

Original article

<https://doi.org/10.5281/zenodo.17533444>

ECOLOGICAL RESPONSIBILITY AND ENVIRONMENTAL ACTIVISM IN KRUŠEVAC: RESIDENTS' ATTITUDES

MILAN ZAJIĆ¹, DUŠAN GARABINOVIC²

¹ University of Belgrade, Faculty of Organizational Sciences, Belgrade, milan.zajic@fon.bg.ac.rs,  0009-0005-4106-6318

² Higher Business School of Vocational Studies "Prof. dr Radomir Bojković", Kruševac, dusan.garabinovic.032@gmail.com,  0000-0002-6247-3060

Abstract: This paper explores the attitudes of residents of Kruševac towards environmental responsibility, their environmental awareness and education, as well as their behaviour and environmental activism. The aim of the study is to determine the relationship of Kruševac residents to environmental protection as an indispensable element of sustainable development. The results of a survey conducted among 169 residents of Kruševac show that citizens recognize the importance of environmental responsibility and are interested in environmental topics, but there is a lack of confidence in their own awareness and space for improvement in adopting environmentally responsible behaviours. The paper emphasizes the need for further improvement of environmental education and citizen engagement in the local community.

Keywords: Environmental responsibility, Environmental awareness and education, Environmental activism, Residents' attitudes.

1. INTRODUCTION

Although the term sustainable development is frequently used, its meaning remains insufficiently defined. Ruggerio (2021) argues that despite its significant importance, the definition of sustainable development, and sustainability itself, is imprecise, with a tendency for certain alternatives to the concept to emerge. There's a noticeable increase in the scientific literature regarding the importance of researching sustainable development goals (Mishra et al., 2024). This field is still not consolidated, as many goals are currently insufficiently researched (Yamaguchi et al., 2023).

There is also significant interest in the relationship between ecological services and sustainable development (Ndou & Aigbavboa, 2020). Furthermore, interest in the ecological footprint is growing (Anjum et al., 2024; Petrović et al., 2011).

The involvement of the local community in sustainable development is an increasingly important element in contemporary sustainable development research. Studies have shown that the local community, i.e., its involvement and participation, plays a crucial role in the development of sustainable tourism (Hasana et al., 2022; Iqbal et al., 2022; Narzary & Deb, 2024), and that such involvement leads to a higher level of empowerment, sustainable tourism development, and quality of life (Desalegn & Javed, 2024).

The social component plays an important role in the overall concept of sustainable development. For this reason, there is a significant increase in researchers' interest in the topic of education for sustainable development (Yang & Xiu, 2023). Adequate education for sustainable development forms the basis for the awareness, attitudes, and behaviour of the local community (Zajić et al., 2023).

Contemporary environmental problems necessitate that members of society possess appropriate skills and knowledge to contribute to their solution. For this reason, environmental education plays a vital role in preserving and improving the state of the environment. Formal, non-formal, and informal (experiential) environmental education constitute the complete concept of modern environmental education. Efforts to include environmental education in school curricula exist, but there are also obstacles and challenges that hinder such initiatives. It is crucial to connect these two elements (knowledge and practice/skills) to motivate young people for sustainability-based environmental activism. Awareness, education, and active participation in environmental preservation create the foundation for long-term sustainability achieved through so-called pro-environmental behaviour. One of the indispensable ways of informing today is through promotional activities via the internet, which can impact the sustainable development of protected areas (Ćuruvija et al., 2023).

The subject of this paper is the relationship of residents of the city of Kruševac to environmental protection as an indispensable element of sustainable development. The aim of this paper is to establish the attitudes of residents of Kruševac regarding environmental responsibility, their awareness and education about the environment, as well as their behaviour (habits) and environmental activism.

2. RESEARCH METHODOLOGY

This paper is a continuation of the research, parts of which have been previously presented at the SPIN'23 conference (Zajić et al., 2023). The research was conducted at the beginning of the fourth quarter of 2023, on a sample of 169 respondents. Data were collected through an online survey. The questions were closed-ended and related to the attitudes of Kruševac residents concerning environmental responsibility, residents' awareness and education about the environment, as well as their behaviour and activism regarding the environment. The questions asked in this survey were adapted or used from previous similar studies conducted in Bor (Društvo mladih istraživača Bor, 2020a, 2020b), Minnesota (Murphy, 2004; Murphy & Olson, 2008), and the United States (Coyle, 2005). During the research, all ethical principles were respected, including informed consent of the respondents and the anonymity of their answers.

