

The 7th International Conference on Economics and Social Sciences
**Exploring Global Perspectives:
The Future of Economics and Social Sciences**
June 13-14, 2024
Bucharest University of Economic Studies, Romania

**Exploring the Economic Effects of Sustainability
in a Knowledge-Based Circular Economy**

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DOI: 10.24818/ICESS/2024/036

Abstract

Given the rapid decline of Earth's resources, one of the world's priorities is to improve the circular economy of waste, given the huge quantities produced at the micro-level by each citizen. By creating new opportunities and jobs in the recycling and remanufacturing industries, the transition to a circular economy encourages innovation in the way products are made and increases recycling capacity. In a functioning circular economy, waste management must be the last link in a supply chain to feed the secondary materials market and provide raw materials for recycling companies. Aligning to the goals of sustainable development, it is important to establish solid waste management strategies that improve waste collection, recycling, and recovery processes. Based on data collected from EUROSTAT, from 2000 to 2022, for countries of the European Union, this study wants to investigate ways to optimise recycling processes and identify potential improvements at both macro- and microeconomic levels, quantitatively. Furthermore, this research provides an extensive overview of the current state of waste management in Romania, examining the recycling opportunities available to individuals for their active participation in the circular economy, within the framework of sustainable development. To analyse each person's wishes and perceptions to take part in a more sustainable community, a questionnaire was launched in April 2024, with respondents of all ages (over 18), categorised on age buckets (18-24, 25-24, 35-44, 45-54, 55+), genders, regions, environment and level of education. The results of the research are analysed and discussed in this paper.

Keywords: sustainable development, circular economy, recycling, economic effects, knowledge.

JEL Classification: I0, M0, O1, R1, Q5.

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1. Introduction

The 2030 Agenda for Sustainable Development (United Nations, 2015) provides a new global framework that contributes to reducing poverty, fighting inequality, and combating climate change. The agenda includes 17 goals and 169 targets. Since 1990, the EU has introduced waste policies and targets. As the EU aims at sustainability, each member state, including Romania, must tailor these policies to their unique challenges. The issue of municipal waste management in Romania has gained attention mainly due to the need to meet the accession criteria and align with the European standard, and the country's waste generation rate is increasing. This increase is due to the degree of urbanisation, industrialisation, and the behaviour of the population.

For the present study, we started from the detailed analysis of data concerning the waste situation in Europe, based on official statistics provided by the competent institutions of the European Union (Eurostat, 2024) and we followed with the statistics for Romania. For both the European Union and Romania, the analysis was performed in a comparative and quantitative manner, highlighting how Romania is one of the biggest waste producers with very few ways of responsibly recycling in the European Union. The main method of waste disposal in Romania is landfill use, with more than 90% of municipal waste going to these sites each year.

A questionnaire was launched in April 2024. The results indicated public readiness to improve waste management practices. However, there is a lack of accessible information on recycling processes, including locations, benefits, and methods, leading to public difficulty in engaging with sustainable practices. Some participants were also demotivated due to the lack of support from the authorities. Very few campaigns reward households for correctly managing waste, which is happening on a national level. It is a guarantee and return system, which involves various stakeholders like citizens, producers, importers, and retailers, especially in the HoReCa sector (Hotel/Restaurant/Café). The system aims to enhance the efficiency and quality of materials' collection processes, such as packaging. Until now, this has been the most motivating for citizens, as machines collecting through this programme are offering coupons that can be used for shopping in supermarkets or converted to cash.

In the first part of the article, we performed a comparative analysis between Romania and the EU, focusing on the Sustainable Development Goal 11. Romania's progress and challenges in urban sustainability are analysed and compared to EU standards. Then, the article is contouring the responses from a questionnaire, first mapping out the fixed-response questions. These provide a structured insight into public opinion. Also important are the open-ended responses, which give us an image of the actual needs and desires of the population. It is through these honest responses that we gain a deeper understanding of what truly motivates people to walk the path towards sustainability. Towards the conclusion, the article proposes how individuals and companies can improve their recycling efforts, and the necessity of support from authorities in this mission.

