

THE IMPLEMENTATION OF THE SINGLE USE PLASTIC DIRECTIVE
IN HUNGARY

ÉGERHÁZI VIRÁG

GAZDÁLKODÁSTUDOMÁNYI KAR
INTERNATIONAL BUSINESS AND ECONOMICS
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CONSULTANT: DR. SZALAI MÁTÉ

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Introduction

Plastic has an important role in the Hungarian economy and our daily lives. Thanks to its multiple functions our society could utilize the favourable material in numerous sectors. Innovative solutions are implemented in transportation, saving fuel and decreasing CO₂ emission. Also, energy bills can be lessened by high-performance insulation materials and plastics play a highly important role in ensuring the safety and reduction of food packaging. Unfortunately, the management of plastic waste challenges the economies, not only in Hungary, but all around the world. Although, sustainable solutions, such as recycling and circular economy could be appropriate solutions, landfilling remained the pre-dominant waste management method in Hungary. Different factors, such as the financial shortages in the waste management system of Hungary, the absence of financial instruments to force people and market players towards sustainability, and international events, such as the Chinese regulation of 2017 banning the import of nonindustrial plastics all contribute to the current crisis of plastic pollution in the economy.

As a Member State of the European Union since 2004, Hungary is highly affected by the action plans, targets, and strategies of the EU, concerning environment protection. Actions against plastic waste were taken already in mid 2010s. The EU Action plan for a circular economy was adopted by the Commission and the European Strategy for Plastics in a Circular Economy was also entered into force in 2015. As the European Commission appointed decreasing the number of single-use plastics entering the environment as a priority, in May 2018 further actions were taken and the Single Use Plastics Directive was proposed and accepted in 2019. The SUP Directive laid down the intended measures and targets of the following years, concerning elimination and decrease of consumption of single-use plastics, eco-design of products, separate collection and recycling of plastic materials, the establishment of Extended Producer Responsibility schemes and awareness raising of producers and consumers through labelling requirements and awareness raising measures. These innovations and transitions would all contribute to the aim of creating a more sustainable future for the European Union, however the impressing intentions are mightily influenced by the inclination of the Member States to work towards those goals, or even go beyond the requirement of the SUP Directive.

For this end, I would like to develop a deeper insight about the impact of the regulations of the European Union on the Hungarian economy and waste management. I will especially focus on determining “How the Hungarian government would implement the European Union’s Single Use Plastic Directive, that is entering into force in 2021 and regulates the plastic waste management of Member States?”. The research on the current Hungarian waste management system is extremely relevant, since conflicting interests and enormous alteration proposals are reshaping the sector continuously, posing subsequent challenges to industrial stakeholders.

In the aim of gaining deeper insight into the current state of the Hungarian economy concerning plastic pollution, environment protection and the obligations Hungary has to comply with, I would like to introduce the European Union’s steps towards tackling the plastic pollution, the conditions of the Single Use Plastic Directive, present the waste statistics, production, consumption, applications, waste generation and waste management methods of Hungary, demonstrate the history of Hungarian policies accepted to protect the environment and forego an irreversible climate crisis affecting the preservation of natural values and human health in the country and estimate the attitude of the Hungarian population towards environment protection and plastic pollution.

To identify the potential impacts of the European Union’s regulation, the Single Use Plastic Directive on the Hungarian market, I chose to carry out a qualitative research trough interviewing different stakeholders of the Hungarian waste management system, that will be presented in my scientific work. Finally, I would like to present a comprehensive summary of my findings.

Literature Review

Plastic Entering the Market

In the middle of the 20th century, a new material emerged on the global market with numerous favourable features that made the use of the material extremely appealing in different areas. It was mouldable, durable, light, and inexpensive, no other material was present on the market before, that could substitute it at such a low price. Now the group of these materials are known collectively as plastics, which became an indispensable commodity on global scale and have transformed the economy since 1950. The demand for the material was growing rapidly, its production increased from 2 million metric tons in 1950 to 322 million metric tons in 2015,

it almost outdistanced all other manufactured materials. In the aggregate total of 8.3 billion metric tons of plastic has been produced as of 2017. (A. L. Brooks, S. Wang, J. R. Jambeck, 2018, pg. 1) While the use of plastic contributed to a huge development in several sectors of the global economy, the enormous growth in the production of it brought countless complications in the solid waste management systems along. Up to 95% of the value of plastic packaging material is assumed to be lost in the economy after a pretty short first-use cycle. (Ellen MacArthur Foundation, 2016, pg. 17) According to current data only 9% of plastics produced have been recycled, since 1950. (ZWE, 2018, pg. 3) The applied methods to handle plastic waste are recycling, incineration, and landfilling, unfortunately, large percent of plastic waste is polluting the environment at the end (80%), equal to an estimated 4 million to 12 million metric tons of plastic litter entering the oceans annually (Valeria Andreoni, Hans G.M. Saveyn, Peter E. 2015, pg. 106).

The European Union's Strategy on Plastic

Unfortunately, plastic pollution has also reached a catastrophic level in Hungary, until now the Hungarian regulations and incentives did not achieve major development in the plastic waste management, to ensure human health and environment protection. (Greenpeace, 2018)

As a Member State of the European Union, the Hungarian environment protection is highly affected by the EU targets, therefore the “Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment”, also named as Single-Use Plastics Directive also sets targets and obligations for Hungary, to take steps towards a circular economy, concerning plastic pollution.

In 2015 the European Union introduced the Circular Economy Action Plan. In the action plan fighting plastic pollution also received close attention. Additionally, the Commissions denoted the ambition to prepare a comprehensive strategy to target plastics, considering the materials whole lifecycle. After analysing the lifecycle of plastics, and assessing the main problems caused by plastics in the economy (European Commission, 2018) the European Strategy for Plastics in a Circular Economy including measures and targets for eco-design of products, separate collection and recycling, ERP schemes, innovation of the plastic sector, issue of microplastics entering the environment, lost or abandoned fishing gear,

finally, the Strategy recognized the high amount of single-use plastic items in beach litter and prepared its „liquidation”. (European Commission, 2018)

Directive of The European Union on Single-Use Plastics

After the European Commission appointed the decrease of single-use plastic in the EU Plastic Strategy (European Commission, 2018, pg. 2.) in May 2018, it considered further actions to address plastic marine litter and proposed the Single-Use Plastic Directive (SUP Directive), aiming to reduce the impact of certain plastic products on the environment. In 2019 the European Commission reached an agreement to target single-use plastic. The directive appointed several instruments aiming to lessen the amount of litter entering the environment and generated by EU member states. (ZWE, 2019, pg. 3)

The SUP Directive set up the following objectives, to be reached by the Member States, therefore by Hungary, in the following years.

- Single-use plastic cotton buds, straws, plates, cutlery, beverage stirrers, balloon sticks, oxo-degradable plastics, and expanded polystyrene food containers, beverage containers and beverage cups have to be banned from the Hungarian market by 2021.
- Under the Extended Producer Responsibility (EPR) schemes costs of collection, transport, and treatment, clean-up litter and awareness-raising measures for food containers, packets & wrappers, cups for beverages, beverage containers with a capacity of up to three litres, lightweight plastic carrier bags and fishing gear shall be covered by 31 December 2024 and for packets & wrappers by 5 January 2023.
- Extended Producer Responsibility (EPR) schemes shall cover the costs of clean-up litter, awareness- raising measures, data gathering and reporting for balloons and wet wipes by 31 December 2024 and for tobacco products by 5 January 2023
- Adopting market restrictions, the consumption of food containers and cups for beverages shall be significantly decreased by 2026.
- The beverage bottles with a capacity of up to three litres must have tethered caps by 2024, contain a 25% recycled plastic by 2025 (PET bottles) and 30% by 2030, all types of beverage bottles must be collected separately, aiming to reach 77% by 2025 and 90% by 2029.

