

MÉLYPATAKI Gábor* – MUSINSZKI Zoltán** – HÓDINÉ HERNÁDI Bettina*** –
BERECZK Ádám****

**Harnessing regulation for circular economy advancement: Identifying
breakthrough areas in the European Union and Hungary**

Abstract

The prevailing linear economic model, characterized by resource extraction, production, consumption, and disposal, is unsustainable and poses significant environmental and social challenges. The circular economy (CE) has emerged as a transformative paradigm emphasizing resource efficiency, waste minimization, and closed-loop production systems. This paper provides a comprehensive overview of the CE concept, its potential benefits and challenges, and the regulatory frameworks enacted by the European Union (EU) and Hungary to facilitate the transition towards a circular economy. In order to facilitate this, the authors also propose specific regulatory steps based on a systematic concept.

Keywords: circular economy, regulatory environment, carbon credit, sustainable development

1. Introductory thoughts

Environmental changes are changes that go beyond themselves. The continuing increase in greenhouse gas emissions and the associated climate crisis are generating socio-legal and economic issues. These changes trigger a whole series of complex social relations. The agricultural structure is changing, which will in turn require changes in other segments. These changes have a myriad of consequences. The question is whether there is a chance of halting or at least reducing these processes by highlighting a key element. Even among experts, there is often no consensus on whether there is any chance of avoiding disaster or whether we are already out of time.¹ As a result, national legislators have different views on these issues, and the European Union has its own policy on these issues. However, it must be seen that, as this is a global problem, it may

Mélypataki Gábor – Musinszki Zoltán – Hódiné Hernádi Bettina – Bereczk Ádám: Harnessing regulation for circular economy advancement: Identifying breakthrough areas in the European Union and Hungary. *Journal of Agricultural and Environmental Law* ISSN 1788-6171, 2024 Vol. XIX No. 36 pp. 33-50, <https://doi.org/10.21029/JAEL.2024.36.33>

* dr. jur. PhD, assistant professor, University of Miskolc, Department of Labour and Agricultural Law, jogmega@uni-miskolc.hu

** dr. PhD, associate professor, institute director, deputy dean, University of Miskolc, Faculty of Economics, Institute of Economics, zoltan.musinszki@uni-miskolc.hu

*** assistant lecturer, University of Miskolc, Faculty of Economics, Institute of Economics, bettina.hodine.hernadi@uni-miskolc.hu

**** assistant lecturer, University of Miskolc, Faculty of Economics, Institute of Economics, adam.bereczk@uni-miskolc.hu

¹ On a more popular side, see Friderikusz Podcast 2023



<https://doi.org/10.21029/JAEL.2024.36.33>

also need to be addressed in a global form. This has resulted in the need to limit greenhouse gas emissions. This first appeared in the Kyoto Protocol. The aim of the framework convention is to stabilise greenhouse gas concentrations in the atmosphere at a level (+2°C) below which anthropogenic damage to the climate is not yet occurring.² Primary action at the global level would bring results in tackling the problem, but as László Fodor points out, the municipal level cannot be neglected either. The importance of the municipal level is increasing in some countries precisely because governments are not devoting enough energy to sustainability and it is left to local authorities. A good example is the United States, which is not party to international emission reduction agreements. However, some 200 city governments have declared that they will do their utmost to meet the Kyoto targets. This is not just a US specialty, however, as the situation is similar in Spain³ and Italy. In the latter countries, this is due to relatively weak coordination of sustainability at the national level.⁴

This framework should take into account the economic situation, the willingness to engage, and the long-term goals of each state. These will have a significant impact on the commitment a country is willing to make. Hungary's initial commitment was also more of an indication than a serious commitment to change. The question is: to what extent are individual states, including our own, willing to act for the common good? However, Hungary is a member of the European Union, so its commitments are not only in the national interest but also have to be understood within the regulatory framework of the Union. The European Union is determined to protect the climate.⁵

To unpack the topic, we first need to briefly outline the theoretical foundations of the circular economy. Indeed, emissions trading is more difficult to understand without these fundamentals. Our study is the first theoretical reflection of a complex research project. Our research will first focus on recent Hungarian legislation. It does so in the light of whether the decisions of the Hungarian legislator have been in line with the EU framework. Several recent decisions have fitted into this framework, but we also find some that are quite the opposite.

2. Circular economy: basic concepts, challenges, and potential benefits

The circular economy is an economic system that aims to use natural resources and materials sustainably. In contrast to the traditional linear economy, in which the production, use, and waste of products move in the same direction, the circular economy aims to recycle and reuse as much of the materials and energy as possible.⁶ The circular economy is now an economic framework that aims to preserve the value of products, materials, and other resources within the economy for as long as possible. This can be achieved by optimizing the use of resources in both production and consumption processes to reduce the environmental footprint. In developing circular economy

² Gerzsenyi 2004, 17–18.

³ Hornyák & Lindt 2023, 42.

⁴ Fodor 2019, 27.

⁵ Fodor 2015, 249.

