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Impact of information activities on people's attitudes towards dam reservoir construction

Maksymilian Połomski

Wrocław University of Environmental and Life Sciences, Institute of Environmental Engineering, Wrocław, Poland,
e-mail: maksymilian.polomski@upwr.edu.pl; https://orcid.org/0000-0001-6577-737X

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Abstract. The paper aims to identify the most significant aspects that foster people's negative attitudes towards the construction of new dam reservoirs and to estimate the impact of outreach activities on this issue. Online surveys were conducted; the respondents selected a set of questions preceded by a graphical information leaflet, or a set with questions only. The latter included three scenarios in which the respondent was asked to identify themselves as a resident of (1) a large city, (2) a small town or (3) a village. In the group of individuals who had not received the information leaflet, 16.78%, 17.69% and 63.27% spoke negatively about scenarios 1, 2 and 3, respectively. The figures for the second group were 14.08%, 14.66% and 55.17%. For scenario 3, there was also a statistically significant decrease in negative responses for those had previously learned more about reservoir construction.

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1. Introduction

Water resource management and flood protection are becoming critical challenges in the face of climate change (Kundzewicz et al., 2023). Europe is already experiencing both water shortages and catastrophic floods – it is estimated that about 20% of the European Union's territory and 30% of its population face "water stress" each year, and the frequency of extreme precipitation and flooding is increasing with climate change (EEA, 2024). The effects of the floods extend beyond economic losses to include risks to the lives of residents in affected regions. In this context, the development of large infrastructure projects in water management – such as dam reservoirs – is considered a key element in adapting to climate change and ensuring water security (Wiatkowski et al., 2011; Wiatkowski, 2015). The literature emphasises that retention infrastructure has even become an indispensable tool for sustainable development in the face of the climate risks (Boyé & de Vivo, 2016). It may be necessary to increase water resources by the construction of new reservoirs – for example, more dams are planned in France and Spain in response to unstable precipitation (Zabalza-Martínez et al., 2018; Tabouret, 2024). Similarly in Poland, the water management strategy includes the development of artificial retention solutions for protection against drought and flood, which includes programmes for the construction of dry and multipurpose reservoirs (Ministry of Infrastructure, 2023). Such projects have potentially multifaceted benefits, but can simultaneously contribute to flood control, public water supply, agricultural irrigation, and sometimes clean hydroelectric power generation or recreation (Połomski & Wiatkowski, 2023a). For example, the Racibórz Dolny flood control reservoir (capacity ~185 million m^3, commissioned into service in 2020) protects ~2.5 million residents of three voivodeships against flooding.

Despite the aforementioned benefits, the location and implementation of large hydroelectric projects often involves severe social and environmental controversy. Dams and large reservoirs are among the most conflict-ridden projects – they are the subject of fierce disputes all around the world. This is due to their interference with the local ecosystem, alteration of the landscape, the creation of extensive flood zones, and sometimes the need to relocate individual residents or entire villages (Połomski & Wiatkowski, 2024). In addition, it is primarily the local population that is exposed to these negative effects, whereas their main benefits (e.g., energy, water for cities or protection of distant metropolitan areas) serve the wider population (Bretton Woods Project, 2000). This gives rise to NIMBYism (Not In My Backyard) – resistance to planned projects among residents local to areas to be directly affected by construction.

For this reason, public authorities and institutions that fund major infrastructure projects are placing increased emphasis on public consultation and outreach as tools for building public acceptance. In Europe, the participation of society in environmental decisions is not only a standard of good practice, but legally guaranteed (Suškevičs et al., 2022). For more than two decades now (since the signing of the Aarhus Convention in 1998), it has been the principle that citizens are guaranteed access to environmental information, the opportunity to participate in decision-making procedures, and access to justice in these matters (EEA, 2023). The implementation of these principles into EU law (through, among others, the EIA Directive *Environmental Impact Assessment*) requires that, when planning large investments that may have a significant impact on the environment, extensive consultation with the local community and stakeholders take place (European Parliament, 2014). The underlying assumption is that public participation is not only a democratic requirement, but also a practical condition for the success and sustainability of projects.

