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PERCEPTION OF CLIMATE CHANGE AMONG MAŁOPOLSKIE VOIVODESHIP RURAL POPULATION

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ABSTRACT: Climate change is currently one of humanity's primary challenges. Although it has yet to affect all parts of the world equally, it impacts all continents and virtually all countries. People's perception of the change also evolves. This makes monitoring the public's attitude towards climate change highly relevant. The article aims to characterise the attitudes and behaviour of the Małopolskie Voivodeship countryside towards climate change. The survey design covers the research areas referred to in the EIB Climate Survey report. The survey reported in the article involved 300 randomly selected adult residents of rural areas in five districts of Małopolskie Voivodeship (southern Poland). The authors also interviewed representatives of local authorities, such as environmental stewardship advisers. The results indicate that most respondents consider climate change and its consequences to be the central challenges for humanity in the twenty-first century. The most severe global problem for them is air pollution. Climate change affects the everyday lives of more than half of the respondents. Only 10% did not report any impact. The most popular forms of environmental stewardship among the respondents are the reduced use of plastics, reduced water consumption, and purchasing energy-efficient devices. Surprisingly, 15% of the population of Miechowski District and 10% of people in Limanowski District declared no environmental stewardship efforts to curb the impact of climate change.

KEYWORDS: climate change, climate policy, rural areas, pro-environmental attitudes, Małopolskie Voivodeship

Introduction

Climate change is currently one of humanity's primary challenges. Although it has yet to affect all parts of the world equally, it impacts all continents and virtually all countries. People's perception of the change also evolves. The public is slowly recognising the detrimental impact of humanity on the natural environment today. Paradoxically, it is the pace of changes in the natural environment that is among the primary factors driving awareness. Hence, the inevitability of the consequences of humanity's destructive impact seems to affect human attitudes and behaviour. A regular survey by the European Investment Bank in Europe, China, and the USA appears to corroborate the results. *EIB Climate Survey. Citizens call for a green recovery. Fourth edition – 2021–2022* (EIB Report, 2022) clearly demonstrates that the populations of many countries are well aware of the tremendous losses to the community and environment caused by climate change and its direct impact on people's lives.

The awareness among Polish citizens has been confirmed in various surveys. Two of them are research conducted by the Institute of Public Affairs and the Heinrich Böll Foundation in Warsaw on the attitudes of residents of the Polish countryside towards climate change and EU climate policy (Sobiesiak-Penszko, 2021). Another one is the report *Perception of Climate Change in Małopolska* (Report European Clean, 2020) by the European Clean Air Centre Małopolska.

Conversely, the latest results on the attitudes of Poles towards climate change in the recent report by Kantar Polska (Report Kantar, 2024) show that people have grown more accustomed to climate change.

How do attitudes and beliefs of the Małopolskie Voivodeship countryside compare to the opinions reported above? The authors attempted to address the gap with a survey of rural residents from various parts of Małopolskie Voivodeship. The article aims to characterise the attitudes and behaviour of the Małopolskie Voivodeship countryside towards climate change.

Climate change – the global challenge for humanity

Climate change has been observed for decades. The problem today is that it has accelerated to a degree even scientists find astonishing (ESOTC2023 Report, 2024). The ten hottest years on record occurred after 2010. June 2023 was the hottest month in the history of global temperature measurements (Ferreira 2024, p. 1; NOAA).

Regular measurements reveal that the average temperature on Earth has grown by about 1°C since the second half of the nineteenth century (NASA) and nearly 1.5°C compared to the pre-industrial levels. Notably, 'Each of the four last decades has been successively warmer than any decade that preceded it since 1850' (Breckenfelder et al., 2023, p. 5; IPCC, 2022). The leading cause of global warming is excessive emissions of greenhouse gases, with carbon dioxide accounting for about 75% of the emissions. The primary source of greenhouse gases is the combustion of fossil fuels, followed by agricultural processes to a significantly lower degree. (Breckenfelder et al., 2023, p. 5; Valavanidis, 2022; Hook & Tang, 2013; Shanmugam, 2023).

In Poland, the consequences of climate change include primarily gusty winds, droughts, torrential rains, and heat waves. Extreme weather events are expected to grow more frequent, disturbing water resources. The problem will mainly affect areas suffering from recurring droughts, which will hit consumers after first upsetting the agricultural industry. On the other hand, torrential rains will cause flooding and contribute to higher levels of the Baltic Sea. Low-lying coastal areas, like Vistula Fens, are at risk of inundation (Kundzewicz & Juda-Rezler, 2023). Heat is already having a detrimental effect on the situation in cities. Data show that the ten largest Polish cities had over 600 heat waves in the two recent decades. Sixty per cent of them took place between 2012 and 2022. It clearly indicates that the problems have intensified' (Leszczyński et al., 2023, p. 7).

