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ORIGINAL PAPER

# ASSESSMENT OF INFORMATION TRANSMISSION IN THE PROCESS OF IMPLEMENTING THE DEPOSIT-REFUND SYSTEM AS A TOOL FOR SUSTAINABLE DEVELOPMENT

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K e y w o r d s: Deposit-Refund System, Reverse Vending Machines, informative communication, consumer behavior, purchasing decisions.

A b s t r a c t

The main objective of the article was the assessment of the reliability, comprehensibility, and effectiveness of information provision during the implementation of the Deposit-Refund System (DRS), and its influence on usage of Reverse Vending Machines (RVMs), with special consideration of assessment of DRS functioning. The study was conducted using an online survey questionnaire distributed through social media using random sampling techniques, which allowed for nationwide coverage. 111 people participated in the study. Quantitative and qualitative analysis methods were used to analyze the results. The analysis examined the extent to which these messages support consumers in making economic and environmental decisions and how they affect the effectiveness of sustainable development goals. The considerations allowed for the identification of key information factors determining the efficient functioning of the Deposit-Refund System and its importance in shaping pro-environmental attitudes and reducing waste. The study results clearly indicated that the information provision was ineffective for the study group, and the low rating of information quality translates into low use of the DRS. Another reason respondents stated for not using RVMs was the underdeveloped infrastructure. The combination of negative aspects of the system's operation, coupled with the need for respondents to change their daily routines and develop new habits, contributed to the low rating of the DRS functioning.

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**OCENA PRZEKAZYWANIA INFORMACJI W PROCESIE WDRAŻANIA SYSTEMU KAUCYJNEGO JAKO NARZĘDZIA ZRÓWNOWAŻONEGO ROZWOJU**

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Słowa kluczowe: system kaucyjny, butelkomaty, komunikacja informacyjna, zachowania konsumentów, decyzje zakupowe.

Abstrakt

Głównym celem artykułu była ocena rzetelności, zrozumiałości oraz skuteczności informacji przekazywanych podczas wdrażania systemu kaucyjnego oraz ich wpływ na korzystanie z butelkomatów, z uwzględnieniem oceny funkcjonowania systemu kaucyjnego. Badanie zostało przeprowadzone przy pomocy kwestionariusza ankietowego rozpowszechnionego za pomocą Internetu przez media społecznościowe przy użyciu techniki doboru losowego, co umożliwiło ogólnopolski zasięg. W badaniu wzięło udział 111 osób. Przy opracowywaniu wyników wykorzystano metody analizy ilościowej oraz jakościowej. Analizie poddano, w jakim stopniu komunikaty wspierają konsumentów w podejmowaniu decyzji ekonomicznych i środowiskowych oraz jak wpływają na efektywność realizacji założeń zrównoważonego rozwoju. Przeprowadzone rozważania pozwoliły na identyfikację kluczowych uwarunkowań informacyjnych determinujących sprawne funkcjonowanie systemu kaucyjnego oraz jego znaczenie w kształtowaniu postaw proekologicznych i ograniczaniu ilości odpadów. Wyniki badań jednoznacznie wskazały, że dla grupy badanej przekaz informacji był nieefektywny, a niska ocena jakości informacji przekłada się na niewielkie korzystanie z systemu kaucyjnego. Kolejną przyczyną niekorzystania z butelkomatów była dla respondentów słabo rozwinięta infrastruktura. Zestawienie negatywnych aspektów działania systemu w połączeniu z koniecznością zmiany codziennego funkcjonowania respondentów i wyrobienia nowych nawyków, przyczyniło się do niskiej oceny funkcjonowania systemu kaucyjnego.

## Introduction

According to the Environmental Protection Law (2001, Article 3(39)), the environment is defined as "all natural elements, including those transformed as a result of human activity, in particular the earth's surface, minerals, water, air, landscape, climate, and other elements of biological diversity, as well as the interactions between these elements." Human impact on the natural environment causes the systematic degradation of our planet, which translates into the fact that ecology is the subject of many discussions in the economic, political, and social. Although the constitution mainly places the responsibility for environmental protection on the state, according to Article 86, every citizen is responsible for the deterioration of the natural environment and is obliged to take steps to protect the environment (Jaworowicz-Rudolf, 2014, p. 171). The environmental protection

