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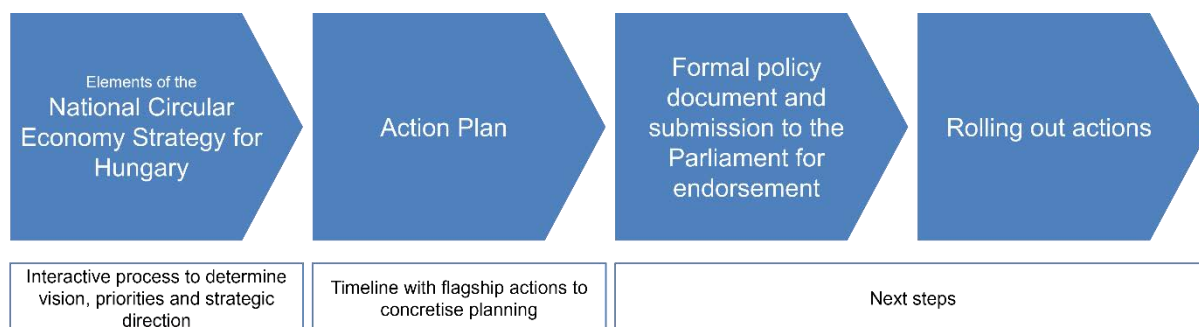
Proposed action plan and monitoring framework of the National Circular Economy Strategy

This chapter puts forward an action plan with specific actions to help implement the future strategy. It also outlines a monitoring framework to measure the progress towards specific strategic objectives and quantitative targets in Hungary's circular economy transition.

8.1. Implementing a circular economy strategy requires several steps

The proposed action plan and monitoring framework of the National Circular Economy Strategy (NCES) fully builds on the preceding chapters of this report and aims to make the policy recommendations more concrete by proposing flagship actions and developing a timeline for their implementation. In a following step, the documents would need to be endorsed by the Hungarian Parliament in order to roll out the proposed actions (Figure 8.1).

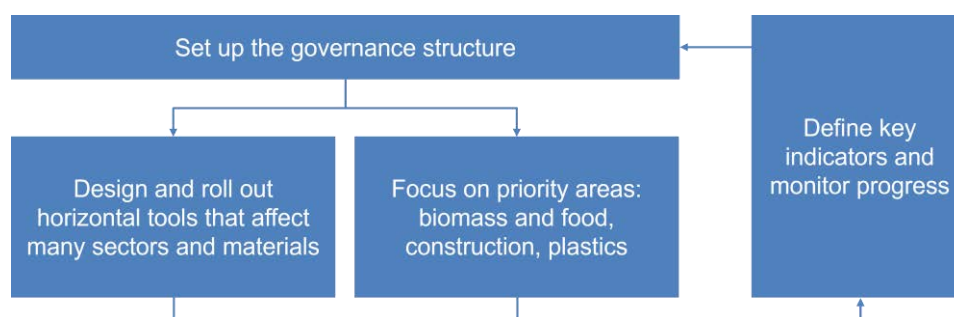
Figure 8.1. Developing and rolling out a circular economy strategy requires several steps



The transition to a circular economy is a long-term process that will require efforts and a long-term commitment of many stakeholders. Monitoring progress and steering the concerted efforts in the right direction requires a well-designed governance structure. Actions to set up the governance structure are thus essential and urgent. With the right governance structure, actions can be taken that deal with horizontal aspects or target priority areas with potentially high circular economy impacts. Setting up indicators helps to monitor progress and steer the process towards impactful changes and structural reforms. These elements are outlined in Figure 8.2.

To achieve the vision and strategic objectives of the NCES by 2040, the proposed action plan suggests implementation actions for 45 policy recommendations across the three priority areas, as well as for governance structure and horizontal tools. It also proposes their implementation across three time horizons: short-term actions (to be fully effective by 2024), medium-term actions (to be fully effective by 2028), and long-term actions (to be fully effective by 2040). In order to ensure the timely transition to a circular economy, the actions need to be implemented well ahead of the 2024, 2028 and 2040 milestones. The actions put forward should not be interpreted as a menu from which measures can be cherry-picked. They form a coherent set of measures that have to be implemented together in a policy mix in order to achieve the greatest impact and transform Hungary as it moves towards a circular economy.

Figure 8.2. Proposed elements of the action plan for the implementation of the NCES



8.2. Set up the governance structure

The transition to a circular economy is a shared responsibility of a range of stakeholders. The successful implementation of the NCES requires the timely setting up of a structure for inclusive and effective governance. Proposed actions to improve governance are outlined in Table 8.1.

Table 8.1. Flagship actions to improve governance of the circular economy transition in Hungary

Effective by 2024	Recommendations	Implementation actions	Responsibility
X	Prepare NCES for adoption	Convert the proposed elements of the NCES into a legal document and submit it to Parliament for formal endorsement	Ministry of Energy
X	Establish a coordination mechanism	Set up an inter-ministerial committee to leverage synergies, implement actions and monitor progress: nominate a high-level chair that has the political mandate and is linked to the ministry that will take the lead in the circular economy transition; ensure that each ministry involved in the implementation of the NCES has nominated a fixed representative; set up a timetable to have meetings every six months	Ministry of Energy, Ministry of Agriculture, Ministry of Construction and Investment, Ministry of Culture and Innovation, Ministry of Finance, Ministry of Economic Development, Ministry of Regional Development, Ministry of Interior, Prime Minister's Office
X	Strengthen cross-sectoral, inter-ministerial and multi-stakeholder collaboration ¹	Set up a stakeholder sounding board that provides expertise and can make recommendations to the inter-ministerial committee: meetings to be held every six months in preparation for the inter-ministerial committee. The meeting format and selected participants can be flexible depending on the focus of horizontal actions or sector-specific discussions. Organization and facilitation of the meetings to be carried out by the ministry that will take the lead in the circular economy transition, and supported by the ministries that are relevant to the focus area	Ministry of Energy, public and private sector stakeholders, academia, NGOs
X	Develop an indicator dashboard ²	Develop an indicator dashboard to monitor progress towards the long-term strategic targets every 6 months, define data collection processes and allocate responsibilities to solve data gaps	Ministry of Energy, Ministry of Agriculture, Ministry of the Interior, Hungarian Central Statistical Office, inter-ministerial committee