Scientific literature and international reports confirm that reliable public consultation can significantly increase local acceptance of such projects. According to OECD analysis, effective stakeholder engagement brings various tangible benefits. It builds public trust and acceptance for the project, can avoid costly conflicts, and results in better synergy of activities and savings by catching potential problems early (OECD, 2015). To put it another way, dialogue with the local community does not delay investment, but overall can make it more efficient and effective. The European Investment Bank (EIB) stresses that the stakeholder engagement process should begin at the earliest stage of planning and be held continuously throughout the project cycle, so that the benefits of the project are achieved without excessive social and environmental costs (EIB, 2020). At the macro level, international organisations also recognise this. The OECD, in a report on water management, pointed out that today's water challenges can be met only with the wide participation of various stakeholder groups, and that policymakers should adopt a policy of "open government" – one that is open to dialogue and access to information (OECD, 2015). The World Bank and the European Commission now require

a demonstration of consultation and listening to the local community before granting funding (often as part of a social and environmental impact assessment). The World Commission on Dams (WCD), a body that defined guidelines for large damming projects as early as in the year 2000, has made gaining public acceptance a fundamental priority. According to the WCD, key investment decisions should be made only after obtaining "free, prior, and informed consent" or at least "demonstrable community acceptance" from the people directly affected by the project (WCD, 2000). These principles translate into requirements to ensure the community's right to co-decide about the fate of the project, such as by participating in strategic consultations and being able to voice objections at an early stage.

At the same time, studies show that the effectiveness of public consultations depends on the way they are conducted. Early involvement of citizens – as early as at the initial planning stage – makes it possible not only to increase acceptance, but sometimes even to improve the project itself, such as choosing a road route or reservoir location that is optimal from a social and environmental point of view (Justice and Environment, 2024). A review of case studies of environmental impact assessments in EU countries showed that, where participation was timely, well-organised and as broad as possible, it succeeded in incorporating valuable local knowledge and NGO proposals, which limited subsequent disputes (Justice and Environment, 2024). In turn, mistakes in the consultation process – such as communicating plans too late, simulating dialogue, lacking transparency or ignoring submitted comments – undermine public trust and can exacerbate conflicts. Unfortunately, in reality, citizens frequently find out about investments late and have little time to react. The Justice and Environment report notes that announcements of the start of the EIA procedure are sometimes published only on obscure official sites, so that the local community discovers the investment plans too late to be able to properly become acquainted with them (Justice and Environment, 2024). In addition, technical documentation consisting of hundreds of pages is often incomprehensible, making it difficult for residents to make substantive comments within the short consultation period. Such restrictions can result in formal consultations failing to fulfil their purpose, i.e. dialogue, and merely tick off a legally required obligation. As a result, the potential conflict is not resolved but emerges at a later stage of project completion in the form of protests or lawsuits. That is why experts call for improving participation methods – from better communication (e.g., using comprehensible language and project visualisations) to extending consultation time and actually taking the results into account (Gil-Garcia et al., 2023). In this context, a factual assessment is also important, and it should concern how much dialogue with local stakeholders can influence community attitudes toward planned reservoirs and the factors that determine the effectiveness of such consultations. Properly conducted participatory activities not only increase the chances of public consent for a project but also contribute to its better adaptation to local needs and minimisation of negative impacts – which ultimately benefits both communities and project implementers. Verification of this hypothesis and identification of good practices of public consultation in the context of major water projects shall constitute the primary objective of this study.

The study was conducted using an online tool in the form of an anonymous survey, in which respondents assessed their attitudes toward the construction of dam reservoirs under different scenarios. A differentiation mechanism was applied so that some respondents received a set of questions preceded by a graphical information leaflet concerning the construction and operation of the structures in question, while others received a set containing only the questions. The aim of the analyses was to draw conclusions regarding the impact of informational activities (familiarisation with the aforementioned leaflet) on respondents' declared attitudes, as well as to perform a statistical analysis of differences in responses between subgroups, distinguished by age, education and place of residence.

