

REGIONAL ACTION PLAN TO EXPAND SRM MARKET HUNGARY

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1. Introduction

The circular economy requires action at all stages of the life cycle of products: from the extraction of raw materials, through material and product design, production, distribution and consumption of goods, repair, remanufacturing and reuse schemes, to waste management and recycling. All these stages are linked and improvements in terms of resource and energy efficiency can be made also at all stages. It is highlighted in the New Circular Economy Action plan issued on 11th March 2020.

Industrial symbiosis is when a company or sector uses the already existing but underutilized resources of another one (broadly interpreted: waste, by-products, residues, materials, energy, water, or even excess capacities, logistics, expertise, tools), and as a result, those resources are used more efficiently and for a longer period. That makes industrial symbiosis a significant means of realizing a circular economy and of achieving sustainability goals, and it is based on the long-term, planned partnership and cooperation of donor and recipient companies. A fundamental condition for the establishment of industrial symbiosis is the availability of appropriate information on the underutilized resources (mostly waste and residues) and also on the needs and capacities of the potential users (utilizers, processors).

Thus, industrial symbiosis is one of the tools of ensuring sustainable development by keeping resources in the industrial cycle to optimize corporate, sectoral, regional, national or international resource management. The economical treatment of natural resources and “the keeping the resources in the production cycle concept” are not new ideas, they are part of the principles of sustainable development from the beginning.

The basic concept of sustainable development - which is still valid today - was defined by the Brundtland Report, unanimously adopted at the General Assembly of the United Nations (UN), entitled “Our Common Future” as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

According to sustainable development, balancing the three main principles of sustainability - economic growth, environmental protection and social equity - is in the interest of mankind and the Earth. Focusing on any element is at the expense of the other two, thus worsening the changes of sustainability. There is therefore a need for a coherent development policy and action plan that takes into account the needs and opportunities of all three areas at global, national, regional and local levels. Industrial symbiosis, by increasing resource efficiency, is precisely aimed at aligning economic growth with environmental goals, while at the same time contributing to the development of social equality through a new approach and employment opportunities generated by new, systematic industrial cooperation.



A policy that focuses on sustainable development over the past 30 years has significantly refined, expanded and enriched, leading today to a new global development program unanimously adopted by the UN at the 2015 World Summit on Sustainable Development, which sets targets for the eradication of poverty and the building of a sustainable future by 2030. By addressing these three main elements of sustainability, the Program identifies 17 target areas and a number of specific targets within them (Transforming Our World: The 2030 Agenda for Sustainable Development). Industrial symbiosis can be linked to or contribute to the development and achievement of the 17 target areas shown in the well-known figure below (Figure 1.).



Figure 1. - Sustainable Development Goals (SDGs)

Source: [UN Sustainable Development Goals Knowledge Platform](#)

Indirectly, industrial symbiosis can contribute to “no poverty” (1) through job creation, and thus to “zero hunger” (2), or even “quality education” (4) by generating appropriate skills needed through new economic relationships and new raw material preparation technologies. It can also contribute to “good health and well-being” (3) by avoiding or reducing the environmental and health risks of unused resources. By reducing the sources of environmental damage, it has an impact on the condition and improvement of “life below water” (14) and “life on land” (15).

Industrial symbiosis has a much more direct impact on “clean water and sanitation” (6), in particular on improving the efficiency of water use and integrated water resource management. Likewise, it can make a significant contribution to the development of “affordable and clean energy” (7) and “climate action” (13) targets with replacing fossil fuels and increasing energy efficiency, but also by keeping greenhouse gas by-products in the industrial cycle.

There is a clear link between industrial symbiosis and its importance in achieving the goals of “decent work and economic growth” (8), “industry, innovation and infrastructure” (9), “sustainable cities and communities” (11), “responsible consumption and production” (12), contributing substantially to the individual development directions of each target area.

In addition to increasing productivity and creating jobs, it supports the reduction of environmental impact, the transition to sustainable consumption and production processes, the improvement of resource efficiency, the development of appropriate resource management and the use of environmental friendly and innovative technologies. Sustainable consumption and production goals - sustainable management of



natural resources, good management of chemicals, life-cycle waste management, or even food waste reduction - are explicit targets of industrial symbiosis.

As all these developments, such as industrial symbiosis systems or some of their elements, can essentially take place within the municipalities, it is clear that they contribute to improving the environmental quality of the municipalities and reducing their environmental impact, and are fit into the design and development objectives of the sustainable settlement and area. In addition, the municipalities themselves can be directly involved in industrial symbiosis through the provision of municipal waste management services, through the connection of municipal waste management, energy supply and public transport to industrial partners, both as suppliers of raw materials and as users.

While the last, “partnerships for the goals” (17) focuses on the development of cooperation between global, national and governmental, national and international organizations, it is clear that industrial symbiosis systems operate through cooperation, mutual trust and the provision of information - so it cannot happen without partnership.

To achieve the global sustainability goals, the European Commission has developed a comprehensive program to keep resources in the economic cycle, which was submitted in December 2015 to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, entitled “Closing the loop - An EU action plan for the circular economy”¹. According to the Communication, the action plan will effectively contribute to achieving the UN SDGs by 2030, in particular the “responsible consumption and production” (12) target.