1. Hungary has recently established the Circular Economy Technology Platform (see Box 2.2), which could play an instrumental role in strengthening stakeholder collaboration for circular transition in Hungary.

2. Guidance for developing such a dashboard is provided in the final section of this chapter ("Define key indicators and monitor progress").

8.3. Design and roll out horizontal tools

Horizontal tools cut across product and materials life cycles and go beyond individual sectors. As these tools help implement specific recommendations of priority areas and can contribute to the economy-wide circular transition, their development and implementation should already be initiated in the short term and continue throughout the implementation of the NCES. The suggested horizontal flagship actions will strengthen education, capacity building and knowledge transfer, provide more financial support for eco-innovation and technological development, better tailor government support for the circular transformation of SMEs, and improve existing data collection and monitoring systems (see Table 8.2).

Table 8.2. Flagship actions to drive Hungary's economy-wide circular transition

Effective by			Recommendations	Implementation actions	Responsibility
2024	2028	2040			
X	X	X	Strengthen education, capacity building and knowledge transfer	Educate and inform consumers by designing education and information campaigns to improve the understanding of circular economy concepts and to promote more circular behaviour (including sustainable consumption patterns, waste prevention practices and proper disposal and sorting of different waste streams); promote more circular thinking and the necessary skills by mainstreaming circular economy into curricula of higher education programmes; raise awareness among consumers, public entities and companies by showcasing successful pilot projects, international good practices and initiatives, and by implementing interactive events to motivate changes in behaviour, attitudes and practices; increase capacity building by developing a national training programme targeting industry stakeholders and local and national policy makers; improve knowledge transfer by developing dedicated private-public platforms, bringing together relevant stakeholders	Ministry of Energy, Ministry of Agriculture, Ministry of Construction and Investments, Ministry of Culture and Innovation, Ministry of Interior
X	X	X	Provide more financial support for eco-innovation and technological development	Support projects via direct government funding for R&D on innovative products, processes and technologies; introduce circularity indicators in calls for funding; ensure that financing schemes include circularity principles; consider introducing a dedicated tax instrument to allow deductions of investment costs (beyond regular investment tax deductions) for environmentally friendly investments; encourage banks, investors and multinational companies to provide capital for innovative products	Ministry of Energy, Ministry of Agriculture, Ministry of Ministry of Construction and Investments, Ministry of Economic Development, Ministry of Finance
X	X	X	Tailor government support for the circular transformation of SMEs	Strengthen incentive subsidies for SMEs; facilitate access to information about external financing opportunities beyond conventional R&D grants; support dissemination of examples of profitable business cases and innovative business models; support development of decision-making tools and business plans to facilitate more circular ways of doing business; support the establishment of public-private collaboration platforms and partnerships, and encourage actors to share good practices; remove regulatory obstacles that prevent SMEs from adopting new circular business models	Ministry of Energy, Ministry of Agriculture, Ministry of Construction and Investments, Ministry of Culture and Innovation, Ministry of Finance, Ministry of Economic Development, Hungarian Chamber of Commerce and Industry, industry clusters and associations, Circular Economy Technology Platform
X	X	X	Improve current data collection and monitoring systems	Consider reforming the national database or develop a new inventory to capture more reliable and granular data; broaden and digitalise data collection and monitoring of waste streams and their quality specifications to provide sufficient information on material flows throughout their life cycle and across industries; improve reporting of data on EWC codes, lifetimes, prices and (re)usability of different waste streams; consider creating a waste catalogue containing multiple criteria, including waste compositional data, environmental impact and other sustainability indicators; specify laboratory tests to determine the quality of secondary raw materials recovered from waste streams	Ministry of Energy, Ministry of Agriculture, Ministry of Interior, Hungarian Central Statistical Office

8.4. Focus on biomass and food

The action plan for the circular transition for biomass and food proposed 18 implementation actions (see Table 8.3). Two actions are soon to be implemented. The development and implementation of the 11 medium-term actions should already be initiated in the short term so that they become fully effective by 2028, at the latest. Similarly, the five long-term actions need to be implemented well ahead of the 2040 milestone (i.e. by 2035) so that they become effective in achieving the vision and goals of the NCES.

