



Sustainability and sustainable development

Magdalena Stefańska
Editor



eISBN 978-83-8211-074-6

<https://doi.org/10.18559/978-83-8211-074-6>



© Copyright by Poznań University of Economics and Business
Poznań 2021



This textbook is available under the Creative Commons 4.0 license – Attribution-Noncommercial-No Derivative Works

5.

CIRCULAR ECONOMY IN THE WASTE MANAGEMENT SECTOR



Gabriel Grabowski

Contenur Polska Sp. z o.o.

Abstract: The growing population and rising standards of living lead to an increase of the consumption of many goods. Reducing municipal waste which is created in that process can result in a wide range of environmental, economic, and social benefits, such as reducing pollution in water and soil, greenhouse gas emissions and loss of valuable materials. The concept to solve this problem of municipal waste due to increased consumption can be found, among others, in circular economy (CE). Circular economy can be defined as “an economic system that is based on business models which replace the ‘end-of-life’ concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes to accomplish sustainable development” (Kirchherr, Reike, & Hekkert, 2017). A current trend in developed countries is closing the loop, moving from the concept of “end-of-pipe” waste management towards more holistic resource management (Wilson, 2007). Implementing the circular economy approach through waste management systems can pose multiple challenges while providing incentives to improve waste management infrastructure. However, this requires investments and may be perceived by many people as cost, not investment in future generations and their standard of living.

The aim of this chapter is to initiate discussion on the positive aspects and barriers of circular economy development in the Polish waste management sector.

In the case study described in the text, the roles of citizens, public institutions as well as enterprises are shown in selective waste collection processes as an important element of circular economy.

In Poland, awareness of waste segregation and the importance of using recycled materials is not well-developed compared to many other EU countries, although this situation is beginning to gradually improve.

Keywords: circular economy, Corporate Social Responsibility, recycled materials, selective waste collection, waste segregation.

5.1. Problem of communal waste segregation

Waste management contains a multi-level system, embracing central governments for setting strategies, creating national plans, then, regional and in most cases, local authorities for designing and implementing policies and organising tools for waste collection, treatment and disposal. Factors that influence waste management in the country belong to different macro-environmental categories such as: political (political will, government taxes and subsidies), data collection and monitoring, economic (business model, cost-benefit analysis, availability of financing, collaboration and transparency along the value chain), environmental (sustainability policy, human health impact), social (community perception), technological progress (innovation, infrastructure), and educational (research centres, cooperative projects) (Malinauskaite et al., 2017). As Ribić, Voća and Ilakovac (2017) noticed, appropriate solutions for the complex waste management problems should be analysed from a systemic perspective, taking all of the above factors that are present in a local area into account.

Segregation of communal waste has been a popular issue in Poland for many years, frequently used as an argument in political debate. Some would complain of local or state authorities not being able to solve problems of odours coming from waste processing installations to people's housings. Others would notice tons of waste on the streets of many cities as a result of badly coordinated collection. Nevertheless, the most common topic of discussion on waste has always been money. One of the main challenges in introducing circular economy ideas are the costs generated by the process. On one hand, everyone would agree that it is absolutely crucial for future generations to intensify efforts in environmental protection, of which waste segregation is a part. On the other hand, politicians have made people believe that waste collection prices depend on only the decision of clerks. They frequently attack their opponents for increasing charges, trying not to notice all the costs behind the decisions, such as labour, energy, fuel, investments in technology, etc. As a result, citizens expect waste management to be cheaper and furthermore, they believe that selective collection reduces costs. That is a totally wrong assumption, as waste segregation has always required investments and the cost will keep on growing. Unfortunately, there is not much that politicians or local authorities can do to minimise the increase, except for not changing regulations too often and listening to experts before making decisions on new legal acts or requirements. Our society needs to accept the costs and treat them as investments in the future of our children. Not only citizens have to get involved in waste segregation, or politicians need to provide reasonable management of the process, but also, enterprises have to play an important role in introducing ideas of circular economy as a significant element of their Corporate Social Responsibility policies.