2. Problem Statement

There is a difference between countries that joined the EU earlier before 2000 and countries that joined in the past 20 years, Western and Central Europe having the best results when it comes to managing waste (Marković et al., 2023). On average, in the EU, in 2016, 49% of waste was recycled - 4% in Romania (European Environment Agency, 2024). In Romania, most of the waste generated is thrown into landfills. On the other hand, it was noted that this situation is actually an opportunity (Nițu, 2024) for the future, because with the help of a pro-attitude of the population, proper waste management can be achieved along with some circular economy goals (Agovino et al., 2023). When questioned, Romanian respondents from earlier researches are aware of the impact of poor waste management and agree that circular economy business models are desirable, but the attitude towards a change done by each individual is a bit reserved. (Lakatos et al., 2016).

Recent research discovered that high-income countries have a bigger capacity of recycling (over 50% of waste), while low-income countries are able to recycle almost a quarter of that (16%) (Shovon et al., 2024). Furthermore, lower-education citizens (middle school, high school) were shown to be less interested in recycling and waste management than those with higher education (university and above), demonstrating a direct correlation between the knowledge individuals have and their attitude toward the environment (Pelau & Chinie, 2018). The social and demographic attributes were included in numerous studies, where it was also noted that sometimes results based on the level of education, income, and age contradict each other (Kirakozian, 2016). On a microeconomic level, the most important factors seem to be the size of the household, age, gender, and income (Rybova, 2019). Women are more likely to adopt the mentality 'reduce, reuse, recycle' than men, and marital status also counts, married couples supporting the environment more, because of habits that are developed together over time and for future generations (Ahmadi et al., 2022). It has been shown that people with sustainable behaviours that are compensated (coupons, discounts) are far more likely to adopt a healthier attitude related to sustainability (Shevchenko & Laitala, 2019) – especially in countries where the legislation is not clear, because in these cases emerging recycling companies will become a part of circular economy, helping both institutions and citizens to align to a new era of reusing waste.

3. Research Questions / Aims of the Research

The purpose of this article was to explore whether a shift in the general attitude towards waste management could begin with each of us. Why do people not recycle more? What would make them recycle more? These were the foundational questions for this article, helping us to outline a path to a cleaner environment. Analysing the responses, we gathered relevant information that sheds light on citizens' attitudes towards recycling: how often they manage their waste sustainably, what would motivate them, and what measures competent institutions should take to support the community in this mission.

4. Research Methods

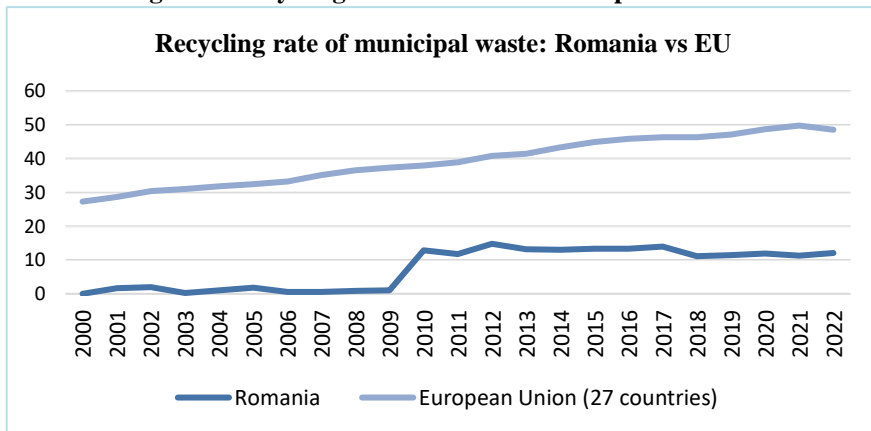
The research is based on the perception of the respondents, a survey being launched in April 2024 and gathering 252 responses from Romanian participants. Approximately 72% of the people who replied are women and 28% are men. 17% live in the rural area and 83% in the urban area. The level education (last finished) is split between 5 categories: 6% of respondents finished only middle school, 22% high school, 5% post-secondary education, 44% graduate studies, and 23% post-graduate studies. In the second part of the questionnaire there are seven questions, with the possibility of answering freely. Both the statistical information and the questionnaire data have been analysed in Microsoft Excel, SPSS 26.0.0.0 and EViews 10, offering us a clearer view of the economic effects of sustainability at a microeconomic level.