2. Research materials and methods

An anonymous online survey was prepared that could be directly launched via a link or QR code – without the need to provide sensitive data or to register. The form was available for one year, from April 2024 to April 2025, and was shared among the academic community and on various websites, including social media such as Facebook, Instagram and YouTube. Its completion was possible both on a computer and on mobile devices. First, the respondent had to select a set of questions, having a choice of set A, B, C or D. Question sets A and C included a graphical information leaflet on the construction and operation of dam reservoirs that was displayed prior to the questions. It included

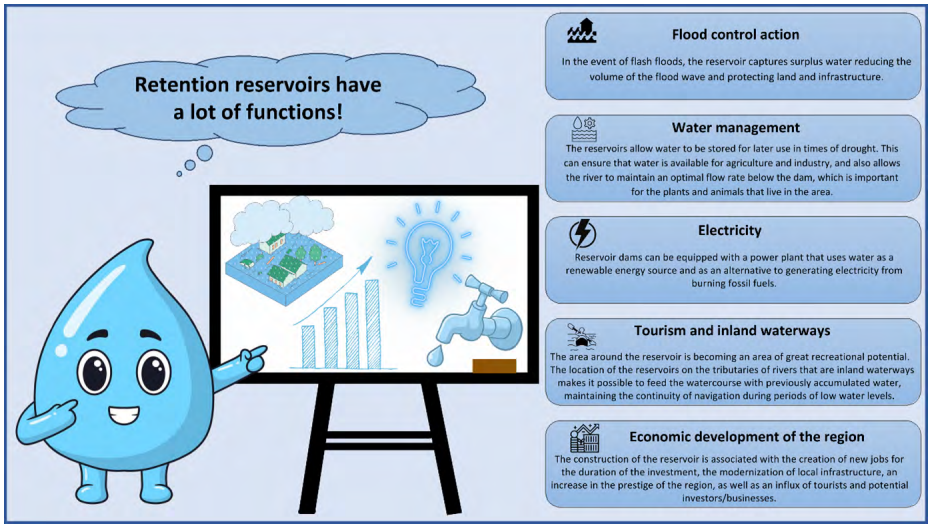

Fig. 1. Information leaflet element indicating various functions of dam reservoirs
Source: own elaboration

photographs of the facilities already in operation, a summary of the functions of the reservoirs, as well as information on the impact of these structures on the environment, water quality and social issues. To illustrate the graphic form of this leaflet, Figure 1 shows one of its elements.

The sections on environmental impact, water quality and social issues attempted to maintain an objective approach to the topic, highlighting the potential negative effects of the investment, but at the same time informing about the possibility of their reasonable mitigation. The individual components of the leaflet covered the following issues: (1) environmental impacts, addressing legal regulations concerning nature protection and mitigation measures; (2) impacts on water quality, describing sources of pollution and the influence of reservoir construction on the hydrochemical status of the river; and (3) social impacts, explaining issues related to expropriation and legal frameworks ensuring appropriate compensation.

Then, after reading the information leaflet (or not – depending on the set selected), the respondents received three general questions concerning their age, education and place of residence. The selection of these sociodemographic variables was based on their widespread use in studies on social perception and their potential influence on the differentiation of respondents' attitudes. After answering, three subsequent scenarios were presented in which one had to imagine oneself in a given situation and assess one's attitude to the planned construction of a dam reservoir, having to choose from (1) Positive – I think it's a good idea, and I could benefit from it, (2) Negative – I suspect that the project will bring more harm than good, (3) Neutral – I have no opinion and would need more information, and (4) I'm not interested. In addition to the description, all scenarios were also enhanced with graphical information, as shown in Figures 2, 3 and 4.

- Scenario 1
  "You are a resident of a city with a population of about 200,000. Your apartment is located on the first floor in a modern housing estate, in the vicinity of a river. You learn that plans to build a reservoir in your voivodeship have emerged. What is your view on this investment?"

- Scenario 2
  "You own a restaurant in a medium-sized town in a mountainous area. You learn that, about 10 kilometres from your place of residence, in an area covered by fields, meadows and a section of forest, an impounding reservoir is to be constructed. What is your view on this investment?"

