

Closing the Loop in the Slovak Republic

A Roadmap Towards Circularity for
Competitiveness, Eco-innovation
and Sustainability

HIGHLIGHTS



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 MINISTRY
OF ENVIRONMENT
OF THE SLOVAK REPUBLIC

 **OECD**
BETTER POLICIES FOR BETTER LIVES

"The Slovak Republic is working to make a strong commitment to transition to a circular, sustainable and low-carbon economy by 2040. The OECD has been supporting these efforts through analytical work and a stakeholder consultation process that have laid the ground for the development of a circular economy roadmap. Our report provides a set of concrete measures that can be incorporated into the roadmap and implemented across a number of priority areas. When adopted, I hope the roadmap to be instrumental in accelerating the transition towards circularity and greater resource efficiency. The OECD stands ready to further support this process in the future."



Alain de Serres,
Acting Director of the OECD Environment Directorate

"The endless waste of food and materials is depleting the resources of our planet. A circular economy roadmap will enable the Slovak Republic to give a second chance to secondary raw materials. We consume more natural resources than our Earth can provide. We produce waste excessively and our consumption grows continuously. The Slovak economy is linear - instead of recycling, we mostly use and throw materials away into landfills. Nevertheless, we have also made a number of positive changes in the area of waste management. We sort biodegradable municipal waste, we use deposit-refund schemes and we stopped using single-use plastics. Changing the overall economic model is not an easy task though, but I believe that the OECD recommendations will help us in our transition towards a circular economy."



Ján Budaj,
Minister of Environment of the Slovak Republic

"The circular economy is one of the main building blocks of the European Green Deal. DG REFORM has supported the Slovak Republic and other Member States on their transition to a circular economy, sharing best practices and ensuring a European approach. By moving to a circular economy, the Slovak Republic can boost its resource productivity and efficient use of natural resources, generate cost savings and create jobs."



Mario Nava,
Director General – Directorate-General for Structural
Reform Support (REFORM)

Key messages

- The Slovak Republic made notable progress in decoupling environmental pressures from economic activity in the past decades. This was mainly driven by structural and technological changes in its economy since it joined the EU.
- Despite the positive trends, future materials consumption in the Slovak Republic is projected to increase by more than 50% by 2050 compared to 2017 levels if no additional policy measures are introduced.
- The increase in materials consumption is likely to have large associated environmental impacts, including significant increases of greenhouse gas emissions. Our estimates show that up to 70% of the Slovak Republic's greenhouse gas emissions are associated with materials management activities. These trends put the country at risk of missing important environmental and climate goals, including the long-term emission reduction targets under the Paris Agreement.
- To restrain materials consumption and its associated negative environmental impacts, the Slovak Republic needs to accelerate its transition towards a circular economy. Achieving this requires policies that more strongly incentivise resource efficiency and circular economy along value chains, and the replacement of linear business models with circular ones. Due to its link to greenhouse gas emissions, the circular economy transition will also play an important role in decarbonising the Slovak economy.
- Our report suggests that **the Slovak circular economy roadmap needs to target the use of economic instruments to stimulate sustainable consumption and production as well as the construction sector and the food and bio-waste value chain**, as priority areas with a particularly large potential for resource efficiency and circularity.
- The identified policy measures across these three areas will help to increase the use of secondary raw materials, support eco-design and eco-innovation, stimulate circular consumption patterns as well as improve waste management, reuse and recycling.
- They will also contribute to increasing the competitiveness of Slovak firms, creating new jobs and enabling citizens to acquire new knowledge, skills and competences.

1 Increasing materials consumption provides a strong case for a circular economy transition in the Slovak Republic

On current trends, the demand for raw materials of the Slovak economy will continue to increase significantly

While the Slovak Republic has made notable progress in decoupling environmental pressures from economic activity in the past decades, its economy remains energy-, carbon- and resource-intensive due to a large manufacturing sector. The overall materials consumption in the country is projected to increase by more than 50%

by 2050 compared to 2017 levels (from 94 Mega tonnes to 142 Mega tonnes) if no additional policy measures are implemented. Notably, metals - particularly iron - and non-metallic minerals – such as construction sand, gravel and crushed rock – are projected to grow at a faster rate than the EU average growth rate.