5. Findings

The country is placed in the bottom positions in the European Union when it comes to waste recycling, having a municipal waste recycling rate of just 11.9%, compared to the EU average of 48.7%. An improvement was occurring until 2017 (Aceleanu et al., 2019), and since then the percentages did not improve considerably.

Basic Descriptive Analysis, frequency, and linear regression were used to analyse the statistical data collected from EUROSTAT and the survey responses.

Figure 1. Recycling rates for Romania compared to the EU



Source: Eurostat, 2024, own contribution.

In 2020, there were 27 countries in the EU. 4,256,889 tonnes of household waste and 141,364,457 tonnes of total waste were generated in Romania only, 2.09% respectively, 6.56% of the total generated in the EU. The most concerning is the recycling rate of municipal waste. This is influenced by many factors, including the recycling infrastructure, which is limited, regulatory issues, citizen awareness and participation, and financial will.

Table 1. Waste rates for Romania compared to the EU

Indicators	Unit of measure	2020	
		Romania	European Union
Generation of waste by households	Tonnes	4,256,889.00	203,430,000.00
Generation of total waste	Tonnes	141,364,457.00	2,153,950,000.00
Circular material use rate	Percentage	1.50%	11.60%
People employed in circular economy sectors	People	91,467.00	4,232,633.00
Municipal waste recycling rate	Percentage	11.90%	48.70%
Waste generation	Kg/capita	4,815.00	7,338.00
Generation of packaging waste	Kg/capita	116.38	177.87
Generation of municipal waste	Kg/capita	290.00	519.00
Generation of plastic packaging waste	Kg/capita	24.95	34.55
Average years in school	Years	11.4	
Average net income	EUR	4,589.34	14,979.20

Source: Eurostat, 2024, own contribution.

Focusing on the public awareness of Romanian people, our questionnaire investigated the responses and it has successfully highlighted the level of public involvement regarding recycling. Analysing the responses revealed that a significant majority of the participants acknowledge the importance of recycling but often lack specific knowledge about proper recycling practices. When asked about what materials can be recycled, 92.4% of respondents mentioned paper, cardboard, and plastic, 74.60% mentioned glass, and 59.52% mentioned metal and aluminium. Less than 5% mentioned food and fibres, electronics, wood, rubber, batteries, or food scraps. Of the 17.06% respondents from rural areas, 76% had a recycling system at home, whereas in urban areas, of the 82.94% participants, 73% did. Most people who recycle at home have a system for paper (55.15%), plastic (70.63%), glass (57.93%), and organic waste (26.19%).

Gender plays a role in the discipline of waste management as a habit: significantly more women than men recycle their waste daily or weekly, but added up, 75% of respondents recycle at least once a week. Interesting is that the youngest generation does this more than anyone else, even though older people are on average more used to recycling: people in between 18-44 years old recycle three to four times as much as people over the age of 45.

To analyse EUROSTAT data, we have compiled indicators from Table 1. *Recycling rates for Romania compared to the EU* and, based on multiple panel regressions, the dependable variable “Generation of packaging waste per capita” has provided the most relevant correlations with the other indicators. Periods 2014, 2016,

2018, and 2020 were taken into consideration for 23 EU countries, with a total panel observation input of 92.

Table 2. Panel Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-177.475500	226.289700	-0.784285	0.435800
ANNUAL_NET_EARNING	-0.005400	0.001800	-2.999930	0.003800
AVG_LIFE_EXPECTANCY	-2.203674	2.610739	-0.844081	0.401800
AVG_YEARS_IN_SCHOOL	49.281720	8.007826	6.154194	0.000000
PERSONS_EMPLOYED	-0.000075	0.000073	-1.035167	0.304500
CIRCULAR_MATERIAL RATE	-1.134983	0.635514	-1.785927	0.078800

Source: EViews, own contribution.

The analysis identified the statistically significant predictors of packaging waste generation per capita: the average years in school and the annual net earnings per capita. There is a strong inverse association between the creation of packaging trash per capita and yearly net earnings, as indicated by the coefficient of -0.0054 with a p-value of 0.0038. This shows a correlation between decreased packaging waste creation and increased earnings. There is also a positive correlation between the average years of schooling and the generation of packaging trash, as indicated by the coefficient for the average years in school, which is 49.28172 with a p-value of 0.0000.