On a global scale, climate change will lead to more frequent and intense extreme weather events, such as catastrophic floods or droughts. They affect nature directly and hinder biodiversity by causing the extinction of many plant and animal species, for example (Adom, 2024, p. 4; de la Fuente & Williams, 2022). Apparently, humanity is also hurt by the change through 'the interdependence of climate, biodiversity, ecosystems, and human societies' (Adom, 2024, p. 4). Moreover, climate change

is the biggest threat to human health in the twenty-first century (Watts et al., 2015; Brown et al., 2023; Abbas, 2023). It promotes communicable diseases, respiratory diseases, and neurological diseases and aggravates their case fatality rates. Importantly, researchers expect the adverse health impacts to intensify as the mean global temperature of the Earth's surface increases (Brown et al., 2023; Ebi et al., 2021). Moreover, the change has already influenced the food sector and will disturb it even more (Adom, 2024; von Braun et al., 2023; Miron et al., 2023; Anderson et al., 2020, p. 8), leading to compromised food security in individual countries and entire regions. Climate change adaptation plans are, therefore, necessary. They should include such efforts as 'flood and climate protection, waste management and recycling, climate-smart agriculture, analytical climatic conditions, [and] innovative equipment on agricultural processes and activities' (Duran-Sandoval, 2023, p. 840).

Climate change and adaptation policies will increasingly affect the global economy, leading to substantial financial losses, wealth decline, and lower GDP. In addition, a stricter climate policy may cause an adverse macroeconomic supply-side shock (transition risk) (Batten & Tanak, 2020; Bilal & Kanzig, 2024, p. 4; Bugdol et al., 2024). Hence, it is imperative to gain insight into the economic repercussions of climate change both from climate economists and for a wider range of economic professionals involved in modelling and forecasting macroeconomic variables, as S. Batten (2018, p. 2) suggested.

Thus, when investigating climate change, one must also consider its impact on socioeconomic indicators. Admittedly, most extreme conditions affect developing countries, but they will eventually reach developed countries as well. They concern such issues as

- economic loss due to climate change,
- food insecurity and declining farmland value,
- millions of people at risk of extreme hunger and undernourishment under climate change scenarios,
- poverty likely to deepen in the future, especially in Africa,
- the numbers of water-distressed areas and areas at risk of flood likely to increase in the future,
- energy security likely to suffer in the future under climate change scenarios' (Adom 2024, pp. 2–3).

Efforts to prevent climate change are coordinated globally by international organisations, such as the UN (2025). One example of such global initiatives is the comprehensive climate agreement adopted at the Paris Climate Change Conference (COP 21) in December 2015. The agreement was signed by 196 states. It is intended to keep 'the increase in the global average temperature to well below 2°C above pre-industrial levels' and pursue efforts 'to limit the temperature increase to 1.5°C above pre-industrial levels' (Anderson et al., 2020, pp. 9–10; UNFCC, 2025).

According to experts, global warming should be limited to 1.5°C by the end of the century. It causes increasingly dynamic weather events, mainly more frequent and severe droughts, heat waves, and heavy rains.

The European Union also takes action to address climate change. Its efforts include transitioning to a climate-neutral economy with zero net greenhouse gas emissions by 2050. In 2014, EU member states agreed on a 40% emissions reduction by 2030. The energy crisis of 2023, caused by the Russian invasion of Ukraine, expedited the transition. The EU will reduce emissions by at least 55% of the 1990 levels by 2030 and reach zero net emissions in 2050 (EC 2025; European Climate Law, 2025). The organisation intends to attain the targets with such policies as the Green Deal adopted by the European Commission (Wrzaszcz & Prandecki, 2024). Its climate goals cover all critical sectors of the economy, such as

- emissions reduction targets across a broad range of sectors,
- a target to boost natural carbon sinks,
- an updated emissions trading system to cap emissions, put a price on pollution, and generate investments in the green transition,
- social support for citizens and small businesses (European Green Deal, 2024).

Finally, the authors must address the human impact on climate change, which some circles find controversial. The problem is relevant to the article investigating attitudes, behaviour, and opinions of the rural population of Małopolskie Voivodeship. According to Breckenfelder et al. (2023, p. 5), the prevailing view is that human activities clearly contribute to the current global temperature increase.