- Labelling and marking shall be applied to inform consumers about the presence of plastics in a product, the environmental damages caused by littering, the appropriate waste disposal options for the product, for beverage cups, tobacco products, wet wipes, and sanitary towels (pads, tampons and applicators).
- Awareness raising measures shall promote the availability of reusable alternatives, reuse systems, and waste management options for those products, best practices in sound waste management, the impact of littering and inappropriate waste disposal of those products on the environment, and in particular on the marine environment, the impact on the sewer network of inappropriate waste disposal of those products for all items. (ZWE, 2019)

	Consumption reduction	Market restriction	Product design requirement	Marking requirements	Extended producer responsibility	Separate collection objective	Awareness raising measures
Food containers	X				X		X
Cups for beverages	X				X		X
Cotton bud sticks		X					
Cutlery, plates, stirrers, straws		X					
Sticks for balloons		X					
Balloons				X	X		X
Packets & wrappers					X		X
Beverage containers, their caps & lids			X		X		X
- Beverage bottles			X		X	X	X
Tobacco product filters					X		X
Sanitary items:							
- Wet wipes				X	X		X
- Sanitary towels				X			X
Lightweight plastic carrier bags					X		X
Fishing gear					X		X

Figure 4. Objectives of the SUP Directive according to certain plastic products (European Commission, 2018)

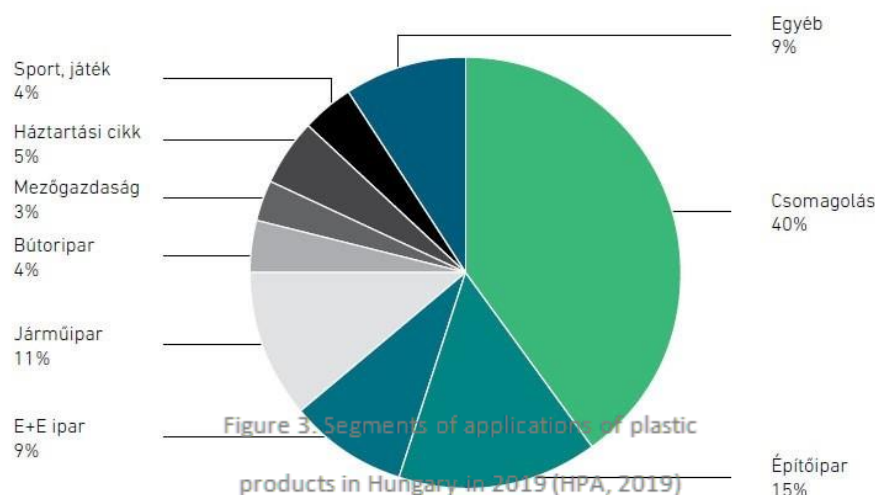
The directive is in consistency with existing policy provisions in the policy area. It is fully in conformity with the objectives of the Circular Economy policy, and the EU Plastics Strategy, as part of the key actions planned under the Circular Economy Action Plan. The directive is also in line with the EU's established legislation in the field of waste and water,

Waste Framework Directive, the Directive on Packaging and Packaging Waste, Marine Strategy Framework Directive and the Urban Waste Water Treatment Directive. (EUC, 2018, pg. 3)

Plastics in the Hungarian Economy

To provide a comprehensive overview of the current capacity of the Hungarian economy to comply with the obligations of the directive, I would like to summarize the market data of plastics, production, consumption, applications, waste generation and waste management, in the following section.

As a Member State of the European Union, Hungary is part of the third largest regional manufacturer of plastics, since countries of the European Union produced 61.8 million tonnes in 2018, emitting 17% of global production. (Plastics Europe, 2019). Although, only a small fraction, 1.6 million tons of plastics was produced in Hungary in 2019. (HPA, 2019) The distribution of domestic consumption in Hungary is very similar to international tendencies. The packaging industry is dominant, application in the construction industry is significant and the share of other segments is relatively smaller. The share of main application segments of plastics in Hungary is the following: Packaging 40%; Building & Constructions 15%; Automotive 11%; Electrical/Electronic 9%; Household 5%; Furniture 4%; Leisure & Sports 4%; Agriculture 3%; and Other applications 9%. Compared to 2018, the share of packaging decreased by 4% and the share of household products by 3%. The automotive and furniture industries remained stable. The share of agriculture increased by 2%, the share of construction, E + E industry and sports, games increased by 1%. (HPA, 2019)



In 2018 3,75 million tonnes of post-consumer waste was collected in Hungary, 16,72% of which 627 thousand tonnes were post-consumer plastic waste. (HCSO, 2018)

Unfortunately, the most environmentally hazardous method, namely landfilling, is a predominant waste treatment methodology in Hungary. Between 2004 and 2017 the amount of waste being landfilled decreased by 2 million tons between, but 48% of waste was still landfilled in 2017, (KSH, 2018), while the EU average is 24,9%. (Plastics Europe, 2019) Landfilling causes not only environmental, but also economic disadvantages, landfilled waste is not sorted, therefore there is no opportunity for reuse or recycling. The process does not contribute to the circular waste management system, that is targeted by the European Union, consequently by the Hungarian government. The ratio of waste being sent to effective recovery or recycling process, considered as the most favourable waste treatment, is increasing continuously since 2005. The packaging recycling rate remained around 50% between 2012-2015, it did not meet the EU packaging waste target of 55%. The ratio of energy recovery is higher since 2015. This method is more advantageous compared to landfilling, as energy can be retrieved, but it also lowers the amount of waste being landfilled (HCSO, 2018), however, the waste hierarchy prioritizes the recycling of waste over energy recovery.

Environmental Protection in Hungary

In the past years Hungary accepted several regulations, strategies and action plans forcing the Hungarian economy towards a more sustainable future. In the following section I would like to summarize these actions and the most relevant environmental developments regarding the SUP Directive, following the National Environmental Programmes.

After the system change in Hungary the 1st Environmental Programme of 1997 and 2002 laid down the objectives of the Hungarian environment policy, also intending to bring the inter-sectoral co-operation forth. The programme incorporated the National Waste Management Plan of 2002 and a National Environmental Education Strategy was implemented in 1998.

In the frame of the 2nd National Environmental Programme the Hungarian economy and policy system had to be prepared for the European Union accession of 2004, the sustainability principle, environmental conditions of the country, priority areas of development and the green transition of other sectors, Thematic Action Programmes had to be incorporated into the development policies.

The 3rd National Environmental Programme between 2009-2014 continued the prioritization of a sustainable development, it created a framework of the environmental protection and tasks. In 2011 a National Waste Management Agency was established, and the Act on Environmental Product Charge entered into force.

The environmental taxes established this period fulfil the Extended Producer Responsibility System in Hungary. The income of the government from this environment taxes is above the EU average. While 2.53% of GDP was created through environment taxes and 1.91% of GDP was accumulated through energy taxes in Hungary in 2017, the EU-28 average remained 2.4% and 1.84% in the same year. Also, environmental tax revenues of Hungary were higher than the EU-28 average of 5.97% of total revenues from taxes and social security contributions, the Hungarian revenue reached 6.6% (European Commission, 2019, pg. 26) Four different categories of environmental taxes were determined in Hungary, namely energy taxes, pollution taxes, resource taxes and transport taxes. (KSH, 2011, pg. 6) The environmental pollution taxes are the most relevant to the regulations of the SUP Directive. According to the Act LXXXV of 2011 on the environmental product fee, the “Environmental Product Fee Act”, products that are or may cause environment pollution, namely battery, packaging material, other products made of petroleum, other plastic products, other products of the chemical industry, electric, electronic appliances, tyres, office paper, paper used for advertising are charged with special taxes. (EcoLex, 2013)

In 2013 the Hungarian government overtook a significant overhead reduction, in order to erase the financial expenses of the Hungarian residents. The public utility cost cutting affected the charges of electricity, natural gas, water and also waste collection. In the frame of the Act LIV. of 2013 and Act CXIV of 2013 on reduced overhead, highly affecting the waste treatment system, the public service fee of waste collection is obligated to be reduced by 10%, since 2013. (EcoLex, 2013) This has been putting waste managers under pressure, waste disposal fees are limited from above, due to the overhead reduction, while their costs have been increased, due to increased landfill tax. There is marginal or no profit.

