

Social Responsibility and Ecological Behaviors towards Selective Waste Collection

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The selective collection of plastic, paper, glass and metal waste represents a desirable behavior in any civilized community with environmental concerns. The collection and recovery of recyclable materials is also a concern for the city of Arad, the purpose of this study being that of identifying the strengths and weaknesses of selective waste collection at the level of this urban community. Starting from the premise that responsible behavior in terms of waste and its collection is an important factor in the ecological development of a community, the present article aims to explore the local realities in this regard, to diagnose the state of things, as it is at present, in the city of Arad. We have highlighted and recorded the population's existing mentalities and perceptions, the citizens' expectations from the local authorities, in order to provide optimal intervention opportunities to increase control for a better management of selective collection.

Keywords: recyclable materials, plastic, paper, glass, metal, selective collection

The European Community Acquis implies that Romania assumes certain conditions in terms of waste management. Although a series of analyzes and reports carried out on this issue 5-6 years ago pointed out the existence of a cleavage between intra-community expectations and Romanian reality [1], this was already reduced towards the end of 2013, according to IMAS [2]. At that time, 64% of the Romanians declared that, in their locality, there exists the possibility to deposit plastic, paper, glass and metal waste separately - compared to 50% - a similar percentage in 2011.

In 2014, the urban environment in Romania generated about 65% of the collected waste, recyclable waste accounting for over 40% in urban areas and about half of it is represented by packaging [3]. Major progress in waste management is needed so that Romania does not risk sanctions from EU's community authorities.

Although this cleavage is not a major one and tends to decrease even more in recent years, it is necessary to know the weaknesses, not only at national level, but also at the level of local communities, as far as the application of European legislation on waste management is concerned.

Regardless of the fact that Romanian legislation had contained provisions referring to separate collection for recycling since 2011, Law 211/2011 [4] was amended by an Emergency Government Ordinance. This introduced the obligation for local authorities to collect household waste separately, starting from January 1, 2016.

In our country, there are still changes regarding the legislation governing waste management. Furthermore, there are also differences in mentality, infrastructure development and local management [5, 6].

Experimental part

Methodology and objectives

An opinion survey was conducted on the separate collection of household waste, as a type of social survey based on questionnaire. Data was collected in April (May) 2017 in all neighborhoods of the city of Arad, Arad County. The working tool, the questionnaire, contained 19 questions and was applied face to face by field operators

to 410 people, which ensure representativeness for Arad's population aged over 18 with a tolerable error of $\pm 5\%$, considering a 95% confidence level and a maximum dispersion.

The objectives of the study were as follows:

- determining the degree of information of Arad's population regarding the selective collection of waste;
- identifying the ways of collecting waste selectively;
- determining the strengths and weaknesses existing in the waste collection process;
- evaluating selective waste collection behavior;
- establishing solutions to improve selective waste collection behavior.

Results and discussions

A first aspect focused on by the study was to determine the population's degree of information regarding the selective collection of waste. As a general perception, it seems this concept is no longer a novelty for the people in Arad, 83.9% declaring they know what selective waste collection means. Most respondents could also provide an answer as to what this behavior implies. For most of the people living in Arad, selective waste collection means first of all *waste separation* (47.6%), then *depositing it in special containers/ specially designated places* (30.6%), followed by *recycling/ separation of recyclable waste* (16.2%).

Most respondents (61.6%) consider selective waste collection very important, followed in descending order by those who consider it important (32.8%) and little important (4.8%).

As a general perception, the highest share of respondents considers that in the past 2 years, (fig. 1), the interest in selective waste collection has not increased among local authorities (44.6%). There is, however, the category of those who consider that the interest of the local authorities has increased in the last 2 years, representing 38.2% of the sample size. The selective collection of waste involves depositing waste in specially designed places for recycling, the population having the obligation to separate it. Most of the waste collection points, according to the interviewees, are those for paper/ cardboard (85.9%) and plastic (85.5%),

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Do you think that the interest in selective waste collection has increased among local authorities over the past two years?

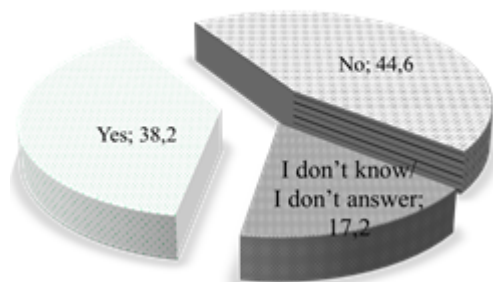


Fig. 1 Increase of local authorities' degree of interest in selective waste collection

at the opposite pole being those for metal (30.1%) and glass (23%). According to the results, for 27.2% of the population of Arad, the collection points are situated very close to their homes, or in the area; slightly further away from their homes, at a few blocks/ houses away (27.5%); or pretty far from home, a few kilometers away (9.6%). For 15.7% of the people from Arad, waste is collected in separate bags for recyclable waste. In the absence of containers, most of them collect the waste in special bags or deposit it in collection centers.

Despite the fact that 60% of Arad's inhabitants declare themselves to be very satisfied and satisfied with the separate waste collection system in their locality, there are also complaints expressed in particular about the low number of collection points/ low number of containers (27.5% of complaints regard this aspect). Another 24.3% of those questioned are bothered by the indifference of people, of those who do not respect this principle of separate collection and mix household waste. Other complaints refer to the fact that precisely the collection points are not always clean (10.5%), or that even if the collection is differentiated, those who collect the waste mix it afterwards (8.3%). Another complaint expressed, but by a lower percentage of inhabitants, regards the fact that waste is mixed by street people (6.4%). A percentage of 12.4% of the respondents did not have a particular complaint when asked to express their opinion on the weaknesses of the collection system. The percentage of those who are very satisfied and satisfied in general with the waste collection system in Arad - about 60% - is similar to the percentage of respondents who answer in the affirmative when asked if, in their own household, waste is pre-selected before being thrown away. In 32.5% of the households surveyed, the behavior of separating waste from the early beginning (pre-selection) does not exist.