⁶ Olajos 2016, 91–113.

systems, we aim to minimize waste production and emissions of harmful substances throughout the life cycle, including through the implementation of a waste hierarchy.⁷

2.1 Basic concepts

The concept of a circular economy is now widely accepted by researchers and practitioners, but there is still no consensus on its meaning. Accordingly, several definitions of the circular economy are presented below, comparing the approaches and emphases of the international organizations that have defined the topic. The Ellen MacArthur Foundation's definition emphasizes the importance of eliminating waste and pollution in production systems as a primary task of the circular economy. As part of this, it reinforces the objective of keeping products and materials in use for as long as possible. The Foundation also addresses the concept of regeneration of natural systems as a priority area of the circular economy. The World Economic Forum definition emphasizes the intention and plan to create a restorative or regenerative industrial system. Accordingly, it calls for the elimination of waste through the excellent design of materials, products, and production systems. The World Economic Forum attaches great importance to the transition to renewable energy sources and the elimination of toxic chemicals. According to the European Commission, the circular economy is an economic framework that encourages resources to be used for as long as possible. It also emphasizes extracting the maximum value from resources while they are in use. The Commission promotes the recovery and recycling of products and their raw materials at the end of their (earlier) life as a key objective. The United Nations Industrial Development Organisation (UNIDO) stresses the need for the development of restorative or regenerative industrial systems and the related design intentions. It aims to ensure that products, components, and materials retain their usefulness and value for as long as possible.⁸

Looking at the different concepts, it can be said that although all definitions agree on the principles of value preservation, waste minimization, and the promotion of resource efficiency, each source gives a slightly different emphasis or perspective to the concept of a circular economy. The Ellen MacArthur Foundation⁹, for example, emphasizes the design aspect, while the World Economic Forum emphasizes intention and planning¹⁰. The European Commission attaches great importance to the longevity and utilization of resources¹¹ and UNIDO emphasizes the preservation of utility and value¹². All these approaches emphasize the holistic and sustainable nature of the circular economy.

⁷ Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 establishing a framework for the promotion of sustainable investment and amending Regulation (EU) 2019/2088.

⁸ Müller 2023

⁹ Ellen MacArthur Foundation 2023

¹⁰ World Economic Forum 2022

¹¹ European Commission 2023

¹² Müller 2023

The concept of the circular economy is also discussed in different ways in academic works. Kirchherr et al. in their study¹³ where they identify about 114 definitions of the topic, distinguish three main approaches. These distinct perspectives collectively underscore the multifaceted nature of the circular economy concept, highlighting its potential to address the interconnected challenges of resource scarcity and environmental degradation. The materials management approach emphasizes maximizing resource utilization through the efficient reuse and recycling of materials and energy, minimizing waste generation and resource depletion. This approach advocates for circular material flows and a closed-loop economy, maximizing resource value retention. The environmental approach conceptualizes the circular economy as a departure from the traditional linear, extractive economic model toward a regenerative one. It aims to minimize environmental impact by promoting sustainable production and consumption practices, extending the lifespan of products, and minimizing waste generation. This approach emphasizes the circular economy's potential to mitigate environmental degradation and promote environmental stewardship. The systems approach adopts a holistic view, encompassing both material management strategies and environmental sustainability principles. It envisions the circular economy as an integrated economic model that aligns economic growth with environmental protection. This approach advocates for a balance between resource utilization and environmental protection, recognizing the interconnectedness of economic and environmental systems.

The comparative theoretical work of Kirchherr and his colleagues also confirms that the definition of the circular economy today is diverse and encompasses several ideas. There are also major overlaps between the different basic concepts and the differentiable approaches that have emerged. Overall, it can be concluded that most of the main schools of thought on the circular economy have a specific approach, but that the concepts are not distinguishable.¹⁴

2.2. Potential benefits of turning the economy circular

The potential benefits of the circular economy are not yet fully understood from a scientific perspective, but the available evidence suggests that the circular economy can make a significant contribution to environmental, economic, and social sustainability. The circular economy has several potential benefits¹⁵; we go through the following part of the chapter. The circular economy emerges as a transformative paradigm for resource management, proffering a constellation of potential benefits. The circular economy promotes sustainability and economic resilience by decoupling economic growth from resource consumption. By extending the lifespan of value-added products through robust design, repairability, and recyclability, the circular economy reduces waste generation and enhances material reuse efficiency. This, in turn, mitigates the environmental burden associated with raw material extraction and processing. The circular economy fosters the development of novel markets and products, creating economic opportunities and

¹³ Kirchherr et al. 2017, 221–232.

¹⁴ Németh 2021

¹⁵ Nyist 2023

driving innovation. The circular economy enhances supply security by optimizing resource utilization and minimizing waste and contributes to a more sustainable and resilient economy. The circular economy creates new employment opportunities in various sectors, including green system engineering and maintenance, recycling operations, and bio-based economy value chains. The circular economy also promotes entrepreneurship, particularly in rural and smaller-scale enterprises, fostering innovation and adaptability. In conclusion, the circular economy presents a holistic strategy for resource management, offering a pathway towards sustainable development and economic growth. Overall, the circular economy has several benefits that can contribute to reducing environmental pressures, making economic growth sustainable, creating new jobs, and stimulating innovation.