Table 3. Panel Least Squares

Cross-section fixed	Values	Cross-section fixed	Values
R-squared	0.976485	Mean dependent var	149.944500
Adjusted R-squared	0.966565	S.D. dependent var	43.555610
S.E. of regression	7.964253	Akaike info criterion	7.233594
Sum squared resid	4059.477000	Schwarz criterion	8.001094
Log likelihood	-304.745300	Hannan-Quinn criter.	7.543363
F-statistic	98.433150	Durbin-Watson stat	2.022225
Prob(F-statistic)	0.000000		

Source: EViews, own contribution.

The model explains roughly 97.65% of the variation in the dependent variable, as indicated by the R-squared value (0.976485). The Adjusted R-squared (0.966565) accounts for approximately 96.65%. The Durbin-Watson indicator (2.022225) is close to 2, indicating that there is no significant autocorrelation in the residuals of the regression model. This suggests that the residuals are independent.

Table 4. Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	32.511789	5.000000	0.000000

Source: EViews, own contribution.

The Hausman test results indicate a significant difference between the fixed- and random-effects models. With five degrees of freedom, the Chi-Square Statistic is 32.511789, and the p-value is 0.000000, which implies that the random effects model is inappropriate for this data set.

For the responses of the questionnaire analysis, we have taken into consideration as dependent variable for the below statistical analysis the age group of the respondents. For each, a value from 1 to 5 was assigned.

Table 5. Age intervals

Age					
	Values (age)	Frequency	Percent	Valid %	Cumulative %
Valid	18-24	86	34.1	34.1	34.1
	25-34	54	21.4	21.4	55.6
	35-44	54	21.4	21.4	77.0
	45-54	40	15.9	15.9	92.9
	55+	18	7.1	7.1	100.0
	Total	252	100.0	100.0	

Source: SPSS, own contribution.

Table 6. Descriptive statistics

Statistics		
N	Valid	252
	Missing	0
Mean		2.40
Median		2.00
Mode		1
Std. Deviation		1.295
Variance		1.676
Skewness		0.456
Std. Error of Skewness		0.153
Kurtosis		-0.976
Std. Error of Kurtosis		0.306

Source: SPSS, own contribution.

There are no missing values among the 252 valid entries in the dataset. The average age group of the respondents is 2.40, which suggests that they are generally between the ages of 25 and 34, with a little emphasis towards younger age groups. The median age code is 2.00, corresponding to the 25-34 age bucket, meaning that at least half of the respondents fall within that range of ages. The dataset's mode 1 indicates that the age group that occurs most frequently is

18 to 24 years old. With a standard deviation of 1.295, the distribution around the mean age code is modest.

Conducting a linear regression analysis offers valuable insights into the relationship between age and recycling-related attitudes and behaviours. The impact of individual actions, financial contributions, participation in recycling events, the existence of home sorting systems, the inclusion of recycling education in school programmes, attitudes towards recycling, and the frequency of recycling were all assessed as a function of age using ANOVA. The predictors used are the closed-ended questions.

Table 7. ANOVA

ANOVA					
Indicators	Sum of Squares	df	Mean Square	F	Sig.
Regression	46.360	8.000	5.795	3.762	.000 ^b
Residual	374.355	243.000	1.541		
Total	420.714	251.000			

Source: SPSS, own contribution.

The ANOVA table indicates a significant effect of the predictors on age, with an F-value of 3.762 and a p-value of .000. This suggests that the attitudes towards recycling, accessibility of recycling information, and participation in recycling events significantly vary with age.

