

Annex A. Summary of the Strategic Environmental Assessment

Rationale for the Strategic Environmental Assessment

The purpose of this Strategic Environmental Assessment (SEA) is to assess and report on the potential environmental impact of the policy recommendations and proposed activities of the action plan outlined in the OECD report *Towards a National Circular Economy Strategy for Hungary* (hereinafter referred to as OECD report). This report was developed by the OECD as the final output of the project, Technical Support for the Development of the National Circular Economy Strategy (NCES) and Action Plan for Hungary, and funded by the Directorate-General for Structural Reform Support (DG REFORM) of the European Commission.

Hungary will need to adopt a comprehensive circular economy policy framework if it is to fully exploit the circular potential of its economy and comply with national and international programmes and pledges that aim to tackle climate change. The OECD report is a major element of this development process, assisting the Hungarian Government in the creation of the NCES and its transition to a circular economy.

The OECD report is a milestone, not a final programme or plan. The content of the SEA is therefore adapted to the purpose and function of the OECD report, complementing the provisions related to national and EU legislation.

The SEA highlights the most important environmental and socio-economic impacts of the policy recommendations and actions outlined in the OECD report, with the objective to provide detailed practical feedback in identifying the positive environmental effects of the future NCES.

The experts working on the OECD report had the opportunity to react to the findings and proposals of the draft SEA that was under preparation. Following consultations, some of the proposals from the SEA were incorporated into the final OECD report. However, it should be noted that some of the proposals and remarks of the SEA were outside the scope of the OECD report, for example, those related to energy security, water management and nature based solutions.

The OECD report outlines effective circular economy policy recommendations

The OECD analysis applies a life cycle approach that focuses on design, production, (re)use and end-of-life stages, thus identifying Hungary's circular potential as well as policy gaps that need to be addressed across the priority areas in all stages of the value chain. Accompanied by recommendations, the OECD report lays down strong foundations for the first holistic circular strategy, which is specific, measurable, achievable and relevant. By applying the SEA methodology, it can be established that the OECD report outlines effective circular policy recommendations up to 2040.

The OECD report focuses on the three selected priority areas of biomass and food, construction and plastics, which were selected following a multi-criteria analysis of 24 topic areas. Strengthened by horizontal perspectives, namely, research, development and innovation (R&D&I) and education, as well as circular business models with a focus on small and medium-sized enterprises (SMEs) and digital

solutions, the OECD report provides all the key elements required for the paradigm shift from a linear economy to a circular one. The proposed policy framework is capable of transforming Hungary's economy as a whole, bringing circularity to the heart of policy with the aim to positively impact on the environment.

The results of the environmental assessment have shown that the proposed policy framework contains neither policy recommendations nor actions that would specifically endanger the status of any environmental element or system during its implementation. A significant part of the suggested policy recommendations and activities aims to (directly or indirectly) reduce the use and pressure on environmental elements and systems, as well as improve human health and quality of life while acknowledging environmental concerns.

The policy recommendations and action plan of the OECD report sufficiently respond to all the identified gaps. Through its proposed measures, it was found that the priority area with the most positive outcomes and least damage to the environment is construction, followed by plastics, and biomass and food.

Measures proposed for the biomass and food priority area will positively impact climate the most

According to the OECD report, Hungary's long-term policy efforts will need to shift focus from waste management (composting and anaerobic digestion) towards strategies aimed at supporting the use of bio-based resources in agricultural practices and the development of the circular bioeconomy in order to accelerate sustainable consumption, and biomass and food production. Key policy recommendations of the OECD report for this priority area include the development of a regulatory framework that supports and ensures the use of quality compost and digestate in agriculture. Economic incentives are provided to boost separate collection of municipal bio-waste by supporting "pay-as-you-throw"-based (PAYT) household waste charges and by increasing landfill taxes. The development of educational and awareness-raising tools is deemed necessary to acquire further knowledge on the circular bioeconomy.

The measures in this priority area related to bio-fertilizers and alternative proteins serve as visionary initiatives to support the circular bioeconomy in Hungary.

