Circular economy country profile 2024 – Lithuania

European Environment Agency
European Topic Centre
Circular economy and resource use

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

Contents

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)[1], 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'[2].
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[3] were published alongside the EEA report 'Circular Economy policy innovation and good practice in Member States'[4] (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 Lithuania, all input was provided by the Lithuanian Ministry of Environment. 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.

[1] More from less — material resource efficiency in Europe — European Environment Agency (europa.eu)
[2] Resource efficiency and the circular economy in Europe 2019 — European Environment Agency (europa.eu)
[3] Country profiles on Circular Economy in Europe — Eionet Portal (europa.eu)
[4] draft-report-for-dg-env_final.pdf (europa.eu)

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

Lithuania – facts and figures

GDP: EUR 72.0 billion (0.4 % of EU27 total in 2023)

GDP per person: EUR 25,070 (purchasing power standard) (85.9 % of EU27 (from 2020) total per person)

Use of materials (domestic material consumption (DMC))
56.9 million tonnes DMC (0.9 % of EU27 total in 2022)
20.1 tonnes DMC/person (141.3 % of EU27 average per person in 2022)

Structure of the economy (2023):
Agriculture: 3.3 %
Industry: 26.7 %
Services: 70.0 %

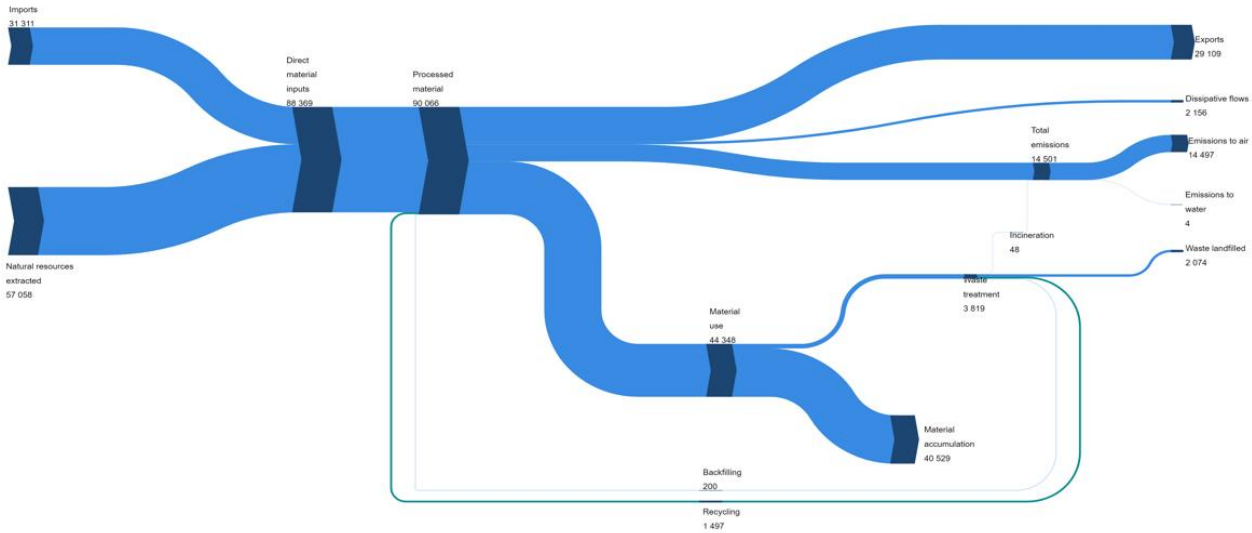
Employment in circular sectors:
39,115 people employed in CE sectors (0.9 % of EU total in 2021)
People employed expressed as a percentage of total employment: 2.8 % (compared to 2.1 % for EU average in 2021)

Surface area: 65,286 square kilometres (1.5 % of EU27 total)

Population: 2,857,279 (0.6 % of EU27 total in 2023)

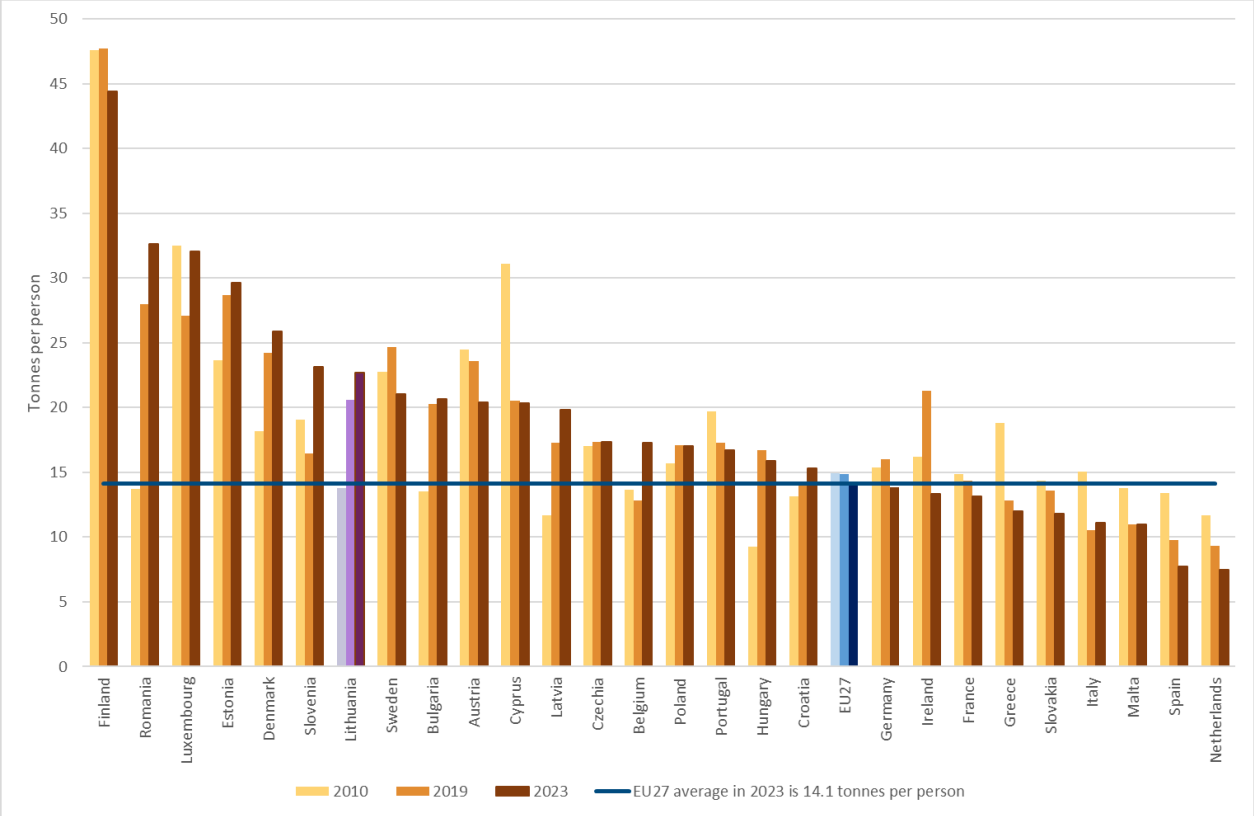
Note: all definitions and metadata used in this profile are taken, as shown, from Eurostat
Source: Eurostat datasets, EU27 2021 EU27 2022 and EU27 2023 (accessed 21 August 2024)