Table 8. Coefficients of linear regression

Coefficients ^a							
Questions	Understandardised		Standardised		Sig.	95% Confidence interval for B	
	Beta	Std. Error	Beta	t		Lower bound	Upper bound
(Constant)	0.104	0.930		0.112	0.911	-1.729	1.937
Do you have a sorting system at home?	0.581	0.228	0.197	2.553	0.011	0.133	1.029
Do you consider information related to recycling is easily accessible?	-0.055	0.087	-0.039	-0.633	0.528	-0.227	0.117
How often do you recycle?	0.494	0.115	0.332	4.293	0.000	0.267	0.721
Do you think individual actions can have an impact on recycling?	-0.336	0.139	-0.156	-2.416	0.016	-0.610	-0.062
Have you ever participated in a recycling event?	0.166	0.160	0.064	1.043	0.298	-0.148	0.481
Do you think education related to recycling should be included in school programmes?	0.352	0.501	0.045	0.703	0.483	-0.634	1.338

Coefficients ^a							
Questions	Understandardised		Standardised		Sig.	95% Confidence interval for B	
	Beta	Std. Error	Beta	t		Lower bound	Upper bound
Are you available to financially contribute to recycling solutions?	0.035	0.107	0.020	0.323	0.747	-0.176	0.246
How do evaluate recycling in the matter of sustainable development?	-0.050	0.092	-0.033	-0.539	0.590	-0.230	0.131

Source: SPSS, own contribution.

The regression analysis coefficients table illustrates how different factors affect age. Among the important predictors are the information accessibility – the results show that older people are more likely to find recycling information easily available (B = 0.196, p = 0.015). This relationship is positive and significant, and the recycling frequency is also positive and significant (B = 0.226, p = 0.033 indicate that recycling is more common among older people). The impact of individual activities on recycling, the presence of a sorting system at home, financial donations, and involvement in recycling events were not significant predictors.

In rural areas, information about sustainability and ways of recycling is unavailable or partially available, while in urban or more developed areas, information is more available. A common ground was found when researching how people would like to receive information related to the environment, sustainability, recycling, reusing, and social media.

Table 9. Analysis on how people would like to receive information

Responses	Percentage
Others	1.19%
Public campaigns and social media	94.44%
Public campaigns	40.47%
Social media	21.42%

Source: Respondent replies, 2024, own contribution.

Almost everyone, no matter the gender, age, and level of education agreed that this is the most accessible way, along with public informing campaigns performed by authorities either online (mail), on TV, or in different means of transports.

In Romania, at the beginning of 2024, RetuRO (RetuRO Sistem Garanție Returnare S.A., 2023) was implemented, based on a return or deposit system. This implies retailers to ask for a 0.50 RON guarantee for every bottle of glass or plastic they sell, motivating the buyer to return the bottles in exchange for the guarantee back as coupons or cash. This approach not only promotes recycling, but

also supports sustainable practices in the beverage industry by reducing the need for new glass production. The project was successful, and people all over the country have started collecting all their bottles for return.

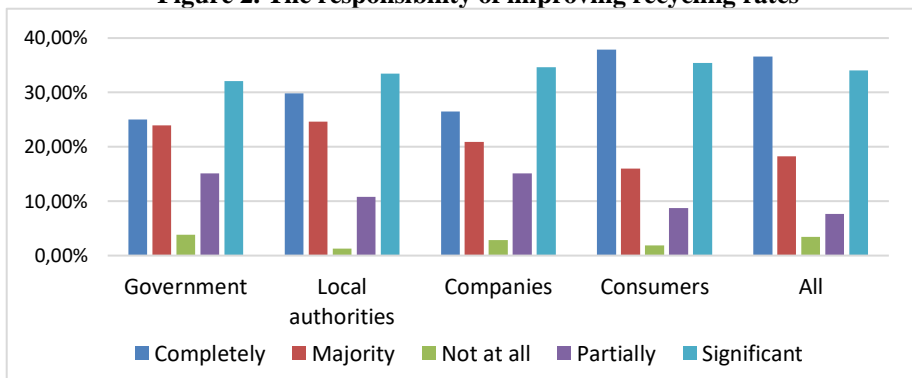
The changes we are making now are the future we will live in tomorrow: 97.22% agreed that the way we see our environment starts from a very young age - only 2.78% of respondents consider that education for sustainability should not be implemented in schools. 76.98% found the matter of reinforcing and teaching people about sustainable development to be urgent and very important.

People who do not recycle or have separate waste systems at home mentioned that waste disposal is not very accessible: there are not enough sorting points; if they have a few in their community, they are difficult to access because of the distance. Many noted that the sorting points do not offer enough categories of recycling, lacking textiles containers, separate containers for paper, cardboard, plastic. Having these included in a potential recycling system would also increase the rates in both urban and rural areas, and the ease of it would also stimulate older generations to participate.