In the same year the Hungarian government adopted the national waste management plan. The plan included the intention to comply with the European Union's circular economy package. The plan obligates service providers to collect green waste from apartment blocks separately, sets pre-treatment requirements for numerous waste types and regulates landfilling. (NHKV, 2017) These plans were under review by the European Union in the period of 2014 and 2020, because they differ from the EU targets. “For example, a level of coordination is

missing between the various administrative levels and the selective waste collection system is also insufficient. No sufficient development has been carried out with regard to the decomposable waste collection system either, or incentives that serve the hierarchy of waste are missing.” (European Parliament, 2017)

Between 2015 and 2020, the objective of the 4th National Environmental Programme was to improve the quality of life and the environmental conditions of human health. Additional aim of the period was to protect natural values and resources and use them more sustainably. Resource efficiency and the transition towards a green economy were also in the highlight. (Ministry of Agriculture, 2016) In 2015 the National Waste Management Directorate was established, that is a “public coordinating body whose main obligation is to ensure transparent, predictable, traceable and accountable waste management system in Hungary.” (NMWD, 20121)

In 2016 major reforms took place in the waste sector of Hungary and a public company, the National Waste Management Coordination and Asset Management Company (Nemzeti Hulladékgazdálkodási Koordináló és Vagyonkezelő Zrt.), NHKV Plc gained the exclusive permission to operate and control the municipal waste collection. Their main obligations are to collect the fee of waste treatment from Hungarian residents, distribute the fees amongst public service providers, define the waste management targets and strategy, coordinate the founding of the sector and trade with recyclable materials amongst others. Important targets appointed by NHKV Plc are, realising a public service system, with the participation of the Co-ordination Organisation, the Local Governments, the Public Service Providers and the users of the service and ensuring the household overhead cost reduction. (NHKV, 2021)

Concerning the developments of the waste sector in Hungary, the Environmental Implementation Review of 2019 also referred to the fact that there is an absence of financial incentives, for example the pay-as-you-throw scheme in Hungary, that would force people to increase selective collection and be conscious concerning waste treatment. The EIR questioned the Hungarian waste management systems capacity to achieve the EU targets, under these circumstances. (European Commission, 2019) Also economic instruments to charge landfilling and the waste taxation should be reconsidered. The findings of the European Commission concerning Hungarian waste management and the provisioned failure of the country to comply with the European Union's Waste Directive, therefore reaching target of 50 % preparation for re-use/recycling of municipal waste, until 2020, were communicated in “The early warning report for Hungary” in 2018. According to the EIR of 2019 priority actions for Hungary should

be focusing on increasing landfill taxes to enhance the potential of recycling and recovering waste, use the incoming funds to invest in the development of waste management and follow the waste hierarchy. The transition to separate collection should be brought to the fore. Additionally, Extended Producer Responsibility Systems are advised to be improved. (European Commission, 2019)

The preparations of the new, 5th National Environmental Programme were concluded by the end of 2020 and is presented to the Hungarian Parliament at the beginning of 2021. (Nemzeti Agrárgazdasági Kamara, 2020) The official announcement of the program has not been published until the beginning of April 2021.

In February 2020 the Hungarian Parliament accepted the Climate and Nature Protection Plan 2020, including eight targets connected to environment protection. (ITM, 2020) The eight goals are the;

1. Abolition of illegal landfill sites,
2. ban of single use plastic products and establishment of deposit return systems for PET bottler and metal boxes,
3. saving the Hungarian rivers from the foreign pollution,
4. requiring multinational companies to introduce environmentally friendly technologies,
5. planting ten trees after every child born in Hungary,
6. increasing the capacity of solar power plants to its sextuple in the coming 10 years, 90% of the energy will be carbon dioxide free, introducing smart meters to Hungarian households,
7. aiding the inexpensive electric cars entering the market, introduction of Green Bus Programme, therefore transition of public transport to low or zero emission means of transport,
8. introduction of Green Bonds issuance, contributing to climate, sustainability and energy strategy objectives.

In July 2020 the Hungarian Parliament adopted a legislation as a part of the Climate and Nature Protection Plan to eliminate the single-use plastic products from the Hungarian market as regulated by the SUP Directive. The Hungarian legislation goes beyond the conditions of the European Commission since it additionally bans the plastic bags between 15 and 50 microns. Considering food safety conditions, the plastic bags under 15 micros will not

be eliminated from the market but will be charged by a 20 times higher environmental product fee to confine its consumption. The law will enter into force by 1st of July 2021. (Nemzeti Jogszabálytár, 2021) The previous proposal of the legislation would have banned the products already from 1st January 2021 (Hungarian Parliament, 2020), but the proposal was annulled by the Hungarian government in May 2020, the official declaration about the annulment alluded to the economic hardships caused by the COVID-19 pandemic (Index, 2020.a) However, following press releases demonstrated, that the industrial lobby of Soltvadkert, the centre of Hungarian plastic production caused the deferment. (Index, 2020.b) Miklós Nagy, the secretary general of the Csomagolási és Anyagmozgatási Országos Szövetség declared, that the industry of foil production welcomes the new proposal of the legislation, excluding the ban of plastic bags of all kind. Zsolt Ribrászki, the corporate executive of Dominis Pille-Fólia Kft. Highlighted the potential negative economic effect of an abrupt transition, since the sector employees thousands of Hungarians and it is also target of huge investments. (Humusz, 2020)

As described in the action plan the Hungarian government committed to introducing a new standardized deposit return scheme as part of the country's Green Program, in 2019. (MNB, 2019) The history of deposit return schemes in Hungary goes back to the 1980s. Prior to the regime change, beverage packaging was produced almost exclusively of glass and was charged by deposit fees. The deposit return scheme was under state supervision. The regulatory system also standardized the deposit rate and the physical parameters of the bottles; thus, the proportion of reusable beverage packaging was around 96%. After 1990, the deposit fee system was abolished, as a result the amount of single-use packaging increased drastically. Additionally, the abolishment of the previous system was the consequence of the lack of domestic regulations and bottles of different sizes and deposit fees entering the market. (SZIE, 2013)

Nowadays, the use of reusable packaging for mineral waters and soft drinks remained common only in the hospitality industry. Hungary's current deposit return scheme include beer, wine bottles and some standardized alcohol bottles. Also, some major retailers assist the collection of post-consumer PET bottles and metal cans. According to the current legislation, beer bottles are charged by HUF 25 and the fees of wine and alcohol bottles are determined by the retailers. The PET plastic bottles, and aluminium cans are charged by HUF 1 and HUF 2 deposit fee. The proposed scheme would cover glass and PET plastic bottles alongside metal cans. (BBJ, 2020)

The Hungarian Parliament accepted the law regularizing the new deposit return scheme of Hungary on 15th of 2020, affecting the collection of PET bottles, aluminium, and paper bottles. According to the accepted conditioning, the government should prepare the regulation determining the concrete directions. The expected date of the regulation entering into force is 1st of January 2023. (Országgyűlés, 2020) Greenpeace Hungary expressed its advocacy of the law, although concerns about the appointed target year, the necessity of ambitious targets regarding 100% recycling, and the aspiration to prioritise reuse were noticed by the organisation. (Greenpeace Magyarország, 2020)

Awareness raising in the Hungarian Population

The attitude and awareness of the Hungarian population is also highly influencing the potential of the Hungarian government to achieve the EU targets.

The 2017 Special Eurobarometer 468 provided a comprehensive picture about the attitude of Hungarian residents towards the environment. According to the findings of this research the Hungarian society appears to support circular economy initiatives and environmental protection measures. (European Commission, 2019, pg. 4) 57% of the Hungarian population believes that the growing amount of waste is the most important environmental issue to tackle. (Pg. 6) 84% of Hungarians has concerns about the effects of plastic pollution on the environment. (Pg. 9) According to the study, 54% of the Hungarian respondents said that they have separated most of their waste for recycling in the 6 months prior the survey. More than half, 58% of the Hungarian respondents have cut down their use of single-use plastic carrier bags. (Pg. 19)

Attitude Towards Labelling

In the 2017 Special Eurobarometer 46 respondents also declared information regarding labelling's. The most known labels connected to environment protection amongst Hungarian respondents turned out to be the Környezetbarát Termék Védjegy, a national eco-product certification scheme, that was established with regard to the EU Ecolabel, with 68% and EU Ecolabel, that is “a label of environmental excellence that is awarded to products and services meeting high environmental standards throughout their life-cycle: from raw material extraction, to production, distribution and disposal” (European Commission, 2021), with 19%

of the Hungarian population having seen or heard about it. (Pg. 27) 17% of Hungarian participants indicated that they have bought products carrying EU Ecolabel, belonging to the countries with lowest proportions to the followed by the Czech Republic (15%), Germany (15%). (Pg. 29) Respondents of Hungary (32%) pertained to ones, most likely to say that ecolabels do not play an important part in their purchasing decisions. (Pg. 30) Although, 94% of respondents, who have seen or heard about the EU Ecolabel agree that they trust that products carrying the EU ecolabel are environmentally friendly. (Pg. 31)

Methodology

In my scientific, work I would like to develop a deeper insight about the impact of the regulations of the European Union on the Hungarian economy and waste management. In the following section I will especially focus on determining “How the Hungarian government would implement the European Union’s Single Use Plastic Directive, that is entering into force in 2021 and regulates the plastic waste management of Member States?”. Since there are numerous conflicting interests in the Hungarian waste management system, the examination of a potential future waste management scenario was extremely interesting.