Economic growth and increased consumption drive the demand for raw materials

The Slovak Republic also has relatively fast economic growth, with annual GDP per capita projected to increase by over 2% between 2020 and 2050, as well as an export driven economy. These trends combined with wealth increases and living standards converging towards the EU averages are the main drivers of the country's increased materials consumption.

Figure 1. Metals and non-metallic minerals are increasing at a fast rate due to large manufacturing and construction sectors in the Slovak Republic

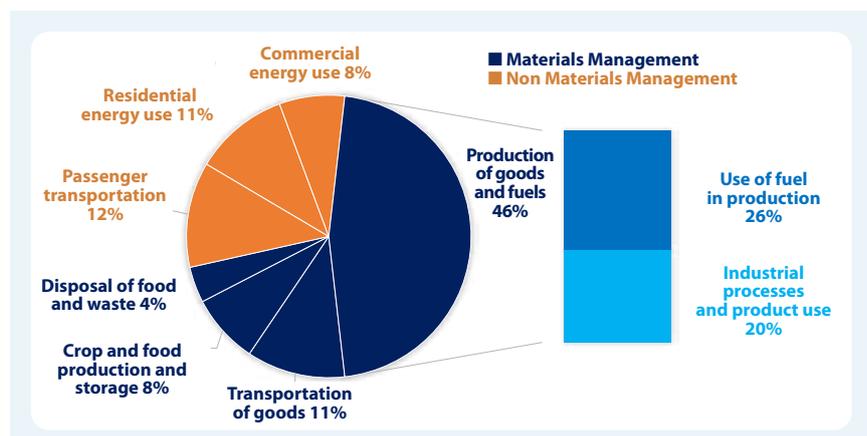
	2020	2050	RATE
🔩 Metals	22 Mt	36 Mt	x1.7
⛽ Fossil fuels	30 Mt	29 Mt	x1
🌱 Biomass	20 Mt	24 Mt	x1.2
🏗️ Non-metallic minerals	32 Mt	53 Mt	x1.7

Increasing consumption of materials generates significant negative environmental impacts

The projected increase in materials consumption is likely to have large associated environmental impacts in the Slovak Republic, including climate change. Around 70% of the country's greenhouse gas emissions were associated with materials management activities in 2019, mainly with the production of goods and fuels. The highest share

of production related emissions were associated with steel and cement production, which are important inputs to the construction sector. This large share of materials management related emissions highlights the importance of the circular economy transition in the Slovak Republic for the achievement of the climate targets.

Figure 2. Materials and non-materials management related greenhouse gas emissions in the Slovak Republic in 2019



2

A national circular economy roadmap is needed to provide the direction of change and to identify where efforts should focus

Given the significant projected growth in materials consumption and the related increases of environmental pressures, policy reforms are urgently needed. A national circular economy roadmap can help to identify how the existing policy framework needs to be complemented, as well as determining where scarce resources need to be focused to maximise impact.

The current policy landscape related to the circular economy in the Slovak Republic is fairly well advanced in the area of waste management, but there is an implementation gap that needs to be addressed. In addition, earlier stages in the product life cycle, such as material extraction, product design and production are currently insufficiently addressed by policies.

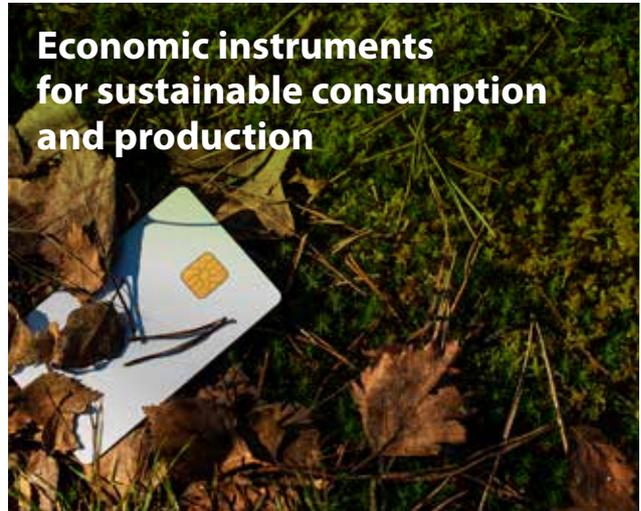
To succeed in fully exploiting the circular potential of the economy, the Slovak Republic will need to support eco-design, eco-innovation and the use of secondary raw materials in production, enable citizens to acquire more environmentally friendly behaviour, and improve waste prevention and material recovery.