- Scenario 3
  "You are a resident of a village and owner of the surrounding agricultural land. The construction of an impounding reservoir is planned in your immediate vicinity. After reviewing the preliminary design, you learn that the dam would be located on a portion of your plot, and your friends' house is within the area designated for flooding. What is your view on this investment?"

Fig. 2. Graphic information for Scenario 1
Source: own elaboration

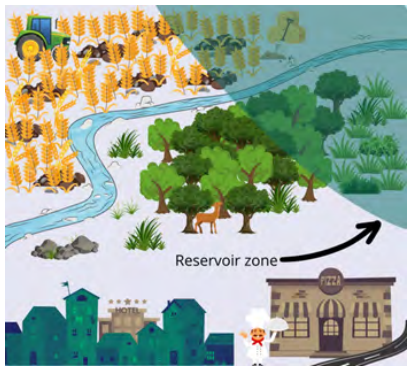

Fig. 3. Graphic information for Scenario 2
Source: own elaboration

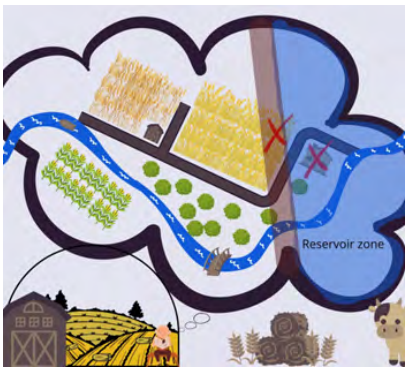

Fig. 4. Graphic information for Scenario 3
Source: own elaboration

To determine statistically significant differences in responses between the groups (those familiarised or not familiarised with the informational leaflet) and subgroups (distinguished by age, education and place of residence), the Z-test for two independent proportions was used. The calculations were performed using a Python script and were based on the following steps.

Determination of proportions $\hat{p}_1$ i $\hat{p}_2$ in the two groups/subgroups compared:

$$\hat{p}_1 = \frac{x_1}{n_1}, \hat{p}_2 = \frac{x_2}{n_2}$$

where:
x_1, x_2 – the number of specific answers in groups 1 and 2,
n_1, n_2 – group size.
The pooled proportion $\hat{p}$ was calculated as:

$$\hat{p} = \frac{x_1 + x_2}{n_1 + n_2}$$

The standard error of difference in proportion SE was calculated as:

$$SE = \sqrt{\hat{p}(1-\hat{p})(\frac{1}{n_1} + \frac{1}{n_2})}$$

The Z-test statistic was determined by:

$$Z = \frac{\hat{p}_1 - \hat{p}_2}{SE}$$

The p-value was determined by:

$$P = 2 * P(Z > |z|)$$

where:
Z – a random variable with a standard normal distribution of $N(0,1)$,
$P(Z>|z|)$ – normal distribution AUC.

3. Research results

A total of 1,137 responses were obtained, of which 696 individuals (61.22%) chose a set with an information leaflet, and 441 respondents (38.78%) chose a set with only questions. Thus, it should be concluded that the method of drawing the set was subject to significant error since, given a choice of sets A, B, C or D, respondents most often chose set A (36.76%), while set D was the least popular (12.31%). Table 1 summarises the number of individuals taking into account the breakdown by subgroup.

The significant difference in the size between the two key groups nonetheless does not render impossible the analysis of differences in responses. Table 2 shows the percentage of data responses to the question asked in each scenario. "Neutral" and "I'm not interested" responses were categorised as conveying the same meaning. The labels "YES" and "NO" were used to denote groups of respondents who were familiarised with the informational leaflet and those who were not, respectively. Colours indicate statistically significant differences in responses between subgroups differentiated by age, education and place of residence, but considering the same set of questions (with or without the leaflet). For example, a statistically significant difference (p=0.0105) was related to the "Positive" response for Scenario 2, in the subgroup of respondents who chose a set with an information leaflet and were divided by age. Bold font indicates statistically significant disparity in responses between subgroups of the same age, education and place of residence, but differing in the selected set of questions. In addition, underscoring was applied to the font where a more stringent level of significance was met, i.e. p<0.01.