To identify the potential impacts of the European Union's regulation, the Single Use Plastic Directive on the Hungarian market, get a deeper insight into the current and foreseeable situation of our country I chose to carry out a qualitative research trough interviewing different stakeholders of the Hungarian waste management system. The interviewees of my scientific work wee namely Sylvia Graczka, the Head of the Environmental and Information Statistics Section, in the Hungarian Central Statistical Office, Doctoral Student at Corvinus University of Budapest, Department of Geography, Geoeconomy and Sustainable Development and activist at an independent social organization, Humusz, working towards sustainability. Secondly Tamás Roland Rupp Development and Strategic Manager of the National Waste Management Coordination and Asset Management Company (Nemzeti Hulladékgazdálkodási Koordináló és Vagyonkezelő Zrt.), NHKV Plc, the public company having the exclusive permission to operate and control the municipal waste collection since 2016. I also visited the Ministry of Innovation and Technology, to interview Vivien Ifka Head of the Department of Constructions, former Expert of the Department of Waste Management of the Ministry of Innovation and Technology. Additionally, an industrial

stakeholder working towards the advocacy of market players in the waste management sector, answered my questions, asking for remaining an anonymous source of my study.

The interview was carried out face to face with Vivien Ifka at the office Ministry of Innovation and Technology, further interview took place over the telephone and Internet on the account of the COVID-19 pandemic, the timing of these conversations were in October of 2020. The interviews were semiconstructed in-depth interview, where respondents answered pre-set open-ended questions, related to the central question of my research.

During the conversations I asked the respondents to describe the current waste intensity of Hungary and the overall approach to the SUP Directive in Hungary, later on the concrete objectives of the directive were discussed. In the following section I would like to explicate the findings of the interviews.

Interviews with Industrial Stakeholders

Waste intensity of Hungary

Since the ability of a country is highly affected by its waste intensity, I asked participants to describe the Hungarian situation. Concerning waste intensity of Hungary, Mr Rupp believes, that our country will follow European trends; we are not better nor worse in concerning waste intensity. If the European Union political decisions are declared regarding the characteristics, quantity or quality of packaging, Hungary will follow those standards. However, a delay in the execution is expected, as it is usual in the Eastern-European region. Although, to reach noticeable alteration of the waste intensity, extremely innovative solutions would be needed by producers. For example, an instant Coca capsule invented by The Coca Cola Company, that would be an extreme example.

In the industrial stakeholder's opinion, to realize a less waste intense economy in Hungary, the producers and the production should be regulated, he would require the transition to eco-design, that denotes “the integration of environmental aspects into the product development process, by balancing ecological and economic requirements. Eco-design considers environmental aspects at all stages of the product development process, striving for products which make the lowest possible environmental impact throughout the product life cycle.” (EEA, 2021) Currently, packages and product are composed of numerous materials

making efficient and affordable recycling impossible. Unfortunately, the approach to waste management and circular economy is not adequate according to the industrial player. He referred to the occasion in 2015 when the János Lázár Minister of Prime Minister's Office between 2012 and 2018 declared that the Hungarian government is ready to reach circular economy, through establishing fourteen incinerators in the country. The proposal of the government caused an outrage at the time. (Index, 2015)

In his view, the aim of creating a circular economy should be to lengthen the lifecycle of products through reuse or recycling, rather than focusing on energy recovery. The waste hierarchy should be followed when mapping out waste management strategies.

SUP Directive in general

I also aimed to estimate the overall approach of the Hungarian government and the market players, to execute the conditions of the Single Use Plastic directive. According to Sylvia Graczka, the whole process is led by the European Union, in cases, where the EU regulations are binding, and national, economical interest could be negatively affected, the Hungarian government, similarly to other Member States, are expected to be cautious, and take the necessary measures required. Although, it is believed, that the Hungarian government will only commit to the bare minimum. But the fact, that the proposed measures are delivered in the form of a directive, and a "directive is a legislative act that sets out a goal that all EU countries must achieve, however, it is up to the individual countries to devise their own laws on how to reach these goals" (European Union, n. d.), it gives a wide margin of discretion to the Member States in interpretation and execution. Ambitious measures cannot be expected.

Concerning the target years of the SUP Directive, Ms Graczka noted, that 2025-2030, are a far-distant future dates to choose. The European Union, such as the United Nations or any international organisations or even national governments operate using long-term strategies. Setting targets for far-distant dates gives a handle to posterior modifications. Until 2025 or 2030 much can change, the members of the Commission might change, national elections take place, a global pandemic occurs. Long-term targets are impressive, however reaching these targets in the next months or next year would be also feasible, since these do not have such a high technological barrier. Consequently, the objectives do not show real determination and warrant special reservations.

Contrarily, Ms Ifka believes that these target years were determined by examining comprehensive impact assessments, and expeditious transitions could be not expected in the industry. Ms Ifka added that the directive was extraordinary rapidly developed and accepted by Member States and the aftermath of this rashness is palpable now in many cases, as they are working on implementation acts and guidelines. Even the modification of the directive was considered. She also mentioned that Member States are reconsidering the timing of implementation, due to the current COVID-19 pandemic. Although, the SUP Directive included deadlines for implementation guidelines created by the European Commission for the Member States, these deadlines were already exceeded. These circumstances might procure the delay of the overall coming into force of the directive.

Beyond delays of the European Union and questions arising concerning the pandemic, there exists innumerable problems in the Hungarian waste management system, as the anonymous industrial stakeholder revealed, in his opinion this can be led back to the intervention of the government, into the system. In 2013 public utilities have been nationalized by the Hungarian government, since then, exclusively state-owned enterprises, SOEs can provide public services. This forced international companies to leave the Hungarian market, currently, there is no competition in this sector. Until present, these problems remain unsolved. The Single-Use Plastic Directive pertains to the same legislation. The Directive lays such charges on Hungary, that demand systematic change. The nationalizations and centralizations had negative side effects, that are even admitted by the Hungarian government.

Concerning the Hungarian governments proposal for the law for a circular economy, the industrial stakeholder noted, that the law should have entered into force in July of 2020 according to the European Union's Directive, the government proposed drafts for the law, but in lack of any cooperation with the stakeholders of the waste market, non-governmental organisations. The industry expert explained, that the ITM aimed to nationalize in several matters, it intended to nationalize the waste itself, to put the collection, carriage, trade and utilization of waste in exclusive state jurisdiction, only the utilization in close terms would have remained for the market players. Fortunately, this proposal was disapproved, since no agreement on the direction and goal of the regulation was reached. For a while the ITM believed that the Hungarian Waste Management Federation published the proposal, however the proposal was leaked by public service providers. The ITM planned not to cooperate about the proposal.

Discussing the concrete points of the SUP Directive, I asked the interviewees opinion about the directive's suggestions, the current approaches, tendencies and overall situation in Hungary.