Females were more numerous (55.0%) than males (45.0%). Most respondents had secondary education (69.8%), followed by higher education (25.4%) and incomplete primary and primary education (4.7%). Most respondents were under 20 years old (54.4%), followed by 20-40 years (24.9%), 40-60 years (16.0%), and over 60 years (4.7%). In terms of place of residence, rural areas (51.5%) were more represented compared to urban areas (48.5%).

3. RESEARCH RESULTS AND DISCUSSION

Most of Kruševac residents (68.6%) believe that business and industry should bear responsibility for solving environmental problems in their city (Table 1). This high percentage indicates significant awareness among citizens about the potential impact of industrial activities on the environment and their expectation that these sectors actively participate in finding solutions.

Table 1: Responsible for solving environmental problems in the city of Kruševac should be...

	Business and Industry		Kruševac City Administration		Individual Citizens	
	No.	%	No.	%	No.	%
Fully agree	44	26.0	57	33.7	39	23.1
Agree	72	42.6	74	43.8	75	44.4
Disagree	15	8.9	7	4.1	19	11.2
Strongly disagree	1	0.6	3	1.8	7	4.1
Don't know	37	21.9	28	16.6	29	17.2

A smaller percentage of respondents disagree (8.9%) or strongly disagree (0.6%) with the stated claim. This can be interpreted in various ways: (1) They may believe that other actors should play a greater role in solving environmental problems; (2) It is possible that they do not perceive business and industry as the main polluters or believe that business entities are already fulfilling their obligations; (3) There may be scepticism regarding the ability or willingness of businesses to effectively solve environmental problems.

There are both similarities and differences in the attitudes of residents of Kruševac and Minnesota (Murphy, 2004). In both areas, the majority agree that business and industry should be responsible. However, in Kruševac, there is a significantly higher percentage of undecided respondents, indicating a potential lack of information or a greater complexity in perceiving the issue. In Minnesota (Murphy, 2004), on the other hand, there is a higher percentage of those who disagree with the statement. These differences may reflect different socio-economic contexts, regulatory frameworks, historical factors, or levels of awareness about environmental issues.

Most residents of Kruševac believe that the Kruševac city administration should be responsible for solving environmental problems – 77.5% (Table 1). This result was to be expected, given that the city administration is directly responsible for implementing local environmental policies, issuing permits, supervision, and inspection.

A low percentage of respondents with a negative attitude (5.9%) indicates very little resistance to the idea that the city administration should be responsible. Those who disagree may believe that responsibility should be shared with other actors or that the city has other priorities.

Unlike the results of the study conducted in Minnesota (Murphy, 2004), there is a higher percentage of undecided respondents in Kruševac, indicating a need for better communication between the city administration and citizens. In Minnesota (Murphy, 2004), there is a higher percentage of those who disagree, which may indicate different political views or perceptions of the government's role. Differences in levels of government also play a role in shaping citizens' expectations.

Most residents of Kruševac believe that individual citizens should be responsible for solving environmental problems – 67.5% (Table 1). This result indicates a fairly strong awareness of individual responsibility in environmental matters. This is important because many environmental problems cannot be solved solely at the state, local government, or industry level, but also require a change in individual behaviour and habits.

Comparing the attitudes regarding the responsibility of the city administration, business and industry, and individual citizens for solving environmental problems, it can be concluded that Kruševac citizens believe that responsibility should be shared among different actors, but that the local self-government should bear somewhat greater responsibility than the others. This may be because citizens believe that the city administration has greater power and legitimacy to act in the public interest and to regulate the behaviour of other actors, including businesses and individuals.

Comparing the results in Kruševac and Minnesota (Murphy, 2004), it can be concluded that although both studies show awareness of individual responsibility for environmental problems, there are some key differences: (1) In Minnesota (Murphy, 2004), there is a stronger consensus on this responsibility; (2) In Kruševac, there is a significantly higher percentage of respondents who are undecided on this issue, indicating a potential need for education and awareness-raising.