Table 1. The number of individuals in a given subgroup of respondents

Group with information leaflet								
Age	**Number**	**Share [%]**	**Education**	**Number**	**Share [%]**	**Settlement (population in thousands)**	**Number**	**Share [%]**
<18	28	4.02	Tertiary	355	51.01	Large town/city (>100)	331	47.56
18–25	229	32.90	Secondary	195	28.02	Medium town (20–100)	191	27.44
25–40	284	40.80	Industry	118	16.95			
>40	155	22.27	Other	28	4.02	Small town/village (<20)	174	25.00
Group without information leaflet								
Age	**Number**	**Share [%]**	**Education**	**Number**	**Share [%]**	**Settlement (population in thousands)**	**Number**	**Share [%]**
<18	16	3.63	Tertiary	239	54.20	Large town/city (>100)	207	46.94
18–25	154	34.92	Secondary	105	23.81	Medium town (20–100)	128	29.02
25–40	186	42.18	Industry	74	16.78			
>40	85	19.27	Other	23	5.22	Small town/village (<20)	106	24.04

Source: own elaboration

Table 2. Summary of survey results

Category	**Age <40**		**Age >40**		**Tertiary education**		**Non-tertiary education**		**Large town/ity**		**Medium/ small town**	
Leaflet	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Scenario 1												
Positive [%]	51.69	54.90	54.12	55.48	53.14	58.31	50.99	51.61	52.17	54.38	52.14	55.62
Neutral [%]	32.58	31.24	24.71	29.68	33.05	30.42	28.71	31.38	34.30	34.14	28.21	27.95
Negative [%]	15.73	13.86	21.18	14.84	13.81	11.27	20.30	17.01	13.53	11.48	19.66	16.44
Scenario 2												
Positive [%]	48.60	50.65	52.94	62.58	49.37	50.42	49.50	56.30	51.69	52.27	47.44	54.25
Neutral [%]	32.87	34.20	32.94	24.52	28.45	33.52	38.12	30.50	32.37	32.93	33.33	31.23
Negative [%]	18.54	15.16	14.12	12.90	22.18	16.06	12.38	13.20	15.94	14.80	19.23	14.52
Scenario 3												
Positive [%]	8.43	14.23	4.71	8.39	11.72	18.31	2.97	7.33	10.14	19.64	5.56	6.85
Neutral [%]	32.30	33.83	15.29	25.16	28.87	31.83	29.21	31.96	31.88	34.14	26.50	29.86
Negative [%]	59.27	51.94	80.00	66.45	59.41	49.86	67.82	60.70	57.97	46.22	67.95	63.29

Source: own elaboration

The overall results of the surveys, without division by age, education and place of residence, are presented in Figures 5, 6 and 7.

For Scenarios 1 and 2, only minor differences were observed between groups that drew different sets of questions. Although in some cases the differences in percentage values exceeded several percentage points (e.g., for Scenario 2 in the >40 age subgroup: 52.94% without the leaflet compared to 62.58% with the leaflet), they were not considered statistically significant, which was partly due to the sample sizes of the analysed subgroups. In overall terms, without dividing into subgroups, the increase in the number of positive responses did not exceed four percentage points, and the Z-test for two independent proportions did not show statistical significance of this result. The situation was different for Scenario 3, where statistically

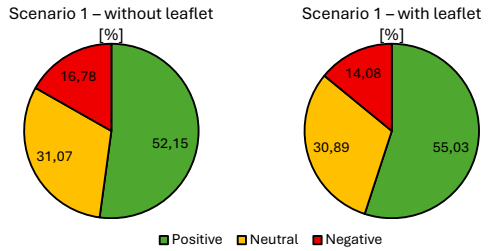

Fig. 5. Survey results for Scenario 1 according to the selected set, without categorisation
Source: own elaboration