This belief is consistent with recent reports by the Intergovernmental Panel on Climate Change (IPCC, 2018) and IPCC AR6 (IPCC, 2022), for example. Breckenfelder et al. (2023, p. 5) found it ‘unequivocal that human influence has warmed the atmosphere, oceans and land’. A report ten years older was not as definitive (IPCC, 2014): It is extremely likely that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in greenhouse gas concentrations and other anthropogenic forces (Breckenfelder et al., 2023, p. 5).

In addition, according to Zachariah et al. (2023) and Ferreira (2024), the latest climate change monitoring and observation data show that the destructive heat waves, droughts, heavy rains, floods, etc., recorded in the last two years on nearly all continents would have been “virtually impossible” without human-induced climate change.

Environmental policy of Małopolskie Voivodeship

The environmental efforts in Małopolskie Voivodeship are consistent with the EU and Poland’s stewardship approaches. Poland is currently implementing the National Energy and Climate Plan 2030. It is the central document for the Polish energy sector and other industries (National Energy and Climate Plan). It is aligned with the EU’s Green Deal.

Małopolskie Voivodeship is executing the Regional Action Plan for Climate and Energy for the Małopolskie Voivodeship 2021–2030 (2024). Its primary objective is to integrate areas critical for climate policy, such as the energy, transport, construction, and economy sectors (including industry and waste management), agriculture, forestry, and land use. These sectors are the focal point of the EU Strategy 2050.

The Regional Climate and Energy Action Plan for Małopolskie Voivodeship is also pursued by institutions involved in the LIFE-IP EkoMałopolska project for 2021–2030. The total programme budget is 16.4 million euros (about 70 million PLN). It brings together multiple partners from Małopolskie Voivodeship and two from Germany: Wuppertal Institute for Climate, Environment and Energy and the Brandenburg University of Technology Cottbus–Senftenberg. All districts in Małopolskie Voivodeship, except Tatrzański District, participate in the project.

The primary objectives of LIFE-IP EKOMAŁOPOLSKA (2024) are:

- to fully deploy the Regional Climate and Energy Action Plan for Małopolskie Voivodeship and mobilise available EU and state funds and private assets to pursue the plan’s priorities,
- to develop the institutional capabilities, know-how, and tools for promoting the implementation of the Regional Plan, National Energy and Climate Plan 2021–2030, and the European Green Deal in Poland,
- to steward a low-emission transformation in the heating equipment market, leading to the supply of green jobs,
- to mould behavioural attitudes to ensure comprehensive support and engagement in environmental stewardship vehicles,
- to disseminate good practices to other regions in Poland and Europe (LIFE-IP EkoMałopolska 2021).

Additionally, Małopolskie Voivodeship participates in the Strategic Environmental Protection Programme for 2021–2027 with 2030 prospects in line with the time framework of the ‘Małopolska 2030’ Strategy and the time horizon of European Funds for 2021–2027 (European Commission 2021). Its objective is to attain the strategic goal of the ‘Małopolska 2030’ Voivodeship Strategy (2020): a high-quality environment and pursue climate neutrality. The main areas of focus are water management, biodiversity and landscape protection, environmental education, and circular economy growth.

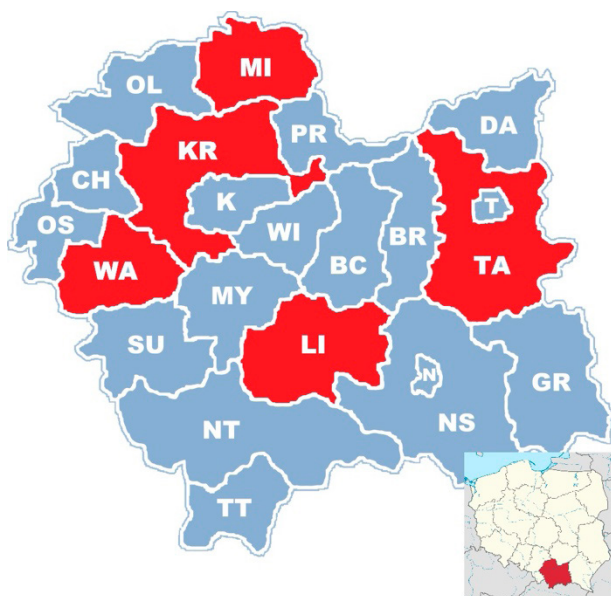
Environmental protection capital expenditures in Małopolskie Voivodeship in 2023 amounted to 1,297.6 million PLN, which is 7.1% of the total such expenses in Poland. It was 17.3% more than in 2022. Wastewater system and water protection were the primary focal points (42%, about 549.2 million PLN). Air and climate protection cost 357.9 million PLN (about 28%), and waste management amounted to 215.2 million PLN or 16.6% of the total expenses. Most of the environmental expenses were covered by Małopolskie Voivodeship (684.6 million PLN or 52.8% of the total amount). EU environmental funds contributed 229.3 million PLN (17.7%), and foreign assets approximated 136.2 million PLN (10.5%), (Statistics Poland 2024, pp. 6–7).