referred to above is defined as "activities undertaken to preserve the natural character of the environment as far as possible, guaranteeing the continuity of the most important processes taking place in the biosphere and maintaining the environment in a state that ensures optimal conditions for human life." Protective measures may include the preventing and counteracting harmful processes that may lead to degradation, pollution, or damage to natural elements (Ekologia, 2026). Such activities include recycling, which involves processing substances and materials found in waste in order to obtain substances and materials with their original or other intended use (Wengierek, 2014, p. 478). With environmental protection in mind, a Deposit-Refund System and "Reverse Vending Machines," i.e., automatic packaging return points, have been introduced. This system is based on assigning a deposit value to bottles and cans, which is added to the purchase price and which the user recovers after returning the packaging to a designated location. As a result, packaging is returned to circulation or recycled, and the funds from deposits and producer fees circulate among the participants in the system (Rudewicz, 2020, pp. 51-52). The success of this solution depends directly on the involvement of consumers themselves. Therefore, this study aims to assess the reliability, comprehensibility, and effectiveness of information provision during the implementation of the DRS and its impact on the use of RVMs, including an assessment of the operation of the DRS. To effectively and comprehensively achieve the intended research objective, the following research questions were posed:

1. Was the information provided effectively?
2. How does the information provision influence the use of the Deposit-Refund System?
3. How do citizens evaluate the functioning of the Deposit-Refund System?

## Literature review

The Deposit-Refund System is an important and current issue in the field of ecological policy and environmental protection, relating to waste management and reducing the amount of waste released into the environment. The aim of waste management measures is to increase the level of reuse and recycling of raw materials from packaging. This system is an integral part of the European Union's sustainable development policy, which, through the Single-Use Plastics Directive (SUP), has imposed an obligation on Member States to ensure the separate collection of waste for recycling (Adamczyk *et al.*, 2024, pp. 6-7; Dyrektywa Parlamentu Europejskiego i Rady (UE), 2019). This solution has been successfully implemented in many European countries, while in Poland the legal framework for the Deposit-Refund System was established as early

as in 2023, and its actual operation began on October 1, 2025 (Siedlecki, 2025, pp. 66-67; Ministerstwo Klimatu i Środowiska, 2026).

The Deposit-Refund System is one of the ways of implementing the principles of Extended Producer Responsibility, according to which producers are responsible for the entire life cycle of packaging placed on the market (Görgün *et al.*, 2021, p. 200). These mechanisms affect both businesses and consumers, encouraging them to return used packaging to designated collection points. This solution is in line with the circular economy approach, which aims to maximize resource use and minimize waste, while enabling high recycling rates and generating mutual environmental and economic benefits (Zhou *et al.*, 2020, pp. 1-2). The introduction of a Deposit-Refund System also connects to significant effects of social and educational natures. The functioning of this solution promotes increased consumer involvement in the packaging return process and contributes to the formation of pro-ecological attitudes and raising the level of environmental awareness among the public (Malindzakova *et al.*, 2022, pp. 4-6). Although DRS effectively increase recycling rates, their key result should be, above all, a reduction in the amount of waste generated in the economy. This is due to the possibility of reusing packaging that is already in circulation, which reduces the need to introduce new glass and plastic packaging into the market. Giving packaging a financial value in the form of a deposit significantly reduces the risk of it being discarded in the environment, as consumers are more likely to return it in order to recover the money they have paid (Agnusdei *et al.*, 2022, pp. 1-10; Ławińska, 2026, pp. 671-672). Consumption in a circular economy includes all activities undertaken by individuals to satisfy their needs – from purchasing products, through their use, to responsible disposal in a manner that allows for the reuse of resources (Geiger *et al.*, 2018, pp. 18-33). In the circular model, particular emphasis is placed on maximizing the life cycle of products and materials, which is achieved through practices such as reuse, repair, recycling, sharing, and renting. In this model, consumers are not merely recipients of goods, but actively participate in the circulation of materials by supplying secondary raw materials and engaging in activities such as repair, renovation, and upcycling (Rabiu & Jaeger-Erben, 2022, pp. 1-4). The Deposit-Refund System is an important tool for achieving these goals, as it simultaneously extends the life cycle of packaging and reduces the amount of waste generated in the economy. However, it should be emphasized that different countries have different models of DRS, which makes direct comparisons and the transfer of solutions between countries difficult. This diversity results from different stakeholder arrangements and the influence of social, cultural, economic, and legal factors that determine the effectiveness of the systems implemented (Picuno *et al.*, 2025, pp. 2-10; Krzywda, 2022, p. 237). However, the ultimate effectiveness of a DRS depends on the proper balancing of key elements of its functioning, in particular the availability of return points, the amount of the deposit, and the level of public awareness and motivation, which directly affect packaging return rates (Picuno *et al.*, 2025, pp. 2-9).