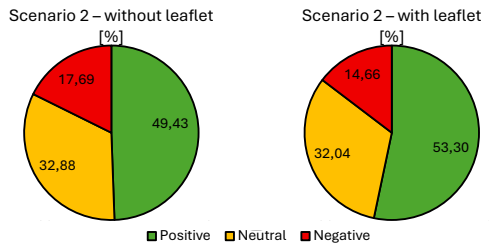

Fig. 6. Survey results for Scenario 2 according to the selected set, without categorisation
Source: own elaboration

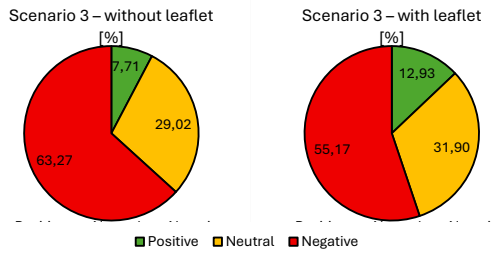

Fig. 7. Survey results for Scenario 3 according to the selected set, without categorisation
Source: own elaboration

significant differences were identified between the same subgroups (age, education, and place of residence) that received different sets of questions. Overall, the group of people who received the information leaflet had about 8 percentage points fewer negative responses and an increase in positive responses of more than 5 percentage points, which constitute statistically significant results.

Analysing the responses of each subgroup, divided based on the three initial questions, statistically significant differences were noted in each scenario. For the sake of simplicity, in the remainder of this section the group of respondents who are familiar with the information leaflet shall be referred to as the "YES group", and those who are not familiar shall be referred to as the "NO group".

- Scenario 1

  Respondents with higher education were less likely to give negative answers for both the YES and NO groups. Residents of large cities were also less likely to respond negatively which, in this case, pertains to the NO group. For this scenario, there were no statistically significant differences in positive and neutral responses. Nor do they occur directly between the YES and NO groups.

- Scenario 2

  In the case of the YES group, a statistically significant higher number of positive responses was noted (at the same time, fewer neutral responses were recorded) among respondents over forty years of age. In addition, in the NO group, those with higher education were more likely to speak negatively and less likely to speak neutrally. For this scenario, there were no statistically significant differences in the responses of people domiciled in different settlement types. Nor do they occur directly between the YES and NO groups.

- Scenario 3

  This scenario has the highest number of statistically significant differences in responses, both between different categories of respondents and between YES and NO groups. Those over the age of 40 were far more likely to respond negatively at the expense of neutral responses. Similarly, for those without higher education and living in smaller towns/villages, the percentage of negative responses is significantly higher and the percentage of positive responses significantly lower; however, no significant differences were found for neutral responses. The most statistically significant differences (for a more stringent level of significance $\alpha=0.01$) between the YES and NO groups concern the increase in positive responses among the respondents under the age of forty, as well as the increase in positive responses and the decrease in negative responses among the respondents living in cities. In addition, a less stringent level of significance ($\alpha=0.05$) indicates the importance of such differences as the decrease in negative responses in both age categories, a decrease in negative responses among those with higher education, and an increase in positive responses independent of education.