5.2. Corporate Social Responsibility challenges and recycling

A good example of management based on the circular economy idea is the Conetur group, an international provider of container systems for the selective collection of communal waste that has 5 production centres, 2 in Getafe, Spain, 1 in Mielec, Poland, 1 in Knowsley, U.K., and the 5th centre in Mandirituba, Brazil. The enterprise develops its promotion and service-providing activities through its own commercial subsidiaries in 14 countries and through distributors in further 41 countries. The company's mission is to design, manufacture, commercialise and maintain urban waste containers, that improve quality of live, sustainability and the appearance of towns and cities. One of the group's basic principles is to reduce the negative environmental impact of its actions by applying strict prevention and waste management policies, responsible use of materials and by establishing standardised environmental management systems for all its activities. The risks detected where environmental impact is concerned are: CO₂ emissions, waste generation, waste disposal and consumption of raw materials. Fulfilment of the principle has been proved by a number of certificates: Quality Management System Certification ISO 9001:2015, Environmental Management System Certification ISO 14001:2015, Health & Safety Management System Certification OHSAS 18001:2007, Energy Management System Certification ISO 50001:2018, Chain-of-Custody (CoC) Certification based on FSC standard, Chain-of-Custody (CoC) Certification based on the PEFC standard, Carbon Footprint Registration with the Spanish Climate Change Agency, Operation Clean Sweep® (OCS) Certification, Ecodesign Management System Certificate ISO 14006:2011. One of the key points in the enterprise's product development policy is to design products that are more and more environmentally-friendly, from the moment they are manufactured until they are made available to the customer and reused at the end of their working "life" (all components of containers can be recycled), as well as to develop products that help their customers improve their recycling rate and quality of recycled materials.

The company works on increasing the usage of recycled, high-density polyethylene in its production, which is rather unitary from a technological point of view, but requires a diversified policy to promote recycling. Although the technology of regenerated polyethylene consumption in the manufacturing process introduced in the Polish production plant established in Mielec in 2012 follows many years of experience, in the Spanish factory, the way of promoting products made of recycled material has to be different, as awareness of recycling importance in Poland is not at the same stage as in most EU countries. In many places in Europe, the usage of recycled materials in the product manufacturing process is one of the conditions

for participation in public tenders. The Contenur group positively responds to this requirement and participates in the Circle project. This is the concept combining and defining strategy, positioning, way of acting, obligations and development in the group's environmental sustainability policy. It applies to all elements that concern recommendations made by the European Commission regarding specific subjects and activities revolving around environmental sustainability as well as recycling plastic. The enterprise is working to create strategic alliances that enable change by raising awareness in society and reducing waste generation while, at the same time, encouraging people to recycle. Simultaneously, in Poland the enterprise faces tenders organised by public institutions that exclude containers even partly made of regenerated polyethylene. The reasons for that are not quite clear but it is usually justified by the product's high-quality requirement. Of course, such a justification does not seem to be correct, as high-end products can be manufactured if proper quality-control of materials, components, the production process and final products is provided, while the composition of materials is a subject to designer's decision. It may sometimes even appear that a product made of recycled material is of better quality than that produced of virgin polyethylene, depending on how the material and component purchasing process and final product manufacturing are managed. The approach of some Polish public organisations is difficult to understand as, at the same time, they purchase tools used in the recycling process (waste segregation containers) and question the sense of using recycled materials. Such situations force the Polish branch of Contenur to officially apply for change in tender specifications. One of the arguments used in such cases is that the public institutions actually exclude socially responsible companies that have invested in modern production systems that allow usage of regenerated polyethylene. Another argument comes from Urząd Zamówień Publicznych [Eng. The Polish Public Procurement Organisation], an independent unit within the government that plays a policy-making and coordinating role in the whole public procurement system for Poland, encouraging public institutions to promote green public procurement, meant as purchasing goods and services generating less negative environmental impact in their whole "life-cycle" if they provide the same functionality as other goods or services. Although that is still a remarkable challenge for the development of circular economy in Poland—it must be mentioned that the rate of public organisations that positively respond to the requests mentioned above, and in following tenders, never forbid regenerated polyethylene increases.

5.3. Education and convenient selective waste collection

Apart from providing products with “life-cycle” based on circular economy rules and offering expert advice on solutions optimal for citizens and the environment, Contenur believes that it is absolutely crucial to **motivate** people to actively participate in the selective waste collection process. Although penalty systems suggested by some authorities might be one of the options, the enterprise focuses on positive motivation, mainly by making waste segregation more **convenient** and by **educating** people on the importance of circular economy.

Easy access is provided when waste containers are equipped with openings dedicated to different fractions (glass, plastic and metal packaging or paper), or with foot pedals. Such solutions make users more willing to dispose of waste into bins dedicated to it rather than to just throw it into the nearest open unit, no matter its colour. Contenur has been promoting such equipment for many years by advertising and face-to-face presentations. The meaning of the possibility to keep one’s clean hands while disposing waste into containers has further increased at the time of the COVID-19 pandemic. Citizens have become more aware of how important it is to use hygienic solutions, although here, the huge role of municipalities must be stressed.



Figure 1. Waste segregation containers with glass and paper openings and with foot pedals

Source: (Contenur, 2020).