The circular economy policy framework needs to target three priority areas in particular

OECD analysis and stakeholder consultations identified three areas where circular economy reforms would be particularly impactful: the use of economic instruments to promote sustainable production and consumption, the construction sector and the food and bio-waste value chain.

Our report proposes more than 30 concrete policy recommendations supported by an implementation plan and a monitoring framework that would need to be introduced across the three priority areas by 2040. Implementing these recommendations can help achieve the circular potential of the Slovak economy as well as climate change mitigation objectives.

Economic instruments for sustainable consumption and production



Construction sector



Food and bio-waste value chain



3 Strengthening the use of economic instruments to stimulate sustainable production and consumption

Economic instruments offer the prospect of achieving circular economy objectives at a lower economic cost, while also incentivising innovation

These policy measures induce firms and individuals to change their behaviour through price signals, but they also provide a degree of flexibility.

They can provide incentives upstream in the

value chain, directed at changing product design and production, but can also be used to stimulate circular consumption patterns or re-use and recycling downstream.

Key policy recommendations to strengthen the use of economic instruments:

- Strengthen the incentives provided by existing landfill taxes and implement new tax measures to address additional stages in the product life cycle (e.g. value added tax reductions for repair, re-use and refurbishment, materials taxes on virgin aggregates and plastics or incineration taxes);
- Improve and re-enforce existing Extended Producer Responsibility (EPR) schemes by introducing eco-modulated fees that incentivise circular design, and possibly extend EPR to additional product groups and waste streams, such as construction products;
- Gradually extend the mandatory use of green public procurement (GPP) criteria as award criteria, and apply GPP to additional product groups (e.g. construction, food and canteen services) and entities; and
- Expand the coverage of well-designed pay-as-you-throw (PAYT) schemes across the Slovak Republic by making PAYT mandatory or by creating additional incentives for municipalities to adopt such schemes, and move beyond volume and frequency subscription based schemes, towards sack- or weight-based schemes, in particular in densely populated areas.

Did you know?

The Slovak Republic increased the share of Green Public Procurement (GPP) from 0.31% in 2019 to 14.74% in 2020 in volume of contracts.

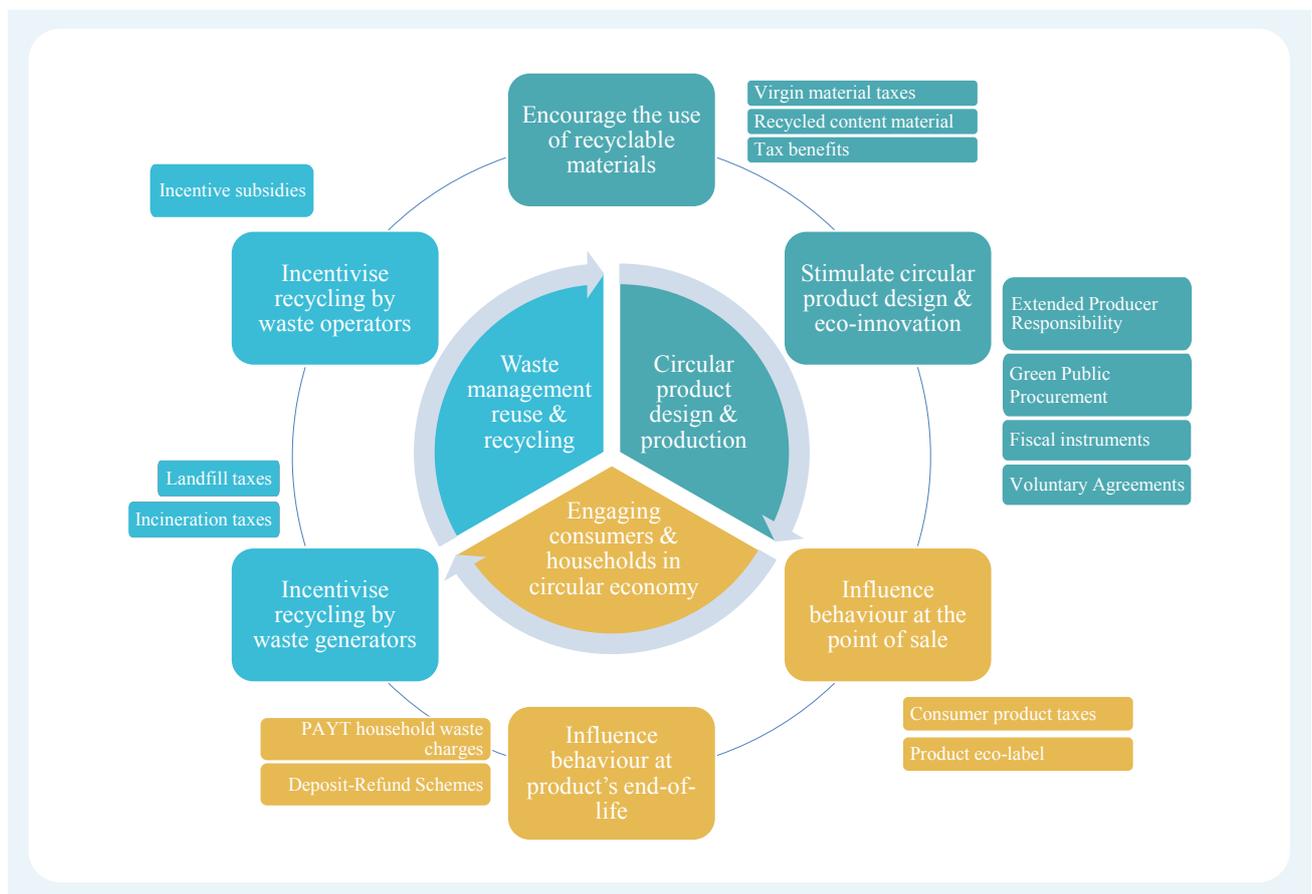
The national GPP target aims to achieve a GPP share of 70% by 2030 both in volume and value of all public contracts.