Figure 2. - Concept of circular economy

Source: [European Commission](#)

The new Circular Economy Action Plan (part of the European Green Deal) which was published by the European Commission - in line with the SDGs - provides plans how Europe can achieve a climate-neutral, resource-efficient and competitive economy in cooperation with economic actors, consumers, citizens and civil society organizations by 2050. These CE actions (see Annex 1.) are in close connection with some

¹ COM(2015) 614 final



CIRCE2020 project goals and the Hungarian Climate and Nature Action Plan which is going to be explained in details in this document.

2. Overview

This chapter aims to give an overview of the situation of circular economy and secondary raw material markets in Hungary. In order to do so, waste management tendencies, recovery rates will be analyzed.

In January 2018, the European Commission published its Communication on a Circular Economy Monitoring Framework in which the EC sets out 10 key indicators, including those related to waste management, to monitor the shift towards a circular economy. The EU's statistical office, Eurostat, has set up a dedicated sub-page on its website, where it collects and updates data on these indicators.²

According to the circular economy indicators, in 2016, the secondary use of material was 6,4%. Resource productivity - that means how efficiently the economy uses material resources to produce wealth - is below the EU average in Hungary: in 2017 it was 0,88EUR/kg (EU average was 2,07 EUR/kg). The following figure shows the resource productivity between 2010 and 2017.

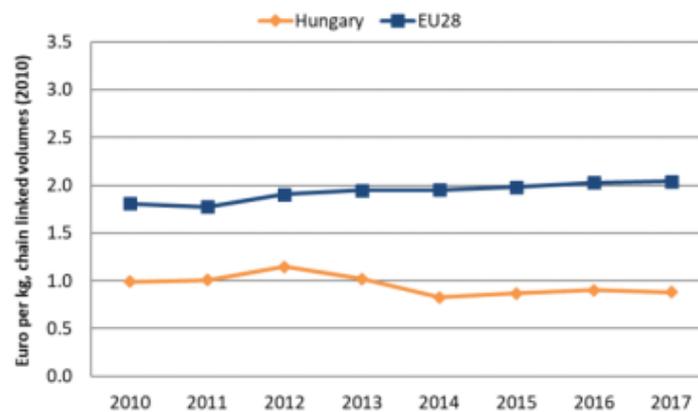


Figure 3. - Resource productivity 2010-2017

The Environmental Implementation Review 2019 - Country Report Hungary

(data: Eurostat, Circular Economy Indicators)

Waste management in Hungary

Another indicator mentioned by the EC is related to waste management. If the waste treatment proportions are analyzed in Hungary, it could be stated that Hungary is above the EU average. As it could be seen from the figure below (Figure 4.) the recovery rate (consisting of recycling, backfilling and energy recovered quantities) of the total waste treated is 65,2 % in Hungary in 2016, whilst the EU average is 53,3 %.

² <https://ec.europa.eu/eurostat/web/circular-economy/indicators>

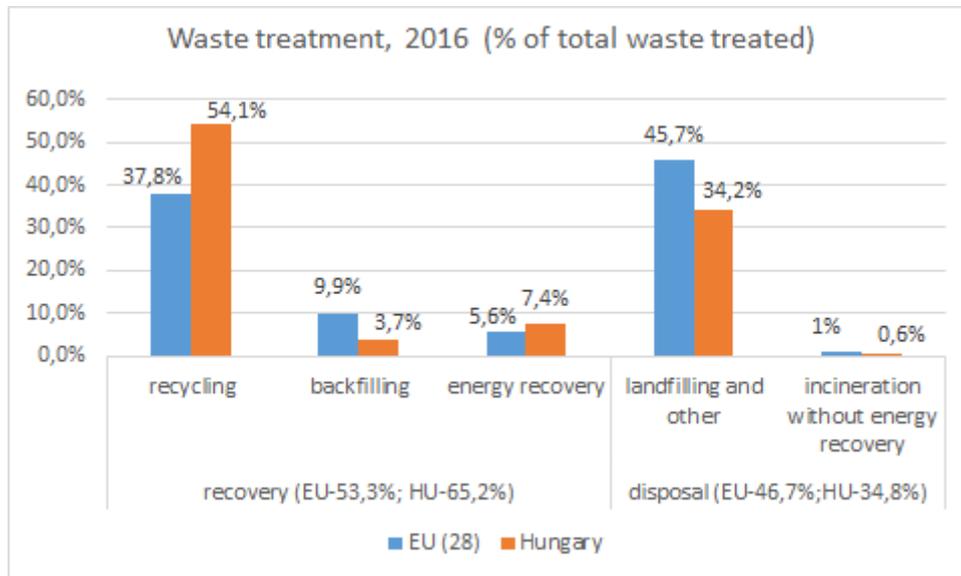


Figure 4. Waste treatment in Hungary

Source: Eurostat (env_wastrt)

Taking a look at the waste treatment tendencies, Hungary is also on good track, with decreasing level of landfilling and increasing recovery rates in case of hazardous and non-hazardous waste generated and treated.