The Deposit-Refund System in Poland was designed as a tool to support selective collection, recycling, and reuse of beverage containers. Beverages covered by this mechanism are marked with a uniform deposit symbol along with information about the deposit amount, which allows consumers to easily identify returnable containers. The deposit amount for each type of packaging is specified in the Regulation of the Minister of Climate and Environment of July 8, 2024, on the deposit amount for each type of packaging covered by the Deposit-Refund System, issued pursuant to Article 40m(2) of the Act of June 13, 2013, on packaging and packaging waste management (Rozporządzenie Ministra Klimatu i Środowiska…, 2024; Ministerstwo Klimatu i Środowiska, 2026). The scope of the system covers three main groups of packaging. The first group consists of disposable plastic bottles with a capacity of up to 3 liters, for which a deposit of PLN 0.50 is provided. The second category consists of metal cans up to 1 liter, also subject to a deposit of PLN 0.50. The third group consists of reusable glass bottles with a capacity of up to 1.5 liters, for which the deposit is PLN 1.00. This fee is added to the price of the product at the time of purchase and is refunded after the empty packaging marked with the system symbol is returned (Rozporządzenie Ministra Klimatu i Środowiska…, 2024). When purchasing a beverage in packaging marked with the system logo, the deposit is collected automatically and added to the price at the checkout. The deposit is refunded when the empty packaging is returned, and importantly, there is no obligation to present a receipt. The system also provides for the possibility of creating collection points outside commercial units, which increases the availability of return locations for consumers (Ministerstwo Klimatu i Środowiska, 2025, pp. 5-7). Packaging can be returned in an extensive network of collection points. The following are required to accept them (Ministerstwo Klimatu i Środowiska, 2025, pp. 9-10):

- all stores larger than 200 m² that offer beverages in packaging covered by the Deposit-Refund System,
- stores smaller than 200 m² that sell beverages in reusable glass bottles (currently, this mainly applies to beer beverages on the market),
- other stores that have joined the system,
- Reverse Vending Machines also available outside retail outlets,
- other collection points.

## Research methodology

The research was conducted over a month (January 14 – February 14, 2026) using a diagnostic survey method. It involves collecting facts and information about phenomena of interest to the researcher, as well as their dynamics. It allows for both the verification of the phenomenon's existence and the determination

of its intensity. It also provides the opportunity for a statistical description of the collected data. The research tool was a survey questionnaire. It consisted of 11 substantive questions and a personal data form. The questionnaire used a variety of response formats, including single and multiple choice closed questions, semi-open questions, and matrix questions based on a five-point Likert scale. The survey was conducted online using random sampling techniques, ensuring nationwide coverage. Access to the anonymous survey questionnaire was disseminated via social media. Ultimately, 111 respondents from all over Poland took part in the survey. Even though the group collected is non-representative, the data obtained allowed for a multi-faceted analysis of the phenomenon under study. Women predominated among the respondents, accounting for 76% of the total, while men accounted for 23% (1% of respondents preferred not to disclose their gender). The most numerous age groups were 18-25 (43%) and 36-45 (23%). In terms of place of residence, the sample was diverse, with a predominance of residents of towns with up to 50,000 inhabitants (34%) and towns with 50,000 to 200,000 inhabitants (also 34%), which allows for assessment of infrastructure accessibility in general outline. Most of the respondents had higher education (41% – with a bachelor's, engineer's, or master's degree) and secondary education (37%). In terms of professional status, the largest groups were employed (51%) and students (45%). Quantitative and qualitative analysis methods were used to compile the results. Data from the questionnaires was counted and compared, and then presented in the form of graphs and tables. The supplementary statements of the respondents were grouped by topic, which allowed for a more accurate description and understanding of the respondents' opinions. The full reliability of the study was limited by the low number of respondents, including the low number of men compared to women. Furthermore, most of the sample had at least a secondary education and were either employed or studying. This element limits the overall picture of public opinion due to the very small percentage of unemployed and lower-educated individuals.

## Results of author's own research

The research showed a lack of clear social consensus on the legitimacy of the Deposit-Refund System. The largest group of respondents (38%) approve of this solution, which can be interpreted as a sign of growing environmental awareness and willingness to use the Deposit-Refund System. On the other hand, the percentage of opponents of the solution (34%) indicates significant social resistance, which is likely due to concerns about logistical barriers or additional transaction costs for consumers. Although the respondents support the Deposit-Refund System, in practice very few of them have had any previous experience with it. Only 13% of respondents had used this solution before its official implementation. This shows that for the majority of the respondents the system

was only a positive idea, not an everyday habit. This situation suggests that the process of implementing the new rules may be more difficult, as it requires citizens to change their existing shopping habits.