2.3. Key challenges of the transformation

The circular economy, emerging as a transformative paradigm for resource management and sustainable development, offers a promising path towards a more resource-efficient and environmentally responsible economic system. However, its implementation faces several critical challenges that hinder its widespread adoption and realization. Several open social science dilemmas need to be adequately addressed if the successful adaptation of circular economy models is to contribute to reducing environmental pressures and making economic growth sustainable. The main problems and needs for action arise in the following areas.¹⁶ (1) The circular economy's success hinges on transformative technological advancements that are not yet fully developed. The development of efficient recycling and reuse processes, resource-efficient product design, and novel materials requires continuous technological innovation to close material loops and minimize waste generation. (2) Integrating the circular economy into the current profit-oriented economic system presents a significant challenge. Market mechanisms may not adequately incentivize circularity, and shifting from a linear to a circular economy demands a paradigm shift in economic thinking, encompassing value retention, resource efficiency, and life-cycle thinking. (3) Changing consumer habits and attitudes towards sustainable consumption is crucial for the circular economy's success. Individuals play a pivotal role in reducing waste generation, adopting circular consumption practices, and valuing products with extended lifespans. This requires education, awareness campaigns, and behavioral change initiatives that promote sustainable consumption patterns and encourage individuals to embrace circular principles. (4) The circular economy requires significant investments in research and development, infrastructure, and education to overcome technological and behavioural barriers. Collaboration between governments, businesses, and civil society is crucial to mobilize resources, share knowledge, and accelerate the transition to a circular economy. (5) Last but not least, establishing robust regulatory frameworks that promote circularity and penalize waste generation is essential to incentivize businesses and individuals to adopt circular practices. Clear and enforceable regulations can guide the development and adoption of circular technologies, product designs, and consumption patterns.

¹⁶ Németh 2021

3. The EU Commission agenda for developing the circular economy

Both the Circular Economy Action Plan (CEAP) and the Emissions Trading Scheme (ETS) aim to reduce greenhouse gas emissions and promote sustainable practices. The CEAP focuses on reducing the environmental impact of products throughout their lifecycle, from production to disposal. This includes measures to promote resource efficiency, sustainable consumption and production, and innovation in circular economy technologies. The ETS puts a price on carbon emissions, creating an incentive for businesses to reduce their emissions. This can be done by improving energy efficiency, switching to renewable energy sources, or investing in carbon capture and storage technologies. The two policies can further work together to reduce greenhouse gas emissions and promote sustainable practices. For example, the Circular Economy Action Plan could support the development of circular economy business models that reduce emissions, while the ETS could provide incentives for companies to adopt these models.

3.1. Regulations by the Circular Economy Action Plan

To achieve a circular economy, the European Commission has adopted an action plan for 2020, focusing on seven key areas. The Commission's action plan is an important step towards achieving the circular economy¹⁷. The measures set out in the plan can contribute to reducing environmental pressures, making economic growth sustainable, and promoting social justice¹⁸. The European Commission's (EC) 2020 Circular Economy Action Plan encompasses seven key areas to transition to a circular economy. These areas address the different types of materials and the regulations required to manage them effectively. The first area focuses on EPR, which shifts the responsibility for end-of-life treatment from consumers to producers. This approach promotes collecting, sorting, and recycling electrical and electronic equipment (WEEE), batteries, and packaging waste. The second area emphasizes resource efficiency, aiming to minimize the consumption of resources throughout the product lifecycle, from manufacturing to disposal. The third area advocates for sustainable consumption practices, encouraging consumers to reduce their environmental impact by purchasing fewer items, reusing, or sharing products. The fourth area emphasizes innovation, fostering the development of new technologies and business models that support circularity. This includes supporting research and development in circular economy technologies and promoting the adoption of circular economy business models. The fifth area promotes market development and information dissemination, aiming to establish a secondary raw materials market and enhance circular economy product information. The sixth area emphasizes governance and enforcement to ensure the comprehensive execution of the circular economy action plan, encompassing strengthening the regulatory framework and enhancing the enforcement of circular economy legislation.

¹⁷ Európai Parlament 2023

¹⁸ Európai Parlament 2021

The seventh area promotes international cooperation to facilitate the global adoption of circular economy practices by supporting international initiatives and encouraging the exchange of best practices among countries. We can conclude that the EC's Circular Economy Action Plan outlines a comprehensive strategy for transitioning to a resource-efficient and waste-minimizing economy. By focusing on EPR, resource efficiency, SCP, innovation, market creation, governance, and international cooperation, the plan aims to achieve environmental sustainability, economic resilience, and social equity.

3.2. Regulations by the Emissions Trading Scheme

EU Directive 2003/87 laid the foundation for the emissions trading scheme. Under the legislation, certain installations emitting greenhouse gases can only be operated if they have a special emissions permit. This requires separate permit procedures. This allows the process to be monitored. The central element of the system is the greenhouse gas emission allowance. Under the Directive, this unit is an allowance to emit one tonne of carbon dioxide or equivalent other greenhouse gases. The reason for traceability is to achieve market scarcity.¹⁹

For the European Union, this provision was only the first step. It then adopted a complete climate protection package, calling for a 20% reduction in carbon dioxide generation and an average 20% increase in the share of renewable energy. These expected changes have not progressed in the way the EU would have liked. Despite this, or perhaps because of it, it has not lowered its targets but has made even more ambitious commitments. In its updated nationally determined contribution submitted to the UNFCCC Secretariat on 17 December 2020, the EU committed to reduce net greenhouse gas emissions from the EU economy as a whole by at least 55% by 2030 compared to 1990 levels. With the adoption of Regulation (EU) 2021/1119 of the European Parliament and the Council, the Union has set an economy-wide climate neutrality objective at the secondary legislation level to be achieved by 2050 at the latest and the ambition to achieve negative emissions thereafter. It also sets a binding target for net greenhouse gas emissions (emissions after removals) within the Union. All sectors must contribute to this reduction. This means that each sector will have to make different changes to its energy demand (sacrifice?) and its best practices.