Table 8.3. Flagship actions to support the transition to a circular bioeconomy in the biomass and food sector in Hungary

Effective by			Recommendations	Implementation actions	Responsibility
2024	2028	2040			
X			Provide additional incentives for the separate collection of municipal bio-waste through improving the waste collection infrastructure	Ensure that adequate infrastructure for the separate collection of municipal bio-waste is in place: provide properly sized kitchen caddies or bags for households; establish regular collections; ensure appropriate distance to the containers (in case of kerbside collection) or a door-to-door collection	Ministry of Energy, Ministry of Agriculture, municipalities, Prime Minister's Office
X			Promote GPP of food and catering services by developing a catalogue of good practices and a guidance on GPP methodology or training materials for public authorities	Develop a catalogue of good practices for suppliers of food and catering services	Ministry of Energy, Ministry of Agriculture, Ministry of Regional Development, Hungarian Public Procurement Authority
	X			Develop a guidance manual on GPP methodology for public authorities (consider the EU guidance and EU GPP criteria for food, catering services and vending machines)	
	X		Develop a regulatory framework supporting the use of products from bio-waste (compost and digestate) in agriculture, with a focus on the quality assurance system for compost and digestate	Conduct an assessment to examine the required legislative changes to provide stronger incentives for greater use of compost and digestate on agricultural land (including the quality assurance system, a compost classification system and stricter quality standards for impurities, a list of suitable input materials for composts as well as product control requirements for compost and digestate quality)	Ministry of Energy, Ministry of Agriculture
				Amend legislation regulating the management of bio-waste and specifying the technical requirements for composting to introduce elements of an improved quality assurance system for compost and digestate	
	X		Develop a dedicated bioeconomy research and innovation programme with associated funding and technical support to support the development of industrial biotechnology and biorefineries	Introduce business research and an innovation support scheme (through Operational Programmes [OPs] co-funded through EU funds or a dedicated bioeconomy funding programme) directed at strengthening the research and innovation environment, multi-stakeholder cooperation, and scaling up and commercialising innovative bio-based products and materials	Ministry of Energy, Ministry of Agriculture, Ministry of Finance, Ministry of Regional Development
	X		Provide additional incentives for the separate collection of municipal bio-waste by supporting PAYT schemes and by increasing landfill taxes	Amend the relevant legislation to gradually increase landfill taxes; consider redistributing proceeds from landfill taxes to incentivise municipalities to introduce separate collection and recycling of bio-waste	Ministry of Energy, Ministry of Agriculture, Ministry of Finance, Ministry of Regional Development, municipalities, Prime Minister's Office
				Consider providing subsidies for municipalities to adopt PAYT schemes	
				Strengthen monitoring and enforcement to deter illegal landfilling (including fines)	
	X		Strengthen financial support for bio-waste processing and recycling facilities to ensure adequate investments into	Consider strengthening the existing financial support for bio-waste processing and recycling facilities (through OPs co-funded by EU funds) and extend the eligibility for such funds to additional actors (if available funds are	Ministry of Energy, Ministry of Agriculture, Ministry of Finance, Ministry of Regional

Effective by			Recommendations	Implementation actions	Responsibility
2024	2028	2040			
			recycling capacities	not being fully disbursed)	Development
				Consider promoting home composting through economic incentives and providing infrastructure (including free composter bins)	
	X		Investigate the potential to enhance the use of sewage sludges on agricultural land	Conduct a preparatory study to determine the potential of enhancing the use of sewage sludges on agricultural land (including for phosphorus recovery), and develop requirements for safety measures (preventing possible leakage of contaminants) as well as a monitoring system for the composition and characteristics of sludges	Ministry of Energy, Ministry of Agriculture
		X		If a decision is made to extend the safe application of sludges on agricultural land, amend the relevant legislation (considering the potential revision of the EU Council Directive on sewage sludge)	
	X		Consider allowing food donations after food's "best before" date for food under specific conditions that is safe for consumers but cannot be sold, and consider introducing additional tax incentives	Consider amending the relevant legislation to extend the right to donate food that is past the "best before" date instead of making food donations mandatory under certain circumstances	Ministry of Energy, Ministry of Agriculture, Ministry of Finance
		X		Consider amending the relevant legislation to introduce tax credits or additional tax deductions	
		X	Consider policy support for alternative initiatives in the field of innovative protein production	Consider developing a national policy with long-term targets and objectives in support of innovative protein production (including crops other than soy and single cell microalgae, and potentially the use of insects as a protein source for feed, as well as the extraction of protein products from agricultural and industrial food by-products)	Ministry of Energy, Ministry of Agriculture, Prime Minister's Office
		X	Consider implementing a form of mandatory use of GPP criteria in contracts	Conduct an assessment to examine the feasibility of introducing a form of mandatory GPP criteria and, if needed, amend or develop the relevant legislation	Ministry of Energy, Ministry of Agriculture, Ministry of Regional Development, Hungarian Public Procurement Authority
		X	Redefine the policy approach for bioenergy production to ensure the transition to a circular bioeconomy	Define an integrated policy approach, including a decision-making process, for the use of biomass to help reconcile the conflicting goals of bioenergy and bioeconomy (to align it with the EU CEAP and the European Bioeconomy Strategy)	Ministry of Energy, Ministry of Agriculture, Prime Minister's Office, inter-ministerial committee

8.5. Focus on construction

The action plan for the transition to a circular construction proposes 27 implementation actions (see Table 8.4). Two actions are to be implemented promptly. The development and implementation of the 12 medium-term actions should already be initiated in the short term so that they become fully effective by 2028, at the latest. Similarly, the 13 long-term actions need to be implemented well ahead of the 2040 milestone (i.e. by 2035) so that they become effective in achieving the vision and goals of the NCES.