Methods

The survey design reported in the article covers the research areas referred to in the EIB Climate Survey report. It consists of closed-ended questions. Their answer options are presented in Tables 2–5.

The respondents were 300 randomly selected adult residents of rural areas in Małopolskie Voivodeship. The selection of the districts reflects the regional diversity of the voivodeship: Miechowski District in the north, Wadowicki District in the southwest, Tarnowski District in the east, Limanowski District in the south, and Krakowski District representing the central part of the voivodeship (Figure 1).

The authors additionally conducted 20 interviews with representatives of local authorities involved in environmental protection to various degrees. They were mostly from environmental protection departments at municipal offices (including environmental stewardship advisers) and five district offices.



MI, Miechowski District; KR, Krakowski District; WA, Wadowicki District; LI, Limanowski District; TA, Tarnowski, District

Figure 1. The districts selected for the survey in Małopolskie Voivodeship

The statistical analyses were done in IBM SPSS v. 25. They included analysis of basic descriptive statistics, χ^2 tests, and Fisher's exact tests. The significance level was set at a typical $\alpha = 0.05$. These tests are:

- used to compare proportions of answers across groups,
- Fisher's exact tests are employed when χ^2 test assumptions are not satisfied:
 - no more than 20% of cells have expected counts below 5,
 - the minimum expected count is greater than 1.

The survey involved 300 residents from five districts: Wadowicki, Miechowski, Krakowski, Limanowski, and Tarnowski (60 people each). The sample consisted of 125 (41.7%) men and 175 (58.3%) women aged 15 to 86 ($M = 42.30$; $SD = 17.59$).

No statistically significant differences between representatives of the two sexes in the sample were found. Differences between age groups were also statistically insignificant. The results are summarised in Table 1.

The authors subjected the variable 'respondent education' to an additional χ^2 test, which failed to identify any significant differences among the five districts: $\chi^2(12) = 9.79$; $p = 0.635$. The same test revealed no statistically significant differences regarding the respondents' professions: $\chi^2(4) = 7.03$; $p = 0.134$.

Table 1. Respondent sex and age

Sex/age		District						Statistical significance
			Wadowicki	Miechowski	Krakowski	Limanowski	Tarnowski	
Sex	male	N	31	30	22	21	21	$\chi^2(4) = 6.99$ $p = 0.136$
		%	51.70%	50.00%	36.70%	35.00%	35.00%	
	female	N	29	30	38	39	39	
		%	48.30%	50.00%	63.30%	65.00%	65.00%	
Age	M (SD)		43.60 (17.69)	47.07 (17.85)	40.55 (17.99)	38.97 (17.17)	41.33 (16.65)	$F(4.295) = 1.94$ $p = 0.104$
	Min-Max		15–84	18–82	18–86	16–75	15–86	

Results

The respondents were asked whether they believed climate change and its repercussions were the foremost challenge for humanity in the twenty-first century. Residents of Krakowski District submitted the largest share of definite affirmative answers (over 33% 'strongly agree'). Less decisive answers ('agree') were most often picked by representatives of Tarnowski District (45%). It was the most common answer for the entire sample (39%). About 27% of the sample were not convinced that climate change was the most critical problem for humanity. Interestingly, the smallest group unable to evaluate the problem lived in Krakowski District (merely 3%), while Wadowicki and Limanowski Districts had the most undecided residents (Table 2).

Table 2. Sample structure regarding opinions on whether climate change and its consequences are the central challenges for humanity in the twenty-first century by district

Answers	District						TOTAL
		Wadowicki	Miechowski	Krakowski	Limanowski	Tarnowski	
strongly disagree	N	6	7	10	4	7	34
	%	10.0%	11.7%	16.7%	6.7%	11.7%	11.3%
disagree	N	9	10	11	10	6	46
	%	15.0%	16.7%	18.3%	16.7%	10.0%	15.3%
cannot decide	N	10	7	2	9	6	34
	%	16.7%	11.7%	3.3%	15.0%	10.0%	11.3%
agree	N	25	26	17	22	27	117
	%	41.7%	43.3%	28.3%	36.7%	45.0%	39.0%
strongly agree	N	10	10	20	15	14	69
	%	16.7%	16.7%	33.3%	25.0%	23.3%	23.0%

Source: authors' work based on the EIB Climate Survey (EIB Report, 2022).