Bio-fertilizers will have a positive effect on **soil and air quality** as the structure of the soil improves with a higher content of organic matter, giving soil greater structural stability and decreasing the amount of dust caused by deflation. The spread of bio-based products can reduce the emission of pollutants derived from the use of fossil hydrocarbons. Air pollution can also be minimised by reducing food surplus and bio-waste that would otherwise be dumped or incinerated.

Supporting the greater use of soil conditioners and organic matter in agriculture is expected to have a positive impact on **water management**. The production of alternative plant-based proteins (such as peas, soy and lentils) in place of animal proteins would increase the amount and quality of soil organic matter resulting in better water retention. At the same time, the cultivation of these high-protein plants would require less water than for raising animals. Bio-degradable products can have a positive effect on water if they replace fossil-based plastic products as their use does not result in microplastics pollution. Reduced food waste through food donation also preserves water resources as food production is an extremely water-intensive process.

Bioenergy production can increase the amount of arable land used and the intensity of land management required, negatively affecting biodiversity in the competition for space and putting pressure on food production systems. Sustainable food production and consumption help protect **biodiversity**, and composting helps to improve soil fertility and soil microbial diversity. In addition, stricter quality standards for composts will decrease contamination from microplastics and propagules (seeds) of non-native (sometimes invasive alien) plant species.

The implementation of actions and recommendations outlined in the OECD report may indirectly contribute to **mitigation and adaptation to climate change** by reducing pressure on the natural environment. Measures that enhance soil quality may lead to better water absorption capacity as well as better CO₂ emissions capture. Food donations can reduce food production in the long term, resulting in lower CO₂ emissions and reducing the need for intensive land use, giving space to natural vegetation, which in turn helps in the mitigation and adaptation of climate change. However, when planning the use of bio-based products and biomass for energy generation it is important to consider unfavourable climate change-driven processes, such as droughts, floods, heat stress and soil erosion, which is estimated to decrease the total supply of bio-based products in the future. In general, it is more judicious, from an environmental perspective, to reduce overall consumption than to rely on bio-based production processes.

The impact of the recommended measures on **human health** is fundamentally positive. Healthier food is one of the advantages of bio-based solutions in agriculture and food production. Raising awareness of the meaning behind the “best before” label, incentivising the separate collection of municipal bio-waste, and strengthening education on the circular bioeconomy are expected to have a positive influence by arousing environmental consciousness among the general public.

The development of new facilities (biorefineries, bio-waste processing and recycling facilities) may result in **environmental conflicts** (i.e. social conflict arising from environmental degradation or by the unequal distribution of environmental resources), especially if built in a greenfield area. A trade-off could emerge between the land use structures dedicated to food production versus biomass for bioenergy production. The cultivation of plants for alternative proteins may also result in a greater demand for agricultural land (with a potential conflict of land use affecting grasslands). Substituting meat with plant-based alternatives can increase the exploitation of land. In Hungary, the majority of grassland habitats and their valuable flora and fauna can be maintained only through regular grazing or mowing, which is linked to extensive animal husbandry.

To summarise, measures introduced to increase the circularity of the biomass and food priority area have the biggest positive impact on climate, human health and lifestyle of the three priority areas examined. At the same time, a growing environmental public consciousness and the positive impact on air quality, soil and biodiversity are all desired benefits of a circular economy.

Measures proposed for the construction priority area will yield positive environmental impacts on air quality, water, biodiversity, climate and the built environment

The instruments proposed for adoption by the Hungarian Government include specific actions related to each life cycle phase of buildings construction in the form of economic and regulatory measures. The proposal also covers several horizontal tools targeting better coordination, education, information, digitalisation, and business support to SMEs. To facilitate a transition to a circular construction, Hungary will need to strengthen its existing policy instruments to include an increase in the landfill tax rate, better enforcement of waste regulations, and extended renovation support schemes tailored to promote the circular economy. The development of quality standards for secondary raw materials, the introduction of a tax on selected virgin construction aggregates, and the integration of minimum recycled content requirements into green public procurement (GPP) criteria will drive the uptake of the secondary materials market. The downstream measures propose to: focus on introducing end-of-waste criteria for additional construction waste streams; establish a mandatory selective demolition system; and consider the development of an extended producer responsibility (EPR) scheme for construction products as incentives for construction and demolition waste (CDW) recycling and reuse.