Table 8.4. Flagship actions for a circular building construction sector in Hungary

Effective by			Recommendations	Implementation actions	Responsibility
2024	2028	2040			
X			Develop circular design guidelines for buildings	Develop a guideline with circular economy principles in the design of buildings (including guidance and best practice examples on integration of recyclable materials, and design for modularity and durability of buildings, as well as on the use of digital tools)	Ministry of Energy, Ministry of Construction and Investments
X			Simplify the procedure permitting the incorporation of secondary raw materials into construction projects	Identify challenges encountered by contractors in incorporating secondary raw materials into construction projects	Ministry of Energy, Ministry of Construction and Investments
	X			Amend the relevant legislation to simplify the authorisation procedure	
	X		Consider introducing a tax on selected virgin construction aggregates	Conduct an impact assessment study on the possible introduction of a tax on selected construction aggregates (including impacts of the tax on environmental quality and economic efficiency, and their comparison with potential impacts from other regulatory approaches)	Ministry of Energy, Ministry of Construction and Investments, Ministry of Finance
				If a decision is made to introduce a tax on construction aggregates, amend the relevant legislation	
	X		Revise the National Sustainable Construction Industry Strategy to include circular economy aspects	Adapt the National Sustainable Construction Industry Strategy to include concrete implementation measures and targets for circular economy transition and to reflect the revision of the European CPR	Ministry of Energy, Ministry of Construction and Investments, Prime Minister's Office
	X		Extend existing renovation support schemes and tailor them to promote circular economy principles	Amend existing renovation support schemes to extend their coverage (to better target growing public interest in renovations) and to include circular economy principles (beyond energy efficiency) for both buildings and products	Ministry of Energy, Ministry of Construction and Investments, Ministry of Finance
	X		Promote shared and mixed-use concepts in public buildings by developing space-sharing strategies and revising zoning codes	Conduct a feasibility study to examine the applicability of different space-sharing strategies in public buildings in Hungary (including multi-use and mixed-use concepts) as well as the benefits of revising zoning codes in certain districts and cities (including requirements for the inclusion of affordable housing and measures promoting the repurposing of the existing buildings for new types of uses)	Ministry of Energy, Ministry of Construction and Investments, Ministry of Regional Development, municipalities, Prime Minister's Office
	X		Increase landfill tax rate and strengthen enforcement of waste regulation	Amend the relevant legislation to gradually increase landfill taxes Strengthen monitoring and enforcement to deter illegal landfilling (including fines)	Ministry of Energy, Ministry of Finance
	X		Introduce end-of-waste criteria for additional construction waste streams	Develop legislation to introduce additional end-of-waste (EoW) criteria	
	X		Develop a national construction and demolition strategy	Consider developing a national strategy for a harmonised management and treatment of CDW, connecting national targets with specific measures and activities	Ministry of Energy, Ministry of Construction and Investments, Prime Minister's Office
	X		Establish a mandatory selective demolition scheme	Develop legislation to introduce mandatory selective demolition, including a system of inspection/audit before and after demolition	Ministry of Energy, Ministry of Construction and Investments
	X		Extend the use of GPP criteria for construction works and consider integrating minimum recycled content requirements into GPP	Conduct a pre-market study to understand the feasibility and associated costs of using GPP criteria for construction works and to define minimum recycled content requirements	Ministry of Energy, Ministry of Construction and Investments, Ministry of Regional Development, Hungarian Public Procurement Authority
		X		Consider introducing a form of mandatory GPP criteria for construction works by state level entities or even by all public entities	
		X	Develop a secondary raw	Consider developing a national policy with long-term targets	Ministry of Energy, Prime

Effective by			Recommendations	Implementation actions	Responsibility
2024	2028	2040			
			materials policy	and objectives for secondary raw materials, considering the regional perspective	Minister's Office
		X	Develop a new quality standard and a quality label for secondary construction materials	Conduct a feasibility and market study on the introduction of a quality standard for recycled construction materials Develop new legislation specifying quality standards for recycled construction materials (including metrics for performance measurements and testing and calculation procedures) and revise existing legislation on quality standards accordingly Conduct a study to determine the potential of introducing a national quality label for secondary construction materials	Ministry of Energy, Ministry of Construction and Investments
		X	Revise the current legislation on design and materials choices in buildings to include minimum recycled content requirements and the development of performance-based criteria for construction materials and components	Amend relevant legislation to align it with European regulations and principles and to introduce minimum recycled content requirements and performance-based criteria	Ministry of Energy, Ministry of Construction and Investments
		X	Adapt urban planning strategies to support the development of smart, sustainable and circular cities	Conduct an evaluation study to identify the shortcomings of the existing urban planning strategies Consider adapting urban planning strategies to reflect more integrated spatial planning prioritising sustainability and circularity	Ministry of Energy, Ministry of Construction and Investments, Ministry of Regional Development, municipalities, Prime Minister's Office
		X	Reduce value added tax on renovation works	Conduct an impact assessment study of a possible introduction of VAT reductions (targeting specifically the use of secondary and renewable materials in renovation projects and possibly deep energy renovation projects) Amend the relevant legislation to introduce VAT reductions for renovations works	Ministry of Energy, Ministry of Construction and Investments, Ministry of Finance
		X	Consider developing an EPR scheme for construction products	Conduct a cost-benefit analysis study to assess the potential of introducing an EPR for construction and renovation products and materials (including concrete and tile waste, plastics and insulation materials, doors and window glass) Consider amending relevant legislation to expand the current EPR scheme to include certain construction and renovation products and materials (possibly only voluntary in the first years, becoming mandatory later)	Ministry of Energy, Ministry of Construction and Investments
		X	Promote digitalisation of the industry	Consider developing a digital strategy for the construction sector and promote the uptake of digital solutions (including BIM, digital twins and open-source software)	Ministry of Energy, Ministry of Construction and Investments, Prime Minister's Office

8.6. Focus on plastics

The action plan to promote the transition to a circular plastics life cycle suggests 17 implementation actions (see Table 8.5). Two actions are to be implemented immediately. The development and implementation of the 13 medium-term actions should already be initiated in the short term so that they become fully effective by 2028, at the latest. Similarly, the three long-term actions need to be implemented well ahead of the 2040 milestone (i.e. by 2035) so that they become effective in achieving the vision and goals of the NCES.