Source: Ministry of Environment of the Slovak Republic





Figure 3. Overview of economic instruments for the circular economy



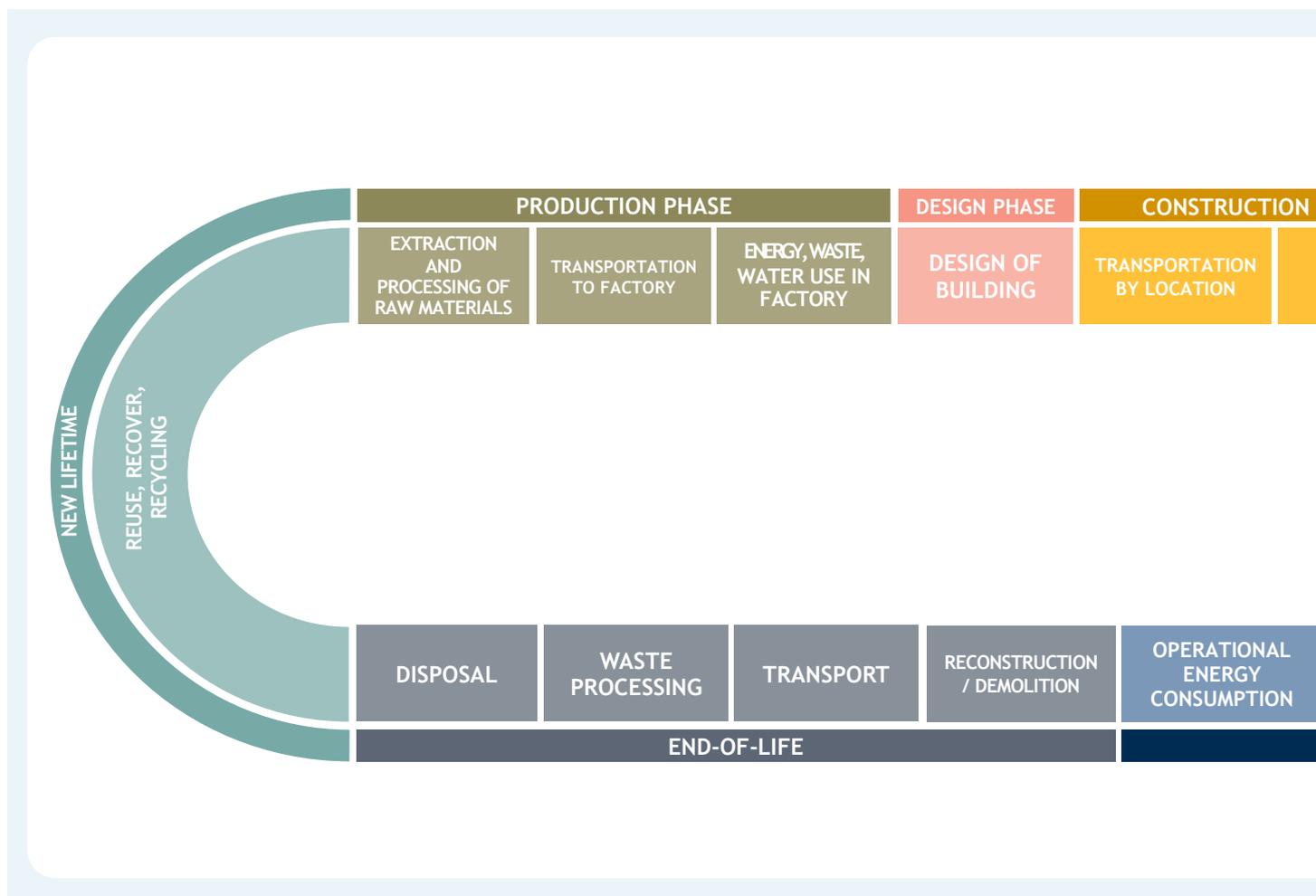
4 Towards a circular construction sector to improve waste management and reduce the use of virgin raw materials