More than half of the respondents said they had never participated in a movement to help the environment, highlighting the issues in the education systems. Participants were, though, very responsive to contributing financially to these matters: 75% are willing to help the community they are a part of if they consider the amount acceptable. Here also lies the power of example: A community where many properly manage waste will also encourage others who do not, while one that does not act for the environment is hard to educate and encourage for the better.

To reinforce eco-friendly behaviours, the questionnaire helps us see what can improve the mentality of “reduce, reuse, recycle”: more recycling points, more containers at existing points, education in schools, flyers, modern technologies, and also providing incentives and even applying fines to people who do not respect this. Besides the legal reinforcement of all categories mentioned, people aged 18-34 are excited to act for a more sustainable environment by selectively collecting waste, but if they receive something in return.

Figure 2. The responsibility of improving recycling rates



Source: Respondent replies, 2024, own contribution.

These actions are also beneficial for waste management companies. This means more material for them to process and recycle, giving birth to new materials to be used in industries such as fashion, engineering, eco-friendly housing, and furniture, etc. This is a great opportunity for these companies to develop and extend more with the funds help from the National Recovery and Resilience Plan (PNRR, 2022), to help implement the projects that the authorities have, by the end of 2026 (Barac, 2022). Companies like Pakire Polymers, Italplast Group, RematHolding, and GreenTech are already dedicated to creating new raw materials ready to be shipped to production.

Table 10. Economic effects of business expansions

Business name	Revenue in 2022	Net profit in 2022
Pakire Polymers SRL	688,388.00	362,879.00
Italplast Group SRL	14,488,150.00	765,384.00
REMAHOLDING CO. SRL	556,269,071.00	8,044,074.00
ROMCARBON SA	265,048,639.00	51,471,690.00
SIGEMO IMPEX SRL	133,323,513.00	7,531,643.00
ECO RECYCLING C.N.E. SRL	2,184,850.00	1,856,756.00

Source: www.termene.ro, 2024, own contribution.

6. Conclusions

Romania is at the beginning of a new era of sustainable development. Now is the chance of people, companies, and public institutions to make a change for the better. People do not yet have the culture of collecting and recycling. Therefore, many business opportunities arise: a change of the education system starting from the most rudimentary levels when it comes to sustainability (preparing youth to face the challenge of reusing whatever they can as much as possible), the growth of companies that process waste into raw materials (significantly reduce waste), the expansion of businesses focused solely on waste collection (revenues from recycling, also reducing waste), the proliferation of consultancy, repair services (maintains a circular flow of materials, decreases consumption), and firms generating energy from waste (reduces environmental impact), the production of new packaging types (reusable packaging). All of this increases the availability of job opportunities and helps educate the general population.

To align people with healthier choices when it comes to producing waste and littering, this study has shown that if a more robust infrastructure is created, public perception about waste and recycling will change for the better, as many people are facing issues at the moment with waste disposal. The promotion of educational campaigns and ads on social media has a positive impact on recycling rates. 87.70% of the participants said that recycling by individuals has a beneficial effect on the environment, regardless of their place of residence.

We consider relevant the answers of the respondents, ideas that can be generalised at the country level - there is an impulse in the desire of the population to recycle.

Romania has great potential: if people, companies, and public institutions work together, waste management and circular economy rates will improve to align to the EU. Romania must use its resources to aid the efficiency and effectiveness of waste management systems. The greatest resources are people: The more stimulated an individual is to recycle, especially financially (or equivalent), the more involved in these actions they will be, and significant improvement will be noticed by all, including the people who are stimulated to do this for a better future for younger generations.

This study has provided information on the dynamics of waste management in Romania; however, it is not without limitations. Also, the questionnaire does not cover uniformly all regions in Romania. Future research should utilise the logistic regression to identify factors that influence the likelihood of participation in sustainable practices, exploratory factor analysis (EFA) to analyse the influences upon recycling and sustainability, and K-means clustering to identify distinct profiles of individuals who are more or less likely to engage in sustainable practices. Also, expanding the geographic scope to include a more representative sample from various regions across Romania would improve the overall findings.