Along the lines of the principles set out in Directive 2003/87/EC, emission sources can be aviation-related or even stationary. It is, however, independent of the emitter that a specific permit is required for commissioning and continued operation. Under Article 9a of the Directive, for installations carrying out activities listed in Annex I to the Directive which will only be included in the Community scheme from 2013, Member States shall ensure that the operators of such installations submit to the relevant competent authority emission data that are duly verified by an independent verifier. This is necessary to take such data into account when adjusting the quantity of Community allowances to be issued.

However, since we are talking about Community-wide allowances, Member States will take the necessary measures to ensure that the conditions and procedures for issuing

¹⁹ Fodor 2015, 249.

greenhouse gas emissions permits to installations carrying out activities listed in Annex I to Directive 2010/75/EU are harmonized. This is also necessary because, in addition to national markets, the EU Member States are all part of the same Community market. In this respect, the EU can be considered as a single market for Community allowances, in particular in the light of the commitments outlined above.

3.2.1. Allocation of allowances by auction

Allowances that are not allocated for free are sold by states through auction. However, this does not mean that they are free to hold all unallocated allowances. Allowances that are not placed in the market stabilization reserve can also be auctioned. This also means that from 2021 onwards, even taking into account the reduction rules, the share of auctionable quantities will be 57%. However, this does not mean that all 57%. Article 10 of the Directive stipulates that 2% of the total quantity of allowances for the period 2021-2030 shall be auctioned by the Member States to create a fund to improve energy efficiency and modernize the energy systems of certain Member States. This will essentially mean allowances based on a solidarity principle and used up. It is called the EU Legal Modernisation Fund. The beneficiaries of this fund can be any state that, for this quantity of allowances, is a Member State whose GDP per capita at market prices was below 60% of the EU average in 2013. In addition, 2.5% of the total quantity of allowances must be auctioned for the Modernisation Fund between 2024 and 2030. For this quantity of allowances, the number of beneficiary Member States will also change. This includes Member States whose GDP per capita at market prices was below 75% of the EU average between 2016 and 2018.

The remaining allowances in the EU ETS can be auctioned by Member States, with 90% of the total quantity of allowances to be auctioned being distributed among Member States in a proportion equal to their share of verified emissions in the EU ETS. This share shall be determined either for 2005 or for the average of the 2005-2007 period, whichever is the higher. The remaining 10% will be distributed among certain countries.

Part of the proceeds from the auction should be used by the state for specific purposes, such as shifting the energy mix towards renewables, avoiding power cuts, protecting peatlands, reducing the amount of energy from solid fossil fuel combustion, and supporting forms of transport linked to the decarbonization of the sector. In summary, we are talking about financing objectives and instruments that contribute to reducing emissions.

3.2.2. Allocation of allowances for free

EU-wide ex-ante benchmarks will be set for the EU market for allowances to ensure that the way they are allocated provides incentives to reduce greenhouse gas emissions. This is necessary to find efficient technical solutions for energy use. It sets the framework within which allowances can be determined. These frameworks and limits include the emission allowances generated by electricity production. It is important to stress that, except for electricity from waste management, energy from other waste cannot be distributed for free.

If there is an obligation to carry out an energy audit or to implement a certified energy management system by Article 8 of Directive 2012/27/EU of the European Parliament and the Council (17) and if the recommendations contained in the audit report or the certified energy management system are not implemented, the free allocation shall be reduced by 20%. Exceptions to this rule shall be made where the payback period for the investments concerned exceeds three years or where the costs of these investments are disproportionate. The free allocation shall not be reduced where the operator demonstrates that other measures have been implemented that result in greenhouse gas emission reductions equivalent to those recommended in the audit report or certified energy management system of the installation concerned.

The EU wants to complete a harmonized market by applying the above rules. harmonized rules should provide in particular deadlines, conditions for the recognition of energy efficiency measures implemented, and alternative measures to reduce greenhouse gas emissions, using a procedure for national implementing measures. The issues and rules for individual sectors would go beyond the scope of this study, and it is therefore only indicated here that the definition of allowances in some sectors differs from the general one. A more detailed analysis of these will be the subject of further research and publications.

4. Regulations and actions in Hungary

Hungary is a signatory to the Paris Climate Agreement. It is also one of the signatories that is continuously fulfilling its reporting obligations. As you can see from the graph below, Hungary has steadily reduced its emissions. Szunyogh and Vadászi point out that this is interesting in the context of the fact that data from developing countries generally show an increase.²⁰ The authors also provide a more in-depth presentation of the blueprint under which Hungary has strategically planned the individual steps.

The key steps for the next period are set out in the following documents and strategies:²¹ (a) National Energy Strategy 2030 (NES); (b) Hungary's National Energy and Climate Plan (NEKT); (c) Climate Change Action Plan (CCAP); (d) National Clean Development Strategy 2050 (NTFS).

The documents listed are built around the following key principles: (a) strengthening the security of energy supply by increasing the extraction of domestic hydrocarbons, increasing the use of renewable energy sources, and further diversifying the gas market; (b) At the same time, climate proofing the energy sector by greening the district heating sector and reducing greenhouse gas emissions from the electricity industry; (c) implementing energy innovation through economic development; (d) while continuing to focus on the consumer.

Along the principles listed above, we should see that there is a kind of commitment to the green transition. The question is, of course, to what extent can this capital-exposed Eastern European development state enforce these aspects? The strategy documents set

²⁰ Szunyogh & Vadászi 2023

²¹ Szunyogh & Vadászi 2023

out declared objectives. The question is, have some of the recent period's important environmental sustainability?