The respondents were then asked which environmental protection problem they found most alarming. Two statistically significant results were identified. The first one was the intensification of natural disasters (a substantial difference was found between Krakowski District, where about 36% acknowledged the problem, and Tarnowski District, where 65% of the population chose this answer). The other problem was natural disasters and marine plastic pollution, important for merely about 32% in Miechowski District and over 63% in Krakowski District. The strength of the effects was low.

The other differences were not statistically significant (Table 3). The respondents believed air pollution to be the most severe global environmental protection problem, especially those in the Miechowski District. Clean water supply was considered the least problematic, particularly by representatives of the Tarnowski District (only 23% of answers). Interestingly, the answer 'climate change', the most universal and general of all the options, was chosen relatively rarely in all five districts (most often in Wadowicki District, 45%, and least often in Krakowski District, 27%).

Then, the residents were asked to evaluate whether climate change affected their everyday lives. Half could identify such an impact: over 22% chose 'strongly agree', and about 34% opted for 'agree'. Merely one in ten respondents did not notice any influence (11%). The largest share of those who definitely found links between their daily lives and climate change lived in Kraków District, and the smallest groups were in Limanowski and Wadowicki Districts (Table 4).

Table 3. Respondent's answer structure regarding alarming global environmental protection problems by district

Answers	District						Statistical significance
		Wadowicki	Miechowski	Krakowski	Limanowski	Tarnowski	
climate change	N	27	22	16	23	24	$\chi^2(4) = 4.65$ $p = 0.326$
	%	45.0%	36.7%	26.7%	38.3%	40.0%	
intensification of natural disasters	N	26	31	21	29	39	$\chi^2(4) = 11.34$ $p = 0.023$ $V = 0.20$
	%	43.3%	51.7%	35.6%	48.3%	65.0%	
marine plastic pollution	N	33	19	38	23	24	$\chi^2(4) = 16.47$ $p = 0.002$ $V = 0.23$
	%	55.0%	31.7%	63.3%	38.3%	40.0%	
air pollution	N	35	44	39	39	35	$\chi^2(4) = 3.99$ $p = 0.407$
	%	58.3%	73.3%	65.0%	65.0%	58.3%	
clean water supply	N	23	20	27	16	14	$\chi^2(4) = 8.25$ $p = 0.083$
	%	38.3%	33.3%	45.0%	26.7%	23.3%	
other	N	0	3	1	4	3	Fisher's exact test $p = 0.278$
	%	0.0%	5.0%	1.7%	6.7%	5.0%	

Source: authors' work based on the EIB Climate Survey (EIB Report, 2022).

Table 4. Respondent answer structure regarding the perception of the impact of climate change on everyday lives by districts

Answers	District						TOTAL
		Wadowicki	Miechowski	Krakowski	Limanowski	Tarnowski	
strongly disagree	N	8	4	7	8	7	34
	%	13.30%	6.70%	11.70%	13.30%	11.90%	11.40%
disagree	N	12	15	12	10	12	61
	%	20.00%	25.00%	20.00%	16.70%	20.30%	20.40%
cannot decide	N	8	9	4	10	5	36
	%	13.30%	15.00%	6.70%	16.70%	8.50%	12.00%
agree	N	18	20	15	24	25	102
	%	30.00%	33.30%	25.00%	40.00%	42.40%	34.10%
strongly agree	N	14	12	22	8	10	66
	%	23.30%	20.00%	36.70%	13.30%	16.90%	22.10%

Source: authors' work based on the EIB Climate Survey (EIB Report, 2022).

Declarations of the residents of the five districts regarding their efforts to reduce the impact of climate change in the six months before the survey are summarised in Table 5. Four statistically significant differences were found. The strength of all the associations was low¹.

Representatives of Krakowski District declared the most intensive environmental stewardship activities. Two-thirds declared using less plastic. More than half reduced water consumption and bought energy-efficient devices. Food waste composting was much more common in the Tarnowski District than elsewhere (55%). The respondents participated in community services such as community cleanups relatively rarely (from 5% in the Tarnowski District to 15% in the Krakowski District). They were also reluctant to donate to environmental organisations (from about 3% in Wadowicki District to 10% in Tarnowski District).