Large untapped opportunities exist in the Slovak construction sector to reduce the use of virgin raw materials and stimulate the use of recycled construction materials

The construction sector is not only an important economic sector in the Slovak Republic but it also accounts for more than half of domestic raw materials use and for a considerable amount of waste generated in the country. Until recently, efforts aimed at increasing circularity in the sector were very limited, with most of the attention focused on improving energy efficiency of buildings.

However, new construction and renovations also offer important opportunities to deploy circular strategies. In particular, incentives encouraging circular design and the use of secondary construction materials are lacking, and would have significant potential to reduce materials consumption and associated environmental impacts.

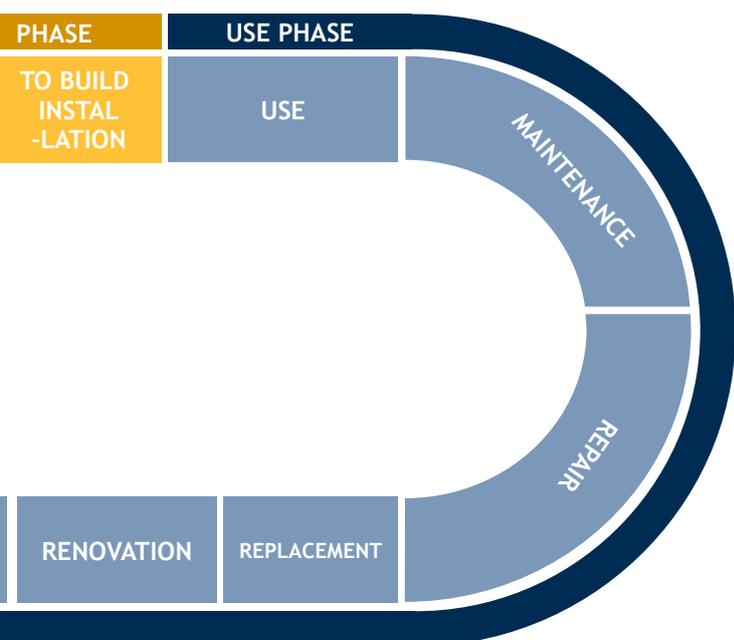
Figure 4. Construction life cycle phases and circular economy





Key policy recommendations to help the country transition to a circular construction sector:

- Introduce a quality standard for recycled construction materials to stimulate the marketing and use of recycled materials and construction products;
- Consider introducing minimum recycled content requirements for certain construction materials within the context of green public procurement (GPP);
- Encourage increased use of secondary raw materials (e.g. recycled steel and concrete) and of renewable materials (e.g. wood) in future deep renovation projects through fiscal incentives (e.g. raw material taxes on aggregates); and
- Introduce mandatory selective demolition, including a system of inspection / audit before and after demolitions take place to increase the recovery of high-quality components and material fractions from construction and demolition waste and to encourage high-quality recycling.



Did you know?

In 2018, almost half of the treated mineral waste from construction and demolition was disposed of in landfills in the Slovak Republic. Only 37% of mineral waste was recycled and around 13% was used for backfilling. This is one of the weakest performances in the EU.