4.1. Deposit charges for single passenger products in the light of German practice

Re-use of plastic waste is steadily increasing in all countries that have recognized that rapidly growing landfills are a direct and indirect threat to the environment.²² The recycling of plastic waste is increasing in Europe and is strongly supported by the European Union. According to data received from companies, the main source of waste from recycling plants is manufacturing waste from industrial plants, of which 90% is processed.²³ The deposit scheme, to be reintroduced in 2024, will introduce DRS, the most recent experience of which has been in Slovakia.

The plastics processing industry, as a secondary raw material processing industry, is mainly based on bottles and packaging materials. The legislator is using a variety of incentives to motivate the public to participate in the waste cycle. By these means, the legislator recognizes the raw material nature of waste even without written provisions. However, legislation is always lagging behind technological progress and, because the legislator is also late, people's attitudes are also late in changing.

The use of the deposit fee was perhaps one of the longest-used instruments in Hungary, and in the beginning, it was not primarily for environmental reasons, but for economic reasons. It should also be seen that, although there is a relatively recent provision for deposit charges in this country, the system has steadily been dismantled, and is now fully developed in Germany.²⁴ However, the system that has been set up has many peculiarities. This packaging continued to live its life as a single-use item, i.e. after being collected, it was recovered (incinerated for energy) or recycled. The scheme aims to reduce the proportion of single-pouch packaging in the commercial offer, due to the high deposit fee and the need to redeem.²⁵

The products to which the deposit applies in Germany are bottles and flasks between 0.1 and 3 liters.²⁶ In Hungary, the scope of deposit-fee products was not previously so defined, since a “*product manufactured or marketed with the designation ‘deposit-fee product’ or the packaging of a product whose manufacture or first placing on the market with this designation has been notified to the National Inspectorate for the Environment, Nature Conservation and Water Management.*”²⁷ As of January 2024, the return fee would also be a kind of incentive not to throw the packaging in the bin, but to return it. However, it should not be forgotten that if the collection capacity is not properly built up, this will mean a price increase. This price increase will also generate inflation, especially as producers are given a free hand in setting the price for multi-passenger packaging. It is therefore important

²² Pál 2007

²³ Pál 2007

²⁴ Csokonay 2005, 3.

²⁵ Hulladék munkaszövetség 2012, 43.

²⁶ Bundesministerium für Umwelt- Naturschutz und Reaktorsicherheit 2012, 1

²⁷ Governmental Decree no. 209/2005 (X.5.) 2. § Point a)

that the return on investment and the social benefits outweigh the inflation-generating effect.

In the Hungarian legal system, the use of deposit fees was allowed for a similarly wide range of products. However, the system was phased out, with some indications that the then-existing Waste Management Act was expected to be revised in 2013. However, this did not happen. As we can see we had to wait until 2023 for the regulation and 2024 for its revival.

The domestic system also applies the method clearly defined in the German legal solution. Whereas previously, deposit fees in Hungary ranged from 25 to 160 ft (depending on the type of product). There is a 25-cent charge for disposable bottles and metal beverage cans. For returnable bottles, the deposit varies between 8 and 15 cents. Under the new rules, we can also set a single price for single-use products.

Related to this, two other issues may arise in the case of one-way and multiway packaging. One is to what extent will the public be willing to redeem? This is particularly important because, in certain regions, families are burning their rubbish because of the financial and social situation, thus increasing emissions. The other question is whether, for these socially deprived people, the deposit will be of such value that it is worth redeeming. In the socially deprived areas mentioned, there is another very important phenomenon. Shops in these villages generally have access to food and other products at higher prices than in towns or other better-off areas. The question is: how much more expensive on average is a deposit for a socially deprived family? This also implies the general question of whether the introduction of a deposit charge will also bring a hidden price increase. This is an important question, especially in the current inflationary environment of spiraling prices. Where this hidden price increase does not occur, or only to a very limited extent, the propensity to redeem is likely to be higher. In disadvantaged areas, on the other hand, there is more likely to be some degree of consumption transformation, with deposit charges reducing the quantity or at least changing the composition of products available for purchase in more extreme cases. It may be worthwhile to include extra incentives for the residents of these areas, taking inspiration from the Social Plastic concept.²⁸

4.2. Green Bond

A Green Bond is a special security with limited use. It is used to finance investments that have some direct or indirect environmental or climate protection benefit. Sustainable objectives

To ensure the achievement of sustainable objectives, green bond issuance, as opposed to conventional issuance, requires additional documentation to establish sustainable use objectives before the issuance of the bond and to demonstrate the appropriate use of resources and the impact of environmental objectives after the issuance. This also fits in well with the series of attempts to sort out the fate of quotas. The international Green Bond Standards have been developed to ensure comparability of sustainability targets, transparency of appropriate resource use, and investor

²⁸ Hornyák & Lindt 2023, 43–44.

expectations of sustainability. These, both in their standards and in their objectives, have environmental transition and greening of the economy as a key element. However, within the scope of this report, we do not have the opportunity to fully develop this instrument, but we believe it is certainly the right way forward.

