operating models are reshaped in ecosystems in which value chain operators or different sectors can find each other and develop new solutions. Development and growth accelerators of these ecosystems must be supported and reinforced. The activities of these accelerators should also be strengthened in international contexts. The operating model of the Finnish Industrial Symbiosis System (FISS) should be expanded.

Working life of the future will require competence and skills in sustainable development and digitalisation, and continuous learning. Circular economy solutions are often created by bringing together different competences and organisations. This is why collaboration between research institutes, companies and other RDI actors related to the CE must be strengthened. Finland's level of competence and research in the carbon-neutral CE must be considerably enhanced.

²⁰ <https://ym.fi/en/-/ministries-seek-partners-to-low-carbon-circular-economy-agreement>

²¹ <https://www.materiaalitkiertoon.fi> (in Finnish)

²² https://www.motiva.fi/ratkaisut/materiaalitehokkuus/uusi_kiertotalouden_osaamisverkosto (in Finnish)

²³ <https://kasvuopen.fi/> (in Finnish)

What Finland is doing and where it is now:

Finland will promote **digital solutions** that support the CE.

- The CE requires reliable, traceable and trackable information. Digitalisation makes this possible. The first steps have been taken to define the information, architecture and operating methods that will be needed. Finland will also analyse the digital opportunities related to incubators. Responsible organisation: Ministry of Economic Affairs and Employment.

Finland will launch and promote **circular economy ecosystems**.

- This measure is still in the early planning stage. Responsible organisation: Ministry of Economic Affairs and Employment.

Finland will prepare a **design programme** for the CE.

- Finland is preparing a training and coaching programme on the CE for corporate management and people in charge of design, research and development. The concept and plan were finalised in early 2022, and the training that takes about a year will be organised in 2023. Responsible organisation: Ministry of the Environment.

Finland will include CE competence in its **education system and working life skills**.

- Finland will cooperate with partners who promote foresight work on competence needs, lifelong guidance and continuous learning to ensure that CE perspectives are incorporated in existing operating models. Responsible organisations: Ministry of Economic Affairs and Employment, Ministry of the Environment and Ministry of Education and Culture.

Monitoring progress towards a circular economy

This theme is discussed in section on monitoring and targets.

Circular economy policy elements included in other policies

According to the Strategic Programme to Promote a Circular Economy, Finland's position as a pioneer of the CE requires action at national and EU levels, as well as a consistent and goal-oriented foreign policy. This must be apparent in the country's branding, **trade** policy, **development** policy, promotion of **exports** and multilateral environmental policy forums.

A comprehensive foreign policy on the CE as part of its climate and innovation policy will reinforce Finland's role in the international implementation of the Sustainable Development Goals. It will also create opportunities to offer Finnish and European CE solutions in international markets.

To achieve this, Finland must be active in EU and international negotiations on natural resource agreements and commit to continuing the activities of the World Circular Economy Forum (WCEF). Finland's export opportunities can also be furthered by combining the products and innovation of different companies in complete solutions for customers.

What Finland is doing and where it is now

Promote the global transition to the CE.

- This measure is still in the early planning stage. Organisation responsible: Ministry of Foreign Affairs.

Develop a coordination model to promote the export of Finnish CE solutions.

- This measure is still in the early planning stage. Organisation responsible: Ministry of Foreign Affairs.

Monitoring and targets

Assessment of circular economy performance

Production and consumption:

- Waste generation: the generation of municipal waste per person has increased over the last 4–5 years, but particularly during 2020. Of the different types of separately collected waste, the greatest increase was for paper and cardboard, biowaste and plastic waste. No deep analysis of the generation of waste has been produced. Overall, Finland's domestic material consumption (DMC) and waste generation statistics are dominated by the country's extensive mining industry.

Waste Management:

- Recycling rates: municipal waste is mainly directed to energy recovery, and only a very small proportion is landfilled. Energy recovery of municipal waste is based on the combined production of electricity and heat, with heat particularly recovered in district heating networks. Of **all waste** produced in Finland, excluding major mineral wastes, the proportions going to material and energy recovery remain roughly equal ⁽²⁴⁾.
- Recycling/recovery for waste streams: recycling rates of different waste streams have improved over the past years, especially for wood and plastic packaging. For other packaging, such as paper and cardboard, glass and metal, are already quite high ⁽²⁵⁾.

Secondary raw materials:

- Contribution of recycled materials to raw materials demand/circular material use rate: this indicator has varied over past years, as it is strongly connected to the DMC and mining activity that varies from year to year. Mineral wastes from mining have increasingly been directed to material recovery, which has a positive effect on the CMU rate.
- Trade in recyclable raw materials: imports of raw materials are quite steady, but exports have increased over the past few years. Most of the exports consist of biomass, such as wood, as well as metal ores and non-metallic minerals.