A high percentage of respondents (Table 2) indicated that they do not have enough information about the state of the environment (43.2%), suggesting: (1) a lack of accessible, clear, and understandable information on environmental issues (or perceived lack thereof) among residents of Kruševac; (2) Insufficient transparency in the work of local authorities regarding environmental problems and their resolution; (3) Insufficient media coverage of environmental topics at the local level; (4) Possible lack of interest among citizens due to insufficient awareness of the importance of environmental problems or a feeling of powerlessness to change anything.

Table 2: Do you feel you are sufficiently informed about the state of the environment in the city of Kruševac and beyond to successfully participate in decision-making?

	No.	%
Excellent informed	35	20.7
Well informed	61	36.1
Not enough information	73	43.2

The analysis of citizens' awareness of the environmental situation shows variations between surveys, with the highest percentage of those who feel insufficiently informed recorded in Bor at the end of 2020 (49.4%) (Društvo mladih istraživača Bor, 2020a), and the lowest in Bor in the second quarter of 2020 (39%) (Društvo mladih istraživača Bor, 2020b). The results for Kruševac (43.2%) place this city between the two survey periods in Bor in terms of the perceived lack of information among citizens.

The largest percentage of respondents get their information through internet websites and social networks – 41.4% (Table 3). Television and radio are traditional media that still have a large reach, but their popularity is declining compared to digital media. A particularly concerning result is that 16% of respondents do not get any information about the state of the environment, which may indicate a significant lack of interest or awareness of environmental issues among that part of the population.

Table 3: How do you usually get information about the state of the environment (circle one answer)?

	No.	%
Through television and radio	35	20.7
Through print media	7	4.1
Through internet websites and social networks	70	41.4
By visiting public forums of NGOs	4	2.4
From friends and neighbours	7	4.1
In another way	19	11.2
Not at all	27	16.0

Comparing the results in Kruševac and Bor (Društvo mladih istraživača Bor, 2020a, 2020b), it is concluded that the internet is the primary source of environmental information in all studies, but with variations in popularity. Television and radio are still significant, but less so than the internet. Participation in public forums of NGOs is more significant in Bor than in Kruševac. There are various “other” ways in which citizens get information, indicating the complexity of information sources.

The majority of respondents strongly supported the idea that environmental education should be part of the school system – 67.5% (Table 4). This result reflects a growing awareness of the importance of environmental education for creating generations that are aware of the importance of environmental preservation and capable of making responsible decisions.

Table 4: Do you believe that schools should provide environmental education (related to the environment) in elementary and high school?

	No.	%
Yes	114	67.5
No	14	8.3
Don't know	41	24.3

In Kruševac, there is support for environmental education in schools, but it is less than in Minnesota (Murphy, 2004; Murphy & Olson 2008). These results may indicate differences in awareness of environmental issues, educational priorities, or cultural values between Kruševac and Minnesota.

A large majority of respondents (69.8%) stated that they do not know how to name protected natural areas in Kruševac (Table 5). These results indicate a relatively low level of awareness among Kruševac citizens about the existence and location of protected natural areas in Kruševac. This lack of awareness could be a consequence of insufficient promotion of protected areas by competent institutions, a lack of educational programs, or a low level of citizen interest in this topic. All of the above can have negative consequences for the preservation of these areas, as citizens may not be aware of their value and importance, nor of the rules of conduct that must be observed within them.

Table 5: Do you know how to name protected natural areas in the city of Kruševac?

	No.	%
Yes	51	30.2
No	118	69.8

The majority of Kruševac residents (71%) save water to some extent, but there is space for improvement in habits (Table 6). A significant percentage of respondents (15.4%) state that they never save water, which is concerning, as it indicates a lack of awareness or disinterest in water conservation.

Table 6: Do you save water in your daily life?

	No.	%
Never	26	15.4
Sometimes	50	29.6
Often	70	41.4
Don't know	23	13.6

The majority of Kruševac residents (72.2%) use alternative modes of transport at least occasionally (Table 7). The neutral answer (I don't have a car – 16%) is separated because their choice of transport is not necessarily a matter of personal decision, but also of objective circumstances. This percentage indicates a significant portion of the population that is forced to use alternative modes of transport. The negative answer (never – 11.8%) indicates the existence of a group of people who have strong resistance to changing their mode of travel.

Table 7: In your daily life, do you use other types of transport such as walking, cycling, taking the bus, or carpooling instead of driving alone?