4.3. National rules - taxation

One part of our study aims to examine allowances in the context of the models of use and utilization of allowances by the various industry players. The above section requires an understanding of the general legal basis for the surrender system and the Green Bond, which was the task of the previous section. Therefore, it is within this framework that we try to place the latest Government Decree no. 320/2023 (17.VII). This decree has the unconcealed aim of taxing the country's largest carbon dioxide emitters to a significant extent.²⁹ Installations with significant carbon dioxide emitting activities covered by the ETS have a fixed number of allowances per year, which entitle them to emit a certain amount of CO₂ 'for free'. The free carbon quota is degressively reduced each year, providing an incentive for large companies to go greener by cutting their emissions.³⁰ The green transition process is an area of high priority, with the aim of companies leaving a smaller and smaller ecological footprint. But of course, it doesn't happen overnight.³¹ This is true even if there have been ideas before, even in the area of taxation. But they would have been primarily a tax to encourage consumers, with differentiation in the level of consumption taxes. This would mean, encouraging the use of products with a lower environmental impact through lower tax rates.³²

Businesses are therefore required to compensate for the extra pollution with new allowances purchased if they emit more than the free allowances available. This requires instruments that give companies a different incentive to make the green transition. This could be through taxation, but there are other, perhaps more effective, instruments. In this paper, we highlight taxation rules as the most recent legislative product of domestic legislation in this field. The provisions will be specific transaction costs for the operator of an installation receiving a significant free allocation of allowances. The definition of what constitutes such an emitter is set out in the Directive already mentioned above. However, the regulation under consideration is intended to go in a different direction, which appears to be more of a sanctioning rule than an incentive. We would, however, highlight Zoltán Nagy's point that public finance management influences environmental management, both in terms of public revenue (environmental taxes, other charges, fines, etc.) and public expenditure (specialized administration, subsidies).³³ The only question is how the current legislation interprets the scope of what is allowed to be granted. Under the regulation, the personal scope applies to installations with significant carbon dioxide-emitting activities. To put it succinctly, as summarised

²⁹ Clamba 2023

³⁰ Clamba 2023

³¹ Barański et al. 2023, 329–356.

³² Csák & Nagy 2020, 38–50.

³³ Nagy 2010, 73.

by PwC, the tax liability applies to installations with average annual emissions of more than 10,000 tonnes over the above periods and which have received a free allocation of several allowances equal to at least half of their average annual emissions.³⁴ In line with Viktória Clamba's summary, we believe that these provisions affect operators in the fertilizer, cement, oil refining, steel, glass, chemical, metal, etc. sectors. The number of companies affected by the new intervention could exceed forty.³⁵ However, it should also be stressed that the new regulation goes completely against the EU regulatory logic. Instead of having a quantity of carbon dioxide allowances that entitle them to free emissions, they will be liable to pay a tax on their total emissions. However, it should be stressed that this does not include electricity-generating companies not covered by the free carbon quota system. Also exempted are generators that were in bankruptcy or liquidation proceedings in the year preceding the year under review, even if they would otherwise meet the above criteria. However, companies that fall within the scope of the Regulation will no longer have a quantity of carbon dioxide allowances available to them to emit free of charge but will be liable to pay a tax on their total emissions. In addition, if there were free allowances, the Government Regulation also requires the transfer of free allowances to be subject to a transaction fee to be paid to the Climate Change Authority. The amount of this fee is 10% of the value of the free quota transferred converted at the daily mid-market exchange rate of the EEX-EUA exchange rate set by the Hungarian National Bank. The Decree also provides for cases where the tax base is reduced. The Regulation also provides for cases where the tax base is reduced. In this context, a 50% reduction of the taxable amount can be achieved if the taxpayer's production level with CO₂ emissions is at least 90% of the capacity of the main activity. The reduction is also granted if the capacity of the main activity has not decreased compared to the capacity of the previous year. Therefore, neither capacity nor production has been significantly reduced by the acquisition of a free carbon quota. Finally, it can also be claimed that the CO₂ emissions per unit of output have decreased by an amount equal to the linear reduction factor of the ETS in force in the year in question.³⁶

The question is how these rules relate to the framework and objectives of the European Green Deal. As a new growth strategy, the EU aims to transform the EU into a just and prosperous society with a modern, resource-efficient, and competitive economy, where net greenhouse gas emissions are eliminated by 2050 and where economic growth is not resource-dependent.³⁷ This transition must be fair, and the fair transition mechanism itself will support regions that are highly dependent on carbon-intensive industries. The mechanism will support the most vulnerable citizens in the transition, giving them access to retraining programs and job opportunities in new economic sectors. [COM (2019)640 final]

³⁴ A significant new tax and fee burden will be imposed on operators of certain installations receiving free allocation.

³⁵ Clamba 2023

³⁶ Clamba 2023

³⁷ Jakab 2022, 237–249.

The question is whether the domestic legislation serves this purpose. The question is also topical because it has created rules that go against the regulatory framework set by the EU, which some market players believe will jeopardize the very investments that are linked to emission reductions.³⁸

5. Conclusions and regulatory proposals

The circular economy is about the sustainable use of natural resources and materials. In contrast to the traditional linear economy, in which the production, use, and waste of products follow a straight line, the circular economy aims to recycle and reuse as much of the materials and energy as possible. The circular economy is an economic system that focuses on preserving the value of products, materials, and resources by minimizing waste and pollution. It emphasizes that products should be 1) used for as long as possible, 2) extracted to the maximum value during their lifetime, and 3) recovered and regenerated at the end of their life. The fundamental aim is therefore to maintain resources at the highest possible utility and value throughout their life cycle, with minimal environmental impact and waste.

Promoting a circular economy and reducing greenhouse gas emissions is key to tackling the climate crisis and achieving sustainable development. The European Union has taken several measures to reduce greenhouse gas emissions, including the carbon credit scheme (auctioning of credits and free allocation of allowances). However, experience so far suggests that these measures are not sufficient to achieve the desired results.