The outlined support for the use of secondary raw materials in construction will have an overall positive effect on **soil** as the extraction of primary construction raw materials, especially open-pit mines, has a harmful effect on the environment.

The use of secondary raw materials in construction has a positive effect on **air quality** as the opening of new open-pit mines would be avoided, which would have significantly increased local particle contamination. If this were accompanied by the closure and recultivation of open-pit mines, the positive effect on air quality would be even more significant. Increasing landfill taxes on CDW will also have a positive effect on air quality as the transportation and treatment of such waste generates significant dust emissions.

Increasing the use of secondary raw materials in the construction industry benefits the environment as the extraction of primary raw materials, especially the establishment and operation of open-pit mines, disrupts surface and underground water systems and creates **water management** problems. Extending the lifespan of buildings and renovating the building stock can reduce the amount of water used in the construction industry.

Less landfilled waste helps maintain **biodiversity** in a close-to-natural state. However, it is important to state that backfilling of CDW – the most frequent use of CDW waste diverted from landfills – can be dangerous for natural and semi-natural areas. This is enabled by the weak legal status of soil and nature protection measures and by the simplified approval procedures of local authorities currently in place.

The use of secondary raw materials in construction has a positive effect on the climate. The implementation of all the actions and recommendations in the OECD report will fundamentally reduce pressure on the natural environment and have a positive effect on **climate mitigation and adaptation**. As a result of the application of circular planning guidelines and actions to directly support secondary raw materials use, the expected number of green building elements and sites in urban settings will contribute significantly to climate adaptation.

As bio-based materials will partly substitute traditional construction raw materials (cement, steel), the appearance of the **built environment** will change positively (for example, the use of covering clay or reeds in green façades). Extending the lifespan of the built environment and promoting more intensive and flexible uses will preserve the current landscape. The use of secondary raw materials will also contribute to conserving the appearance of traditional built structures, which is a desired outcome. Valorisation of CDW through more efficient recovery and utilisation therefore encourages a cleaner built environment and their surroundings (for example, by reducing illegal dumping and littering).

Newly constructed or renovated buildings built to new standards of circularity, including standards for secondary raw materials use and renovation, would provide people with better living conditions. The policy recommendations aimed at renovation are also expected to lower the **environmental conflicts** caused by construction activity as circular strategies promote a shift away from the extraction of raw materials for new buildings, thereby mitigating their associated environmental impact.

Measures proposed for the plastics priority area will positively affect human health and lifestyle the most

The intervention logic of the policy recommendations identified in the plastics priority area is versatile and builds on the economic possibilities that exist in Hungary, while also using examples from international best practices. The OECD report identified a mix of economic, regulatory and information instruments that could be applied in the transition towards a more circular life cycle for plastics. The recommendations target the most frequently used polymers in applications, including packaging, single-use plastics and construction. The report recognises the importance of national specificities and the possibilities that lie in education and awareness raising, as well as in research and development efforts.

The planned actions would positively influence human health and improve lifestyles, while stirring environmental consciousness and easing environmental conflicts whenever they arise.

Raising the landfill tax and educating consumers is shown to have the most favourable indirect effect on soil quality. Awareness-raising campaigns are essential to reduce the amount of illegally dumped and littered waste, which – for the most part – ends up in the **soil** and **surface waters**. Incentivising separate waste collection and implementing PAYT schemes are other actions that will reduce the amount of plastics found in illegal plastic waste deposits and other organic sources of pollution in waterways.

Illegal waste dumping also has a negative effect on **biodiversity** as a result of soil and water contamination of the natural habitat for wildlife. Extended producer responsibility (such as take-back and deposit refund schemes) contributes to safeguarding biodiversity by reducing the amount of illegally disposed waste and thus avoiding the degradation of plastics into microplastics and the unpredictable, deleterious effects they have on the food chain.

Most of the planned actions have indirect positive effects on **air quality**. Combustion products from plastics pollute the air significantly. Incineration taxes, the circular reuse of plastics and recycling would therefore reduce air pollution.