	No.	%
Never	20	11.8
Sometimes	53	31.4
Often	69	40.8
I don't have a care	27	16.0

Positive responses regarding willingness to actively participate in programs and actions aimed at improving the environment (“yes” and “depending on the program”) are present in the majority of respondents – 69.3% (Table 8). This result indicates a significant interest among Kruševac citizens in participating in activities aimed at improving the environment. Conditional willingness (depending on the program) means that it is important for programs to be well-designed, in line with their interests and capabilities, and for there to be a clear perception of the benefits of participation. The negative attitude towards participation in environmental actions is relatively low, but it still indicates the existence of a group of citizens who are not interested or may have had negative experiences with similar actions in the past.

Table 8: Are you willing to actively participate in programs and actions to improve the state of the environment?

	No.	%
Yes	54	32.0
No	19	11.2
Depending on the program	63	37.3
Don't know	33	19.5

A comparison of the results from studies (Društvo mladih istraživača Bor, 2020a, 2020b) concerning citizens' willingness to participate in activities to improve the state of the environment shows that in Bor, there is a very high expressed willingness (over 90% combined “Yes” and “Depending on the program”). In Kruševac, this percentage of expressed willingness is lower (around 69% combined), but there is a significant proportion of undecided respondents (around 19.5%), which was not recorded in the Bor studies. This indicates a generally positive attitude towards participation in environmental actions in both areas, but also potential differences in information, the nature of environmental problems, or the programs offered that influence citizens' final decisions.

4. CONCLUSION

The research results indicate a positive attitude towards environmental protection among the residents of Kruševac, but also a need for further improvement of information, education, and citizen engagement.

Future research could focus on a more detailed examination of factors influencing citizens' environmental behaviour, such as socio-demographic characteristics, personal values and attitudes, and perceived barriers to participation in environmental actions. It would be beneficial to conduct similar research in other cities and municipalities across Serbia to gain a more comprehensive picture of the analysed topics at the national level and identify potential regional differences. Research on the effectiveness of various communication and education strategies in raising awareness about environmental issues and encouraging proactive citizen engagement is recommended.

LITERATURE

Anjum, W., Ghufran, B., & Abbas, M. (2024). Ecological footprint: a bibliometric analysis. *Environment, Development and Sustainability*. <https://doi.org/10.1007/s10668-024-05463-y>.

Coyle, K. (2005). *Environmental literacy in America: What ten years of NEETF/Roper research and related studies say about environmental literacy in the US*. National Environmental Education & Training Foundation, Washington, D.C. <https://files.eric.ed.gov/fulltext/ED522820.pdf>.

Ćuruvija, M., Ćuruvija, I., & Garabinović, D. (2023). Uticaj internet promotivnih aktivnosti hotela na održivi razvoj zaštićenih područja. U A. Skorup i G. Lapčević (Ur.), *Zbornik radova sa okruglog stola Inovativna Srbija, u Kruševcu 2023. god. Organizatori Visoka poslovna škola strukovnih studija „Prof.*

dr Radomir Bojković "Kruševac, Biznis inkubator d.o.o. Kruševac i Visoka škola za poslovnu ekonomiju i preduzetništvo Beograd. (str. 69-79). Visoka poslovna škola strukovnih studija „Prof. dr Radomir Bojković“, Kruševac.

Desalegn, S. F., & Javed, M. (2024). A Literature Review of Residents' Empowerment, Sustainable Tourism Development, and Quality of Life. In *Proceedings of the 18th International Scientific Conference INPROFORUM. Entrepreneurship for Sustainability. November 7-8, 2024, České Budějovice* (pp. 69-76) University of South Bohemia in České Budějovice, Faculty of Economics, Czech Republic. <https://doi.org/10.32725/978-80-7694-102-1.10>.

Društvo mladih istraživača Bor (2020a). *Izveštaj o anketi građana o odlučivanju o zaštiti životne sredine*. <https://mibor.rs/wp-content/uploads/2020/12/Izvestaj-o-anketi-gradana-o-odlucivanju-o-zastiti-zivotne-sredine.pdf>.