To promote a circular economy, the EU should take further measures, including: (1) Changing the design of products and materials to make them more durable and easier to recycle. (2) Transforming waste management systems to focus on recycling and reuse of waste. (3) Addressing consumer attitudes is a critical step in transitioning to a circular economy. By promoting product longevity and waste reduction, we can optimize resource utilization, minimize environmental impact. (4) A reform of the EU's regulatory and tax systems can also help to promote a circular economy. The regulatory system should encourage businesses to adopt circular practices, such as recycling and reusing products and materials, and the tax system should encourage consumers to adopt circular practices, such as using products for longer and recycling or reusing waste.³⁹

Promoting a circular economy is a complex task that requires the cooperation of the European Union and Member States, businesses, and consumers. The quality of Hungarian regulation in reducing greenhouse gas emissions and promoting the circular economy is generally good. The government has taken several measures in recent years that have contributed to reducing emissions, such as auctioning allowances, promoting renewable energy sources, and improving energy efficiency. However, Hungarian regulations need further improvements to promote a circular economy. To improve Hungarian regulations, it would be important to harmonize domestic legislation in line

³⁸ CeMBeton's statement on Government Decree no. 320/2023 (17.VII.)

³⁹ Csák 2022, 76–83.

with EU directives and recommendations. In addition, the government should work with businesses and consumers to promote circular practices.

Our recommendations to the regulators:

Government intervention plays a pivotal role in incentivizing circularity in product development. Regulatory measures, such as mandating extended product lifespans or promoting recyclability-enhancing technologies, can catalyze the adoption of circular principles in product design. An attributed paradigm shift can prioritize resource efficiency, durability, and recyclability over disposability, driving a more sustainable and resource-efficient economic model. By embracing circularity in product development, businesses can contribute significantly to the transition towards a sustainable economy. This can be done by adding consumer protection rules. Action against types of rules such as planned obsolescence. There is no doubt that regulation at the national level would be an essential but not sufficient step.

To transform waste management systems, the government should redesign waste collection and treatment systems to focus on recycling and reuse. This can be done, for example, by improving the efficiency of waste collection or by encouraging waste sorting. Recent years have seen significant steps in this direction with the centralization of the waste collection and processing market. It remains to be seen whether these changes will have the expected positive impact or whether the unleashing of commercial considerations will ultimately become an obstacle to developing a circular approach. An excellent first element of this is the introduction of redemption from 1 January 2024. This is certainly a positive change from the past. Related to this, two issues may arise in the case of one-way and multiway packaging. One is to what extent will the public be willing to redeem? Apart from the social issues that arise, it is certainly in the public interest to try to keep it in circulation in some way. In addition to these, Hungary has committed to more efficient selective collection of waste, with pilot projects also starting in 2024 with the distribution of new types of waste bins and composting frames. However, waste policy change alone cannot bring about change, it also requires a change in consumer attitudes. To change consumer attitudes, the government should launch communication campaigns on the benefits of the circular economy. The government should also encourage consumers through subsidies and legislation to adopt circular practices, such as using products for longer and recycling or reusing waste. Whereas in previous collection campaigns, everyone knew the slogans, such as 'Tap it flat'. The new deposit scheme has not yet been accompanied by any relevant launch campaign. There is nothing to shake out what was entrenched in the past. Indeed, under the new system, packages will have to be delivered intact, but many people still have the slogan 'Tap it flat' in their minds.

Full adoption of EU climate policy, but not uncritical application. The EU's climate policy objectives should be examined on a country-by-country basis, taking into account the capacity of each country to cope. However, it would be worthwhile to take the main guidelines and objectives as axiomatic and to cooperate effectively in achieving them. This is why isolated solutions do not help to achieve a common goal. After all, the climate crisis will not be country-specific. It will affect everyone, which is why common European thinking and action is needed. But a critical attitude does not mean that it is necessary to face up to unpopular solutions in an absolute way. It is worth looking for

compromise solutions. This is why a more flexible approach to the taxation issues addressed in this study would also be worthwhile. This is even more important in the context of the fact that there is no tax obligation under EU law. Therefore, the introduction of such a public tax would be very economically and competitively self-defeating. This also shows that while domestic climate policy tries to follow the mainstream, some of its provisions have the opposite effect. There are two reasons for this, either it is too weak an instrument or too strong. In our study, we have given an example of too strong a tool, which cannot be sustained in the long term, as it involves taxing economic operators such as cement and fertilizer plants. The problem is not so much the instrument as the level of the tax. Some of these companies have become unviable. This may be causing more harm than good, as efficient agricultural production without fertilizer is unthinkable in the current context.