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



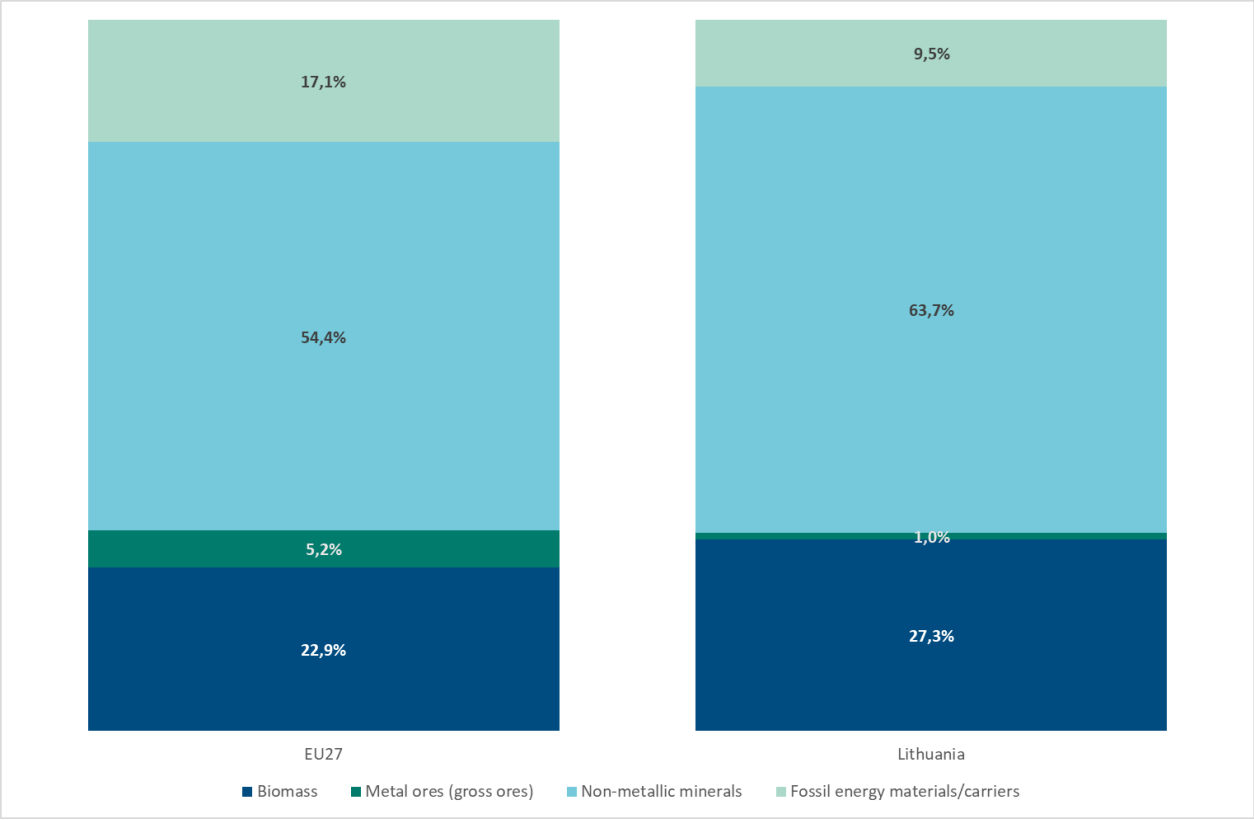
Source: Eurostat (2024) [env_ac_mfa], [en_ac_sd], [env_wassd] (accessed 21 August 2024)

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



Source: Eurostat (2024) [env_ac_rme] (accessed 21 August 2024)

