



Original article

Attitudes of rural residents towards changes in their living environment. The example of the Bełchatów Industrial District in the Łódź region, Poland

Anita Kulawiak¹, Monika Wesołowska^{2*}

¹University of Lodz, Institute of Socio-Economic Geography and Space Organisation, Kopcińskiego 31, 90-142 Łódź, Poland

²Maria Curie-Skłodowska University, Institute of Socio-Economic Geography and Spatial Management, Kraśnicka 2c, 20-718 Lublin, Poland

E-mail address (corresponding author): monika.wesolowska@umcs.pl

ORCID iD: Anita Kulawiak: <https://orcid.org/0000-0002-1194-837X>; Monika Wesołowska: <https://orcid.org/0000-0002-6110-0270>

ABSTRACT

This study aimed to examine the attitudes of residents in municipalities within the Bełchatów Industrial District towards changes in their living environment in the context of the planned closure of a mining and energy complex. The studied area is located in the central part of Poland, it is an industrial center with the dominant mining and energy industries, and the main core is an open-pit lignite mine. The study was conducted in 2024 in six municipalities in the study area, involving a group of 220 respondents (representing over 3% of the total population of the study area) and utilising a questionnaire. It was found that the social attitudes of the inhabitants of the Bełchatów Industrial District towards industry and transformation are twofold. On the one hand, there is a growing awareness of the need to move away from coal due to both economic and environmental factors. On the other, there is a visible attitude of fear related to job losses, youth migration, and the marginalisation of the region. Quite often, both respondents and local authorities adopt a passive attitude towards the upcoming changes. The authors conclude that residents should be empowered and involved in the process of implementing changes, enabling them to have a meaningful impact on the actions of local authorities and the transformation of their community.

KEY WORDS: residents' attitudes, just transition, Bełchatów Industrial District, energy transformation, low-emission economy, changes in the local environment

ARTICLE HISTORY: received 22 July 2025; received in revised form 14 October 2025; accepted 13 November 2025

1. Introduction

This article on the attitudes of rural residents in an industrialised region towards potential changes in their living environment aims to contribute to the discussion on contemporary transformations – large-scale, widespread and dynamic changes associated with the planned phase-out of the lignite-based energy industry as part of the decarbonisation of industrialised economies (KAWECKA-WYRZYKOWSKA, 2022; DROBNIAK, 2022; OTLHOGILE & SHIRLEY, 2023).

This article is part of a global discussion on the social acceptance of implementing low-carbon technologies, the risks associated with the energy transition, and socio-economic challenges (KUNIKOWSKI, 2025). The issue is very important, as the European Union plans to achieve zero greenhouse gas emissions by 2050, which necessitates economic restructuring. This will involve and shift away from conventional energy sources, including energy from lignite combustion, towards renewable energy (GALGÓCZI, 2020; SCHUSTER ET AL., 2023; TOMALA & URBANIEC, 2024).

Meanwhile, as noted by MICHALIK & ZIELIŃSKI (2024), Poland remains a country heavily dependent on coal. Despite a decline in its share of the energy mix to 63% in 2023, coal remains the dominant source of energy, not only in the electricity sector but also across the entire economy.

One of the objectives of the planned change is, in addition to caring for the natural environment, to introduce a just transition. As noted by TOMALA & URBANIEC (2024), *a just transition is a concept that refers to a process of social, economic and environmental change aimed at increasing social equality, environmental protection and sustainable development*. It is increasingly being taken into account in policies at various levels, both national and international, in negotiations on climate change and the introduction of a low-carbon economy, linked to achieving climate neutrality (HENRY ET AL., 2020; PAI ET AL., 2020). A just transition should be understood as maintaining the quality of life of the region's inhabitants at least at the same level as before the transition, while moving away from environmentally harmful industries in a manner that minimises the cost of this change for the inhabitants (BAINTON ET AL., 2021). Strategic documents emphasise the need to support the restructuring of coal-dependent regions, secure sources of income for mining workers and protect households at risk of energy poverty (MICHALIK & ZIELIŃSKI, 2024). According to KASHOURA (2023), a just transition is *the process of moving away from a fossil fuel-based economy to a clean energy economy while protecting low-income communities and high-carbon industries*. As TOMALA & URBANIEC (2024) note, a just transition is undoubtedly a challenge, but also an opportunity to create a new future based on sustainable development, new technologies, and a better quality of life for residents. Its implementation requires an approach that takes into account the diverse needs of society. For regional and local authorities, which are often the potential drivers of these changes, this situation is beneficial, as it provides the opportunity to influence public opinion by taking appropriate actions. In light of the literature and our own reflections, such actions include initiating active forms of revitalization of post-industrial areas, such as parks, educational trails, and recreational areas; supporting climate and technology education that increases public awareness of environmental protection; building trust through government transparency and public consultations; and engaging local communities in the planning process and environmental protection, which increases a sense of agency and motivation to act. There is no doubt that the perception and attitude of residents towards the potential effects of a planned change in their place of residence

should not only be taken into account, for example, in planning studies, but the local community should be actively involved in arranging such changes.