Source: Eurostat

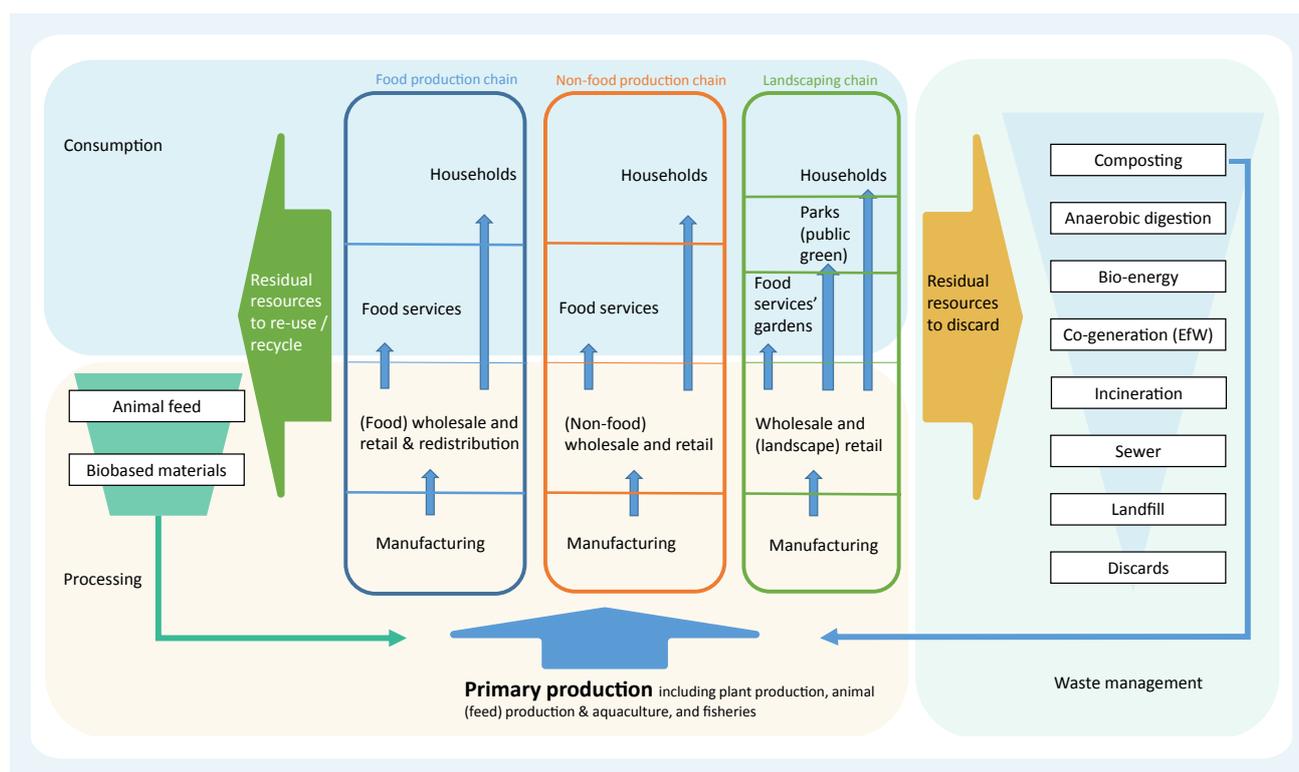
5 A circular food and bio-waste value chain to support waste prevention and management

Implementing circular strategies in the food and bio-waste value chain will help the Slovak Republic achieve EU and national targets as well as decrease food waste

The food system is among the most frequently targeted priority areas in national circular economy strategies given its high consumption of land, water and energy, as well as its large production of potentially greenhouse gas emitting waste. A wide range of potential measures still needs to be implemented within the Slovak food

and bio-waste value chain. While the country's short- and medium-term goals should be on achieving EU waste targets (e.g. recycling and landfill targets), long-term efforts will need to focus on preventing food and other bio-waste, including through food redistribution and by-product valorisation.