4. Discussion

Differences in attitudes towards the construction of dam reservoirs depending on respondent characteristics such as age, education and place of residence can be interpreted through the lens of previous research and theory. For example, in the context of reservoir construction decisions in the US, it was found that age tends to be an important factor in differentiating opinions – younger people are more likely to support pro-environmental solutions (such as removing old dams), while older people are more likely to preserve the existing infrastructure (Diessner et al., 2019). In the cited study, education level did not significantly affect preferences, suggesting that formal education alone does not necessarily determine views on hydropower projects. In contrast, other studies have shown that the impact of education can manifest itself indirectly, such as through greater awareness of environmental risks or a better understanding of the technical benefits of investments. For example, an analysis of perceptions of dam construction in India revealed that, while education level made little difference in the overall evaluation of the project, individuals with better education felt slightly safer in the vicinity of the reservoir and indicated a greater willingness to relocate if necessary than those with lower education levels. In terms of place of residence, distance from the planned reservoir is of particular importance. According to study results, individuals living farther away from such a location tend to view such an investment more positively than residents domiciled in the immediate vicinity (Wiejaczka et al., 2018). This is related to the NIMBY ("not in my backyard") phenomenon – people may generally support the construction of reservoirs, seeing their advantages (e.g., protection against flood or recreation), but at the same time oppose such an investment being sited close to their own community for fear of nuisance. Research in Poland on the community affected by plans to construct the Klimkówka reservoir has shown that it is the physical proximity of the project that most strongly influences its perception – the farther the house is from the reservoir, the more positive the resident's attitude (Wiejaczka et al., 2014). It is also worth considering the impact of other variables whose analysis surpasses basic demographic categories. Socio-economic factors, such as source of income, may shape attitudes regardless of age or education. For example, a survey in the Himalayan region of Darjeeling presented nearly unanimously negative local community attitudes towards a new reservoir, but respondents with precarious incomes (e.g., road workers, drivers, small businessmen) were the most critical, while those employed in the public sector were somewhat less harsh towards the project attitude (Prokop & Walanus, 2017). This suggests that economically disadvantaged groups may more strongly perceive potential threats and costs (loss of jobs, land or deterioration of living conditions), while those in a more stable position also see some opportunities (such as new investments or compensation). It is also important to set the discussion in a broader cultural context. For example, research in Spain has shown clear regional differences. In the dry region of Andalusia (where water scarcity is a genuine problem), support for reservoirs was significantly higher than in water-rich, humid Asturias. Residents of areas affected by water shortages more strongly appreciated the services provided by reservoirs (guarantee of water supply, irrigation, hydropower) and were more willing to accept this type of investment despite awareness of the negative effects (Dopico et al., 2022). In contrast, in a region with abundant precipitation that is not burdened by drought, the population saw no urgent need for the construction of new dams, and issues of environmental protection and preservation of natural rivers may have prevailed in attitudes. This comparison indicates that the perception of hydrotechnical projects depends on the perceived needs of the community. The survey conducted for the purposes of this paper revealed statistically significant differences between groups differentiated by age, education and place of residence, allowing us to attempt to adopt hypotheses explaining this phenomenon. Younger individuals may be more persuaded by environmental arguments, while older people opt for proven and more engineering-based solutions; those with better education are aware of both benefits and risks (which may translate into cautious and balanced opinions), and residents of areas potentially exposed to the direct impact of projects will generally be more suspicious of their implementation. It is likely, however, that the observed differences between groups of respondents are due to a more complex combination of their socio-demographic characteristics and differing interests and experiences.

Referring to the main aim of this paper, the literature features examples of scientific research on the public perception of hydropower investments highlighting the role of community participation in the decision-making process. Lack of proper consultation and failure to take into account the preferences of the local community can lead to an escalation of conflict over water resources (Machowski et al., 2025). On the other hand, when the planning

process includes elements of dialogue and public participation, there is a better chance of mitigating disputes. The Polish experience – e.g., the planning of the Racibórz Dolny reservoir – shows that, in accordance with the requirements of national law and international guidelines (of the World Bank), intensive consultation activities were implemented there, which ensured a high level of information for residents and the possibility of their active participation in the investment process (World Bank, 2017; Połomski & Wiatkowski, 2023b). As a result, local acceptance of the project has increased, and potential unrest has largely been resolved. This indicates that a properly designed information campaign has the potential to modify people's attitudes towards an investment. It is particularly noteworthy that this effect was observed clearly only in Scenario 3, i.e., in a situation involving direct impact of the investment on the respondent's property and immediate social environment. This suggests that informational activities may play a more significant role not in the general evaluation of an investment, but in situations where the planned project is associated with a sense of personal risk, loss of control, or threat to one's current way of life. Under such conditions, access to reliable information may help reduce uncertainty and mitigate negative attitudes. Similar conclusions were drawn from an experimental Chinese study of hydropower – providing respondents with specific information (e.g., about the cost of power generation or the level of greenhouse gas emissions in the case of hydropower) significantly changed the declared support for such projects. This was particularly evident when the economic aspects of the investment were highlighted – people who were previously sceptical amended their opinions when confronted with data on the profitability or financial burden of the project (Zhang et al., 2023). This shows that fact-based information campaigns can influence attitudes, as long as they address issues that are important to a given target audience. Economic arguments appeal to cost-conscious people, while ecological ones appeal to those attuned to environmental concerns.