Competitiveness and innovation:

- Private investment, jobs and gross value added related to CE sectors: some of these indicators have been calculated as part of the CE business indicators ⁽²⁶⁾. The turnover of circular industries (recycling, repair and reuse, and renting and leasing²⁷) has grown steadily between 2013 and 2019. The number of personnel has also grown slightly, although the number of circular establishments in CE industries has fallen somewhat.
- The number of patents related to recycling and secondary raw materials: the number varies from year to year.

Many of the indicators that use DMC or other data from economy-wide material flow accounts (EW-MFA) are somewhat biased, when comparisons are made between the EU countries, as Finland's **material and waste flows are dominated by the mining industry**. In the case of packaging waste, Finland has a steady and constantly improving system for collecting different separately collected waste streams.

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

Finland has a monitoring framework connected to the Strategic Programme to Promote a Circular Economy.

The monitoring framework utilises existing statistics on material and waste flows. In addition, new indicators, such as ones based on barometers for companies and consumers, are being developed.

²⁴ Waste statistics: <https://www.stat.fi/en/statistics/jate>

²⁵ <https://www.ymparisto.fi> (In Finnish)

²⁶ https://www.stat.fi/tup/kiertotalous/kiertotalousliiketoiminnan-indikaattorit_en.html

²⁷ Circular economy industries <https://www.stat.fi/tup/kiertotalous/kiertotaloustoimialat.html> (in Finnish)

The Strategic Programme to Promote a Circular Economy in Finland includes the following indicators:

- domestic material consumption (DMC) ⁽²⁸⁾;
- specific material input required for domestic end use; raw material consumption (RMC) ⁽²⁹⁾;
- resource productivity (GDP/RMC)³⁰;
- circular material use rate (CMU rate);
- net sales and number of companies in circular economy sectors;
- eco-innovation ⁽³¹⁾;
- innovative public procurement ⁽³²⁾;
- municipal, packaging, and construction waste volumes and recycling rates.

The list will be complemented with indicators based on barometers for companies and consumers, which are in development.

In addition to these, there are extensive research and development activities in Finland to develop the monitoring of the CE on many levels ⁽³³⁾.

Circular economy targets

The Strategic Programme to Promote a Circular Economy set the first targets for the CE in Finland. The targets are the following.

- The consumption of **non-renewable natural resources** will decrease but the sustainable use of renewable natural resources may increase only to the extent that the total consumption of primary raw materials in Finland in 2035 will not exceed what it was in 2015. Natural resources used to manufacture products for export are not covered by the objective ⁽³⁴⁾.
- The **productivity of resources** (GDP/RMC) will double by 2035 from what it was in 2015.
- The **circular material use rate** (CMU) will double by 2035. The reference year is not defined yet.

The calculation method for RMC is being updated during 2022–2023 and will also be applied, backwards, to the time series. Where possible, the time series will be updated beginning from the year 2000. The CMU has been calculated for years 2013–2018, and years 2019–2022 will be updated during 2022–2023.

In the future, it will be possible to apply the updated RMC for the CMU calculations as well. Compared to DMC, RMC will also be a better reference for country-level comparison, as it takes into account more widely the material inputs, for example in the heavy mining industry.

28 <https://pxnet2.stat.fi>

29 Statistics Finland and the Finnish Environment Institute. <https://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/>

30 <https://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/>

31 https://ec.europa.eu/environment/ecoap/indicators/index_en

32 Eurostat

33 <https://materiaalitkiertoon.fi/en-US/Monitoring>.

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

Innovative approaches and good practice

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

No additional information available.

Examples of private policy initiatives (sectoral)

There is a broad participation from the **plastics industry** in the Plastics Roadmap for Finland, which is closely related to the circular economy strategies ⁽³⁵⁾.

The **food production industry** in Finland has signed a voluntary agreement on material efficiency, aiming, for example, to decrease the amount of food waste ⁽³⁶⁾.

³⁵ <https://muovitekarta.fi/in-brief/>.

³⁶ <https://www.ptv.fi> (In Finnish).

The way forward

Addressing barriers and challenges

Some of the challenges that Finland faces include the high domestic material consumption, which affects the circular material use rate as well. Both indicators put Finland behind many other EU countries.

Ranking types of barrier

No information available.

Future policy plans

No additional information available.

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<https://www.eionet.europa.eu/etcs/etc-ce>

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