Figure 5. Actors, processes and flows of resources for food and other bio-waste value chain in the Slovak Republic





Policy recommendations for a circular food and bio-waste economy:

- Invest in the development of a quantitative approach to policy making, as well as data collection to measure food waste and food losses on a highly granular level, in line with EU methodology;
- Develop effective information and communication tools, focused on food waste prevention directed at consumers (e.g. campaigns and interactive events);
- Strengthen the use of economic instruments (e.g. GPP, value added tax reductions and incentive subsidies) to provide food producers with incentives to reduce by-products at source, to use recycled materials and to provide consumers with incentives to improve their sorting of bio-waste (e.g. PAYT based charges); and
- Develop a supportive regulatory framework for bio-waste management and support not only processing and recycling technologies but also innovation into applications aimed at increasing resource efficiency and valorisation techniques.

Did you know?

Approximately 40% of municipal waste in the Slovak Republic is biodegradable waste, out of which around half is kitchen bio-waste.

Source: INCIEN estimates



6 Circular economy as a means to help decarbonise the economy

The circular economy transition has the potential to significantly reduce greenhouse gas emissions in the Slovak Republic

The highest greenhouse gas abatement potential is found in the construction sector, notably through the application of circular economy measures to steel and cement production. Increasing material substitution for steel, supporting space-sharing practices in non-residential buildings, and improving recycling, recovery, reuse and upcycling of construction and demolition waste are some of the key activities the country could explore to contribute to the achievement of the climate targets.

The food and agriculture sector also provides opportunities for decarbonisation, despite there being less evidence on the abatement potential from applying circular economy strategies in the sector. The Slovak Republic could explore the potential of regenerative farming practices, as well as strengthening its focus on food waste prevention as these have been found to result in higher amounts of avoided emissions than food waste recycling strategies.

Reducing the use of concrete, cement and steel in the building sector over a building's life cycle could diminish emissions from buildings by 61% in the EU in 2050 compared to 2015 levels (Ramboll, Fraunhofer ISI and Ecologic Institute, 2020).

Shifting to more nature-enhancing farming systems and making more effective use of the food that is produced could achieve a 49% net reduction in greenhouse gas emissions (emissions minus carbon sequestration) per year globally in 2050 compared to a business-as-usual scenario (Ellen MacArthur Foundation and Material Economics, 2019).



7

A monitoring framework to support the implementation of the roadmap

A circular economy monitoring framework will enable measuring the progress made towards specific targets and goals of the roadmap through a set of indicators. It will help the Slovak policymakers understand the Slovak Republic's circular economy performance and identify areas for further intervention. The monitoring framework can also form the basis for setting new circular economy long-term priorities and deliver

feedback to strategy and planning development for the different actors in the economy.

The proposed monitoring framework has a two-tier structure: a set of headline indicators restating the EU circular economy monitoring framework, and a set of additional, experimental and operational indicators per priority area to monitor the progress made on specific recommendations and actions.

EU circular economy monitoring framework (four categories of indicators):

- Production and consumption
 - Secondary raw materials
 - Waste management
- Competitiveness and innovation for the circular economy

Indicators measuring the progress made on increasing the use of economic instruments



Indicators measuring the transition to a circular construction sector



Indicators measuring the application of circular principles in the food and bio-waste value chain



The OECD's contribution

Within the context of the OECD's collaboration with the DG REFORM of the European Commission on country specific policy reform projects, the OECD has been supporting the Ministry of Environment of the Slovak Republic in developing a circular economy roadmap. The role of the OECD in this project was to provide a set of key elements for the future roadmap, including the development of analytical inputs and stakeholder consultation. For instance, the OECD provided an in-depth analysis of three priority areas: the economic instruments for sustainable production and consumption, the construction sector, and the food and bio-waste value chain. It also developed more than 30 concrete policy measures to help implement the future roadmap, along with a monitoring framework to measure the progress made.

This work was carried out with funding by the European Union via the Structural Reform Support Programme and in cooperation with the European Commission's Directorate-General for Structural Reform Support (REFORM).



Further reading

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These Highlights are based on the OECD publication *Closing the Loop in the Slovak Republic: A Roadmap towards Circularity for Competitiveness, Eco-innovation and Sustainability*.

This publication lays out some of the key elements for the future Slovak circular economy roadmap. It presents the rationale for transitioning to a circular economy in the Slovak Republic, outlines the vision and objectives for the transition, providing examples of key policy measures and listing some of the indicators to monitor the progress made.

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Visit our website:

<https://www.oecd.org/environment/waste/circular-economy-country-studies.htm>

<https://www.minzp.sk/obehove-hospodarstvo/cestovna-mapa/>

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