Table 8.5. Flagship actions to promote a circular life cycle for plastics in Hungary

Effective by			Recommendations	Implementation actions	Responsibility
2024	2028	2040			
X			Eco-modulate EPR fees on plastic packaging ¹	Conduct a preparatory study to determine the most suitable eco-modulation of fees for different types of plastic packaging Amend the relevant legislation on current environmental product fees to define and provide conditions for eco-modulation (consider the forthcoming EU guidance on EPR fee modulation)	Ministry of Energy
	X		Implement minimum recycled content requirements for plastic beverage bottles ²	Develop guidelines for designing products with recycled content (including for verification schemes) Develop legislation specifying minimum recycled content requirements	Ministry of Energy
	X		Promote design for recyclability among businesses	Develop guidelines for designing products with better (plastics) recyclability Develop information instruments for knowledge and capacity building on better design for recyclability among manufacturers	Ministry of Energy, Ministry of Culture and Innovation
	X		Introduce a tax on primary plastic packaging ³	Conduct an impact assessment study of a possible introduction of taxes on certain primary plastics applications Amend the relevant legislation to introduce taxes on primary plastics packaging	Ministry of Energy, Ministry of Finance
	X		Enhance PAYT schemes and door-to-door collection	Provide subsidies for municipalities to adopt PAYT schemes Strengthen monitoring and enforcement to deter illegal waste disposal (including fines) Provide subsidies for municipalities to develop infrastructure for improving door-to-door collection for plastics	Ministry of Energy, Ministry of Regional Development, municipalities, Prime Minister's Office
	X		Increase landfill taxes and strengthen enforcement of waste regulation	Amend the relevant legislation to gradually increase landfill taxes Strengthen monitoring and enforcement to deter illegal landfilling (including fines)	Ministry of Energy, Ministry of Finance
		X		Conduct a study assessing the potential impacts from the introduction of incineration taxes	
	X		Expand GPP criteria and introduce mandatory GPP to reduce the use of primary plastics and promote the use of secondary plastics and sustainable alternatives	Conduct a pre-market study to understand the feasibility and associated costs of introducing minimum recycled content and recyclability requirements of plastics into GPP criteria and make them mandatory for various product groups Develop a guidance manual on GPP methodology for selected plastic product groups in the procurement by state level entities or even all public entities	Ministry of Energy, Ministry of Regional Development, Hungarian Public Procurement Authority
		X		Consider introducing a form of mandatory GPP criteria for selected plastic product groups	
		X	Expand EPR to ensure the separate collection of plastics in CDW ⁴	Amend relevant legislation to expand the current EPR scheme to include plastics as a separately collected waste stream in CDW (especially hard-to-recycle plastics, such as PVC)	Ministry of Energy, Ministry of Construction and Investments

1. Hungary's extended producer responsibility (EPR) system is currently under reform, which will include the detailed rules of the requirements of the SUP Directive.

2. The EU Single-use Plastics Directive requires incorporating 25% of recycled plastic in PET beverage bottles from 2025, and 30% in all plastic beverage bottles from 2030 (see Box A A.2). The medium-term horizon for this action reflects the fact that an initial implementation is necessary by 2025 and that a more robust system should be put in place by 2030.

3. Starting from July 2023, the environmental product fee will be transformed into an environmental tax targeting plastic packaging, but not specifically primary plastics.

4. It is already reflected in the proposal for establishing an EPR scheme for construction products in Table 8.4.

8.7. Define key indicators and monitor progress

A monitoring framework for the circular economy transition is required for understanding and measuring the progress towards specific strategic objectives and quantitative targets set out within the strategy. A set of indicators that allow for the monitoring of key trends and patterns helps policy makers understand how the various elements of the circular economy have developed over time, assess whether sufficient action has been taken, and identify areas for further intervention (European Commission, 2018^[1]). Monitoring also provides guidance for setting new long-term priorities, and delivers feedback to strategy and planning development for the different actors in the economy (Alaerts et al., 2019^[2]).

As the concept of the circular economy cuts across a variety of sectors, material streams and horizontal tools it is impossible to capture the transition with a single indicator. Circular economy monitoring frameworks therefore comprise a larger set of relevant indicators. Such frameworks can be structured using a multi-tiered approach: from more general to more specific indicators. The indicators can be classified into three levels: i) the macro level (global, national, regional and city level related to resource flows, waste generation, recycling rates, recovery of specific waste streams, secondary materials use, but also jobs related to circular activities); ii) the meso level (penetration of new business models, consumer behaviour, but also industrial symbiosis and activities within eco-industrial parks); and iii) micro level (on company and product levels) (Alaerts et al., 2019^[2]). The academic literature strongly suggests going beyond the commonly used macro-level indicators to include indicators that provide direct feedback to policy makers on specific products and services, and that address consumer and business behaviour, as well as societal needs, related to the circular economy (Alaerts et al., 2019^[2]; Giljum et al., 2011^[3]; Ekins et al., 2019^[4]; Potting et al., 2018^[5]). There is also a need for additional indicators to properly measure the effects and process of the transition itself, connecting the circular economy to environmental impacts and capturing possible rebound effects (Potting et al., 2018^[5]; Alaerts et al., 2019^[2]). An overview of circular economy monitoring frameworks for policy makers to support their circular economy strategies is reported in Annex Box 8.A.1.