Interestingly, 15% of the population of Miechowski District and every tenth resident of Limanowski District declared no environmental stewardship efforts to curb the impact of climate change.

Table 5. Respondent's answer structure regarding environmental stewardship efforts in the last six months to help control the ramifications of climate change by district

Answers	District						Statistical significance
		Wadowicki	Miechowski	Krakowski	Limanowski	Tarnowski	
reducing water consumption	N	22	23	33	19	24	$\chi^2(4) = 7.67$ $p = 0.104$
	%	36.70%	38.30%	55.00%	31.70%	40.00%	
reducing plastic consumption	N	28	21	39	29	32	$\chi^2(4) = 12.12$ $p = 0.017$ $V = 0.20$
	%	46.70%	35.00%	66.10%	48.30%	53.30%	
buying energy-efficient devices, like dishwashers and refrigerators	N	26	23	31	26	29	$\chi^2(4) = 2.56$ $p = 0.634$
	%	43.30%	38.30%	51.70%	43.30%	48.30%	
buying products from recycled materials (such as plastics or cardboard)	N	24	18	21	17	17	$\chi^2(4) = 2.83$ $p = 0.586$
	%	40.00%	30.00%	35.00%	28.30%	28.30%	
using public transport (such as bus, underground, train, etc.)	N	23	24	30	19	17	$\chi^2(4) = 7.18$ $p = 0.126$
	%	38.30%	40.00%	50.00%	31.70%	28.30%	
buying second-hand products (such as in second-hand stores)	N	29	17	10	13	17	$\chi^2(4) = 17.02$ $p = 0.002$ $V = 0.24$
	%	48.30%	28.30%	16.70%	21.70%	28.30%	
food waste composting	N	25	26	19	14	33	$\chi^2(4) = 14.66$ $p = 0.005$ $V = 0.22$
	%	41.70%	43.30%	31.70%	23.30%	55.00%	
participating in local community service	N	5	8	9	4	3	$\chi^2(4) = 5.12$ $p = 0.276$
	%	8.30%	13.30%	15.00%	6.70%	5.00%	
limiting meat intake	N	4	8	5	7	10	$\chi^2(4) = 3.78$ $p = 0.436$
	%	6.70%	13.30%	8.30%	11.70%	16.70%	
reducing the purchase of products imported over long distances	N	8	5	10	15	8	$\chi^2(4) = 7.04$ $p = 0.134$
	%	13.30%	8.30%	16.70%	25.00%	13.30%	

1 Effect strength is Cramér's V. It ranges from 0 (no effect) to 1 (complete effect). Generally, $V < 0.3$ is considered to represent a low effect strength /association.

Answers	District						Statistical significance
		Wadowicki	Miechowski	Krakowski	Limanowski	Tarnowski	
buying seasonal produce	N	14	12	25	11	19	$\chi^2(4) = 11.40$ $p = 0.022$ $V = 0.20$
	%	23.30%	20.00%	41.70%	18.30%	31.70%	
donating to environmental organisations / NGOs	N	2	4	4	5	6	Fisher's exact test $p = 0.735$
	%	3.30%	6.70%	6.70%	8.30%	10.00%	
other	N	0	3	2	0	1	Fisher's exact test $p = 0.321$
	%	0.00%	5.00%	3.30%	0.00%	1.70%	
I have done nothing to help control the effects of climate change in the last six months	N	2	9	3	6	3	Fisher's exact test $p = 0.132$
	%	3.30%	15.00%	5.00%	10.00%	5.00%	

Source: authors' work based on the EIB Climate Survey (EIB Report, 2022).

The second stage of the study in the five districts focused on qualitative aspects. The interviewees pointed out several problems linked to shaping climate policies in their respective regions. Note that the main barrier to climate change stewardship mentioned by the representatives of all the institutions and the residents was insufficient funds for replacing coal-fired boilers or upgrading buildings with energy retrofits. Only a few officials declared having access to enough municipal funding to replace old boilers with modern and environmentally friendly systems. The most common source of funds for municipalities to subsidise the replacement of boilers was the Clean Air Programme, which is currently on hold and should be operational in May 2025.

Discussion

Climate change is a popular global topic. According to Ritchie (2024), 'The majority of people in every country in the world worry about climate change and support policies to tackle it.'