A waste collector that has to be competitive to win a public tender will never increase costs of operations by purchasing additionally equipped products at its own will. It should be the municipality that expresses expectations towards functional equipment of waste containers. However, it is important to mention that when doing

so municipal clerks frequently make mistakes. One of them is avoiding discussion with solution providers on what options are possible. In such cases, equipment that is not available on the market frequently appears in tender specifications, which results in either lack of the possibility to obtain it, or generates enormous costs to develop special solution for 1 municipality. Another mistake is to consult the specifications with only 1 producer, which may sometimes result in remarkable limitations of the offer number, usually leading to pricing increases. The proper way to conduct the process of creating tender specification is to consult functional expectations with a number of providers and follow the advice that comes up in the majority of discussions.

Education on how to segregate waste, as an important element of circular economy, should be provided at a very early stage. Therefore, Contenur has joined the “Recycling+Education” (Rec-Edu) project initiated by Replas Recycling Plastics in Poland in 2019, in which a number of enterprises, foundations as well as municipalities take part. One of the aims is to support children and youth education about environmental protection as well as recycling. Contenur has manufactured, using regenerated polyethylene, sets of communal waste bins dedicated to the project that are being conveyed to selected educational institutions (project participants) in order to be used for education about waste segregation. Due to some delays caused by pandemic threat, the initiative is still at a rather early stage in 2021, with 10 schools in southern Poland provided with waste segregation bins, but with plans to get more educational institutions involved. Furthermore, the set of waste segregation bins dedicated to the project qualified for the 2nd stage of the 2020 “Product in Circulation” competition, initiated by the Polish Ministry of Climate and Environment, and organised by the Poznań International Fair (MTP Group).



Figure 2. Set of communal waste bins dedicated to the Rec-Edu project

Source: (Contenur, 2020).

Questions / tasks

1. Why is waste management a popular issue in political debate?
2. What should politicians and local authorities do to compromise between people's current needs and protection of the environment for future generations as far as waste is considered?
3. Why are the "green regulations" related to products made of recycled materials sometimes ignored in tender specifications?
4. What kind of innovative solutions could container manufacturers implement in communication to motivate people to segregate waste properly?
5. Identify the mission and vision of the Contenur Group. What are the producer's core values? Go to its website (both the corporate and Polish one) and answer the question: How does the company implement SDGs in:
 - a) production;
 - b) logistics;
 - c) R&D;
 - d) marketing and sales;
 - e) HR;
 - f) corporate governance
6. How would you convince B2B decision-makers to choose products made of recycled materials, and what doubts would you have to argue with
7. What actions could be taken by municipalities to motivate citizens to segregate waste properly? Is negative (penalties) or positive (education, functional solutions) motivation more efficient? How could authorities verify which solutions are efficient?

References

- Contenur. (2019). *Annual CSR report 2019*. Retrieved October 10, 2020 from https://docs.google.com/viewer?url=https://s3.eu-west-3.amazonaws.com/contenur.com/wp-content/uploads/2020/05/Memoria_2020_V2_EN.pdf
- Contenur. (2020). *Sustainability*. Retrieved from <https://www.contenur.com/en/sustainability/>
- Contenur&Circle. (2020). *Committed to the future*. Retrieved from https://docs.google.com/viewer?url=https%3A%2F%2Fs3.eu-west-3.amazonaws.com%2Fcontenur.com%2Fwp-content%2Fuploads%2F2019%2F10%2FCircle_Committed_to_the_future_Digital.pdf
- Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation & Recycling*, 127, 221-232.
- Malinauskaitė, J., Jouhara, H., Czajczynska, D., Stanchev, P., Katsou E., Rostkowski, P., ... Spencer, N. (2017). Municipal solid waste management and waste-to-energy in the context of a circular economy and energy recycling in Europe. *Energy*, 141, 2013-2044.
- „REC-EDU”, czyli pomysł na czystsza planetę. (2020, November 15). *Życie Podkarpackie*. Retrieved from <https://www.zycie.pl/informacje/artykul/29015,rec-edu-czyli-pomysl-na-czystsza-planete>

- RePlas. (2019). *Projekt „Recykling + Edukacja”*. Retrieved December 13, 2020 from <http://replas.eu/?p=1206>
- Ribić, B., Voća, N., & Ilakovac, B. (2017). Concept of sustainable waste management in the city of Zagreb: Towards the implementation of circular economy approach. *Journal of the Air & Waste Management Association*, 67(2), 241-259.
- Urząd Zamówień Publicznych. (2020). *Zielone zamówienia*. Retrieved October 10, 2020 from <https://www.uzp.gov.pl/baza-wiedzy/zrownowazone-zamowienia-publiczne/zielone-zamowienia>
- Wilson, D. C. (2007). Development drivers for waste management. *Waste Management & Research*, 25(3), 198-207. <https://doi.org/10.1177/0734242X07079149>