8.7.1. Three sets of indicators are proposed for Hungary's monitoring framework

The proposed monitoring framework to support the implementation of the NCES rests on a three-tiered structure of indicators:

- First, a **set of three key indicators** to measure the attainment of strategic objectives formulated in the vision of the NCES. These include resource productivity, circular material use and number of circular jobs. The indicators are listed in Table 8.6.
- Second, a **specific list of indicators for the three vertical priority areas** to monitor the progress of the circular transition within biomass and food, construction and plastics. This set of indicators draws predominantly on indicators proposed within relevant Hungarian plans and strategies, for instance, the Fourth National Environmental Programme (4NEP), the NWMP 2021-2027, the Waste Management Public Services Plan (WMPSP), and the National Environmental Technology Innovation Strategy (NETIS). They also include some of the individual indicators from the EU Circular Economy Monitoring Framework, i.e. food waste, bio-waste recycling, recovery of CDW, and recycling of plastic packaging waste. Finally, the set is complemented by a proposal for a number of aspirational indicators, such as the monitoring of food waste avoided, GPP for construction, and use of non-recyclable plastics. These will require further development of the indicator or additional data collection, either through the waste management system or through ad hoc surveys. The indicators are listed in Table 8.7.
- Third, a **set of complementary indicators** is proposed to monitor the economy-wide circular transition in Hungary. These indicators are grouped into five cross-cutting themes: i) production and consumption; ii) waste management; iii) secondary raw materials; iv) competitiveness; and v)

horizontal tools. They build on the EU Circular Economy Monitoring Framework (Eurostat, 2019^[6]), the Eco-Innovation Scoreboard (European Commission, 2021^[7]), and the indicators listed in relevant Hungarian plans and strategies. Some of the indicators are related to EU targets, for instance, landfilling rate and the separate collection of certain waste streams. The set is complemented by suggested aspirational indicators to measure materials footprint, consumer behaviour and circular business models. The specific indicators are listed in Table 8.8.

Hungary may consider these three sets of indicators during the preparation of the monitoring framework for the implementation of the NCES. In case it is felt that a lower number of indicators is needed, the following criteria could offer guidance (adapted from OECD (2011^[8])):

- Policy relevance: indicators should provide a balanced coverage of the key aspects covered by the NCES.
- Analytical soundness: indicators should be analytically sound and benefit from a consensus on their validity.
- Measurability: indicators should be based on available data or that can be made available at a reasonable cost, and that are of known quality and regularly updated.

To promote the implementation of circular economy principles in practice, Hungary should also consider including the indicators within the calls for public funding (concrete funding opportunities for the circular economy transition are discussed in chapter 9). Tenders have so far included indicators related to capacity, sales revenue or an increase in number of employees. In the future, these could target indicators monitoring the intended increase in recycling rate or decrease in the generation of specific waste streams.

Table 8.6. Proposed indicators to measure the strategic objectives of the NCES vision

Name	Description	Justification	Source
Resource productivity	Gross domestic product divided by the total amount of materials directly used by the economy (EUR/kg)	Roadmap to a resource efficient Europe and target of the proposed NCES vision	Eurostat
Contribution of recycled materials to raw materials demand	Circular material use (CMU) rate (%)	EU CE Monitoring Framework and target of the proposed NCES vision	Eurostat
Circular jobs	Number of persons employed in circular activities as share of total employment (%)	EU CE Monitoring Framework, EU Eco-Innovation Scoreboard, NETIS ¹ and target of the proposed NCES vision	Eurostat

1. NETIS focuses on a broader indicator: share of employment in the environment industry.

Source: Based on Eurostat (2019^[6]), European Commission (2011^[9]; 2021^[7]) and Ministry of Rural Development (2011^[10]).

Table 8.7. Proposed dashboard of specific indicators for three vertical priority areas

Name	Description	Justification	Source
Biomass and food			
Waste from agriculture, forestry and fishing	Waste generated in agriculture, forestry and fishing (kg/capita)	To monitor if the generation of waste from agriculture, forestry and fishing is decreasing	Eurostat
Food waste	Food waste generated in production, distribution and consumption of food (tonnes)	EU CE Monitoring Framework, NWMP 2021-2027	Data to be systematically collected
Food waste avoided	Food waste avoided through a circular consumption, i.e. donation (tonnes)	To monitor the contribution of circular consumption to food waste reduction	Indicator to be developed, data to be systematically collected (example Paris - France)