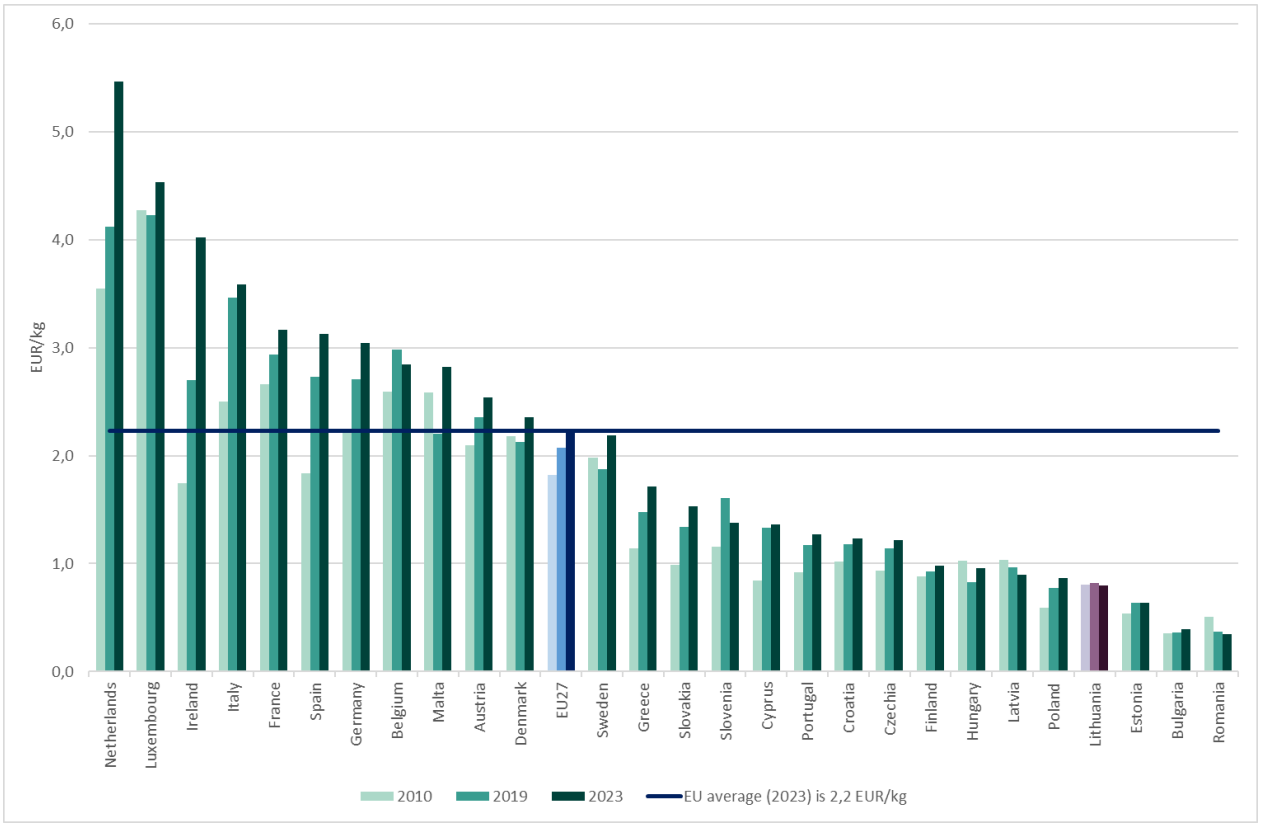
Figure 3 Domestic material consumption by selected material category, EU and Lithuania, 2023, per cent



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

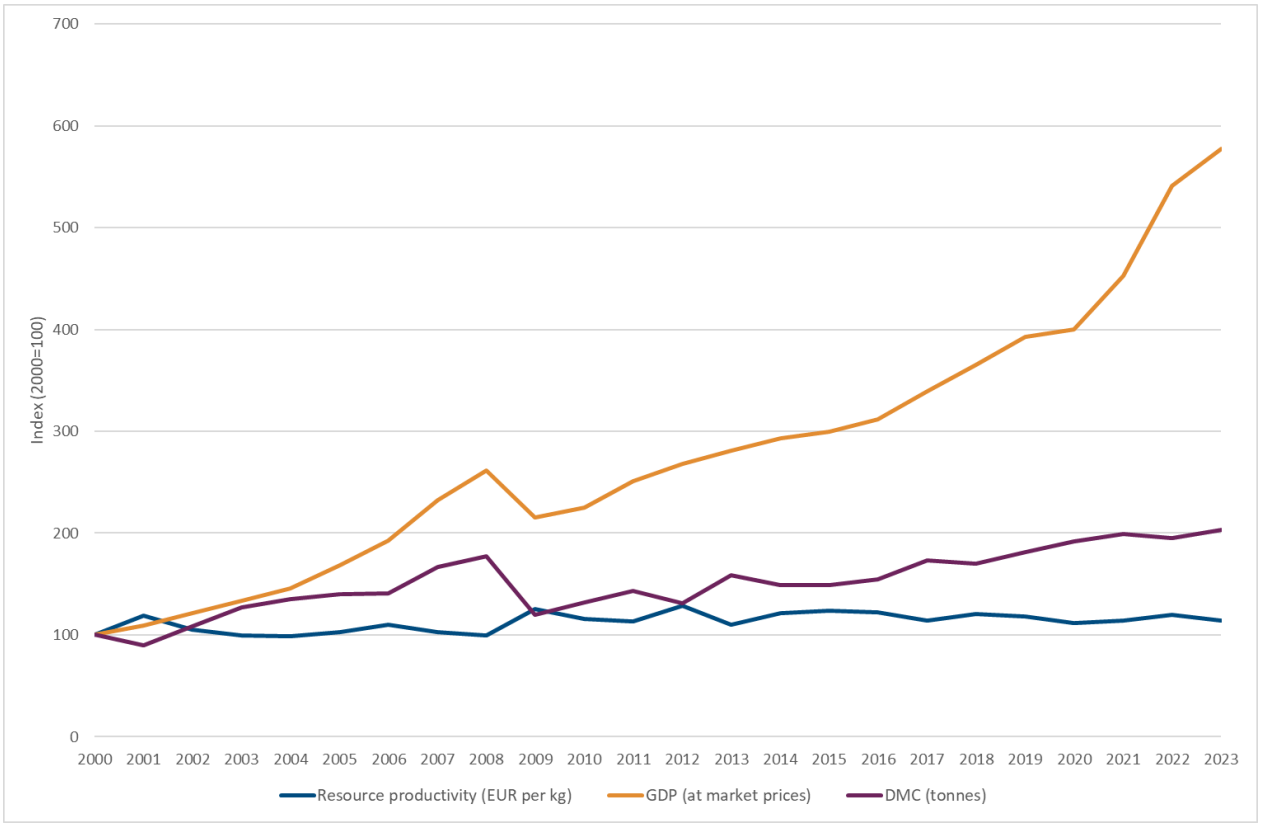
Source: Eurostat (2024) [env_ac_mfa] (accessed 21 August 2024)