However, the situation changed after the statutory introduction of the Deposit--Refund System. The percentage of people using Reverse Vending Machines has almost tripled from an initial 13% to 41%. Such a significant jump in the surveyed group shows that the mandatory deposit can become an effective economic incentive to act. However, the fact that the majority of respondents (59%) still do not use the Deposit-Refund System confirms the difficulty in changing everyday habits. Although the economic incentive is strong, the process of completely abandoning existing purchasing habits in favor of new ones requires time and further social adaptation.

An analysis of the ratings of individual elements of the Deposit-Refund System (Tab. 1) helps to understand why the majority of respondents (59%) still do not use Reverse Vending Machines. The lowest-rated aspect was the overall level of preparation for the implementation of the system as many as 45% of respondents gave it a failing grade. This suggests that initial organizational shortcomings made it difficult to develop new habits. The availability of Reverse Vending Machines (33% of the lowest ratings) and information campaigns in the public media (39% of the lowest ratings) were rated equally critically. This indicates a clear knowledge deficit and logistical barriers that effectively discourage respondents from changing their habits. The low clarity of the message and the lack of adaptation of communication to different age groups (a total of 75% negative ratings) suggest that despite the existence of an economic incentive, the rules of the system remain unclear. This may raises the barrier to entry for the average user and builds distrust of the deposit mechanism. Even the

Table 1

Evaluation of individual elements of the Deposit-Refund System in Poland

| Feature | Quantity of ratings (%) | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | Total (%) |
| How the Deposit-Refund System works in Poland | 34 | 32 | 25 | 7 | 1 | 100 |
| Accessibility of Reverse Vending Machines | 33 | 36 | 19 | 6 | 5 | 100 |
| Ease of use of Reverse Vending Machines | 22 | 26 | 26 | 14 | 12 | 100 |
| Availability of information about the Deposit-Refund System before its introduction | 39 | 30 | 15 | 11 | 5 | 100 |
| Clarity of information before system implementation | 36 | 31 | 21 | 10 | 3 | 100 |
| Level of preparedness for the implementation of a Deposit-Refund System in Poland | 45 | 33 | 18 | 4 | 0 | 100 |
| Deposit refund policy | 30 | 27 | 27 | 11 | 5 | 100 |
| Information tailored to people of different ages | 39 | 33 | 20 | 5 | 3 | 100 |
| Information campaigns conducted in public media | 39 | 33 | 21 | 5 | 3 | 100 |

Source: own elaboration based on survey.

highest-rated feature ease of use of the devices (12% very good ratings) – received a majority of critical votes (a total of 69% of ratings of 1 and 2). This proves that for the subjects the current infrastructure does not provide the comfort necessary for pro-environmental choices to become an everyday standard rather than a burdensome obligation.

The low rating of Reverse Vending Machines availability mentioned above is fully justified when compared with the place of residence of the respondents (Fig. 1). The study shows that difficulties in accessing infrastructure increase as the size of the locality decreases. The most critical situation is in rural areas, where almost half of the respondents living in these areas (46%) gave the availability of Reverse Vending Machines the lowest rating, and no one rated it as very good. Importantly, the problem does not only affect smaller towns even in large cities (over 200,000 inhabitants), more than half of the respondents (54%) rated access to the machines negatively (scores of 1 and 2). This may be due to the specific nature of the neighborhoods where the respondents live (e.g., their distance from collection points, shopping centers, or large stores). This suggests a conclusion that the current network of machines is not keeping up with the needs of citizens, which is the main obstacle to using the Deposit-Refund System and building new, environmentally friendly habits.

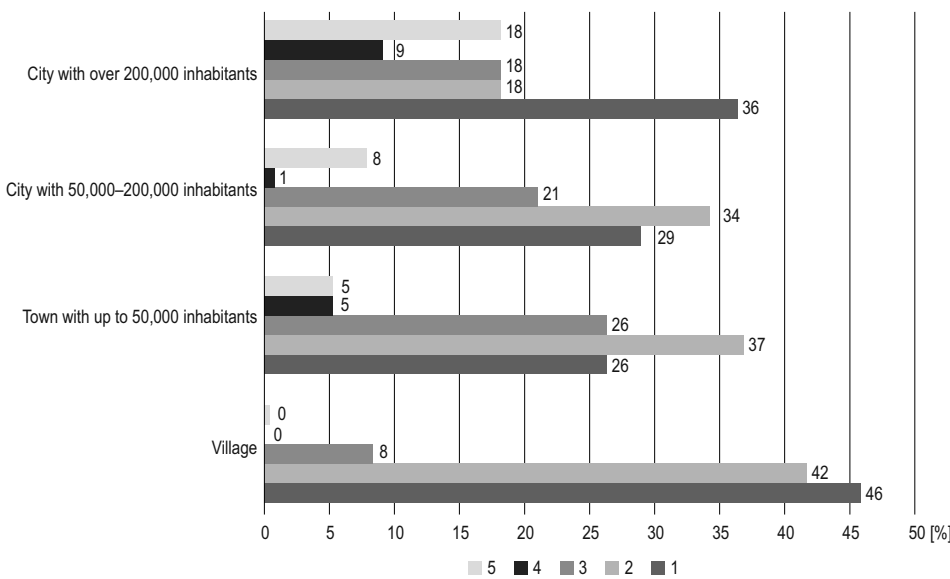


Fig. 1. Assessment of access to Reverse Vending Machines, taking into account the place of residence of respondents

Source: own elaboration based on survey.