One of the questions included in the questionnaire concerned the perception of the effort to collect packaging waste separately. The majoritarian opinion (68.5%) considers that this effort is very small or rather small, while 19.4% of Arad's citizens think it is an appropriate effort, and 12.1% appreciate the collection effort as being big or very big. We refer here to the category of those who certainly fail to comply with this principle of waste collection by category. Almost half of them motivate with the lack of collection points in areas close to their homes. About a quarter say they have no space where to deposit recyclable waste in their households. There is also the category of those who (even if only 15%) admit that the main reason for not collecting selectively is indolence.

Regarding the moment when this selective waste collection behavior started, only about 11% of Arad's inhabitants have complied with this principle for more than

What actions do you think the public authorities should take to improve selective collection of household waste?

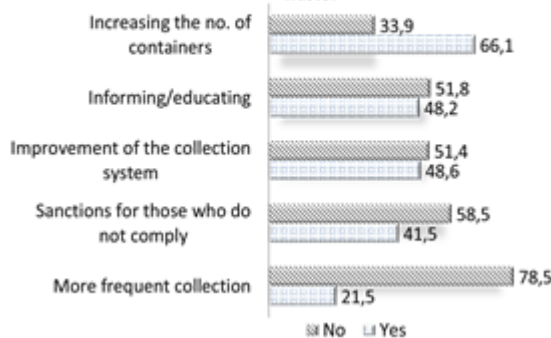


Fig. 2. Actions that public authorities should take

3 years. 17.5% of the population has collected waste separately for 2-3 years. Most of this civic effort is of a recent nature: 38.5% has collected separately for 1-2 years and another 32.3% for a shorter time (less than 1 year).

The presence of containers was the trigger for selective waste collection behavior for 44.2% of the inhabitants of Arad. Another 14.2% were receptive to information campaigns in the press. 11.6% of the population surveyed relied on information received from people around, while a relatively similar percentage to the latter - 11% - simply followed others' behavior.

With regard to information campaigns, 36.7% of the people from Arad said they know these were carried out even in schools, where their children were informed of the importance of selective waste collection. 18% of those questioned do not know whether there were information campaigns in schools, while 7.6% strongly sustain that, in the schools where their children go, there were no school programmes related to the importance of recycling waste.

If we refer to public authorities and to what actions they should take in order to improve the selective collection of household waste (fig. 2), 66.1% of Arad's inhabitants consider the main measure would be to increase the number of containers in the immediate vicinity of their homes.

Improving the collection system may be a solution for almost half of Arad's inhabitants. Similarly, almost half of those surveyed believe that better information would increase the number of those who collect waste by category. The application of sanctions to those who do not respect this principle can also represent an impetus at all negligible in the opinion of 41.5% of Arad's population.

Conclusions

The interpretation of the collected data has led to some conclusions regarding the collection behavior of household waste and to some suggestions referring to the improvement of the investigated eco-system.

In spite of the fact that Arad is one of the cities where the separate waste collection system had been implemented a few years before the obligation was first imposed upon Romania by legislation and the monthly fee for sanitation services per capita is among the lowest at national level, we have identified several ways to improve the existent situation in this city.

First of all, it is imperative to increase the number of campaigns that promote the need for selective waste collection behavior, considering economic and environmental consequences. Secondly, there is a need of an active policy belonging to the factors interested in the management of this issue, based on interventions for the quantitative and qualitative development of the existing

logistics and infrastructure in the city of Arad (increase the number of containers, distribute them optimally in space, improve the collection system, raise citizens' awareness, considering positive and negative motivations).

Even if the collection system works at a micro-community level, there are situations when dysfunctions may occur. For example, even in the case where there is a sufficient number of containers in the vicinity of their homes and citizens are making efforts to collect waste separately, this is afterwards mixed, fact which demotivates a future behavior of selective collection.

References

1. *** Reciclarea deșeurilor, o piață emergentă, Raport privind piața muncii în domeniul gestiunii deșeurilor din România, București, 2011
2. *** Eco-Rom Ambalaje, Ce cred românii despre separarea și reciclarea deșeurilor de ambalaje? Percepții, atitudini și participarea la colectarea separată și reciclarea deșeurilor de ambalaje generate în gospodărie, 2013

3. *** Institutul pentru Politici Publice București, Analiză națională a stadiului colectării separate și a valorificării deșeurilor în marile aglomerări urbane. Soluții eficiente de politici publice pentru evitarea sancționării României, București, 2015

4. *** LEGE Nr. 211 din 15 noiembrie 2011 privind regimul deșeurilor

5. MUNTEAN O.L., MARINCAS, A., DOBREAN A., Percepția cetățenilor privind problemele de mediu globale, naționale și locale (Studiu de caz: Municipiul Cluj-Napoca), Ecoterra, 2012,

6. POP, I. N., BACIU, C., BICAN-BRISAN, N., MUNTEAN, O. L., COSTIN, D., ROGOZAN, G. C. Evaluating Attitudes and Behavior Towards Selective Collection of Waste in Cluj-Napoca City, Romania, Studia Universitatis Babeș-Bolyai, Ambientum, LX, 1-2, 2015

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