His statement is corroborated by a survey of 59 thousand people from 63 countries. It investigated opinions on climate change and humanity's role in it. Eighty-six per cent of the respondents made declarations regarding the change itself. They were asked whether it was necessary to take action to avert a global catastrophe, whether it was a serious threat to humanity, and whether people caused climate change. The responses suggest they believed climate change to be a serious threat brought about by human activities. Representatives of all countries were alarmed (Vlasceanu et al., 2024).

Respondents from various countries demonstrate a deep interest in climate problems. One example is a 2023 survey by Ipsos Mori in the United Kingdom. Its results show that 77% of the respondents were concerned about climate change. Another study by the Edelman Trust Barometer shows that nearly 90% of the British population and 83% of Americans agreed that climate change was a serious and immediate threat to the planet in 2023 (Ritchie, 2024). In comparison, the present survey indicates that rural residents are concerned about climate change as a global environmental protection problem: from 27% in Krakowski District to 45% in Wadowicki District.

Researchers also confirmed a strong relationship between the occurrence of catastrophes and public opinions in the USA between 1980 and 2018. (Soni et al., 2022). Their results indicate that the prevalence of catastrophes significantly affects public support for environmental protection spending. This is especially true for fires and severe winter weather events. The more common they are, the more significant the public support for increased environmental protection funding. The last decade saw a gradual increase in extreme weather events and growing average support for environmental protection spending (Soni & Mistur, 2022).

Most Poles (84%) also acknowledge environmental threats caused mainly by pollution and global climate change. It has been confirmed in a survey by the Centre for Public Opinion Research (CBOS,

2018) on a representative random sample of adult Poles from the entire area of the country. Fewer than one-third of them counted climate change among the most severe threats to today's civilisation. Only a few considered climate change not dangerous at all (3%) or false (1%). Notably, the respondents believed the situation was deteriorating because of human activity. The report's authors noted, 'It should be emphasised that the awareness of environmental hazards has been growing in recent years as demonstrated by virtually all repetitive indicators we analysed' (CBOS, 2018, p. 10).

Likewise, the survey results reported in the article indicate that over 62% of the respondents ('strongly agree' and 'agree') considered climate change and its consequences to be the greatest challenge for humanity in the twenty-first century. About 27% of the sample could not agree with this statement. A little over one in ten could not evaluate the threat (11%).

Such a high level of public environmental awareness among Poles was not expected around a dozen years ago. As one of the authors wrote in 2011 (Kowalska, 2011, p. 393), 'The environmental awareness of Poles is considered one of the lowest in Europe. It is because Poles fail to evaluate the situation, and most of them feel no need to get personally involved in the problem. The responsibility for the state of nature is often placed mainly on scientists, politicians, and environmentalists.' The author's research in the Kraków area from over a decade ago indicates that the respondents' knowledge of environmental matters at the time was often incomplete and unsound. Although pro-ecological attitudes dominated, they were rarely turned into actual behaviour. Attitudes typical of environmental indifference (as defined by T. Burger) were also prevalent (Kowalska, 2012).

The authors of the report, *You cannot fool the plants* (Sadura et al., 2023), have also contributed interesting results for 2023. They investigated the attitudes of the Polish countryside towards climate change and European Union climate policy. The participants considered price inflation and the energy crisis to be a much worse threat than the climate disaster. They demonstrated a significant interest in renewable energy sources and energy transition. However, their primary focus was on return on investment from grants instead of care for the environment.

The authors of the report, *Environmental attitudes of Poles 2021*, identified interesting differences in opinions. Seventy-five per cent of Poles completely or partially agree about a global climate crisis. One in ten respondents believes otherwise. Division by place of living reveals interesting patterns. Thirty-three per cent of the rural population, 40% of town residents, and 50% of city dwellers agree entirely with the statement. Option 'I do not believe in these reports, they are exaggerated' was selected by 14% of the rural residents and about 12% of people from cities. Moreover, 16% of people from the countryside could not answer the question. In cities, it was only 8% (Environmental Attitudes Report, 2021). In contrast, only about 26% of the population of the five rural districts surveyed by the authors do not consider climate change and its consequences to be the greatest challenge for humanity in the twenty-first century.

The 2020 report *Perception of Climate Change in Małopolska* for the European Clean Air Centre Małopolska offers highly relevant insights (Report, 2023). It shows that the overall Małopolskie Voivodeship population appreciates problems with climate change as opposed to people from other regions of Poland or European Union member states. The Heinrich Böll Foundation proposes similar conclusions in its latest survey report on the attitudes of the Polish countryside population towards climate change and EU climate policy. The respondents express concern about climate change and the need for an overall shift. Surprisingly, people who do not believe in climate change at all or do not link it to human activity still acknowledge its consequences (Sobiesiak-Penszko, 2021).