While infrastructure and communication scored the lowest, the economic incentive itself is rated most highly (Fig. 2). The majority of respondents (54%) consider the deposit amount to be appropriate, confirming that it is acceptable and cost-effective. At the same time, one in four respondents (24%) consider the deposit to be too high (the sum of "definitely" and "rather" too high responses). This result suggests that for some of the population, the current rate is not perceived as a refundable deposit, but as a real burden on their wallet when shopping. This may increase the resistance of people who were already concerned about additional transaction costs. In turn, the group that considers the deposit too low (22%) needs an even stronger financial impulse that could additionally motivate them to become active in the deposit system.

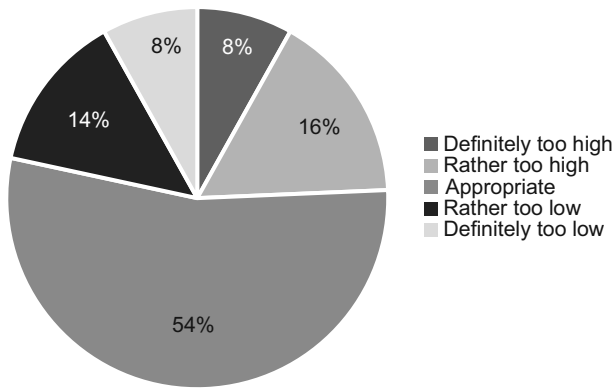


Fig. 2. Respondents' assessment of the deposit amount
Source: own elaboration based on survey.

Despite the deposit being considered as cost-effective, real logistical barriers block the spread of new habits (Fig. 3). The main obstacle is the lack of space in homes to store bottles (50%) and the habit of throwing them into the yellow bin (47%). For 35% of respondents, returning individual containers is time-consuming, which, combined with cumbersome infrastructure, means that even an attractive economic incentive loses out to a lack of convenience. These barriers are complemented by open-ended responses, which reveal that for individuals the reliability of the system is further undermined by technical errors. Respondents point to the unreliability of machines, which are often overfilled or frozen. In addition, some people declare that they do not need to use the system because they have water filters or choose products that are not covered by the deposit, which, combined with the low efficiency of Reverse Vending Machines, makes the system perceived as not very functional.

Apart from technical and logistical difficulties, the main factor determining inactivity in the Deposit-Refund System turned out to be unclear communication.

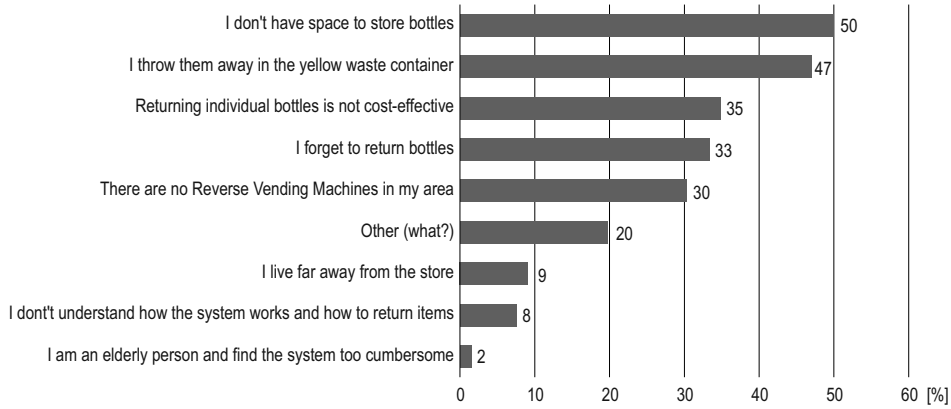


Fig. 3. Reasons why respondents do not use the Deposit-Refund System
Source: own elaboration based on survey.