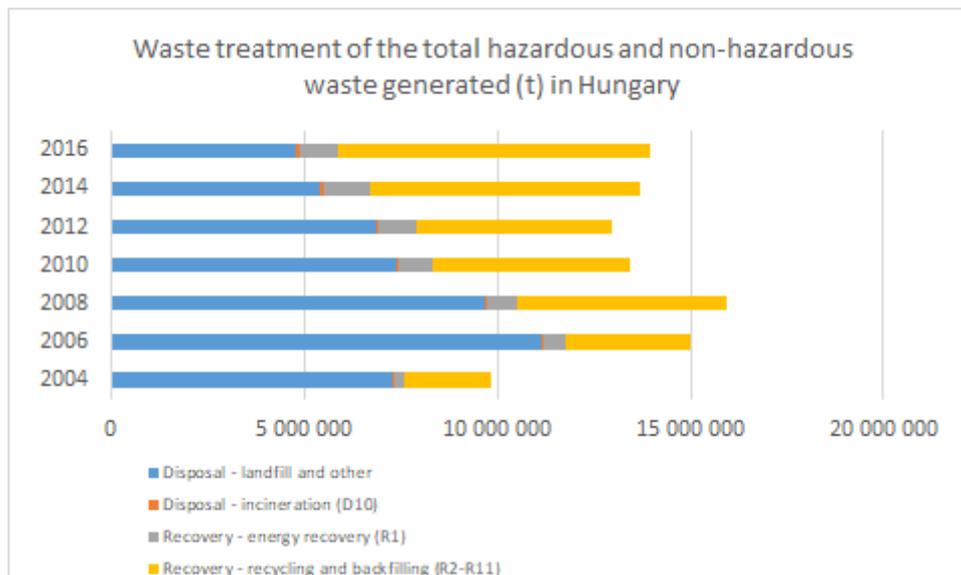


Figure 5. - Tendency in waste generation and treatment between 2004-2016

Source: Eurostat (env_wastrt)_Hungary

However, there is still a lot to be done to reach the targets defined in the new Waste Framework Directive arising from the circular economy related objectives of the European Commission.



A relevant figure demonstrating circularity refers to the generated municipal waste amount per capita and the treatment processes, such as material recycling, composting and digestion, incineration and energy recovery and disposal.

The generated waste amount is decreasing year by year and the proportions of treatment types are also different. The recycling rate (it also includes composting) is slowly rising, 35%, but still not adequate. This is well below the EU average that is around 46%. If Hungary would like to achieve the municipal waste recycling specified target (50%) more efforts are necessary.

In order to divert the waste from landfilling, the Hungarian government introduced the landfill tax in 2013 that should be paid after all tons of waste landfilled. Since 2017 this obligation refers to all types of waste including non-hazardous industrial waste. The value is somewhat less than 20 euro/ton. Landfilling in Hungary is decreasing thanks to this regulations, but it is still a predominant form in case of municipal waste treatment.

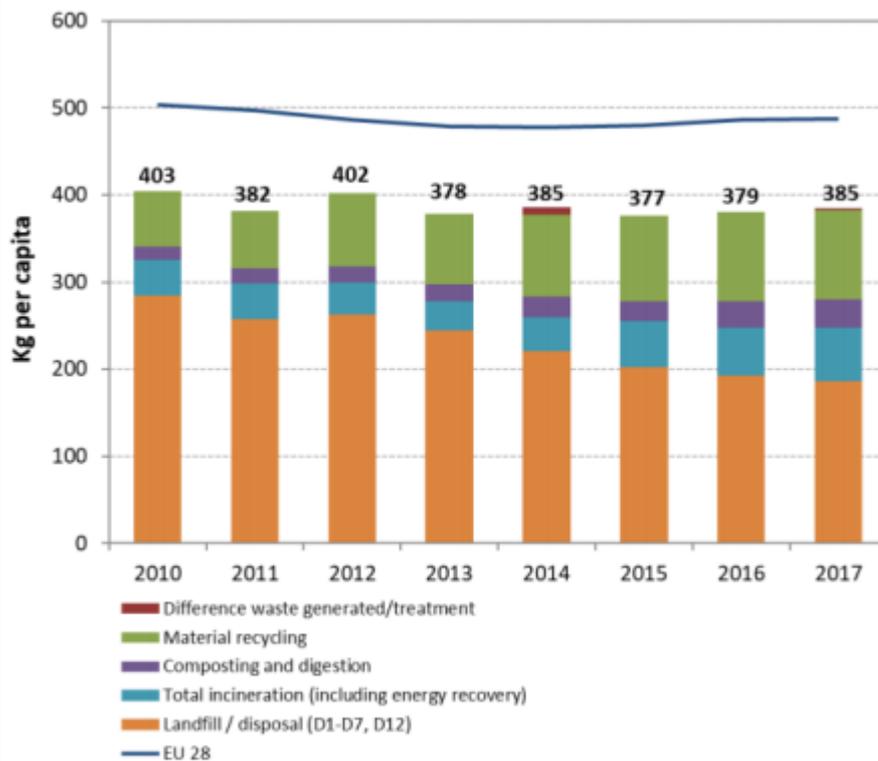


Figure 6. - Municipal waste in Hungary by treatment 2010-2017

The Environmental Implementation Review 2019 - Country Report Hungary

(data: Eurostat, Municipal waste by waste operations)



If we narrow down to the material recycling tendencies for packaging waste, as it could be seen from Figure 7, in the last 10 years Hungary could not really boost recycling so in the future there is a need for new incentives.