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



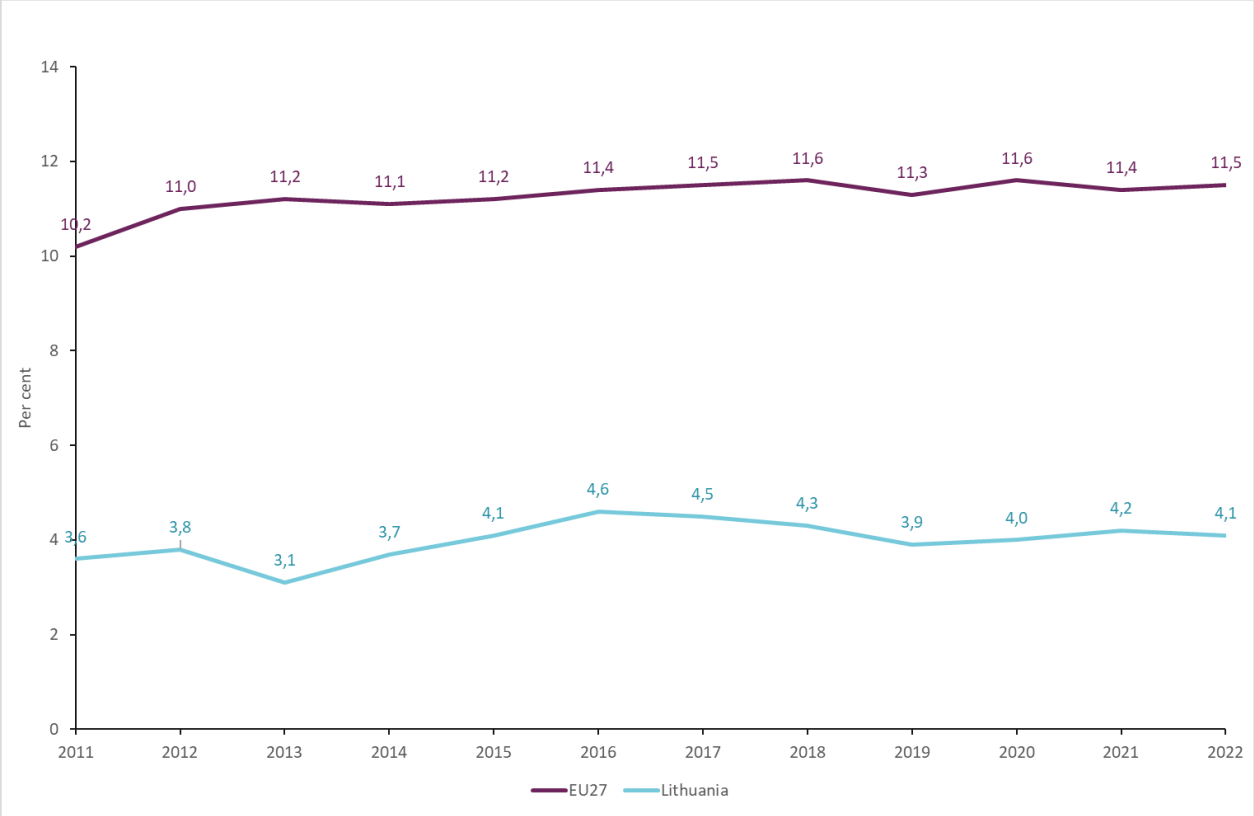
Source: Eurostat (2024) [env_ac_rp] (accessed 21 August 2024)

Figure 5 Gross domestic product, domestic material consumption and resource productivity trends, Lithuania, 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 Lithuania, 2011–2022, per cent



Source: Eurostat (2024) [env_ac_cur] (accessed 21 August 2024)

Figure 7 Material import dependency in Lithuania, 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

Guidelines for the Lithuanian transition to a circular economy by 2035 have been approved by the Government resolution of 21st July 2023 ([5]). They will help to establish more sustainable resource use practices, protect the environment, reduce waste generation, and turn the resulting waste into a valuable secondary raw material to be used in new production processes.

The Guidelines **include the measures already planned by the existing strategic documents**: 1) the National Progress Plan ([6]), 2) the National Climate Change Agenda ([7]) (consolidated vision of 2050 "Lithuanian economy - circular and climate neutral"), 3) the National Environmental Protection Strategy ([8]), 4) the Development Program for environmental protection and climate change management of the Ministry of Environment, who is responsible for managing the 2022-2030 Development Program ([9]); 5) the 2021-2030 National Energy and Climate Action Plan ([10]) to ensure Lithuania's transition from a linear "make-use-dispose" to a climate-neutral, resource-saving and waste-reducing closed-cycle economy. The Guidelines also plan the adoption of new measures.

There are **six priority directions** (i.e. intervention areas that are deemed to contribute the most to the goals of the circular economy), namely industry, construction, bioeconomy, transport, waste, and consumption. The implementation of the measures of each direction is the **responsibility of a specific ministry**, according to its competence. The **Ministry of Environment coordinates the overall implementation process**. Institutions are required every year to submit reports to the Ministry of the Environment on the implementation of the measures for which they are responsible. The first reports on the measures implemented or which were ongoing in 2023 were prepared and publicly presented and discussed on 28 May 2024.

Lithuania intends to appoint an authority, responsible for circular economy monitoring and implementation. This authority will conduct analytical assessments and scientific research, monitor and evaluate international and national trends, and seek the best ideas and solutions to achieve circular economy goals. Additionally, it will aim to discover ways to improve existing measures, set new ones, and enhance the implementation structure, potentially through new means and options. **To further develop the circular economy model, a digital monitoring and control system has also been planned**. (measure 1.1.1 of the Guidelines, which should be implemented in 2027).

Circular economy policy elements included in other policies

Circular economy policy element	Included in policy
Waste management measures; support to the establishment of reuse and repair centres; a working group has been established to address food loss.	National Waste Prevention and Management Plan 2021-2027 (in Lithuanian)
Agriculture (bioeconomy) (no-till farming,	Lithuanian Agriculture and Rural Development Strategic Plan 2023-2027 (in Lithuanian), approved by the

[5] https://am.lrv.lt/uploads/am/documents/files/VPA20230621_2%2Bkl_%2Bpriedas(1)(1).pdf (in Lithuanian). These guidelines represent the National Action Plan for the Circular Economy 2023-2035, which was in preparation according to the 2022 CE Country Profile.

[6] https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/c1259440f7dd11eab72ddb4a109da1b5/asr (in Lithuanian).

[7] https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/7eb37fc0db3311eb866fe2e083228059?positionInSearchResul (in Lithuanian).

[8] https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/609a6f82ea4e11e4ada6f94d34be6d75/asr (in Lithuanian).

[9] https://www.e-tar.lt/portal/lt/legalAct/7b19ac40b1c011ec8d9390588bf2de65 (in Lithuanian).