Ban from the market

Concerning the ban of single-use plastics on the market, Ms Ifka mentioned that the intention of the Hungarian government was included, as the second point, into the Action Plan of Environmental and Climate Protection, published February 2020. The action plan was more ambitious compared to the conditions in the SUP Directive, additionally to the single-use plastic products named by the Directive, the government introduced the ban of plastic carry-on bags and beverage caps. While the law was prepared and adopted by the National Assembly and included into the Environmental Law, parallelly the regulation also had to be set out, including exact details of execution. The governmental decree was reviewed by the European Parliament, the reflections demanded the evolved motivation for the more ambitious plans, amongst many more. The Ministry of Justice was working on fulfilling the requirements of the evaluation in December 2021, their standpoint was not published to this point, the European Parliament had to evaluate it until 4th of January 2021. Ms Ifka considers, that the COVID-19 virus also affected the successful implementation of the ban, although an impact assessment about recent changes in consumptions are not evaluated yet, she believes, that people prefer the single-use plastic packaging due to the pandemic. In her opinion, as in the ITMs official communication, this was the reason for the previous withdrawal of the action plan in Hungary on 19th of May 2020. As she explained, the Hungarian government, solidly with the European Union reconsidered the usage of light-weight plastic bags under 15 microns and concluded, that due to food safety factors, especially in the current situation of the pandemic, the ban of these plastic bags is inadvisable. Therefore, the current version of the Hungarian proposal would not ban those plastic bags under 15 microns. (Napi.hu, 2020)

On the contrary, Ms Graczka believes that, this is not a plastic specific conflict; the waste intensity of the Hungarian market is the base of the dispute. The argument system of CSAOSZ is not surprising, it is common that environmentally hazardous industries aim to argue with economic arguments, such as the negative effect on the employment. Similarly, common argument would be, that the business taxes and additional taxes bring an important contribution to the state budget and so to the equal tax treatment. These are typical, commonly

used arguments of environmentally hazardous industries in similar situations, not only in Hungary, but internationally also.

As the industrial stakeholder revealed, understanding the profile of an industrial advocacy organization is complex, they are environmental organization, but they are committed to support the market players of the waste sector, at the same time. Therefore, environmental organization, for example Greenpeace or Humusz misunderstands their standpoint. Hindering the ban of single-use plastics coming into effect was not in their interest. The proposal was backed by organizations representing the interests of industrial sector as Confederation of Hungarian Employers and Industrialists or Hungarian Association of Packaging and Materials Handling. They would not have the capacity to develop innovative technologies complying with the first proposal of ITM, in his opinion the transition needs time.

In Mr Rupps opinion, while the adaptation of the ban could be deferred, on the account of either the COVID-19 virus or industrial lobby, since the regulation is obligated by the European Union, the government had to adopt the new regulation, after all.

According to Ms Graczka, to be able to achieve the goals named by the SUP Directive, systematic changes are needed in the economy. Defined in the Green Economy Initiative, the United Nations Environment Programme (UNEP) greening the economy not only consists of banning some products on the market and not taking any other action, but a green economy is “one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities”. (UNECE, 2011) Redesigned, new sustainable sectors are needed, producing environmentally friendly products and services. Such a systematic change would create new employment opportunities, labour could migrate from one industry to the other, even though a constructed re-training system.

Tethered caps

Ms Ifka expressed me her concerns about the delay in the execution of tethered caps. Originally, the European Committee for Standardisation was supposed to reach an agreement until October of 2019, but after a first failed attempt new the agreement on the Standardisation Request was presented by the European Commission at the end of March 2020. She explained that a strict standardisation is highly important in such cases, so countries or businesses are not influenced unequally on the market. To aid the transition of the Hungarian plastic bottle manufacturers the government announced a subsidy amounting 10 billion Forints. Ms Ika

mentioned a potential negative side effect of the new regulation. Recently the environmental fees caused the following tendency in plastic bottle production; caps got smaller, and bottles got lighter, leading to slightly decreased environmental harm. If caps have to be tethered, bottles will be redesigned, making sure that caps and lids are of appropriate strength and durability, so caps remain attached, during the products use, this could facilitate the return of heavier, less environmentally friendly beverage containers.

Selective collection

An additional perspective was presented by Mr Rupp, he noted that a positive effect of mandatory tethered caps could be, that the material of the caps and bottles would be the same kind, simplifying the process of recycling. Therefore, he relays on the unified material usage by the production of bottles and caps, following the implementation of this regulation.

Additionally, to the above-mentioned problems of financing of the waste management system, also the overhead reduction is setting the selective waste collection in the country back, according to the industrial stakeholder. The reduced overhead does not incorporate the cost of implementing and operating the selective waste collection, however, that would be mandatory for public service providers to ensure, since 2015. Therefore, the overhead reduction causes a gap in the waste management system, equal to 1 billion Forints in 2015. In 2016 the National Coordination of Waste Management and Asset Management Plc (NHKV Plc) was introduced. The deficit in the system increased to 18.9 billion Forints in 2018 and in 2020 the amount reached 54 billion Forints. The gap is recovered by subsidy from the taxes. Mr Rupp also mentioned, that the amounts billed to residents for their services only covers the 60-70% of their overall costs, therefore the government has to complement their income, to avoid operating with losses.

As far as the industrial stakeholder explained, the overhead cost in the European Union should cover the cost of public services. In his opinion, the NHKV Plc is misguided if it believes, that the problem of the financial gap could be solved, through nationalizing waste management (a solution that had worked properly on the market) and recovering their loss from the profit. This method will not be efficient, since the private sector consisted of 1290 organization permitted to collect waste and more than 750 waste traders, therefore the competition was enormous. Since 2013, public utilities have been nationalized by the Hungarian government, since then,

exclusively state-owned enterprises, SOEs can provide public services. Therefore, there exists no competition in the public sector, hindering the developments, innovations.

Mr Rupp also mentioned, that prior 2015 there existed selective waste collection from waste collecting centres, since 2015 the door-to-door selective waste collection system should be applied in Hungary, but unfortunately, this system is working properly in Budapest principally, as he described. Oppositely, as I asked Ms Ifka about the non-functioning door-to-door selective waste collection in the country, she expressed, that she believes, the system is working properly since the introduction all over Hungary.

Mr Rupp named Győr, as an efficiently working example, where door-to-door selective waste collection was not implemented, the system of collection from stations remained. Due to the pay as you throw principle, people are not paying monthly fee for waste collection services, but they are paying according to unit-based pricing, after mixed municipal waste collected. Consequently, people are forced to collect waste selectively and the ratio of selective waste collection was the highest in 2018 and 2019 in Győr, even higher than in Budapest. Mr Rupp believes that this kind of economic force would be necessary in other parts of Hungary. He adverted an innovative method to be implemented in Hungary, that might successfully force households to increase the rate of selective collection, a new presently confidential method was also mentioned by Ms Ifka. Unfortunately, the proposed plan was not delivered, since it is in an early stadium, but might be established in Hungary in the following years.

Concerning any intention to develop or restructure the functioning of a public service provider, the industry expert unfolded that the approval process is inordinately circumstantial, therefore he would expect the failure of the new conception or the alteration of it in a way, that would not deliver outstanding change. A fundamental problem of the concept of nationalizing the waste collection sector is that the systems of waste collection were established in accordance with the administrative units, in cases, where local governments could not solve the collection, associations emerged. This frame operating so far is not unifiable by a centralized organization.

Further difficulty was generated by the fact that landfilling of waste is charged by taxes in the European Union, since 2017. Even after selective collection, sorting and utilizing of any potentially recyclable material, the non-recyclable waste ending landfilled after the process is charged by landfilling tax. On the other hand, the approximately 25% scale arising as a by-product after incineration is disposable without any charge. Although, the concept of landfilling

tax aimed to assist the decrease of waste disposal, it does not achieve the desired effect, as the industry expert revealed.

Recycling

Both Mr Rupp and the industry expert agreed, that, the current system of selective waste collection is not capable to tackle the problem and due to the current level of awareness in the Hungarian population and the level of environment protection in Hungary, the single method to reach the 77% selective collection rate of PET bottles until 2025, remains the effective establishment of the deposit return scheme. Despite the seemingly challenging target, Mr Rupp and Ms Ifka believes, that if the Hungarian government committed to reach this goal, it will accomplish it. Ms Ifka explicated, that the Hungarian government aims to establish a deposit return system, as it appeared in the Climate and Nature Protection Plan making the targets of the SUP Directive feasible, namely, the collection rate of plastic bottles reaching 77% until 2025.