Policy recommendations in the plastics priority area have either direct or indirect effects on human **lifestyle, health and environmental consciousness**. End consumers are targeted through awareness-raising campaigns that explain how to properly dispose of waste, providing them with pertinent knowledge about plastic pollution.

The recommendations are expected to lower the risk of **environmental conflicts** caused by plastics as they aim to close the loop on intensive plastic materials use. However, environmental trade-offs might occur. For example, the reduction in landfilling will require new recycling facilities to be built, which will need new land sites. Moreover, the rate of plastics use across sectors might show an improvement despite an increase in cumulative primary plastics consumption. In addition to improvements in resource productivity and share of recycled content it is therefore equally important to closely monitor the potential increases in the absolute amount of plastic materials intake by the industry.

Horizontal approaches positively impact all environmental elements

The horizontal flagship actions recommended in the OECD report relate to strengthening the effectiveness of education, capacity building, knowledge transfer and education, providing more financial support for eco-innovation and technological development, better tailoring government support for the circular transformation of SMEs, and improving existing data collection and monitoring systems.

Horizontal tools listed in the OECD report support the promotion of sustainable consumption and lifestyle patterns and, hence, are positive for all environmental and social elements. These are usually indirect effects, yet they are significant as they establish a “sustainability frame” around the priority areas and support the paradigm shift to a more circular economy. Greater emphasis should be placed on the reduction of material flows such as the elimination of packaging rather than promoting the use of easily recyclable alternatives or promoting local farmers’ markets, that is, actions should ultimately drive down consumption.

Additional protective measures could be considered to avoid negative externalities on the environmental factors examined

The OECD report proposes policy recommendations and actions that have – for the most part – positive effects on the different elements of the environment. However, these measures can occasionally be in

conflict with other policy measures outside of the scope of the NCES. To mitigate these adverse effects, the SEA proposes additional measures that need to be taken into account to prevent negative impacts on the environmental factors examined.

- In the **biomass and food** priority area it is essential to protect soil and water from potential pollutants originating from compost and sewage sludge.
- The use of secondary raw materials coming from the **construction** and **plastics** priority areas are to be handled with precaution (reuse of demolished materials should be encouraged even though the use of bio-based materials is also desirable).
- In the **construction** priority area, the financial subsidies for households need to be redesigned towards the circular economy by awarding the same amount for renovations than for new buildings in order to extend the life span of existing homes.
- The implementation of **horizontal tools**, especially in terms of awareness raising and education, needs to start as soon as possible to quickly shape attitudes and change the behaviour of people and businesses.

These proposed protective measures extend the scope of the policy recommendations to achieve better synergy, and which can be considered during the finalisation of the NCES.

The OECD report proposes a comprehensive monitoring system for the evaluation of the circular economy transition in Hungary

The OECD report describes the monitoring framework for the implementation of the NCES, in which a three-tiered structure of indicators is proposed.

- Indicators to measure the attainment of strategic objectives formulated in the vision of the NCES:
 - **Resource productivity:** Gross domestic product divided by the total amount of materials directly used by the economy (EUR/kg)
 - **Contribution of recycled materials to raw materials demand:** Circular material use (CMU) rate (%)
 - **Circular jobs:** Number of persons employed in circular activities as a share of total employment (%).
- A specific list of indicators for each priority area to monitor the progress of circular transition:
 - The **biomass and food** priority area has the most indicators as it is the most complex domain. Indicators will measure the progress related to waste management, the rate of GPP in procuring food and catering services, and investments in the circular bioeconomy.
 - For the **construction** priority area, the proposed indicators cover the domestic extraction and material consumption of construction minerals, the waste management of CDW (generation, recycling, recovery and landfilling), and the rate of GPP in construction tenders.
 - For the **plastics** priority area, the following indicators have been proposed: the use of non-recyclable plastics in the food and construction sectors; the collection of plastic bottles; recycled content of plastics; the generation and recycling of plastic packaging waste; and the green procurement share of plastic products.
- A set of complementary indicators is proposed to monitor the economy-wide circular transition in Hungary regarding **consumption and production, waste management, secondary raw materials, competitiveness** and **horizontal tools**.

All indicators comply with the criteria of policy relevance, analytical soundness and measurability.



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