[10] https://enmin.lrv.lt/uploads/enmin/documents/files/Teisin%C4%97%20informacija/Teis%C4%97s%20aktai/Bendrieji%20energetikos%20strateginiai%20dokumentai/NECP/Lietuvos_Respublikos_nacionalinis_energetikos_ir_klimato_srities_veiksmu_planas.pdf (in Lithuanian).

development of organic farming, short supply chains)	European Commission on 21.11.2022 by Implementing Decision C(2022) 8272

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 the Lithuania's 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.

Based on the EU Monitoring Framework, in comparison to the EU average, **in Lithuania the major concern is related to the circular economy indicators on material consumption and secondary raw materials**.
During the period 2010-2021, the Lithuanian Circular Material Use Rate (CMUR) increased from 3.1% up to 4.1%, without more pronounced trends of change in the last years. Despite the waste collection and recycling infrastructure of the country is improving, **only a small part of secondary raw materials is used in production** (according to Eurostat data the CMUR in 2022 was 4.1%, while the EU average was 11.5%). However, the trends of CMUR depends on two main factors: the absorption of secondary raw materials by the economy and the internal consumption of materials. The latter factor is particularly relevant for explaining Lithuanian CMUR, as the country's economy stands out for its high receptivity to resources. Indeed, the **country's material footprint was 23 tonnes per capita in 2022** (the EU average was 15 tonnes per capita) and it increased by 15% since 2018.
Relatively **low productivity of resources can be explained by Lithuania's industrial and economic structure, which is dominated by outsourced production using medium-low and low-advanced technology, low and medium value-added production and limited use of digital solutions.**
The changing attitude of the country's business can be singled out as a **positive trend in terms of more efficient use of resources**. According to the Eurobarometer survey in 2021[11], to use resources more efficiently, Lithuanian companies most often saved materials (63% of respondents in 2021; 33% in 2019), energy (57% of respondents in 2021, 42% in 2019) and water (46% of respondents in 2021, 35% in 2019), reduced the amount of generated waste (49% of respondents in 2021, 21% in 2019). Resource productivity-enhancing practices, such as industrial symbiosis, in which waste enters new production cycles, are less common among domestic companies, with 27% of respondents who sell leftovers and waste to other companies (15% in 2019) and 15% who recycle or reuse waste within the company (6% in 2019). Due to the dominance of contract manufacturing, companies are less likely to apply the principles of ecological planning, according to which manufactured products are easier to maintain, repair or reuse (21% of respondents; 7% in 2019). The latter factor is relevant in promoting the transition to a circular economy, because sustainable design is very important in reducing the negative impact of products on the environment during their entire life cycle.

[11] https://europa.eu/eurobarometer/surveys/detail/2287

No estimates for the role of the informal/voluntary economy in the CE are available, or better information/data on employment in CE related sectors than the Eurostat data.

No	Indicator	EU average	Lithuania	Comments
1.	**Production and consumption**			
1a-b	**Material consumption**			Lithuanian indicator 1a is higher than EU average, and indicator 1b is lower that the EU average.
	1a Material footprint (tonnes per capita)	15 (2022)	23 (2022)	
	1b Resource productivity (index 2000=100)	137.5 (2022)	114 (2022)	
2	Green public procurement			
3a-f	**Waste generation**			Lithuanian indicator 3a is lower than EU average, but it is quite stable (2,327 kg/ca in 2016). Indicator 3b shows that more waste is generated per GDP in Lithuania in comparison to EU average. Lithuanian indicators 3c and 3e show lower consumption levels than the EU average, but the per capita generation of food waste (3d) and plastic packaging waste (3f) is higher.
	3a Total waste generation per capita (kg per capita)	4,815 (2020)	2,395 (2020)	
	3b Total waste generation (excluding major mineral waste) per GDP unit (kg per thousand EUR, chain linked volumes, 2010)	65 (2020)	105 (2020)	
	3c Generation of municipal waste per capita (kg per capita)	513 (2022)	465 (2022)	
	3d Food waste (kg per capita)	131 (2021)	139 (2021)	
	3e Generation of packaging waste per capita (kg per capita)	189.8 (2021)	152.3 (2021)	
	3f Generation of plastic packaging waste per capita (kg per capita)	36.1 (2021)	36.5 (2021)	
2. Waste management				
4a-b	**Overall recycling rates**			The Lithuanian overall recycling rates are similar or ever higher than the EU average.
	4a Recycling rate for municipal waste (%)	48 (2022)	48.4 (2022)	
	4b Recycling rate for all waste excluding major mineral waste (%)	58 (2020)	72 (2018)	
5a-c	**Recycling rates for specific waste streams**			The Lithuanian recycling rates for specific waste streams are higher than the EU average.
	5a Recycling rate for overall packaging waste (%)	64 (2021)	60.7 (2021)	
	5b Recycling rate for plastic packaging waste (%)	40.7 (2021)	44.8 (2021)	
	5c Recycling rate for electrical and electronic equipment waste that is separately collected (%)	81.1 (2021)	84.3 (2021)	
3.	**Secondary raw materials**			
6a-b	**Contribution of recycled materials to demand for raw materials**			Lithuanian indicator 6a is lower than EU average.
	6a Circular material use rate (%)	11.5 (2022)	4.1 (2022)	
	6b End-of-life recycling input rates (%)	N/A	N/A	
7a-c	**Trade in recyclable raw materials**			
	7a Imports from outside the EU (thousand tonnes)	39,835.3 (2023)	495.1 (2023)	
	7b Exports to outside the EU (thousand tonnes)	39,267.6 (2023)	948.2 (2023)	
	7c Intra-EU trade (thousand tonnes)	82,445.7 (2023)	902.3 (2023)	
4.	**Competetivness and innovation**			

8a-c	**Private investments, jobs and gross value added related to circular economy sectors**		
	8a Private investments (% GDP, current prices)	0.8 (2021)	0.8 (2021)
	8b Employment (% total employment)	2.1 (2021)	2.8 (2021)
	8c Gross value added (% GDP)	2.1 (2021)	1.8 (2021)
9	**Green innovation**		
	9 Patents related to waste management and recycling (number)	206.6 (2020)	0 (2020)
5.	**Global sustainability and resilience**		
10a-b	**Global sustainability**		
	10a Consumption footprint (index 2010=100)	109 (2022)	108 (2022)
	10b GHG emissions from production activities (kg per capita)	6,481.2 (2022)	6,966 (2022)
11a-b	**Resilience**		
	11a Material import dependency (%)	22.4 (2022)	35.4 (2022)
	11b EU self-sufficiency for raw materials (%)	11 (2022)	N/A