Bibliography

- [1] Aceleanu, M.I., Șerban A.C., Suciuc M.C., Bițoiu T.I. (2019). The Management of Municipal Waste through Circular Economy in the Context of Smart Cities Development. Retrieved from <https://ieeexplore.ieee.org/abstract/document/8763945>.
- [2] Agovino, M., Cerciello, M., Musella, G., Garofalo, A. (2023). European waste management regulations and the transition to a circular economy. A shift-and-share analysis. Retrieved from Science Direct: <https://www.sciencedirect.com/science/article/abs/pii/S0301479724004092>.
- [3] Ahmadi, S. Behesthti, S.S., Kohansalkhoob, E. (2022). Sociological Explanation of Solid Waste Management Behaviour (Reduce, Reuse, and Recycle) and Effective Factors on It among Abadan Citizens. Retrieved from Environmental Education and Sustainable Development: https://ee.journals.pnu.ac.ir/article_9599_en.html?lang=fa.
- [4] Barac, P. (2022). Clean Recycle analysis: What Romania's 1.2 billion Euro plan for waste management looks like. Retrieved from The Diplomat: <https://www.thediplomat.ro/2022/06/29/clean-recycle-analysis-what-romania-1-2-billion-euro-plan-for-waste-management-looks-like/>.
- [5] European Environment Agency (2024). Waste and recycling. Retrieved from <https://www.eea.europa.eu/>: <https://www.eea.europa.eu/en/topics/in-depth/waste-and-recycling?activeTab=fa515f0c-9ab0-493c-b4cd-58a32dfaae0a>.
- [6] Eurostat (2024). Retrieved from <http://ec.europa.eu/eurostat/web/waste>.
- [7] Kirakozian, A. (2016). The determinants of household recycling: social influence, public policies, and environmental preferences. *Applied Economics*, 48, 1481-1503.
- [8] Lakatos, E.S., Dan, V., Cioca, L.I., Bacali, L., Ciobanu, A.M. (2016). How Supportive Are Romanian Consumers of the Circular Economy Concept? A Survey. Retrieved from MDPI: <https://www.mdpi.com/2071-1050/8/8/789>.

- [9] Marković, M., Popović, Z., Marjanović, I. (2023). Towards a circular economy: evaluation of waste management performance in European Union countries. Retrieved from Serbian Journal Management: <https://aseestant.ceon.rs/index.php/sjm/article/view/40073>.
- [10] Nițu, R.M. (2024). The economic efficiency of waste management policies, Volume XXXI, No. 1. Theoretical and Applied Economics, 169-178. Retrieved from sciencedirect.com: <https://store.ectap.ro/articole/1729.pdf>.
- [11] Pelau, C., Chinie, A.C. (2018). Econometric Model to Measure the Impact of the Education Level of the Population on the Recycling Rate in a Circular Economy Economic Amphitheater, 20, 340-355.
- [12] PNRR (2022). Planul Național de Redresare și Reziliență. Retrieved from <https://proiecte.pnrr.gov.ro/#/home>.
- [13] RetuRO Sistem Garanție Returnare S.A. (2023). Despre RetuRO. Retrieved from <https://returosgr.ro>: <https://returosgr.ro/despre-returo>.
- [14] Rybova, K. (2019). Do Sociodemographic Characteristics in Waste Management Matter? Case Study of Recyclable Generation in the Czech Republic. Retrieved from MDPI: <https://www.mdpi.com/2071-1050/11/7/2030>.
- [15] Shevchenko, T., Laitala, K. (2019). Understanding Consumer E-Waste Recycling Behavior: Introducing a New Economic Incentive to Increase the Collection Rates. Sustainability, 11(9), 2656.
- [16] Shovon, M.M., Akash, F.A., Rahman, W., Rahman, M.A., Chakraborty, P., Hossain, H.M.Z., Monir, M.U. (2024). Strategies for managing solid waste and energy recovery for a developing country: A review. Retrieved from Web of Science: <https://www.webofscience.com/wos/woscc/full-record/WOS:001167804000001>.
- [17] [www.termene.ro](https://termene.ro) (2024). Retrieved from <https://termene.ro/firme>.
- [18] United Nations (2015). United Nations. Retrieved from sustainabledevelopment.un.org: <https://sdgs.un.org/2030agenda>.