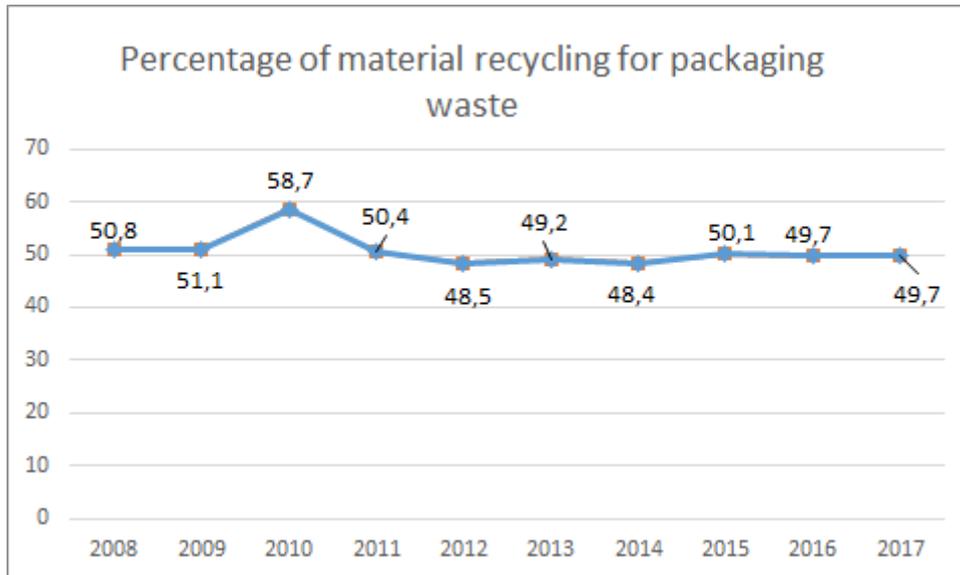


Figure 7. - Material recycling of packaging waste [%] in Hungary

Source: Eurostat (env_wastrt)_Hungary

The collection and recovery goals for packaging set by the EU are getting higher in accordance with the circular economy waste package of 2018. However, Hungary still struggles to reach some of the less ambitious goals set earlier, for instance, the recovery rate of glass packaging is around 34-35 % , however, the present target is 60%. The packaging waste recycling target (55%) has not been achieved yet.

It should be highlighted that there are enough recycling capacities (for plastic there are even overcapacities, but for WEEE for instance we have only pre-treatment facilities) in the country, but **the use of secondary raw materials and ecodesign** should be promoted with various means.

So there is a need for further actions to progress in this respect.

The product fee proved to be a great tool to somehow regulate the market. In Hungary since 2012 a totally reformed state-governed product fee system was introduced. A success story was achieved in case of disposable plastic bags with the highest product fee put on them. In 2010, 160 pieces of them were used and then thrown away per capita, whilst in 2016 this number was already halved (80 pcs), in 2021 it will be completely banned.

The Hungarian government approved the **Climate and Nature Protection Action Plan** in February 2020. Amongst the defined 8 actions the actions below might lead to the increase in the amount and the use of secondary raw materials.

A Waste Management Authority will be established by July 2020 whose tasks will be to stop illegal dumping, to foster the spread of reusable products and to boost the recycling of the generated waste streams. From 2021, the sale of disposable plastics, in particular plastic cups, cutlery, plates, drinking straws and shopping bags will be stopped - one year earlier than the EC deadline.



Reusable products will be promoted, financial incentives will be provided to businesses, especially domestic small and medium enterprises, to develop new alternatives to replace these disposable plastic products. A well functioning take back scheme will be implemented for plastic bottles, glass and metal packaging. Multinational companies will be expected to use and apply environmentally friendly technologies. Special funds will be allocated for small and medium-sized companies to increase energy efficiency and the percentage of renewable energy usage.³

Cooperation of stakeholders to reach the targets and to foster the transition to circular economy

Besides these policy related initiative **it is a great and progressive initiative to boost and bring the secondary raw material market to the forefront.** Besides there is an advanced need for awareness raising actions for all the relevant stakeholders. In November 2018, the first Hungarian Circular Economy Platform was established by the Hungarian Business Council for Sustainable Development, the Embassy of the Kingdom of Netherlands and the Ministry of Innovation and Technology. 80 companies and organizations - including IFKA and BZN- have joined the Platform so far, which aims to accelerate the transition to a circular economy model by sharing knowledge, creating joint projects and fostering collaborations.

Why is the establishment of the Circular Economy Platform important? Because

- most organizations are not yet fully aware that this model can increase the resilience of the world economy and make it easier to reach the Paris Climate Change Agreement and the United Nations Sustainable Development Goals (UN SDGs).
- it plays a key role in creating a change of mindset and common thinking, in shaping community-minded and action-driven change leaders, and in sharing business solutions that bring real change
- in order to change old business operation models, collaboration and knowledge sharing is needed involving the corporate, governmental and scientific sphere.

Based on a survey done by the Platform members some factors were identified which can support the spread of circular economy and use of secondary raw materials. These are the followings:

1. Government (primarily financial) incentives (e.g. applications, direct grants);
2. Showcasing good practices of industrial symbiosis (e.g. more effective cooperation examples between companies regarding use of waste as a secondary raw material);
3. Legislative provisions (e.g. extended producer responsibility, priority waste streams);
4. Creation of a Hungarian circular economy development strategy or plan;
5. Presenting good practices for resource-efficient operation, production.

So there are things to be done in all levels: from the government and legislation, through the producer companies to the consumers.

3. General goals

This Action Plan was prepared within the framework of CIRCE2020 project to draw attention to the need and necessary steps towards a transition to a circular economy. It intends to give an objective overview of the current situations, success stories and also highlighting some of the critical issues in this respect. It also

³ Hungarian Climate and Nature Action Plan, 2020.



intends to provide some ideas and actions to support the SRM markets resulting in resource efficient economic operations.