Društvo mladih istraživača Bor (2020b). *Izveštaj o rezultatima ankete o stavovima građana Bora o zaštiti životne sredine*. <https://mibor.rs/wp-content/uploads/2020/08/Izve%C5%A1taj-o-anketi-BOR-za-za%C5%A1titu-%C5%BEivotne-sredine-rezultati.pdf>.

Hasana, U., Swain, S. K., George, B., & Silva, A. (2022). Management of ecological resources for sustainable tourism: A systematic review on community participation in ecotourism literature. Hasana, U., Swain, SK, & George, B.(2022). Management of Ecological Resources for Sustainable Tourism: A Systematic Review on Community Participation in Ecotourism Literature. *International Journal of Professional Business Review*, 7(1), e0269. <https://ssrn.com/abstract=3948162>.

Iqbal, A., Ramachandran, S., Siow, M. L., Subramaniam, T., & Afandi, S. H. M. (2022). Meaningful community participation for effective development of sustainable tourism: Bibliometric analysis towards a quintuple helix model. *Journal of Outdoor Recreation and Tourism*, 39, 100523. <https://doi.org/10.1016/j.jort.2022.100523>.

Mishra, M., Desul, S., Santos, C. A. G., Mishra, S. K., Kamal, A. H. M., Goswami, S., Kalumba, A. M., Biswal, R., da Silva, R. M., dos Santos, C. A. C., & Baral, K. (2024). A bibliometric analysis of sustainable development goals (SDGs): a review of progress, challenges, and opportunities. *Environment, Development and Sustainability*, 26, 11101–11143. <https://doi.org/10.1007/s10668-023-03225-w>.

Murphy, T. (2004). *The second Minnesota report card on environmental literacy*. Hamline University, Center for Global Environmental Education; Minnesota Office of Environmental Assistance. <https://www.lrl.mn.gov/docs/2009/other/090330.pdf>.

Murphy, T. P., & Olson, A. M. (2008). *The third Minnesota report card on environmental literacy: A survey of adult environmental knowledge, attitudes and behavior*. The College of St. Catherine; Minnesota Pollution Control Agency. <https://www.lrl.mn.gov/docs/2009/other/090329.pdf>.

Narzary, R., & Deb, R. (2024). Sustainable Ecotourism Development and Community Involvement: A Bibliometric Analysis on Research Trends (2003–2024). *Journal of Tourism, Hospitality & Culinary Arts*, 16(3), 56-70.

Ndou, M., & Aigbavboa, C. (2020). Sustainable Development of Mankind Through Ecological Services: A Literature Review. In L. Scott, M. Dastbaz, C. Gorse (Eds) *Sustainable Ecological Engineering Design* (pp. 437-450). Springer, Cham. https://doi.org/10.1007/978-3-030-44381-8_33.

Petrović, N., Išljamović, S., Jeremić, V., Vuk, D., & Senegačnik, M. (2011). Ekološki otisak kao indikator nivoa ekološke svesti studenata Fakulteta organizacionih nauka Univerziteta u Beogradu i Mariboru. *Management - časopis za teoriju i praksu menadžmenta*, 16(58), 15-21.

Ruggerio, C. A. (2021). Sustainability and sustainable development: A review of principles and definitions. *Science of the Total Environment*, 786, 147481. <https://doi.org/10.1016/j.scitotenv.2021.147481>.

Yamaguchi, N. U., Bernardino, E. G., Ferreira, M. E. C., de Lima, B. P., Pascotini, M. R., & Yamaguchi, M. U. (2023). Sustainable development goals: a bibliometric analysis of literature reviews. *Environmental Science and Pollution Research*, 30, 5502-5515. <https://doi.org/10.1007/s11356-022-24379-6>.

Yang, C., & Xiu, Q. (2023). A Bibliometric Review of Education for Sustainable Development, 1992–2022. *Sustainability*, 15(14), 10823. <https://doi.org/10.3390/su151410823>.

Zajić, M., Višnjić, A., Jovanović, T., & Bogdanović, D. (2023). Ispitivanje nivoa ekološke svesti kod stanovnika Kruševca. In N. Petrović, & M. Ćirović (Eds), *Zbornik radova, Digitalni i zeleni razvoj privrede, XIV Skup privrednika i naučnika SPIN'23*, 6.-7. novembar 2023., Beograd, Srbija (pp. 276-285). Univerzitet u Beogradu, Fakultet organizacionih nauka, Centar za operacioni menadžment.