Concerning the exact details of the establishment of the deposit return system numerous questions and suggestions came up in the conversations Ms Graczka pointed out, that the goal of collection is crucial. She assumed, that in the contrary of the previous deposit refund system, returned bottles would mostly be exported and recycled, not reused by producers, after washing and disinfecting them for new drinks to be put on the market, as in the era of 1980s. According to her, recycling, the process of selection, cleaning, grounding, shredding into flakes, melting and forming into new bottle shapes, takes more energy, more transportation, more logistics cost and human resource, in consequence it is way more polluting for the environment. Contrarily, Mr Rupp expressed his doubts concerning the reuse of those bottles. In his opinion, the collection would be extremely complicated in that case. The storage and transportation cost would increase, since the bottles should remain intact, demanding larger capacity. Additionally, disinfecting those bottles prior reuse, is highly energy and chemical intensive. Also, the logistics of transporting the used bottles to the producers would be intricate or bottles should be standardized, as in the Soviet era. As he explained, exist conflicting opinions exist, among which the most dominant one argues that that recycling is linked to a smaller ecological footprint. Therefore, he assumes the recycling of those collected materials will be intended on the Hungarian market.

Ms Graczka explained that the deposit refund system proposed by the Hungarian government last year, would have obligated the retailers to collect PET bottles for the purpose of recycling them. In her opinion, the lobbying of retailers could be the reason behind the proposal being annulled by the ITM. The introduction of a deposit refund scheme would be favourable for producers, since it would significantly reduce the cost of packaging, lowering production costs overall, therefore meaning an outstanding competitive advantage on the market. Additional costs would emerge by washing and disinfecting the bottles, but a one-time investment into a bottle washer would ensure cleaning, sanitizing, and sterilizing for years. On the other hand, the new system would be less advantageous for retailers. The process of collecting deposit fees, collecting, and storing returned bottles and managing the refund of those deposits would not only require increased human resources, but the amount of logistics and administrative work and costs would be also increased. The reason, why the deposit refund system disappeared from the market was, that retailers did not want to undertake this role after a while.

Mr Rupp believes, if merchandisers could handle the deposit return scheme 30 years earlier, they could also incorporate it into their operational systems now, as it is observable in several other countries such as Slovenia or Finland. However, the space capacity of smaller stores might cause problems, therefore Mr Rupp thinks, the collection will take place in larger hypermarkets parking's. 10 to 12 parking spots would be taken up by facilities, adequate to select different materials. In his opinion, the collected waste should and will be sorted manually or by waste sorting machines, so materials could be 98-99% clean at the end of the process. For example, post-consumer PET bottles are also often sorted according to their different colours, transparent or uncoloured PET, blue coloured PET and mixed colour PET. After being sorted and cleaned in the sorting facilities, PET bottles could reach the proper form to be used as secondary raw material in the industry.

A completely different solution was revealed by the industrial stakeholder, as far as he construed, according to the plans of the ITM, the deposit return scheme would be solved through public service providers collecting PET bottles from residents. He heavily criticized the proposed system, since as described above, the public service providers system is not properly financed and has no capacity to manage such an elaborate collection. Also, the goal to not to downgrade the recycled material and to produce the same packaging, seems unfeasible. If public service providers must collect PET bottles, new, disinfected collecting trolleys are necessary. Even if large amount of PET bottles would be successfully collected,

the pollution of these bottles would not comply with food safety regulations. The industry expert relies on establishing a system in Hungary, involving market players from the private sector. The currently existing deposit return schemes, characteristic in the hospitality industry, is and was coordinated by the private sector, therefore the establishment of a new public system would be redundant.

Unfortunately, as Ms Ifka revealed, that only a law was adopted in Hungary, up to this point, expressing the intention and guideline to invent the deposit return system, an additional regulation would be needed to realize the exact execution plan, providing details about the rate of the deposit fee, the liability of collection, the role of producers, retailers, waste collectors, the goal of collection, the process of recycling or reuse, and numerous other details. Although, during our discussion, her explanations instanced to the system mentioned by My Graczka and Mr Rupp, rather than to the concept of the industrial stakeholder. Ms Ifka declared that the new system will prioritize the reuse of the bottles, over recycling. Mr Rupp also revealed that he has seen some proposals, but he is unaware of the exact operation.

The industrial stakeholder also added that the DRS would not solve all of the problems on its own, but parallel action of any capacity and methodology is indispensable. The DRS, selective collection, the capacity of public and private sector should be integrated, to have to attain the desired effect, nationalized DRS will not be sufficient. An example is Germany, where the DRS is operated efficiently, although currently they do not reach the 90%. However, the highest selective collection rate is executed by Belgium which does not operate an DRS.

Extended Producer Responsibility (EPR) schemes

In Hungary environmental taxes are equal to the Extended Producer Responsibility scheme. There are different types of environmental related taxes in Hungary. The environmental product charges would make environmentally friendly products more competitive, more appealing for the consumer, as their prices are supposed to be lower without the tax. Ms Graczka and Ms Rupp expressed the problem of environmental fees in Hungary. Mr Rupp believes, if implemented effectively, these economic charges could influence the decisions of consumers. However, in his opinion, the reason behind consumers not being affected by the environmental taxes charged, is that those fees are not heavy compared to the price of the products.

Ms Graczka explained that the price of products or the consumers judgment of it can be influenced by numerous factors. If the consumer compares the prices of two plastic bags, and there is no significant difference, one might think, that this is the price level of plastic bags. Another situation might be, that the consumer compares plastic bags with a canvas bags, the single-use plastic bags price is a small fraction of the price of a reusable canvas bag. Although, the amount spent on the canvas bag would pay off, if consumer use it for a few years. Even so customer do not consider the long-term returns and typically decide to purchase the single-use plastic bag. In many cases the same behaviour is observable, the reason might be, that consumers cannot afford purchasing the more expensive, quality items, especially in Hungary. On the other hand, for consumers at a higher social status, who would be able to afford quality, reusable products, being economic might not even be an aspect.

Besides, the environmentally friendly products price might be higher due to the desired positioning of the company on the market. The volume of the demand is also a significant factor. Demand for environmentally friendly paper pens might be lower than the demand for the conventional plastic pens, producers are not able to reduce the costs of production through economies of scale, to this end they sell the paper pens for higher price. These and countless other factors affect the final price of goods offered to consumers on the market, therefore in most of the cases people are not even aware of the existence of the environmental related product charges. If the system of environmental related product charges would work effectively, consumers would experience conspicuously higher prices of environmentally hazardous products at supermarkets and stores.

As the industry expert explained, the Ministry for Innovation and Technology maps the subsidy for waste collection and utilization in the “Országos Gyűjtési és Hasznosítási Terv” for the year out. (HUNOR, 2020) For 2020 the assumed income from the environmental fee was 86 billion Forint, also the expenses were planned. As far as Sylvia knows, only 12-18 billion Hungarian Forint is re-invested into the waste management system. Unfortunately, it is not possible to track where the money is invested, it adds to the general government budget, anything can be financed from the amount. Ms Ifka explained, when the money flows into the central budget, the minister of ITM invites applications for industrial development and public procurement. Through applying for the public procurement, waste collectors and waste utilizers can reclaim their investments into their work.

The industrial stakeholder revealed, that the Act No. LXXXV of 2011 on environmental protection fee sets a deadline for the Ministry, they are obligated to transact any public procurement until 31st March of the running year. (Nemzeti Jogszabálytár, 2021) In 2020 in the frame of public procurement a subsidy amounting to 10.5 billion Forint should have been apportioned amongst waste management companies. The ITM returned a verdict on the subsidies in November 2020, meaning being in default infringement for 7 months, according to the industrial stakeholder.

They attempted to reach the accountable Ministry to pick up information regarding the problems affecting the waste management sector or the system of environmental fee, but the Ministry did not declare any standpoint in this matter. The single formal information reported was, that the financial abatement, in the consequence of the COVID-19 pandemic, was the cause of delays. Although, at the time the virus could cause delays in the public procurements, it should have been terminated at the time, already.