This document was prepared with the involvement of different stakeholder groups.

4. Critical issues

Regarding harmonization, the Hungarian legislation complies with the related EU directives. The deadline for implementing the recent amendments is July 5th, 2020.

Hungary introduced a product fee in 2000. In 2011 the state took over the roles and responsibilities carried out by Extended Producer Responsibility Organizations (EPR) based on the “polluter pays” principle creating a unique “Hungarian EPR system”.

The manufacturers of selected products (e.g.: packaging, tires, batteries etc.) have extended responsibility for their goods at post-consumer stage. Producers have to pay a fee to the Hungarian Tax Authority. The national budget uses this tax to co-finance the collection and treatment of end-of life products through public procurements. The concept is theoretically properly worked out, however there are some factors that hinders the efficiency:

- Payment of the fee puts a great financial burden on **producers**, their responsibility seems to end with this payment. There is **no motivation** for eco-design, producing “green” materials and products (no incentives, no well functioning green public procurement processes)
- **Only approximately 20% of the fee** is used directly to finance collection, recovery, awareness raising related communication and the development of the waste collection network and recycling technology system
- Financing the waste collection and recovery operations could happen only through the lengthy public procurement processes, since no state co-financing can be provided without it in the EU. As a result, the co-financing suffers from long delays (even over a year), so both collectors and recyclers have to face cash flow issues which might hinder their R&D activities and related developments.

It would be practical to separate the producer responsibility systems and the product fee systems in a way that the aforementioned hindering factors could be eliminated.

There is **no incentive for manufacturer to use secondary raw materials in this system**. There is no positive distinction for consciously designed products (recyclable, reusable elements, out of recycled materials) resulting in a low level of eco-design development. An **incentivising scheme** should be worked out to urge manufacturers toward ecodesign and to foster the use of secondary raw materials. Deposit-refund systems are only voluntary, although there are ongoing discussions on the introduction of a compulsory system in the last 20 years no direct actions have been taken yet.

New R&D calls in this topic, legislation related to green public procurement, compulsory regulations for recycled materials all could give a boost to circular economy.

There is also a need for **more clearly defined end-of-waste criteria**. A clearer distinction between the concept of waste and by-product would **facilitate the use of secondary raw materials** and it would be useful to provide clear criteria for judging by-product and waste status (such as waste/by-product as fuel or soil substitute) for some major material flows.

Without **providing enough input materials** to recyclers, it is impossible to make operators financially stable and to produce all the needed secondary raw material quantities. So collection should be also intensified



and developed. In 2013 the rearrangement of the MSW collection system took place, as well coming with the central state coordination. Besides some positive aspects - like the even service content, cost cuts for the citizens, central monitoring of the public services and the fulfilment of the waste related targets, optimisation of the capacities and integration initiatives - there are some aspects what should be developed in the near future:

Late financing due to public procurement procedures generates organizational and financial challenges to the sector, and since the state owns the separately collected waste materials there are no real incentives for the collector companies to develop the collection systems.

There is also a need for **legislation stability**. The reforms introduced in the recent years were so deeply rooted that the system should be fine-tuned several times. That is why the new Law on Waste was modified approximately 25 times in the last 6-7 years. Until the deadline for implementing the recent amendments - July 5th, 2020 -, the system should be stabilized to offer a stable base for long term planning and development.

There is a **lack of central financing of research, development and innovation**, but this should be targeted both to the producers and to the recyclers. Some of these calls could be financed from the paid in product fees and landfill tax.

Last but not least, there is an advanced need for **dissemination**. The concept of Circular economy and the related strategies might sound good, but the business sector won't be aware what kind of actions should be implemented. **Good practices** - like industrial symbiosis - **and methodologies** - just like life cycle assessment, life cycle costing - should be presented to them with which they could decide which scenario should be followed and what results could be achieved with them. A great example for the related methodology is worked out within the framework of CIRCE2020 project.

5. Stakeholders involvement

All the proposed actions are the results of intensive discussions with different stakeholder groups. IFKA, a background institution of the Ministry of Innovation and Technology, as the organisation responsible to prepare this Action Plan, organised several forums, meetings and workshops to gain an insight how the different stakeholders perceived circular economy.

Regular bilateral meetings, forums, events and trainings were organized within the framework of the CIRCE2020 project involving the following stakeholder groups to identify the most essential and real-life issues and the possible solutions to spread circular economy business models:

- relevant ministries, policy makers, authorities, municipalities;
- associations and experts dealing with circular economy, environmental protection, R&D&I, green public procurement, sustainable development and waste management;
- Hungarian Circular Economy Platform meetings;
- producing/manufacturing companies (mostly SMEs);
- waste management and treatment companies;
- communication experts.



6. Indicators

The main objective of this Action Plan is to increase the resource productivity (at least to the European Union average level - 2,07 EUR/kg), to foster material recycling whilst divert waste from landfills and to keep the waste generation quantities below the EU average in order to fulfil the EU targets by 2030 and to accelerate the circular transition.