Bibliography

1. Barański M, Jaworska K & Piszczek A (2023) „Bumpy way” to green transformation iFrancan Poland. Government passivity and search for solutions in labour, in: Sariipek D & B. Franca (eds.) *Bursa*, pp. 329–356.
2. Bundesministerium für Umwelt- Naturschutz und Reaktorsicherheit (2012) *Fragen und Antworten zur Pfandpflicht*, https://docs.google.com/viewer?url=http://www.bmu.de/files/pdfs/allgemein/application/pdf/pfandpflicht_faq_de_bf.pdf [07.10.2012]
3. Clamba V (2023) *Itt a szén-dioxid kvóta adó*, <https://www.rsm.hu/blog/adotanacsadas/2023/07/itt-a-szen-dioxid-kvota-ado> [20.10.2023]
4. Csák Cs (2022) A vállalatok környezeti felelőssége a compliance irányába tett lépések tükrében, *Miskolci Jogi Szemle* 2022/5, pp. 76–83.
5. Csák Cs & Nagy Z (2020) A környezeti és pénzügyi fenntarthatóság: avagy a környezetjog és a pénzügyi jog egyes kapcsolódási pontjai, *Miskolci Jogi Szemle* 2020/3, pp. 38–50.
6. Csokonay J (2005) *Az egyutas csomagolásokra előírt betétdíj következményei Németországban*, in: https://docs.google.com/viewer?url=http://dokutar.omikk.bme.hu/collections/mgi_fulltext/hull/2005/03/0301.pdf [07.10.2012]
7. Ellen MacArthur Foundation (2023) *What is the circular economy?*, <https://www.ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview> [30.10.2023]
8. European Commission (2023) *Circular economy action plan*, https://environment.ec.europa.eu/strategy/circular-economy-action-plan_en [30.10.2023]
9. Európai Parlament (2021) *Hogyan valósítaná meg az EU a körkörös gazdaságot 2050-re?*, <https://www.europarl.europa.eu/news/hu/headlines/society/20210128STO96607/hogyan-valositana-meg-az-eu-a-korkoros-gazdasagot-2050-re> [30.10.2023]
10. Európai Parlament (2023) *Körforgásos gazdaság: mit jelent, miért fontos és mi a haszna?*, <https://www.europarl.europa.eu/news/hu/headlines/priorities/society/20151201STO05603/korforgasos-gazdasag-mit-jelent-miert-fontos-es-mi-a-haszna> [30.10.2023]
11. Gerzsenyi G (2004) Riótól Kiotóig, és azon túl – Az éghajlatváltozással kapcsolatos nemzetközi, uniós és magyar jogalkotás, *Európai Jog* 2004/2, pp. 17–18.
12. Fodor L (2019) *A falu füstje*, Gondolat Kiadó, Budapest.
13. Fodor L (2015) *Környezetjog*, Líceum Art, Debrecen.
14. Hornyák Zs & Lindt R (2023) Liability rules protecting waste management in the light of the right to a healthy environment, *Journal of Agricultural and Environmental Law* (18)35, pp. 31–48, <https://doi.org/10.21029/JAEL.2023.35.31>
15. Hulladék munkaszövetség (2012) *Az a kincs ami nincs*, https://docs.google.com/viewer?url=http://www.humus.hu/download/kincs_a_mi_nincs/2resz/kincs_ami_nincs_2.pdf [07.10.2012]

16. Jakab N (2022) Méltányos átállás elméletben és gyakorlatban, *Publicationes Universitatis Miskolcensis Sectio Juridica et Politica* 2022/2, pp. 237–249.
17. Kirchherr J, Reike D & Hekkert M (2017) Conceptualizing the circular economy: An analysis of 114 definitions, *Conservation Resources and Recycling* 127, pp. 221–232, <https://doi.org/10.1016/j.resconrec.2017.09.005>
18. Mohu (2023) 2024-től új italcsomagolás visszaváltási rendszer lesz Magyarországon, <https://mohu.hu/media/hirek/2024-januar-1-tol-uj-italcsomagolas-visszavaltasi-rendszer-lesz-magyarorszagon.html> [11.12.2023]
19. Müller G (2023) *Vision - we need to broaden the discussion on the circular economy*. United Nations Industrial Development Organization, <https://www.unido.org/stories/vision-we-need-broaden-discussion-circular-economy> [30.10.2023]
20. Nagy Z (2010) A környezetvédelem pénzügyi jogi kérdései, in: Nagy Z, Olajos I, Raisz A & Szilágyi J E (eds.) *Környezetjog II.*, Novotni Alapítvány, Miskolc, pp. 73.
21. Németh K (2021) *A körforgásos gazdaság alapjai*, Pannon Egyetemi kiadó Veszprém.
22. Nyist Cs (2023) *A körforgásos gazdaság hatásai az EU 2050 Stratégia tükrében*, <https://www.isoforum.hu/media/programnapar/files/4NyistCseav3.pdf> [30.10.2023]
23. Olajos I (2016) The legal problems related to the re-use of metallic wastes, *Journal of Agricultural and Environmental Law* (11)20, pp. 91–113, <https://doi.org/10.21029/JAEL.2016.20.91>
24. Pál K (2007) *A műanyag hulladék feldolgozása Európában*, <https://docs.google.com/viewer?url=http://www.muanyagipariszemle.hu/2007/05/a-muanyag-hulladek-ujrafeldolgozasa-europaban-16.pdf> [07.10.2012]
25. Szunyog I & Vadász M (2023) A fenntartható fosszilis- és megújulóenergia-gazdálkodás a nemzeti energia- és klímastratégia alapján, in: Somosi M., Sikos T. T (eds.) *A fenntarthatóság holisztikus megközelítésben Budapest*, Akadémiai Kiadó, Budapest.
26. Friderikusz Podcast (2023) *The harassment of endorsement? András Gelencsér and Zoltán Pogácsa's debate on non-growth*, https://www.youtube.com/watch?v=_P2zgMHahsU [21.09.2023]
27. World Economic Forum (2022) *Circular economy: What is the circular economy, and why does it matter that it is shrinking?*, <https://www.weforum.org/agenda/2022/06/what-is-the-circular-economy/> [30.10.2023]