Unfortunately, the waste utilization is in competition with the mining of primary raw materials. In those periods, when the cost of the production of primary raw materials, for example the mining of oil derivatives decreases and remains lower than the recycling of secondary materials, immense hardship is generated in the industry. However, since the usage of secondary materials is environmentally friendly, in the name of polluter pays principle, producers are forced to take the responsibility for the generated costs. Producers devolve those costs on the costumers, in the name of environmental fee. Consequently, the incoming resources should be ploughed back to the waste management companies, labouring in deficit. Therefore, the compliance of the subsidy payments would be indispensable in the waste management sector, ensuring a sustainable system. The delays of the subsidy cause large difficulties for the industry actors.

In the past 2 years, since China announced the new conditions for the waste import to the country, there exists overproduction in secondary materials, such as plastic, paper, electronical waste, depressing the price of these materials on the market. In these cases, the system of the environmental fee should intervene and assist waste manager companies. Unfortunately, this did not work efficiently in Hungary.

In Ms Grackas opinion, these delays also demonstrate that a systematic change is needed to increase the demand for environmental products, to make producers the production

and retailers the trade of those products appealing and economic and to make waste managers worth the invested time, money and labour.

In this regard Ms Ifka highlighted, that the Waste Framework Directive, or the Packaging and Packaging Waste Directive set the goal of new ERP systems to be implemented around Europe, these plans comply with the SUP Directive, therefore systematic change might be developed through the execution, although exact determination of the changes remain for the future, since the target years are 2023 and 2024.

Awareness raising measures

During our conversations all participants mentioned the importance of awareness raising in Hungary on several occasions. Mr Rupp believes that the awareness raising campaigns had large impact on the transition to selective waste collection in the past 20 years, as an example. Both, Ms Ifka and Ms Graczka named some of the efficacious awareness raising campaigns. Ms Ifka listed the Plastic Cup, that is a “non-profit, non-governmental initiative, organizing events, exhibitions professional discussions and waste collection campaigns to abate the pollution of rivet Tisza. The main sponsor of the campaign was the Hungarian Ministry for Innovation and Technology. (PET Kupa, 2021) The government continuously participates in the organisation of “Ötkukás Játékok”, a program within the framework of which children could playfully learn about the importance of environment protection and selective waste collection. The government also established the Zöldút-projekt Kft., assisting the SMEs in Hungary, as advisory and inviting applications. Currently, their partners not only consist of SMEs, but they also work with several other stakeholders, such as local governments, non-governmental organisations. (Zöldút-Projekt Kft, 2021)

On the other hand, Ms Graczka believes, that an effective method to influence adults is word of mouth. Inspiring examples are the so called “ÖkoKörök” organised by the Association of Conscious Consumers (ACC) or in Hungarian Tudatos Vásárlók Egyesülete (TVE), that is a community promoting ethical, environmental, and socially conscious consumption and lifestyle choices. (ACC, n. d.) An ÖkoKör is a circle of dedicated, conscious consumers and farmers cooperating and exchanging best practices to create a sustainable lifestyle, such as homemade cleaning products, eco-friendly ways to wash clothes, etc. These community forums are necessary, these are the platforms to spread sustainable thoughts and practices, where people can ask their questions, discuss their hardships and this is what makes it real.

Sharing her experiences concerning awareness raising, Ms Graczka explicated, that previous awareness raising projects, mostly those of the government did not achieve the expected results, in her opinion. Awareness raising is not as effective if it is only communicated through mass media or posters. When she was working with Humusz, she experienced that personal approach is often the most effective way to have effect on people's beliefs and behaviour, similarly, as Sayers noted in 2006. (Sayers, 2006) Person to person conversations about environmental pollution, negative environmental effects of consumption, waste management options are highly time consuming and labour intensive, but it cannot be avoided to truly have an impact on members of the community. Mass media complementing personal approach is in turn effective to raise the awareness of the consumer, but personal connections, sharing experiences, giving practical advices is necessary to activate and motivate people. Unfortunately, the current pandemic outbreak encumbers personal approaches, although organizing online forums could be an adequate solution. The time and energy must be invested, personal connections cannot be avoided to see results, in her opinion.

Mr Rupp, Ms Ifka and the industry expert emphasized the importance of awareness raising of children, therefore incorporating waste treatment and environment protection into the curriculum. While children are involved into education system, adults are mostly connected to their employers, hindering the communication with them. Although, Ms Ifka expressed the aim of the Hungarian government to assist the transition of workplaces towards sustainability, for example the installation of selective waste collection, she believes, the most impact could be reached through the education system. Consequently, a major transition should be expected in the future. Ms Graczka is beatified by the fact, that large number of children is already more informed about environmental issues and acknowledged that resistance of grownups is unequivocally higher. However, in her opinion awareness-raising of adults is even more important, since they are the consumers and purchasers of the goods, after all. To this end people should aim to invest the time and energy to influence them also.

Concerning the potential future drivers and solutions of awareness raising, in Ms Graczka's opinion, non-governmental organizations will be the drivers of awareness raising in Hungary, since they have been working to tirelessly strive for sustainability and to engage people and continue to do so. On the other hand, Ms Graczka and Mr Rupp mentioned, that Hungary is obligated to invest 7% of any subsidy issued by the European Union, must be spent on awareness-raising measures. Mr Rupp believes, that naturally, these projects are do succeed, if the funding is invested effectively. And Ms Graczka admitted that some examples exist of

successful projects of awareness raising carried out by the government. An initiative of the Hungarian government was to join the European Waste Reduction Week (EWWRR), that is „encouraging all Europeans and not only to carry out awareness-raising actions about sustainable resource and waste management during a single week in November” (EWWRR, n. d.) and aiming to mobilize schools to create zero waste projects to participate. Another example was the campaign the National Waste Management Agency (Országos Hulladékgazdálkodási Ügynökség, OHÜ), that „was given the executive right to coordinate and control the selective waste management in Hungary” (European Commission, 2015), called the „Belső értékek - A megkopott külső értékes belsőt takar” which aimed to increase the use of electrical and electronic waste and increase the public's knowledge about collection options or replacing the plastic bags and napkins to small storage boxes under the EWWRR.

Regarding the liability of awareness raising the industry expert believes, that as NHKV Plc centralized the public service of waste collection, the awareness raising in this matter would be their responsibility. There are high contrasts between the selective collection's methodology across the country. If they are incapable of unionisation in Hungary, regional or if doable, countrywide awareness raising would be necessary.

While he is of the opinion that awareness raising is not motivating the population enough, positive and negative incentives should be applied. For example, a prosperous resolving of the problem in the European Union is imposing high charges on mixed municipal waste. Also, the overhead reduction should be removed from the country. Mr Rupp agrees, that more radical measures, for example negative motivation, as in the example of Győr, could lead to more radical changes. The establishment of a pay-as-you-throw principle would make consumers directly influencing their spending on waste collecting public services and consequently they would reconsider their waste treatment customs more deliberately. Another potential solution mentioned by the industry expert, could be the establishment of an environmental protection agency, controlling the adequate selective collection, would mean additional pressure on residents. The potential instruments of the Fővárosi Közterület-fenntartó Zártkörűen Működő Nonprofit Részvénytársaság (FKF Nonprofit Zrt) and an environmental agency to exert an influence or even impose penalties on residents were regulated in 2013, already. At the same time this opportunity remained untapped in Hungary, in the past years.

Mr Rupp believes that numerous methods could force change, the investment into awareness raising campaigns, the establishment of door-to-door selective waste collection or

incorporating waste treatment and environment protection into the curriculum, would all contribute to a more sustainable system.

Ms Graczka revealed that the main focus of these previous and foreseeable projects was recycling, although, in her opinion, prevention should be the priority. Recycling does only tackle the symptoms, not the causes, requires energy and generates side streams. Waste prevention is mishandled not only in Hungary but also in other countries. However, the long-term goal is to prevent both, post-consumer and production waste.

Unfortunately, concrete campaigns or plans of the Hungarian government were not given out by Ms Ifka, or any other interviewee.

Labelling and marking

Regarding labelling and marking standards, Ms Ifka described the process, taking place at the end of 2020 in the European Union. The Union entrusted an outsider company to survey the impact of numerous labelling drafts across consumers and market players, during the examination the colour, message, size, placement and various other factors were evaluated. After summarizing the results and presenting it to the Member States, delegates had the opportunity to review and vote for the different labels through trial series, deciding on the most effective label to be applied on the European market from 3rd July 2021.