The table below summarizes the main goals and targets what Hungary should fulfil and the actual situation:

Goal	EU target by 2030*	Hungary Achieved
Municipal waste recycling	65%	43% (paper, plastic, metal) – 2016; 35% of all municipal waste - 2016
Packaging waste recycling	75%	Reference year: 2015, Overall 61,5%, of which; -Paper: 85%; -Glass: 33 %; -Metal: 100 %; -Plastic: 63%; -Wood: 16 %; Based on National Waste Management Public Service Plan, 2017
Landfilled waste rate of all waste	10%	51% of household waste (2016); 40% of all waste (2015)
Existing economic instruments to discourage landfilling	yes	Yes 20/2006. KvVM decree regulate the certain rules and conditions for landfills. Landfill fee was introduced in 2013 – constantly growing amount, now fixed to 6000 HUF Separate collection and non-dumping is a financial incentive.
Measures to promote reuse and stimulate industrial symbiosis	yes	Irinyi Plan about the innovative development of the industry contains reference to industrial symbiosis, but no direct measures are taken. There are some companies in the field of used, second hand goods trading, but there are only a few reuse centres. There is a regulation on the re-use of construction-demolition debris and detailed rules for waste-management activities related to construction-demolition waste.
Economic incentives for producers to put greener products on the market	yes	no Only the European and other ecolabels.

Table 1. - EU targets vs. Hungary's achievements



7. Topics / Action

7.1 Waste management related general legislative issues

There are many options for actions to facilitate the emergence of industrial symbiosis systems from both the regulatory, development and research support side.

Apart from proper harmonization of the Circular Economy Package, it would be necessary to analyse the effect of a possible decoupling of the rules on producers' responsibility system from product fee law, both to meet the requirements of the Waste framework DIRECTIVE (EU) 2018/851 amending Directive 2008/98/EC on waste. Alternative solutions should be examined how the waste management system could be centrally financed without the application burden of the public procurement processes. This could help the waste collection and waste treatment industries, as well. The direct interest of the public service providers should be maintained - even strengthened - to progress with the targets of collected and recycled quantities.

Producers' responsibility shall include **eco-design with real incentives** towards the related R&D activities and the use of secondary raw materials should be compulsory for them. Positive distinction for environmental consciously designed products (recyclable, reusable elements, out of recycled materials) could result in higher level of eco-design development. An **incentivising scheme** should be worked out to urge manufacturers toward ecodesign and to foster the use of secondary raw materials.

A special financing mechanism should be worked out for R&D projects - as discussed later appeared in the current EDIOP calls and in the future programming period, as well.

7.2. By-Product and End-of-Waste Criteria

Nowadays, the definition of waste is based on the act of discarding, rather than the value of the material. A starting point of the circular economy is that materials shall only be in the waste phase temporarily, to then be reintroduced into the economy as product.

In 2008 an update of the EU's Waste Framework Directive (WFD), introduced the end-of-waste (EoW) criteria for the first time. According to the criteria, a product status can be achieved if:

- the substance or object is to be used for specific purposes;
- there is an existing market or demand for the substance or object;
- the use is lawful (substance or object fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products);
- the use will not lead to overall adverse environmental or human health impacts.

However, after 10 years, the end-of-waste criteria have only been defined for three different waste types: iron scrape, copper scrap and glass cullet.

Consequently, the responsibility for further implementation of end-of-waste was left to the member states, but there are many different practices and approaches for this.

In Hungary there is not even a uniform system for this. However, a clearer distinction between the concept of waste and by-product would facilitate the use of secondary raw materials and it would be useful to



provide clear criteria for judging by-product and waste status (such as waste/by-product as fuel or soil substitute) for some major material flows.

7.3. Green Public Procurement

Public procurement can be defined in many ways - from different perspectives. However, the real significance of public procurement can best be understood by illustrating the huge amounts of money the public procurement market is moving in every year. In 2016, Hungarian GDP was HUF 35,420.3 billion⁴, out of which the proportion of public procurement was 5.7%. The value of public procurement in the European Union is estimated at 16% of GDP⁵.

These amounts clearly show that public procurement, on the one hand, is a huge market and, on the other hand, the state as a purchaser can have a significant influence on the economy and the functioning of markets⁶.

Establishing rules for green public procurement (GPP) and defining mandatory elements for public and municipal procurement would help to develop systems, such as: promoting the use of secondary raw materials, renewable energy solutions in construction tenders, recyclable products and recycled ingredients and preferring energy-efficient, climate-friendly, products. Green purchasing conditions should also be included in industrial development tenders and private investors should be encouraged to use them to generate demand for secondary raw materials, indirectly for enhancing industrial symbiosis collaboration, as well.

However, the concept of GPP has never been established by law in Hungary. Without a statutory concept, GPP can be interpreted in many ways depending on the interests of the contracting authorities and bidders. Since we cannot refer to a generally accepted concept of GPP, there is no adequate statistical data of how many GPP procedures are conducted in a year. The Hungarian legislation fully adopted the new Directives of 2014 into the Hungarian law system, therefore, the Public Procurement Act also complied with the EU environmental objectives, but without some obligations defined in this respect, no significant results could be achieved.

IFKA - for instance - organized several discussion forums to get an insight about the situation of green public procurement in Hungary.

Policy makers - including authorities and ministries responsible for smart specialization strategy, public procurement and green issues -, main producers and associations of SMEs' side and some other relevant key-stakeholders were invited for this purpose.