Finally, the research conducted is not free of limitations that affect the interpretation of the results. An online survey necessarily excludes individuals who do not use the Internet, and therefore may not representatively include, for example, older age groups or residents of areas affected by the digital divide (Grewenig et al., 2023). In other words, not every population group had an equal opportunity to participate in the survey, which limits the ability to generalise the results to the entire population. The second limitation is the nature of the data collected. Respondents gave answers declaratively, which involves the risk of cognitive errors and self-presentation tendencies. The phenomenon of social desirability bias (the tendency to portray oneself in a better light) may cause some respondents to express opinions that are in line with what they consider socially desirable but do not necessarily fully reflect their actual beliefs (Vesely & Klöckner, 2020). In the environmental context, for example, it is possible to overestimate support for "green" solutions, since being green is perceived positively socially. In addition, an online survey does not provide an opportunity for real-time clarification of ambiguities in questions – if a respondent has misunderstood a question or an outreach scenario presented in the survey, their answer will be subject to an error that we are unable to detect after the fact. Another limitation is that the survey focused on stated attitudes in the here-and-now, towards hypothetical scenarios. Such declarations do not always translate into future behaviour. It is possible that the actual reactions of the community in the face of a specific project may differ from the answers given in an abstract survey. In conclusion, the limitations of the applied research methodology include:

- limited sample representativeness resulting from the use of an online survey, which excludes individuals who do not use the Internet,
- the declarative nature of responses, which is subject to cognitive biases and the effect of social desirability bias,
- the lack of possibility to clarify questions during the survey, which may lead to their ambiguous interpretation,
- the use of hypothetical scenarios, which do not always translate into actual social behaviour.

The results should therefore be interpreted with caution. Nonetheless, they provide a valuable voice in the discussion, consistent with source literature concerning the way outreach efforts can shape public perceptions of controversial dam reservoir construction projects. In this context, social communication should be implemented already at the planning stage of the project, as an integral element of the investment process. It is important to apply diverse forms of communication, including tools such as a project website, dedicated contact channels, regularly operating consultation points, conferences or public meetings, as well as locally distributed informational leaflets and surveys.

5. Conclusions

As part of the research, an online form (survey) was developed. Respondents could use it to assess their attitudes towards the construction of dam reservoirs in various scenarios – as positive, neutral or negative. Scenario 1 involved a resident of a riverside city; dam construction above the town is being considered. Scenario 2 involved the owner of a restaurant in a medium-sized town; a reservoir is to be built 10 kilometres away from it, in an area of fields, meadows and forest. Scenario 3 involved a villager in whose immediate vicinity (partly on his plot of farmland) a reservoir dam is to be built. A total of 1,137 responses were obtained and analysed in terms of the impact of familiarisation with the informational leaflet (or lack thereof) and the variation in attitudes depending on sociodemographic characteristics. Based on this, the following conclusions were formulated:

- For Scenarios 1 and 2, only minor differences were observed between groups that drew different sets of questions.
- For Scenario 3, in the group of people who received the information leaflet, about 8 percentage points fewer negative responses were noted and an increase in positive responses of more than 5 percentage points was observed, which constitutes statistically significant results.
- For Scenario 1, people with higher education and residents of large cities were less likely to respond negatively.
- For Scenario 2, younger people were more likely to maintain a neutral attitude, while people with higher education were more likely to speak negatively.
- The most significant differences were observed for Scenario 3, in which the most statistically significant differences (for the more stringent significance level of α=0.01) pertained to an increase in positive responses among those under forty, as well as an increase in positive responses and a decrease in negative responses among respondents living in cities.
- People over 40 were much more likely to give negative responses than neutral ones.
- In the case of people without higher education and living in towns and villages, the percentage of negative responses is much higher, and the percentage of positive responses is lower.

Due to various limitations arising from the adopted methodology of the online survey, the results should be interpreted with caution; however, they do constitute a valuable voice in the discussion on how outreach activities can shape public perception of the construction of new dam reservoirs.

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