Source: Eurostat 2022([12])

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

Currently, a **draft of the rules for monitoring the implementation of circular economy measures has been prepared,** which makes use of the same indicators of the EU Monitoring Framework. According to the Government's decision, institutions responsible for the implementation of the specific measures/indicators set by the Guidelines for the Lithuanian transition to a circular economy by 2035 must submit every year a report on their implementation covering the previous year to the coordinating institution (Ministry of the Environment) by April 30. The Ministry of the Environment has prepared a summary report to be submitted to the Government by 1 June 2024 and publicly presented, during a seminar, on 28 May 2024.
A digital monitoring tool is planned to be developed, according to measure 1.1.1 of Annex 1 of the Guidelines to be implemented by 2027 ([13]).

Circular economy targets

The Ministry of the Environment provided **support for waste prevention**: support for small businesses selling reused items or repairing items; support for the production of sustainable, long-lasting, repairable products; support for campaigns to prevent food waste and encourage the choice of reusable items and the reuse of items; development of a methodology for modelling the life cycle of buildings ([14]).
In the National Progress Plan, **Lithuania set the objective of reaching the EU average CMUR in 2025**. Lithuania circularity rate was 4.1 % in 2022, whereas EU average was 11.5 %. The analysis of the structure of Circular material use indicator rate was published by the Government's Center for Strategic Analysis (STRATA) in 2022 ("Žiediškumo indekso struktūros vertinimas ir poveikio sričių indekso pokyčiui identifikavimas") ([15]).
Lithuania plans to promote the preparation of waste for recycling, the increase of its waste processing and use of secondary raw materials for the manufacturing of other products. By order of the Minister of

[12] https://ec.europa.eu/eurostat/web/circular-economy/monitoring-framework
[13] https://sena-am.lrv.lt/uploads/am/documents/files/VPA20230621_2%2Bkl_%2Bpriedas(1)(1).pdf (in Lithuanian).
[14] https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/54776f3006fd11eeb489c7d891071d0a/asr (in Lithuanian).
[15] https://strata.gov.lt/wp-content/uploads/2024/01/Ziediskumo-indekso-strukturos-vertinimas-ir-poveikio-sriciu-indekso-pokyciui-identifikavimas.pdf (in Lithuanian).

the Environment, the requirements were approved that have to be met in order to benefit from the financial support. Specific funds have been provided to improve the capacity of recycling/processing facilities for textile, plastic, biodegradable, and green waste, as well as for modernizing and developing waste preparation for recycling and recycling infrastructure ([16]). Support is also provided for the introduction of technologies that enable the use of secondary raw materials in production processes.

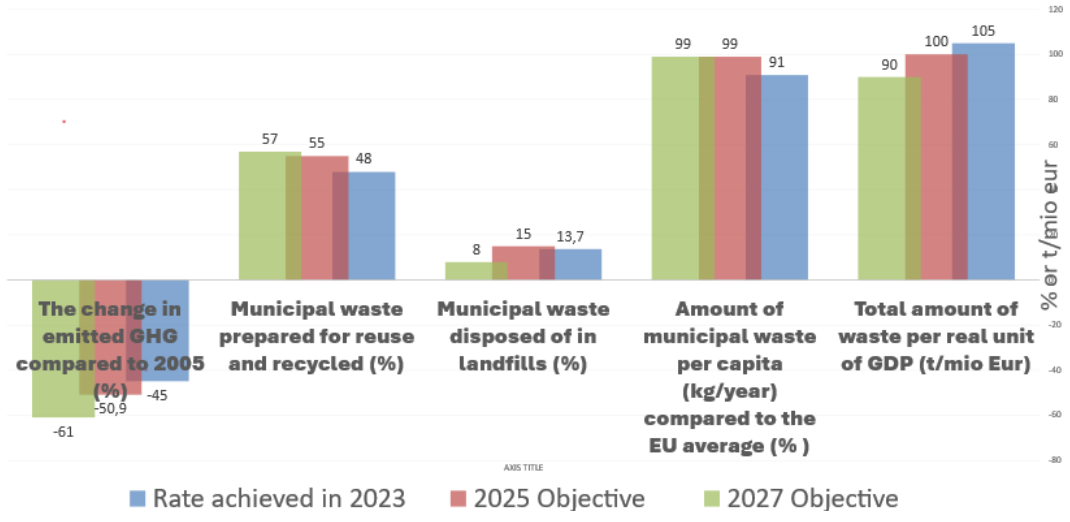
To ensure proper recycling of waste, it is planned to **apply the principle of extended producer responsibility to textiles and furniture in 2027** and, in the future, to hygiene, construction, toys and other items as well.

To promote the substitution of natural raw materials by secondary raw materials, CE Guidelines provide funding to technologies that increase the use of secondary raw materials in products and expand the range of green procurement criteria to include durability, repairability, reusability, recyclability and use of secondary raw materials in specific products.

Another ambitious goal is to reduce landfilling. **In 2030, no more than 5% of municipal waste generated will be disposed of in landfills** (in 2022 the landfilling rate was 13.7 %). Other CE-related objectives established by Lithuanian legislation are shown in the Table and Figure below.

CE-related objectives set by Lithuania

Description of the objective	Rate achieved in 2023	2025 Objective	2027 Objective
Total amount of waste per real unit of GDP (t/mln. Eur)	105	100	90
Amount of municipal waste per capita (kg/year) compared to the EU average (%)	91	99	99
Municipal waste disposed of in landfills (%)	13.7	15	8
Municipal waste prepared for reuse and recycled (%)	48	55	57
Change in emitted GHG compared to 2005 (%)	-45	-50.9	-61



Source: Aplinkos apsaugos agentūra 2023 ([17])

[16] https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/dc963370e53211eda305cb3bdf2af4d8/asr (in Lithuanian).

[17] https://aaa.lrv.lt/lt/veiklos-sritys/atliekos/valstybinis-atlieku-prevencijos-ir-tvarkymo-planas/valstybinio-atlieku-tvarkymo-2021-2027-m-plano-ataskaitos (in Lithuanian).