One of the main identified problems is that there are no regular meetings, forums or other events where purchasers, representatives of contracting and bidding companies can meet and talk about possibilities, opportunities of sustainable and green public procurement. Plus there is an uncertainty amongst the public procurement advisors how the green objectives could be translation into the language of Law in a way that

⁴ http://www.ksh.hu/docs/hun/xstadat/xstadat_eves/i_qpt001.html

⁵ <http://ec.europa.eu/trade/policy/accessing-markets/public-procurement/>

⁶ MELLÁR Tamás: A költségvetési kiadások hatása a kínálatra, Közgazdasági Szemle, XLII. évfolyam, 1995/6. szám, 553.



it will be accepted during the audits. For this, concrete good practices, detailed solutions should be introduced to make it replicable and generally acceptable.

So the topic of GPP should be kept in the center of attention and the preparation of the related legislation should be supported at all levels.

7.4. Other incentives towards circular economy and industrial symbiosis

Use of secondary raw materials and applications of circular economy business models can be fostered if incentives appear in programs which are managed by the Hungarian government. Economic Development and Innovation Operational Program (EDIOP) aims to stimulate the less developed regions' economy in Hungary. It focuses on some main priorities such as increasing the competitiveness and productivity of small- and medium-sized enterprises, R&D&I, infocommunication developments, energy, employment, competitive labour force, tourism and financial instruments.

Circular economy, industrial symbiosis and the use of secondary raw materials are indeed a new alternative economic operating model with several economic, financial, operational and environmental benefits. Developments in this direction will bring a real competitive advantage to businesses as long as these elements do not become mandatory within the EU. This should be kept in mind during the industrial development related calls and during the planning of the next programming period of 2021-2027, the promotion of the circular economy, the establishment of industrial symbiosis relations and the use of secondary raw materials shall be included.

However, it is also technically necessary to facilitate resource-efficient solutions, in particular by developing a "stock exchange" of by-products and secondary raw materials. A good example of this was the NISP project between 2010 and 2012, run by IFKA Non-profit Ltd., and its continuation and extension to the whole country would be useful for the widespread dissemination of industrial symbiosis.

The NISP project's aim was to build a bridge between the production and processing companies through the recovery and re-use of underutilized resources. The synergies identified were promoted through the programme as examples of good practice. In addition to workshops on Industrial Symbiosis, the programme delivered free advice on a number of other areas including corporate and business management, greening the office, savings on raw material production, environmental management and life cycle analysis. During the workshops, the participating companies listed the resources they had and wanted resulting in identified potential synergies.

This kind of facilitation is needed to overcome the lack of information the companies have about possible partners and waste management, recycling opportunities.

7.5. Dissemination: circular economy beyond waste management

There is a need for knowledge sharing, innovation, business solution sharing and education in connection with the circular economy and also the secondary raw material market and using. The circular economy is now an irreversible global trend, it seems as a new concept. However it is only a natural process, a back-



to-the-past approach. At the same time, much remains to be done to complete the cycle and exploit the competitive advantages.

According to the discussion with the experts and a survey's results prepared by the Hungarian Circular Economy Platform, most companies still identify the circular economy, industrial symbiosis with waste management or separate waste collection. The representatives of the interviewed companies themselves confirmed that collaboration, knowledge sharing and incentives are needed to get the model change started and foster the spread of the SRM market.

Better communication is necessary between all relevant players. Hungarian Circular Economy platform is a good initiative in this respect because it brings together representatives of ministries, companies, SMEs and other experts. More forums, meetings and workshops should be organized to discuss and share experiences, ideas, difficulties and solutions regarding use of secondary raw materials in processes and regulation changes.

There is also a need for **cooperation between producers, designers and recyclers for eco-innovation**. Identifying a communication path between **producers and waste management operators** would also be needed to assure high levels of recycling and **good quality secondary raw materials** that later could be reused by the producers during the production of goods instead of raw materials.

7.6. Industrial Parks as pilot areas for industrial symbiosis and circular economy business models

Based on the experience gained from the CIRCE2020 project, industrial parks are proper targets for circular solutions due to the proximity of different companies. This diversity could result in various potential synergies. However, companies need help for this. The operators of the industrial parks should be motivated to offer this special service to the companies situated within their industrial area.

Now there are 193 industrial parks in Hungary.

One solution could be that during the related development calls this could be determined as a criteria or some extra point could be given for this. It could be advantageous for the companies.

As another option a special qualification system could be worked out for the industrial parks including environmental aspects. This could influence the access to calls for proposals, plus it could influence companies when choosing between different venues.

The biggest achievements could be reached in case of newly established industrial parks where potential industrial symbiosis relations will be searched from the very beginning.

7.7. Special waste streams related actions

7.7.1 Reuse and Recycling of Packaging Waste

According to the 2019/904 DIRECTIVE (EU) on the reduction of the impact of certain plastic products on the environment of 5 June 2019 member states shall ensure the separate collection for recycling in a way to reach the 77% of the single use plastic products - like glass or metal beverage bottles that have caps and



lids made from plastic - put on the market by weight by 2025, and by 2029 this number should be 90 %. The use of refillable plastic bottles should also be promoted.

In order to reach these ambitious goals in Hungary the **implementation of a deposit refund system** is indispensable. In addition to that, the deposit refund system could give a great boost for reuse - glass, metal, plastic bottles.⁷

7.7.2 Plastic Materials and plastic recycling

The new rules on single-use plastic products deal with the ten products most commonly found in EU countries, including many packaging items such as plastic bottles and caps, plastic bags, food and beverage containers. The rules introduce new measures to reduce the turnover of plastic food containers and glasses through special labelling and marking. From 2030, 30% of the recycled plastic will be used to make new plastic bottles, 90% of the plastic bottles will be collected separately, while the caps will not be separated from the bottles during their life cycle. More environmentally conscious design requirements will support eco-innovation.

