



Sustainability and sustainable development

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WHY DO CONSUMERS FAIL TO FOLLOW WASTE SEGREGATION RULES? WHAT WOULD MOTIVATE THEM TO OBEY THE REGULATIONS?



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Abstract: Most of empirical literature on participation in and choice of recycling at the household level has been focused on factors determining the direct cost for households engaging in recycling efforts (Czajkowski, Kądziała, & Hanley 2012; Huhtala, 2010, Jenkins, Martinez, Palmer, & Podolsky, 2003). Researchers noticed mixed findings in the literature on the significance of waste collection fees for recycling efforts. There is also a question as whether household recycling efforts represent a social cost, which should be taken into account in cost-benefit analyses of alternative waste treatment systems. Some argue that it should not be calculated, since recycling efforts are, to a large extent, voluntary. But on the other hand, households devote time to segregation, which is, in fact, an alternative cost (Bruvoll & Nyborg, 2002).

One of the barriers of effective segregation seems to be a low level of awareness on recycling and segregation issues among households. That was also noticed in research conducted by Omran, Mahmood, Abdul Aziz and Robinson (2009). The aim of this case study is to recognise why citizens' knowledge on waste segregation rules is not sufficient enough. Despite research results confirming rather limited consumer skills related to the subject, efficient methods to make people increase their awareness of what correct selective waste collection is, seem to remain still undiscovered. The students' task is both to identify why mistakes in waste segregation are made, as well as to propose ways of helping citizens avoid them.

Keywords: households behaviour, selective waste collection, waste segregation rules.

4.1. Description of the issue

Poland is obliged to achieve a defined reduction level in biodegradable municipal waste volume sent to landfills (by 16th Jul. 2020, it was supposed to be no more than 35%), as well as levels of recycling, preparation for re-use and recovery of paper, metals, plastics and glass by other methods (by 31st Dec. 2020—50%), and non-hazardous construction waste (by 31st Dec. 2020—70%) (Ministerstwo Klimatu i Środowiska, 2021).

The main goals of the Municipal Cleanliness Maintenance Act (Ustawa z dnia 13 września 1996 r.) are, above all, promoting waste segregation among citizens and reducing the volume of municipal waste deposited in landfills by providing installations dedicated to their recovery or neutralisation.

Furthermore, standards of waste container and plastic bag marking (colour of bins or bags, as well as type of fraction description) have been defined in the regulation provided by the Minister of Environment on detailed methods of different waste fraction selective collection (Rozporządzenie Ministra Środowiska z dnia 29 grudnia 2016 r.). The legal act standardises visual aspects related to basic tools for selective waste collection.

Although various legal acts regulating the issue of waste segregation have been introduced, according to research conducted by “ARC Rynek i Opinia” [Eng. ARC Market and Opinions] and “Forum Odpowiedzialnego Biznesu” [Eng. Forum for Responsible Business], only 66% of Polish citizens declare active participation in selective waste collection, which may be a consequence of their low levels of knowledge on the issue. Moreover, as mentioned above, it has been proved in research that only 15% of respondents could really properly segregate sample types of waste, and as such, rate of them correctly in response to all questions related to selective collection (into which bin one should dispose of dirty tissues, juice cartons or greasy paper from butter). Another of the discussed subjects was whether it was necessary to wash metal or plastic packaging before disposal. A high rate (75%) of respondents was not aware that such waste should not be rinsed (*Co trzeci Polak nie segreguje śmieci*, 2019).

General instructions defining what should be considered as a particular type of waste (paper, glass, bio waste, metal and plastic packaging, residual/mixed waste) are the same not only in Poland, but also in many EU countries. However, they might vary in details depending on region or sometimes, even because of some specific requirements defined by a particular municipality. Therefore, it is always essential to follow instructions described by local authorities or operators providing waste collection service in a given area. Example regulations can be found on the following websites:

- Warsaw Municipality (New waste segregation rules, 2019);
- Gdańsk Municipality (I sort waste. Polish National System for Sorting Waste, 2020);

- Nicolaus Copernicus University in Toruń (New waste segregation rules in Poland, 2020).