When comparing data on people who do not use Reverse Vending Machines, we notice that the quality of information provision before the introduction of the Deposit-Refund System is rated very low by them as many as 44% of this group gave the lowest rating (Fig. 4). This suggests that for these people, communication is unclear or poorly formulated, which effectively discourages them from trying to use the machine. With a total of 73% negative ratings (grades 1 and 2) among inactive people, it is clear that the knowledge deficit is becoming an significant barrier. This correlation is confirmed by the results of active users, who were three times more likely to rate the quality of information as good (18% compared to 5% in the non-user group). This result suggests that understanding the rules is an important element in overcoming resistance and implementing new habits. Therefore, reliable communication is a key complement to the economic incentive, without which the deposit – despite being considered profitable – is insufficient to encourage habit breaking.

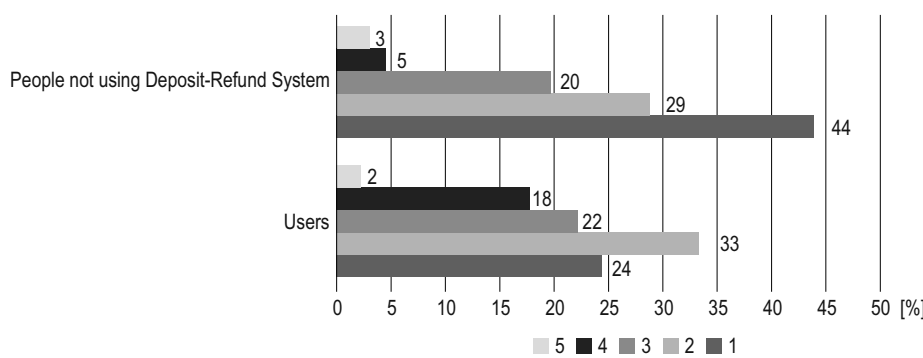


Fig. 4. Assessment of the quality of information communication before the introduction of the Deposit-Refund System, broken down into groups users and non-users of the system
Source: own elaboration based on survey.

An analysis of sources of knowledge about the Deposit-Refund System shows that respondents obtain information mainly from the Internet (54%) and social media and private relationships (44% each), while official government campaigns reach only 9% of respondents (Fig. 5). Supplementary data from open-ended responses indicate that education is often based on random observations, such as instructions on Reverse Vending Machines or the sight of infrastructure under construction, which suggests the informal and scattered nature of the communication. This arrangement of sources, dominated by unofficial channels, may directly affect the level of understanding and trust in the messages received.

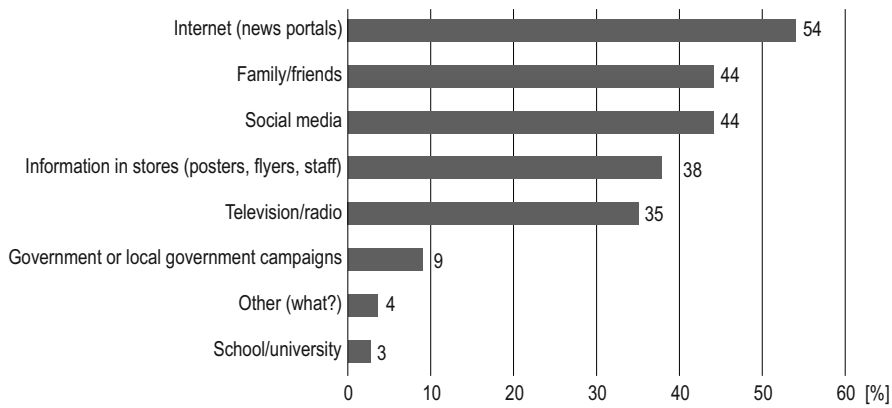


Fig. 5. Sources from which respondents obtain information about the Deposit-Refund System
Source: own elaboration based on survey.

It is important to note that the most frequently chosen informal channels are not considered the most reliable, which shows a dissonance between the reach and credibility of the message (Fig. 6). Although the Internet and

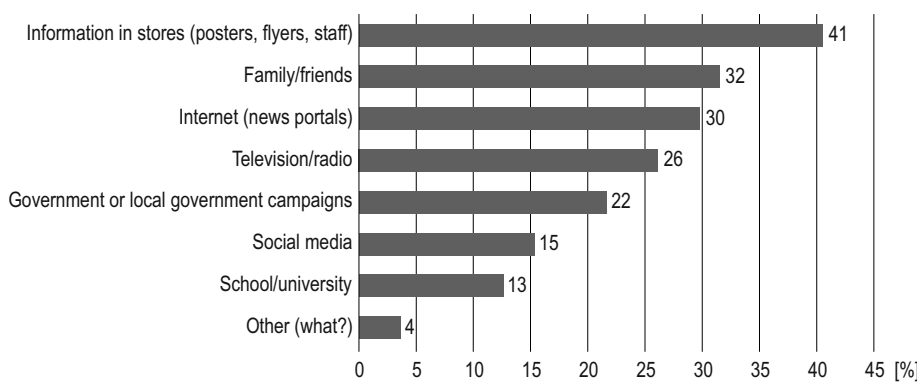


Fig. 6. Sources of information about the Deposit-Refund System that respondents consider most reliable
Source: own elaboration based on survey.