As Ms Ifka predicted in October, new marking specifications for the single-use plastic products was announced by the European Commission on 22nd of December 2020, in the Implementing Regulation (EU) 2020/2151. The Regulation rules the used signs, design of marking, position, size, additionally minimum resolution, colours, specific format, font and language. The label should be placed so that it is the most noticeable and readable, and remains so during usage, placement on the external front or top surface of product are the advised.

Ms Graczka declared that standardized labelling on the presence of plastics in a product, resulting environmental impacts of littering and the appropriate waste disposal options for the product would assist the transformation. At the same time, one should not forget that labels are not only introduced to fulfil directives but are often used as an effective marketing tool. Consumers are confused by the infinite amount and sort of product labels; reliability of these labels are questionable. Recent study of the United Nations Environment Programme and Consumer International (2020) (UNEP & Consumer International, 2020) showed, that “the

current landscape contributes to significant consumer confusion regarding the sustainability of plastic packaging. In such a scenario, it becomes difficult for consumers to make decisions consistent with transitioning to the circular economy.” Intentionally or unintentionally, businesses tend to use green labelling to gain market advantage. In her opinion, order to avoid consumer confusion, labelling standards should be strictly regulated. She also mentioned Környezetbarát Termék Nonprofit Kft., certifying products through “Magyar Cédrus”, as an example. Earning the certification meant, that products are fulfilling requirements. However, the label only certifies, that the product or service has significantly lower adverse environmental impact than similar products and services. It did not ensure that the product can be considered truly environmentally friendly, therefore it might be misleading for consumers. Even if labels applied as a marketing tools will not be banned from the market, we should establish some reference points for consumers, being associated with truly eco-friendly products, she added.

In Mr Rupps opinion, end-users aiming to treat waste appropriately would be grand, however, Mr Rupp has doubts regarding the number of consumers affected by those labels.

Reflecting on these possibly occurring problems Ms Ifka expressed the intention of the ITM, to inform the consumers and producers about the labelling standard, the meaning and importance of them concerning environment protection and waste management, for example through numerous press conferences, parallelly with the European Union. Furthermore, she believes that the new labels are conspicuous, recognizable, straightforward so consumers can easily conclude the necessary information about potential environmental harm and adequate waste treatment. She highlighted, that the main focus will be rather on appropriate waste treatment, than on reduction in the consumption. Therefore, she believes in the effective implementation and remarkable impact.

Findings of the Interviews

In the following section I would like to summarize the findings of my qualitative research consisting of four interviews with industrial stakeholders of the waste management system of Hungary. Interviewees expressed their experiences, opinions and assumptions concerning the current Hungarian instruments and incentives concerning waste management, the potential and intention of the Hungarian government to implement the regulations of the

European Union's Single Use Plastic Directive, the future drivers of the fight against plastic pollution and the attitude of the Hungarian population towards environment protection.

An important factor to gain deeper insight the capability of a country to lessen its single-use plastic waste, is the examination of the waste intensity of its economy. The waste intensity of Hungary was connected to the trends of the European Union's Member States, therefore an expedite transition would not be expected by Mr Rupp. Mr Rupp and the industry expert both highlighted the importance of eco-design and product innovations to decrease the waste intensity of industries. Therefore, in their opinion the emphasis should be on regulating production standards. However, in the opinion of the industry expert, the attitude towards circular economy and sustainability is not adequate in Hungary, to implement necessary innovations.

This deficiency is also affecting the attitude towards the conditions of the Single Use Plastic Directive. According to Ms Graczka the transition of the Hungarian economy will rely on the binding regulations of the European Union, more ambitious measures should not be expected. However, she believes, that even the action plans of the EU do not show exacting commitment, the target years are far away, but the transitions could take place in a shorter period also. Contrarily, Ms Ifka expressed the query concerning the capability of industrial players to execute the required innovations, she believes, that the target years are reasonable. She also revealed that the COVID-19 pandemic already caused major hardships and delays for the Member States and the EU, therefore those target years might even be modified later on.

Continuing with the conditions of the SUP Directive, although the Hungarian Parliament adopted the law banning the single-use plastics, the lobbying power of the Hungarian plastic production industry has a determinant influence, hindering the greening of the Hungarian economy. The final adopting the law is a great success, however a systematic change would be necessary take serious steps towards sustainability.

The impact of standardisation of tethered caps was controversial amongst interviewees. On one hand, the innovation could lessen the number of plastic caps entering the environment and might increase recyclability. On the other hand, the requirements might cause the introduction of stronger, heavier, and therefore more pollution plastic bottles.

The selective collection and recycling targets might be unattainable because of huge problems of the waste management system could lead Hungary to not achieve those goals. The nationalizations of waste management, the introduction of NHKV Plc. into the system and

financial shortages of the waste collection service caused by the Hungarian overhead reduction are all hindering the successful implementation. Introducing the door-to-door selective collection will be an important challenge for the following years. Additionally, the implementation of financial measures to force residents and companies to collect their waste separately is would be a requisite.

As the conversations revealed the single method to reach the recycling target of the SUP Directive, is the establishment of the deposit return scheme. Although, several questions and assumptions emerged during the interview, the most probable effectuation will bring a system forth, in the frame of which larger collecting facilities will be installed nearby hypermarkets and recycling will be the aim of the collection. Although the potential environmental harm is disputed, the aim is not in line with the waste hierarchy and is highly criticized by environment protection organizations, they demand prioritisation of reusing the bottles.

Heavy alteration of the Extended Producer Responsivity scheme, therefore the environmental product charge was not revealed during the conversations. Most of the interviewees expressed the malfunction of the system. On one hand, the amount of the fee is not conspicuous enough to influence costumer behaviour. On the other hand, the financial deficit of the waste management sector is not managed properly, that should be part of the reinvestment of the income from environmental taxes.

Although, there were some moot points concerning the target groups, the implementation of awareness raising measures turned out to seem highly important. Most of the participants believe, that real change can be reached amongst children, therefore they would focus on implementing environmental protection into the curriculum of Hungarian schools. While Ms Ifka highlighted the media campaigns of the government, Mr Graczka would focus on more personal approaches of the population. Mr Rupp and the industrial stakeholder believes that more impact could be caused by negative or positive financial motivation of the residents.

The role of labelling was also controversial. The main message concerning labelling requirements was that consumers are highly confused by the different labels do not trust those messages on labels or they do not pay attention on them. The reason behind this phenomenon might be the promotion of sustainability used as market tools by companies. Hopefully, the current labelling requirements will enforce the adequate information of consumers.

Conclusion

In my research, I aimed to develop a deeper insight about the impact of the regulations of the European Union on the Hungarian economy and waste management. I especially focused on determining “How the Hungarian government would implement the European Union’s Single Use Plastic Directive, that is entering into force in 2021 and regulates the plastic waste management of Member States?”. To identify the potential impacts on the Hungarian market, I chose to carry out a qualitative research through interviewing different stakeholders of the Hungarian waste management system.

The discussions during the interview revealed, that Hungary is expected to follow the European Union's binding requirements, also the Hungarian government is not expected to go beyond the bare minimum and implement more ambitious measures. The introduction of instruments required in the Single Use Plastic Directive are most likely to enter into force with a delay. This kind of lag in the compliance is characteristic in the Eastern-European region, however numerous negative factors hinder the green transition of Hungary. The COVID-19 pandemic is the most favoured excuse of the Hungarian government, but as the interviews revealed, lobby of the industrial stakeholders, financial shortages, the lack of a standardised well-functioning waste management system, and the absence of strict, collected environment protection action plan or strategy are affecting the introduction of those measures.

In the following months several arrangements and negotiations will take place, all connected to the obligations of the Single Use Plastic Directive. The announcement 5th National Environmental Programme is expected to take place in the following weeks, the law, banning single use plastics products from the Hungarian market will enter into force on 1st of June 2021, the introduction of deposit return scheme remains for the coming period, and the adopted innovations in the waste management sector will be all highly important factors, influencing the transition of Hungary towards a more sustainable economy.

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