Although the rate of those who try to segregate waste is 66%, the total percentage of people considering it as worth doing and meaningful is smaller than that (58% of respondents). Therefore, environmental education is a crucial element in increasing people's knowledge and awareness of recycling process importance. Nevertheless, it must be stressed that, although an increase in awareness will improve the way people understand the problem, it will still require further efforts to make them change the way they really carry out selective waste collection.

4.2. Segregation versus waste collection costs

Inhabitants of an estate in a big city were informed that their waste collection fees would increase. As most of them had declared the will to segregate waste, which was supposed to guarantee low charges, the information surprised people and generated remarkable frustration. They were explained that while collecting waste, many fallacies in segregation were discovered, which further resulted in processing cost increases, and as a consequence, affected prices for inhabitants. The conclusion from the people's responses was that they believed they always properly disposed of all fractions (e.g. food packaging) into containers dedicated to particular types of waste. When such an explanation was passed onto the operator providing waste collection services, specialists in the enterprise started analysing different options of how to make waste segregation more comprehensible and convenient. They wanted to identify all reasons and sources of fallacies, and to introduce an action plan in order to help inhabitants follow selective waste collection rules. Although financial consequences are theoretically a good motivator, in the case of blocks of flats where many people share responsibility for following or not following certain rules, such negative motivation might not be efficient in the long-term. Therefore, education and functionality improvement seemed to be worth consideration. It was assumed that the inhabitants took efforts to pre-segregate waste in their flats and that only they had access to their waste containers. The specialists tried to identify what caused mistakes in segregation as well as if the waste was disposed while leaving home to go somewhere or if people would purposely go out to get rid of trash.

At first, the idea was to make sure that all waste segregation containers were equipped with instructions stating how they should be used. The expectation was that in time, users would perfectly recognise which colour of container should be used to dispose of each waste fraction. Then, another option was considered. Someone made the suggestion to create a new role in the organisation—in-field specialists that would make random visits to different locations at the estate to

verify types of materials disposed into waste bins. In case of any fallacy, they would leave a note explaining the importance of recycling and waste segregation, giving reasons as to why failures in the process would increase costs of the service. There was a discussion as to whether the message should be rather educational or more alike a threat, but finally, most of the brainstorming participants agreed that positive information would most probably be followed by a positive response. Another option also considered by the specialists was to refuse to collect waste in case of fallacies discovered by waste truck crews, followed by written warnings that penalties for such behaviour may be charged in the future. Someone also suggested that an action similar to that related to the negative results of smoking cigarettes could also be considered. The idea was to show the negative influence of waste management mistakes on the environment, such as birds suffocated by plastic bags or large amounts of garbage affecting landscapes of some areas. The last suggestion was not accepted by the meeting participants, although, it seemed to be interesting.

Apart from educational aspects, functionality issues were also discussed. Someone explained that frequent cases noticed in waste container sheds were that the majority units were half empty and had closed lids, while a few ones had open lids and different types of waste protruding over their upper edge by up to 1 metre. The reason was that inhabitants throwing the garbage out on their way to visit a shop, friends, etc., would choose the nearest open bin rather than the one dedicated to a particular waste type. As the people's need to keep their hands clean is important also due to hygienic reasons, it was decided to consider equipping containers with hygienic solutions such as openings dedicated to the disposal of particular waste types into containers without the need to open them, or with foot pedals allowing to open lids without touching containers using one's hands. However, as applying such equipment to existing units would be technically challenging and rather costly, it was decided to consider such options in newly produced products to be ordered in the future.

Questions / tasks

1. Prepare a market research draft that would let you identify reasons/sources of fallacies in waste segregation.
2. What would you do to evaluate the efficiency of different motivation systems for inhabitants to encourage them to carry out proper waste segregation?
3. Those that are against technical solutions making waste segregation more convenient say that the accessories generate additional costs and metal foot pedals generate a risk of getting stolen by scrap collectors.
4. What arguments would you use against such doubts?
5. What would you do to reduce the cost of such equipment?

6. The stakeholders in waste management processes are citizens, enterprises, municipalities and state authorities. They all declare their dedication to environmental protection and circular economy rules. What actions related to the issues are taken by each of the stakeholders properly, and what fields for improvement would you identify?
7. There are people that do not like to describe waste as “waste”—they call them “raw materials”. Others focus on the limitations of recycling development due to its high cost. Which of those groups do you represent and how would you try to convince members of the other group to your arguments?

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