social media dominate everyday use, they are trusted by only 30% and 15% of people, respectively, while communication directly at points of sale is most highly valued (41%). Family and friends, despite their popularity as a source of knowledge, are considered reliable by 32% of respondents. This hierarchy explains the low ratings for clarity of communication, as consumers use channels that are easily accessible but not very reliable, which may increase information chaos and weakens the impact of economic incentives.

The low rating of information quality is not the only problem requiring improvement in the DRS mechanism. Consumers indicate that, in addition to improving communication, it is also necessary to address the issue of insufficient number and availability of Reverse Vending Machines, as declared by 47% of respondents (Fig. 7). Other important expectations concern improving the organization and functioning of the entire system (29%) and conducting more reliable educational campaigns (21%). An analysis of the supplementary responses also shows that subjects are hoping for the introduction of a statutory obligation to pay deposits exclusively in cash, in order to avoid being forced to spend the money in the form of vouchers in a specific store. All these factors – from knowledge deficits to infrastructure deficiencies – combine to make it difficult to implement the assumptions of the DRS.

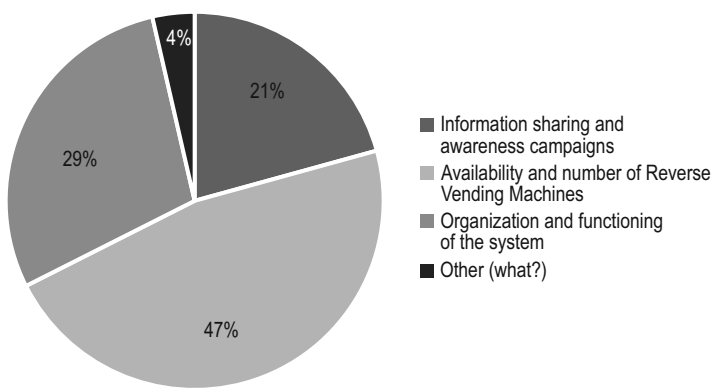


Fig. 7. Elements of the system that, according to respondents, require the most improvement
Source: own elaboration based on survey.

Respondents were asked to indicate the factors that most effectively encourage or would encourage them to use a Deposit-Refund System (Fig. 8). The most important factor is the availability of infrastructure – 61% of respondents considered that a greater number of Reverse Vending Machines is crucial. The transparency of the process is also important: 36% of respondents expect simpler rules and 29% expect clearer instructions. Financial issues (higher deposit 24%) and education (22%) are less important, and the least important

factor is the time it takes to get a refund (6%). These data are supplemented by suggestions from the users themselves. They propose linking the system to discounts on waste disposal fees and extending it to all types of bottles (including those that are currently non-deposit). The reliability of the machines and clear labeling on the products are also key for them.

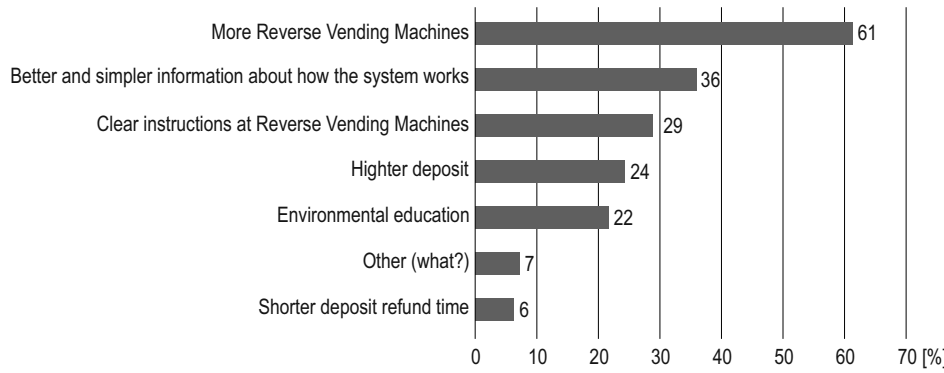


Fig. 8. Measures that encourage or would encourage respondents to use the Deposit-Refund System
Source: own elaboration based on survey.

According to the respondents, the most effective way to increase support for the Deposit-Refund System is to expand the infrastructure as many as 64% of respondents pointed to the need to increase the number of Reverse Vending Machines (Fig. 9).