Finally, the results of the latest climate change attitude and opinion research among Poles merit a discussion. Apparently, 'Poles grow immune to climate change, or at least they believe so' (Report Kantar, 2024, p. 22). It is evident from the portion of respondents who believe the state of the Earth calls for immediate corrective actions declining from 78% to 63%. Less than half of the respondents today (46%) support various governmental restrictions linked to climate change. Two years ago, a vast majority of the population was in favour. Furthermore, the group declaring a readiness to take action and make sacrifices to save the environment dwindled to 5%.

The problem of climate change and attitudes towards it are both highly relevant and weighty. The survey results presented in the article indicate that most respondents from rural areas of Małopolskie Voivodeship considered climate change and its consequences to be the central challenges for humanity in the twenty-first century. The most severe global problem for them is air pollution. Climate change affects the everyday lives of more than half of the respondents. Only 10% did not report

any impact. The most popular forms of environmental stewardship among the respondents are the reduced use of plastics, reduced water consumption, and purchasing energy-efficient devices. Surprisingly, 15% of the population of Miechowski District and 10% of people in Limanowski District declared no environmental stewardship efforts to curb the impact of climate change.

This makes monitoring the public's attitude towards climate change highly relevant. This conclusion is further supported by the results of the latest report (Report Kantar, 2024), which reveals a decline in interest in climate issues among Poles. The authors offer a pertinent conclusion that people have started to get used to the omnipresence of climate change in public discourse, and the actual threat no longer impresses them. Therefore, it is necessary to address the public and promote environmental attitudes because, apparently, the effectiveness of the methods employed so far is deteriorating.

Acknowledgements

This research has been co-financed by the Minister of Science under the 'Regional Initiative of Excellence' programme. Agreement No. RID/SP/0039/2024/01. Subsidised amount PLN 6,187,000.00. Project period 2024–2027.

The contribution of the authors

Conceptualisation, M.K. and U.Z.; literature review, M.K. and U.Z.; methodology, M.K. and U.Z.; formal analysis, M.K. and U.Z.; writing, M.K. and U.Z.; conclusions and discussion, M.K. and U.Z.

The authors have read and agreed to the published version of the manuscript.

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ZMIANY KLIMATU Z PERSPEKTYWY MIESZKAŃCÓW MAŁOPOLSKIEJ WSI

STRESZCZENIE: Zmiany klimatu są obecnie jednym z najważniejszych problemów z jakimi boryka się ludzkość. Choć ich skutki nie są jeszcze równie dotkliwe w każdym regionie świata, to jednak dotyczą już wszystkich kontynentów i praktycznie każdego kraju. Zmiana zachodzi również w obszarze pojmowania tych przeobrażeń przez ludzi. Dlatego też stałe monitorowanie stosunku ludności do problematyki zmian klimatycznych jest niezwykle istotne.

Celem prezentowanego artykułu jest scharakteryzowanie postaw i zachowań mieszkańców małopolskiej wsi wobec zachodzących zmian klimatycznych. Badania ankietowe zostały zaprojektowane w taki sposób, aby uwzględnić obszary badawcze raportu Europejskiego Banku Inwestycyjnego. Badania zostały przeprowadzone na próbie 300 losowo dobranych dorosłych mieszkańców z obszarów wiejskich pięciu powiatów województwa małopolskiego. Dodatkowo zostały przeprowadzone wywiady z przedstawicielami władz samorządowych, np. ekodoradcami. Wyniki badań wskazują, że dla większości badanych zmiany klimatu i ich konsekwencje są największymi wyzwaniem dla ludzkości w XXI wieku. Z kolei za globalny, najpoważniejszy problem uznali oni zanieczyszczenie powietrza. Dla ponad połowy badanych osób zmiany klimatu mają wpływ na ich codzienne życie zaś zaledwie do dziesiąty respondent nie zaobserwował takiego wpływu. Najwięcej działań proekologicznych podejmowanych przez badane osoby obejmowało np. zmniejszenie zużycia plastiku, zmniejszenie zużycia wody oraz kupowanie energooszczędnych urządzeń. Natomiast aż 15% respondentów z powiatu miechowskiego oraz co dziesiąty z powiatu limanowskiego zadeklarowali brak podejmowania jakichkolwiek działań, które mogłyby przyczynić się do ograniczenia skutków zmian klimatycznych.

SŁOWA KLUCZOWE: zmiany klimatu, polityka klimatyczna, obszary wiejskie, postawy proekologiczne