Regarding plastics, the plastic collection rate is under 30% in Hungary, meanwhile the plastic recycling capacity is several times higher than the amount of collected plastic waste, even higher than the quantity put on the market as a product. So on the one hand the collection rate of plastic packaging waste should be increased. For this it is necessary to examine which types of plastics can be collected separately and thus could be economically recycled, and their production should be encouraged.

On the other hand, other input providers should be attracted to Hungary promoted as an alternative for non-EU export of this waste type. For this a comprehensive analysis is needed to assess the Hungarian plastic recyclers (types, quantities).

Besides, the Hungarian government presented an action plan on climate and nature protection, which contains the ban of distribution of single-use plastic products - especially plastic cups, cutlery, plates, straws and shopping bags - from 2021. Businesses, especially SMEs should be supported in development and production of new products to replace these kinds of plastic products⁸. Green aspects in EDIOP calls are also good opportunities for this purpose.

7.7.3 Bio-waste and Food Waste

The deadline for the introduction of separate collection for biowaste is 31 December 2023. The hows should be discussed widely with all the relevant stakeholders. Also the financial issues should be remodelled since the “household utility cost cutting scheme of the government” plus the increasing costs of collection might be contradicting to a certain point.

The collected waste can be used for mulching, composting and biogas extraction, biodiesel production, animal feed, taking into account animal by-product rules (appropriate separation of plant and animal bio-waste is required, which is technologically and expediently justified). Support could be provided for the development and application of such solutions. In order to develop the market for the products obtained as a result of treatment, the conditions of use of the products should be worked out on the basis of their

⁷ <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32019L0904&from=EN>

⁸ https://www.kormany.hu/download/9/d4/c1000/ITM_Klima_es_Termeszetvedelmi_Akcioterv.pdf#!DocumentBrowse



composition and quality. The conditions for the use of biomass for energy purposes should be defined and promoted.

7.7.4. Construction and Demolition Waste

The construction sector is one of the biggest consumers of raw materials and generates large amounts of construction waste as well. Most constructions today are based on linear take-make-waste models where non-renewable resources are extracted, processed and used. Circular economy is a way to delink the construction sector from the consumption of finite resources of the earth and excessive waste generation. By 2020 at least 70 % of the non-hazardous construction and demolition waste should be re-used or recycled in material. Although we are getting closer to this deadline, the situation is very varied in case of the member states.

That is why the lack of circular economy related implementing rules for construction and demolition waste is a crucial issue. The regulation should be done in line with the new EU standards, including requirements for demolition and post-sorting (including reusability, e.g. windows, fittings), conditions for the use of recycled materials, quality, utilization criteria for construction materials from waste, and the status of polluted soil and stones already covered by Waste and Mining Acts. It should be made clear that the contractor bears responsibility for waste generated (by-products, secondary raw materials).

In order to facilitate the circulation of excavated, demolished, recycled building materials, it would be useful to gradually introduce “construction and demolition waste exchange” which would also allow the quality and quantity of materials to be recorded.

The utilization capacities of currently non-or difficult-to-process construction material waste, as well as research and development (e.g. plasterboard, styrofoam) should be also in the forefront of the relevant policies.

7.7.5 Textile Industry and textile waste

A separate collection system for textile waste should be introduced by 1. January 2025 according to the Waste framework DIRECTIVE (EU) 2018/851 amending Directive 2008/98/EC on waste.

However, the emphasis should be on prevention, avoiding the waste of textiles, mainly by collecting, sorting, cleaning, repairing and ensuring reuse of unnecessary clothing. This would require both the collection system and the processing capacities to be improved and the responsibility shared between manufacturers and distributors.

The preparation for this obligation should start as early as possible with a dialogue involving all the relevant stakeholders in this process.

7.7.6. Waste Electrical and Electronic Equipment (WEEE)

In the case of WEEE, only the pre-treatment takes place in Hungary, so further development might be needed in this respect to keep resources within the domestic value chains.



Annex 1: Key actions in the new Circular Economy Action Plan⁹

The new Circular Economy Action Plan focuses on the following key actions with implementation deadlines:

1. Sustainable product policy framework
 - a. Designing sustainable products
 - b. Empowering consumers and public buyers
 - c. Circularity in production processes
2. Key product value chains
 - a. Electronics and IT
 - b. Batteries and vehicles
 - c. Packaging
 - d. Plastics
 - e. Textiles
 - f. Construction and buildings
 - g. Food, water and nutrients
3. Less waste, more value
 - a. Enhanced waste policy in support of waste prevention and circularity
 - b. Enhancing circularity in a toxic-free environment
 - c. Creating a well-functioning EU market for secondary raw materials
 - d. Addressing waste exports from the EU
4. Making circularity work for people, regions and cities
5. Cross-cutting actions
 - a. Circularity as a prerequisite for climate neutrality
 - b. Getting the economics right
 - c. Driving the transition through research, innovation and digitalization
6. Leading efforts at global level
7. Monitoring progress

⁹ European Commission: Circular Economy Action Plan - The European Green Deal