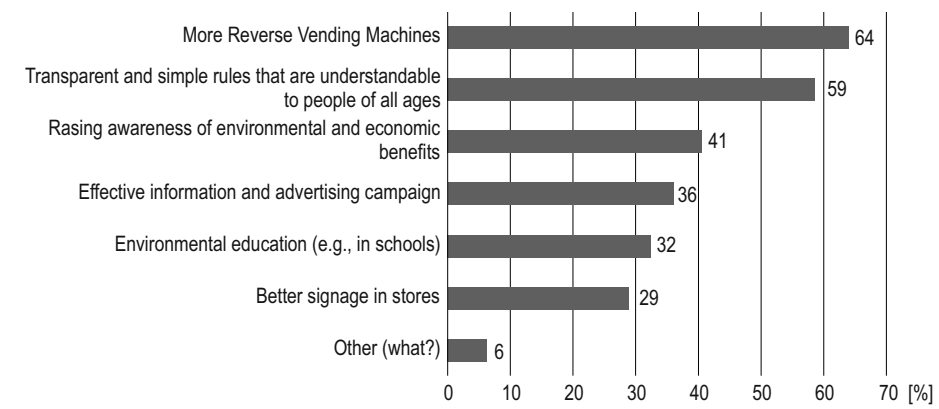


Fig. 9. Elements that could increase the number of supporters of the Deposit-Refund System according to respondents
Source: own elaboration based on survey.

It is equally important to simplify the rules so that they are understandable to people of all ages, as declared by 59% of respondents. In their supplementary opinions, consumers propose specific incentives, such as increasing the deposit to PLN 1, introducing discounts on waste disposal fees, or the possibility of returning all types of bottles at any machine. The technical efficiency of the machines (e.g., resistance to freezing) and clearer labeling on products are also key.

## Conclusions

The pilot study proved that despite the declared public acceptance of the Deposit-Refund System, its practical implementation faces a number of barriers that limit the effectiveness of implementing sustainable development goals. Although the introduction of a statutory deposit obligation has become a significant economic incentive for some of the public, for most respondents it has not proved to be a sufficient incentive to bring about a lasting change in purchasing habits. The main reason for this is the strong habit of using existing waste segregation methods and physical limitations in households, which make it difficult to store deposit-bearing packaging.

Analysis of the research material indicates the key importance of the quality of information communication in the process of adapting new pro-environmental solutions. The low rating of the clarity of messages and the failure to tailor information campaigns to different target groups constitute a significant barrier to entry for potential users. The study showed a direct correlation between the assessment of the quality of information communication prior to the introduction of the Deposit-Refund System and actual activity in the use of Reverse Vending Machines; people who negatively assess the reliability and clarity of messages prior to the introduction of the system are much less likely to return packaging to return machines. This proves that a knowledge deficit at the preparatory stage directly translates into subsequent social resistance. In addition, the scattered nature of information sources, based largely on informal channels and social media, can exacerbate information chaos and undermine confidence in the deposit mechanism, especially in view of the marginal reach of official educational campaigns. The collected data indicate that the information provision was ineffective, particularly for those not using the DRS. Due to the small sample size, the results cannot be generalized to the general population.

Another key factor determining the effectiveness of the system is the availability and reliability of the technical infrastructure. Difficulties in accessing Reverse Vending Machines, particularly acute in smaller towns and rural areas, combined with the unreliability of the machines, effectively discourage respondents from making the effort to recover packaging. Even the positively assessed economic incentive in the form of a deposit loses its significance when faced with a cumbersome process and lack of user comfort. It can therefore be

concluded that the success of the Deposit-Refund System in Poland depends on combining and refinement of three pillars: the development of a dense network of collection points, the simplification of return procedures, and the implementation of a professional, multi-channel communication strategy that will transform ideological support into a lasting standard of conduct.

Respondents rated the functioning of the DRS in Poland as very poor. According to respondents, this was primarily due to the level of availability of RVMs and, to a lesser extent, the organization of the system, which were most frequently stated as areas for improvement. This aligns with the literature, which indicates that the ultimate effectiveness of the DRS depends on the proper balance of key elements, particularly the availability of return points, the deposit amount, and the level of public awareness and motivation, which directly impact return rates.

The study provided up-to-date insight into respondents' opinions regarding information provision and an assessment of the functioning of the recently introduced Deposit-Refund System in Poland. Despite the relatively small sample size, a potential gap in the functioning of the DRS was identified and provided a potential starting point for further, larger-scale research. The study results may be useful in formulating recommendations for decision-makers regarding improving the clarity of messages about the DRS to ensure they are relevant to all social groups, conducting intensive information campaigns, and improving the availability and reliability of infrastructure (Reverse Vending Machines).

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