Name	Description	Justification	Source
Collection of biodegradable municipal waste	Separate collection of biodegradable waste (including food and green waste) (tonnes)	NWMP 2021-2027, EU target	Data to be systematically collected
Recycling of bio-waste	Ratio of composted/methanised municipal waste over the total population (kg / capita); ratio of composted/anaerobically digested bio-waste to total bio-waste (%)	EU CE Monitoring Framework to monitor if composting and AD of bio-waste is increasing	Eurostat
Use of compost in agriculture	Compost used in agriculture (tonnes)	NWMP 2021-2027	Data to be systematically collected
Use of sewage sludge in agriculture	Share of sewage sludge reused in agriculture (%)	To monitor if the share of sewage sludge reused in agriculture is increasing	Indicator to be developed, data to be systematically collected
Biodegradable municipal waste disposal	Biodegradable waste landfilled (tonnes)	4NEP, NWMP 2021-2027	Data to be systematically collected
GPP for food and catering services	Share of public procurement procedures in food and catering services that include environmental elements (%)	GPP included in the EU CE Monitoring Framework	Indicator to be developed (EU GPP criteria for food and catering services published in 2019), data to be systematically collected
Investments in the circular bioeconomy	Share of public and private funds raised to fund the circular bioeconomy (%)	To monitor if the total investment made in the circular bioeconomy is increasing	Indicator to be developed, data to be systematically collected
Construction			
Domestic extraction of construction minerals	Measures the amount of extracted non-metallic minerals	To monitor whether the domestic extraction of virgin non-metallic minerals is decreasing over time	Eurostat
Domestic material consumption of construction minerals	Measures the amount of non-metallic minerals directly used by the economy	To monitor whether the domestic material consumption of construction minerals is decreasing	Eurostat
Generation of CDW	Generation of minerals waste from construction and demolition (kg per capita)	To monitor if the CDW per capita is decreasing	Eurostat
Recycling of CDW	Ratio of CDW recycled divided by CDW generated (%)	To monitor whether the share of CDW recycled (excluding recovery through backfilling) is increasing	Indicator to be developed, data to be systematically collected (example Denmark)
Recovery of CDW	Ratio of CDW prepared for reuse, recycled or subject to materials recovery (including through backfilling operations) divided by CDW generated (%)	EU CE Monitoring Framework, 4NEP, NWMP 2021-2027, EU target	Eurostat
Landfilling of CDW	Share of CDW landfilled of total CDW (%)	NWMP 2021-2027	Eurostat
GPP in construction	Share of public procurement procedures in construction that include environmental elements (%)	GPP included in the EU CE Monitoring Framework and in the NWMP 2021-2027	Indicator to be developed (EU GPP criteria for office building design, construction and management developed in 2016, revision still under review), data to be systematically collected
Plastics			
Use of non-recyclable plastics	Use of non-recyclable plastics in the food sector (tonnes); use of non-recyclable plastics in the construction sector (tonnes)	To monitor whether the use of non-recyclable plastics is decreasing across the sectors	Indicator to be developed, data to be systematically collected (example Galicia - Spain)
Collection of plastic bottles	Share of separate collection of plastic bottles of all single-use bottles placed on the market (%)	EU target	Data to be systematically collected

Name	Description	Justification	Source
Recycled content of plastics	Share of recycled plastics in new bottles (%)	EU target	Data to be systematically collected
Generation of plastic packaging waste	Generation of plastic waste from packaging (kg/capita)	To monitor if the plastics packaging per capita is decreasing	Eurostat
Recycling of plastic packaging waste	Recycling rates of plastic packaging (%), consumption of disposable plastic cups and food containers (%)	EU CE Monitoring Framework, 4NEP, NETIS, WMPSP, NWMP 2021-2027, EU target	Eurostat
GPP in plastics	Share of public procurement procedures for plastic products that include environmental elements (%)	GPP included in the EU CE Monitoring Framework and in the NWMP 2021-2027	Indicator to be developed, data to be systematically collected

Source: Own elaboration based on Eurostat (2019^[6]), Ministry of Rural Development (2011^[10]), Ministry for Innovation and Technology (2021^[11]), Nemzeti Hulladékgazdálkodási Koordináló és Vagyonkezelő (2020^[12]), Government of Hungary (2015^[13]) and OECD (2021^[14]).

Table 8.8. Proposed dashboard of complementary indicators to monitor the economy-wide circular transition in Hungary

Name	Description	Justification	Source
Production and consumption			
Materials footprint	Raw materials consumption (including both direct and indirect material flows) per capita (tonnes)	To monitor the quantity of raw materials used to cover a country's end-use consumption (including materials contained in the products consumed, as well as those not contained in the products but necessary for their manufacture, whether domestic or imported)	Indicator to be developed, data to be systematically collected (examples: Denmark, France, the Netherlands)
Waste generation	Generation of municipal waste (kg per capita); generation of waste excluding major mineral wastes (kg per GDP unit); generation of waste excluding major mineral wastes per domestic material consumption (%)	EU CE Monitoring Framework, NETIS, NWMP 2021-2027	Eurostat
Companies' environmental performance	Number of companies introducing and applying ISO 14001; number of companies introducing and applying the EU Eco-Management and Audit Scheme (EMAS); number of companies excelling in Corporate Social Responsibility (CSR); number of companies assessing sustainability	NWMP 2021-2027, EU Eco-Innovation Scoreboard	Data to be systematically collected
Certified reuse centres and used products deposited in them	Number of certified reuse centres (per size of population served); number of used products going to certified reuse centres; share of products deposited in and sold to certified reuse centres (%)	NWMP 2021-2027	Data to be systematically collected
Consumer surveys on circular economy related behaviour	Measures environmental attitudes of consumers and circular consumption patterns	To understand the attitudes and consumption patterns of consumers	Indicator to be developed, data to be systematically collected
GPP	Share of public procurement procedures above the EU thresholds that include environmental elements (%)	EU CE Monitoring Framework, NWMP 2021-2027	Data to be systematically collected
Waste management			
Separate collection	Share of municipal waste collected separately compared to all municipal waste generated (%); separate collection of paper, metal, plastic and glass	4NEP, NWMP 2021-2027	Hungarian Central Statistical Office
Recycling rates	Recycling rate of municipal waste (%), recycling rate of all waste excluding major mineral waste (%)	EU CE Monitoring Framework, WMPSP, NWMP 2021-2027, EU target	Eurostat
Collection, recycling, recovery for specific waste streams	Recycling rates of: overall packaging (%); plastic packaging (%); wood packaging (%); waste from Electrical and Electronic Equipment (WEEE) (%); recycled bio-waste (kg per capita), textile waste (%).	EU CE Monitoring Framework, 4NEP, WMPSP, NETIS, NWMP 2021-2027, EU target	Eurostat