Innovative approaches and good practices

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

➔ *Good practice example: circular business models*

- The Ministry of Social Security and Labor runs a small **business program to support the goals of the green transition and circular economy**. Measures have been set, which are aimed at increasing the employment of groups of vulnerable persons, within the framework of the inclusive labour market development programs ([18]). These programs run from 2023 to 2026. In 2023, 225 jobs in small business area were created related to the implementation of the goals of the green transformation and/or promoting the circular economy.

➔ *Good practice example: Financial support programmes targeting CE*
Financial measures supporting the implementation of circular economy:

- Ministry of Environment: support to the purchase of textile plastic, the creation of biodegradable waste processing facilities and the use of secondary raw materials ([19]).
- Ministry of Environment: support to waste prevention ([20]).
- Ministry of the Economy and Innovation: creation of an incentive system to encourage industrial companies to switch to circular economy ([21]).

➔ *Good practice example: Green public procurement*
Since 2023 **green public procurement** is mandatory in Lithuania. Updated rules for the application of protection criteria in green procurement have been approved ([22]).

➔ *Good practice example: Food waste*
Ministry of Environment: adoption of waste management rules regarding the organization of **food and kitchen waste sorting** ([23]). These requirements encouraged the correct sorting of food waste, separating it from other waste and not contaminating it with other substances, and thus improving its processing into high-quality compost, suitable for improving the quality of the soil, as well as its use for the cultivation of insect larvae.

➔ *Good practice example: Construction waste*
Ministry of the Environment: end-of-waste criteria for **construction and demolition waste** ([24]). These requirements encourage and create opportunities for the use of construction waste as materials for roads or the production of other products.

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[18] https://socmin.lrv.lt/lt/veiklos-sritys/strateginis-valdymas/aktualus-strateginiai-dokumentai/pletros-programu-pazangos-priemones/itraukios-darbo-rinkos-pletros-programos-priemones/priemone-nr-09-001-02-03-02-didinti-pazeidziamu-asmenu-grupiu-uzimtuma/ (in Lithuanian).

[19] https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/dc963370e53211eda305cb3bdf2af4d8/asr (in Lithuanian).

[20] https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/54776f3006fd11eeb489c7d891071d0a/asr (in Lithuanian).

[21] https://www.e-tar.lt/portal/lt/legalAct/8e51896000f111ed8fa7d02a65c371ad/asr (in Lithuanian). For further information see also: https://eimin.lrv.lt/lt/ekonomikos-ir-inovaciju-ministerija/administracine-informacija/planavimo-dokumentai/pletros-programos/ekonomikos-transformacijos-ir-konkurencingumo-pletros-programa/pazangos-priemone-nr-05-001-01-04-02-skatinti-imones-pereiti-link-neutralios-klimatui-ekonomikos/ (in Lithuanian).

[22] https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.403512/asr (in Lithuanian).

[23] https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/3e0788311e6311edb36fa1cf41a91fd9 (in Lithuanian); https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/4ee3fdb2f0fd11edb649a2a873fdbdfd?jfwid=32wf9pme (in Lithuanian).

[24] https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.291562/rVTeNOlPRd (in Lithuanian).

➔ *Good practice example: Waste management*
Ministry of Environment: adoption of **waste treatment requirements** for businesses that do not have a significant impact on the environment, establishing exceptions to the need to have a pollution or integrated pollution prevention and control permit for the processing of non-hazardous waste generated by the company ([25]).

Examples of private policy initiatives (sectoral)

➔ *Good practice example: Food waste*
A startup company was established by organic waste experts in Lithuania with the main goal of **returning food waste back to food chain using black soldier fly** (400 tons of food waste was processed in 2023 and the quantities are progressively growing) ([26]).

➔ *Good practice example: Circular transport*
Dancer ([27]) is an innovative, fully sustainable, reliable and easy-to-access, electric city bus, which was designed and manufactured by a group of companies, in cooperation with scientists from local and foreign universities. Two Dancer buses, certified and registered in 2019, have been operating in the city of Klaipėda since spring 2020 with nearly 100,000 km completed by the end of the year. The e-bus Dancer, won the gold medal in the Vehicle, Mobility and Transportation Design category of the prestigious A' Design 2020 awards. With specific regard to CE aspects, it has to be highlighted that Dancer e-bus is the lightest 12 m city bus among competitors and it is manufactured from a composite material which also includes **recycled PET plastic**.

➔ *Good practice example: Circular Solutions for Drink Cartons Recycling (Advanced and Sustainable Hygiene Solutions for the Away-from-Home Market)*
This project was developed by a private Lithuanian company and an Italian company ([28]). It focuses on transforming recycled beverage cartons into hygiene paper products. The Italian company involved in the project has recently started utilizing polyAl (the non-fiber component of carton packages, which includes layers of polyolefins and aluminum) to manufacture soap and paper dispensers for their EcoNatural product range. This innovation achieves a full circle of sustainability.
In distributing these products, the Lithuanian company involved in the project also engages in corporate education on sustainability and circularity. They issue certificates that confirm the ecological benefits of using these specific products made from recycled drink cartoons. The certificates provide evidence of the number of drink cartons recycled, the number of trees saved, and the reduction in CO_2 emissions resulting from the use of specific products made from recycled drink cartons. This is a significant aspect of implementing green procurement.
Simultaneously, the Lithuanian company is striving to implement a closed-loop circular economy at the local and even municipal level. This ensures full circularity and sustainability by using locally generated drink cartons waste and supplying products through local companies ([29]).

[25] https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/7259cbd01d9a11edb36fa1cf41a91fd9 (in Lithuanian).
[26] www.insectum.eu
[27] https://dancerbus.com
[28] https://www.tetrapak.com/insights/cases-articles/polyal-recycling-expansion-lucart?utm_source=LinkedIn&utm_medium=socialmedia&utm_campaign=PPWR-global&utm_content=Carousel_Recycling_Case_Study_3
[29] https://www.kemitek.lt/lt/ied/32/popierius_ir_ranku_higiena-dalytuvai (in Lithuanian).