Name	Description	Justification	Source
	Collection/recycling/recovery rates of: CDW (%); textile waste (tonnes); hazardous waste, including asbestos (tonnes); battery and accumulator waste (%); WEEE (%); end-of-life vehicles (%); pesticides (kg or litre); waste oils (%); pharmaceutical waste (tonnes); non-hazardous industrial and other waste (%)		
Landfilling rate	Municipal waste landfilled (%); non-hazardous industrial and other waste landfilled (tonnes)	4NEP, WMPSP, NWMP 2021-2027, EU target	Eurostat
Illegal landfills	Change in the number of illegal landfills, amount of illegally discarded municipal waste (m ³)	NWMP 2021-2027	Data to be systematically collected
Secondary raw materials			
Contribution of recycled materials to raw materials demand	End-of-life recycling input rate (EOL-RIR) (%)	EU CE Monitoring Framework	Eurostat
Trade in recyclable raw materials	Imports, exports and intra EU trade of selected waste categories and by-products	EU CE Monitoring Framework, EU Eco-Innovation Scoreboard, NETIS ¹	Eurostat
Competitiveness			
Private investments and gross value added	Gross investment in tangible goods (% of GDP), value added at factor costs (% of GDP) in the recycling sector, and repair and reuse sector	EU CE Monitoring Framework, EU Eco-Innovation Scoreboard	Eurostat
Horizontal tools			
Tax revenues or tax savings generated from circular economy-related fiscal instruments	Measures the use of economic instruments for the CE	To monitor whether the use of environmental taxes earmarked for circular economy is increasing	Indicator to be developed, data to be systematically collected
R&D expenditure	Environment-related R&D&I expenditure by state and business sectors (Gross expenditure on research and development [GERD] %)	NETIS	Hungarian Central Statistical Office
Patents	Number of patents related to recycling and secondary raw materials; environment-related patents and registered certifications	EU CE Monitoring Framework, EU Eco-Innovation Scoreboard NETIS ²	Eurostat
Industrial innovation centres	Number of industrial innovation centres	NWMP 2021-2027	Data to be systematically collected
Eco-innovation index	Composite indicator measuring the progress made on eco-innovation	EU Eco-Innovation Scoreboard	EU Eco-Innovation Scoreboard
Circular business models	Share of circular business models (%); share of population active in the sharing economy (%); number of industrial symbiosis initiatives; household spending on product maintenance and repair	To monitor the uptake of circular business models	Indicator to be developed, data to be systematically collected (example Denmark, Peterborough [UK], France)
Awareness raising	Number of students educated on waste prevention; number of waste prevention events	NWMP 2021-2027	Data to be systematically collected

1. NETIS focuses specifically on consumption of packaging materials in trade, and export income from environmental industrial activities.

2. NETIS focuses on a broader indicator: environment-related patents and registered certifications.

Source: Own elaboration based on Eurostat (2019^[6]), Ministry of Rural Development (2011^[10]), Ministry for Innovation and Technology (2021^[11]), Government of Hungary (Government of Hungary, 2015^[13]), Ministry of Environment of Denmark (2021^[15]), Netherlands Environmental Assessment Agency (2018^[16]), OECD (OECD, 2021^[14]) and Ministry of Ecological Transition (2021^[17]).

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Annex 8.A. Supplementary information

Annex Box 8.A.1. Circular economy monitoring frameworks

Various circular economy monitoring frameworks have been developed for policy makers to support their circular economy strategies:

- The EU Circular Economy Monitoring Framework offers a set of headline indicators consisting of 10 macro-level indicators (in total 23 individual indicators) grouped into four stages and aspects of the circular economy: i) production and consumption; ii) waste management; iii) secondary raw materials; and iv) competitiveness and innovation for the circular economy (European Commission, 2018^[1]).
- The EU Eco-innovation Scoreboard (Eco-IS) includes 16 indicators within its measurement framework to monitor five aspects of eco-innovation: i) inputs; ii) activities; iii) outputs; iv) socio-economic outcomes; and v) resource-efficiency outcomes. Relevant circular economy indicators include: i) implementation of resource efficiency actions; ii) implementation of sustainable products among SMEs; iii) number of ISO 14001 certificates; iv) material productivity; and v) employment and value added in environmental protection and resource management activities (European Commission, 2021^[7]).
- At the level of Member States, monitoring frameworks include additional indicators capturing other circular economy aspects. For instance, the Dutch framework for monitoring the progress of the circular economy applies the national set of indicators to its five priority themes (biomass and food, plastics, construction, manufacturing, consumer goods) and also develops specific action indicators for them. Moreover, it proposes indicators for “consumption footprint” and “production footprint”. The Danish Action Plan for Circular Economy includes specific indicators for circular transition for its five focus areas (waste and resource use, recycling, biomass, built environment, plastics) (Ministry of Environment of Denmark, 2021^[15]). By contrast, France’s monitoring framework incorporates indicators on “circular business models” (including the number of industrial symbiosis initiatives, and the number of companies and local authorities that have benefited from support mechanisms for circular business models such as product life extension and product as a service), and “consumer behaviour” (such as household spending on product maintenance and repair) (Ministry of Ecological Transition, 2021^[17]).

Several ongoing initiatives exist at the international level that aim to further conceptualise and develop circular economy monitoring frameworks for policy makers, including initiatives led by the European Commission, the United Nations Economic Commission for Europe (UNECE), the Platform for Accelerating the Circular Economy (PACE), the European Environment Agency (EEA), and the OECD.



From:

Towards a National Circular Economy Strategy for Hungary

Access the complete publication at:

<https://doi.org/10.1787/1178c379-en>

Please cite this chapter as:

OECD (2023), “Proposed action plan and monitoring framework of the National Circular Economy Strategy”, in *Towards a National Circular Economy Strategy for Hungary*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/5d050c06-en>

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