The way forward

Identifying and addressing barriers and challenges

The **main barriers** to the implementation of CE in Lithuania include the following:

- Market barriers for secondary (recycled) resources;
- Failure of companies to take advantage of CE-related opportunities;
- Lack of consumers awareness and CE-consistent behavior;
- Lack of recycling infrastructure;
- Too much waste is directed to incineration, too little is recycled.
- In the absence of separate collection for reuse, repairable items are destined to recycling (Lithuania is considering the idea, therefore, to set an autonomous reuse target, within the overall EU reuse and recycling target of 60% for municipal waste to be achieved by 2030).

The biggest barrier is that **the internal market is too small for the development of sustainable products**. There is too little domestic purchasing power and too little competitiveness in foreign markets. There is also a **high dependence on imports** and competition from EU Member States and third countries on Lithuania's borders. **Insufficient ecological awareness among consumers** and high levels of consumerism make the reorientation to longevity, repairing products and second hand items difficult. These barriers are exacerbated by **insufficient sorting skills**. **Too expensive repair rates** make it unattractive to choose second-hand products and repair items. Difficulties in the reuse of items are caused by the **import of second hand/waste items** from other Member States, including more than 70,000 tons of second-hand textiles per year. This is also the case for electronics, end-of-life vehicles and furniture. Most of this is disposed, incinerated or exported to third countries. This is clearly at odds with the goals of implementing a CE. The **lack of recycling infrastructure** is a relevant problem especially in the plastic and textile sector. Incorrect sorting of waste (only 30% of waste collected in containers is correctly sorted) and the slow acceleration of food waste sorting have the effect of increasing the amount of incinerated waste (38% of all municipal waste collected in 2022), while recycling and preparation for re-use is growing hard (in 2022, only 48% of municipal waste has been recycled, composted or prepared for reuse). Equipment/infrastructure for recycling waste needs support and improvement. Due to the significant lack of modern waste recycling capacity, the production of secondary raw materials is poorly developed, and, as a result, not enough is used. That is why Lithuania's CMUR, currently only 4.1 %, is far behind the EU average. Because of the lack of national recycling capacity, **separately collected waste would ideally be exported to other countries**, preferably EU Member States, for treatment, which would, at least, retain the secondary raw materials within the EU. The rest, mostly unsorted waste, is used for energy generation, which represents a lower step in the CE hierarchy, which discourages the search for more modern ways of recycling waste.

Suggested solutions:

- Pay greater attention to the **consumer and business sector**, through training and knowledge building. Effective advertising campaigns may encourage the choice of long-lasting, reusable, recyclable items.
- Focus on consumer demand and **fostering sustainable production practices**. This requires strategic political decisions at the European level, underpinned by a collaborative framework among the Member States.
- **Cooperation** through **research and analysis**, leveraging the best international practices, generating innovative solutions, and accelerating the implementation of the circular economy and sustainable resource management, while digitally monitoring the achievement of circular goals.
- Collaborative approaches encouraging knowledge sharing, synergistic efforts among stakeholders, fostering public awareness.
- At the EU, as well as at national level, **businesses must be incentivised to adopt circular business models.** Fiscal and financial measures can play a vital role in supporting industries that use secondary raw materials, thereby accelerating the transition towards a circular economy.

- **Public procurement** to prioritize circularity will not only drive demand for sustainable circular products and services, but also signal the importance of sustainability within the market.
- **Repair bonus (compensation)** schemes could further encourage consumers to utilize items for longer periods, promoting a culture of reuse and repair.
- Lithuania supports the application of **Extended Producer Responsibility** (EPR) to textiles and other items (furniture, construction, toys, hygienic products) and proposes funding for repair and reuse incentives (for electronic, textile, furniture items).
- A **future EU framework** should prioritize reducing primary resource use, promoting secondary recycled materials, ensuring local secondary resources supply, and lessening reliance on global primary resources markets. Legal and financial incentives for using secondary raw materials are crucial for accelerating the transition to circularity at EU-level.

Future policy plans

Since 2022, Lithuania has made progress in implementing several initiatives outlined in its "New Generation Lithuania Plan" 2021-2026 ([30]).

- **Recycling Infrastructure:** significant upgrades to recycling facilities have been completed, leading to higher recycling rates and better waste segregation practices. Investments in modernizing recycling facilities to increase their efficiency and capacity. Plans to support industries to adopt CE practices such as remanufacturing, refurbishment, and sustainable product design. Incentives for companies to develop products that are easier to recycle or have a longer lifespan.
- **Public Procurement:** the share of green public procurement has increased, with more government contracts now requiring adherence to CE principles. Implementing policies to increase the share of green public procurement, encouraging the use of sustainable and recycled materials in public projects. Setting criteria for public tenders that promote CE principles, such as lifecycle costing and resource efficiency.
- **Innovation Projects:** multiple research and innovation projects have been launched, focusing on areas like biodegradable materials, efficient waste-to-energy conversion, and advanced recycling technologies. Funding research projects focused on CE technologies and practices. Establishing of innovation hub to facilitate collaboration between businesses, researchers, and policymakers.
- **Digital Initiatives:** digital tools and platforms to improve waste management efficiency have been introduced and resource tracking has begun, with pilot projects showing promising results in urban areas. Deployment of digital platforms to track and optimize resource use and waste management. Encouraging the development of digital solutions that support CE, such as materials marketplaces and waste tracking systems.

Lithuania's **National Recovery and Resilience Plan** (NRRP) has been updated to include significant measures under the REPowerEU initiative, which aims to decrease the country's dependence on Russian fossil fuels. This alignment with the REPowerEU objectives is part of the broader European Union strategy to enhance energy security and promote clean energy transitions across Member States. 198.4 million Euros were allocated to Lithuania.

Financial resources invested to implement the above-mentioned initiatives under the Plan 2021-2026 "New Generation Lithuania":

- Transformation of the public sector (EUR 212.698 million)
- Innovations and science (EUR 1,050.219 million)
- RepowerEU (EUR 747.56 million)
- Social security (EUR 109.2 million)
- Health (EUR 268 million)
- Education (EUR 311.52 million)

[30] https://finmin.lrv.lt/lt/es-ir-kitos-investicijos/naujos-kartos-lietuva/ (in Lithuanian).

- Digital transformation (EUR 473.41 million)
- Green transition (EUR 676.631 million)

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.

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