The process of just transition is of significant importance for regions dependent on the extractive industry, and the Bełchatów Industrial District is undoubtedly one of them. It increases the number of various challenges, both economic, social and environmental, for these regions (TOMALA & URBANIEC, 2024). As noted by KUNIKOWSKI (2025), the term "just transition" reflects concerns about job losses in coal-related sectors. This problem has already been recognized in numerous studies (KUCHARSKA, 2018; KULAWIAK & SULIBORSKI, 2022). Research conducted by LEWANDOWSKA-CZUŁA (2024) in Eastern Greater Poland also shows that 65% of respondents fear the consequences of moving away from a coal-based economy, and they associate a just transition with a difficult labour market situation, unemployment, and rising prices for electricity and other services and consumer goods. The authors of the publication "Just Transition of Coal Regions in Poland" (2022) also noted that *unless appropriate measures are taken to mitigate the change and accelerate development, the energy transition towards a low-emission economy will likely have the greatest negative effects on the labour market, access to infrastructure, increasing disparities, and development opportunities in these areas*.

The loss of the main employer, and thus the primary source of income for the municipality, which is the PGE Complex, poses an unprecedented threat to the quality of life of residents in various aspects. The closure of the mine and power plant, forecast for 2036, will therefore not only be a major economic challenge, but above all a social one. The seriousness of this situation is undoubtedly evident in the fact that discussions have already begun in Bełchatów about the region's future, including proposals to replace conventional energy sources (JAWORSKA-POSIŁA & TROCHIMIAK, 2022). This is not an isolated situation. According to European Commission estimates, there is a risk of losing approximately 160,000 jobs by 2030, both directly and indirectly, in European coal regions (EUROPEAN COMMISSION, 2018, p. 4).

The Bełchatów Industrial District is facing a major change for the second time. The first change occurred in the 1960s, during the country's so-called socialist industrialisation, when rich lignite deposits were discovered in the municipality of Kleszczów. Fifteen years after this event, the Council of Ministers decided to build the Bełchatów mining and energy complex, which significantly altered the socio-economic landscape of the area. Until the 1970s, the area was characterised by

unfavourable economic parameters and was one of the poorest in the present-day Łódź region. Its economy was based on poorly developed agriculture, and the rural areas within it were characterised by poor soil, low agricultural culture and low population density. The town of Bełchatów was a centre of light industry and a service provider for the agricultural sector (KUCHARSKA, 2018). Currently, the Bełchatów Industrial District is at the opposite end of the socio-economic development spectrum, as spectacularly illustrated by the municipality of Kleszczów, which, since the second half of the 1990s, has been one of the richest municipalities in Poland, with a per capita income of nearly 30,000 PLN (BDL GUS, 2019). The vast majority of this income comes from property taxes and mining royalties paid by local industrial companies, which were granted to the municipality under the Act of 8 March 1990 on municipal self-government (Journal of Laws of 1990, No. 16, item 95). Other rural areas located within the zone of influence of this district, as well as the town of Bełchatów itself, are in a similar situation to the municipality of Kleszczów. As a result of this investment, Bełchatów has not only gained the informal status of the district capital, but has also experienced spectacular population, economic and spatial growth. Thanks to the mine and power plant, all municipalities located in the Bełchatów Industrial District have seen a significant increase not only in the number of residents and workers, but also in new social, technical and municipal infrastructure. The Bełchatów region is still the largest lignite and energy basin in Poland, ranking among the leaders in lignite extraction (35-42 million tonnes per year) and electricity production, which covers 22% of the country's consumption, producing 43.2 TWh of net energy. It is also currently one of the largest employers in the Łódź region, employing nearly 8,000 people (DAŃKOWSKA ET AL., 2021).

The main aim of this article is to examine the attitudes of rural residents towards changes in their living environment in the context of the planned closure of the mining and energy complex in 2038. In other words, the research aims to capture changes in the awareness of residents of selected rural communes located within the Bełchatów Industrial District regarding the potential impacts of the closure of the Bełchatów mining and energy complex. The authors will attempt to determine what potential changes the closure of this investment may cause in their living environment. They will also discuss the degree of acceptance of these transformations, including the development of communes towards tourism, and what elements of the social standing of the respondents determine

specific attitudes towards these changes. There is a widespread view in the literature that social approval, or disapproval of change, depends largely on a subjective assessment of the costs and benefits of these changes.

2. Methods and source materials

Selecting respondents is one of the most challenging elements of contemporary research using interview techniques. In this case, both quantitative and qualitative techniques were employed. This study primarily employed a questionnaire interview technique, which included a set of open-ended and closed-ended questions (Appendix 1). For open-ended questions, respondent responses were categorized. The questionnaire survey involved 220 respondents (representing slightly over 3% of the total number of residents of the selected communities (Table 1), adult residents of selected villages located within the Bełchatów Industrial District, i.e., Bełchatów, Kleszczów, Kluki, Rząśnia, Sulmierzyce, and Szczerców. Although the core centres within the Bełchatów Industrial District are the city of Bełchatów and the rural communities of Kleszczów (GARDJAN & SZMYTKIE, 2021), due to the significant functional connections between these communities, determined by commuting, the authors found it interesting to include them in this study. The survey was conducted in person in selected villages between March and June 2024. Respondents were selected using purposive accessibility sampling, which was dictated by the difficulty of convincing local residents to participate. This difficulty in recruiting respondents also meant that the selection process was not based on quotas, preserving local demographics, although this was assumed at the outset of the study. Nevertheless, a relatively diverse social group representative of the villages studied was recruited. The interview questionnaire consisted of 18 questions focused on residents' assessments of the operation and situation after the potential closure of this investment. Therefore, the survey included questions regarding residents' assessment of their current place of residence in the context of their quality and living conditions, as well as their perception of the positive and negative changes caused by its closure. Given the goal of in-depth study of this phenomenon, the questionnaire surveys were supplemented with unstructured interviews, which were conducted concurrently. A total of 40 such interviews were conducted – ten in each of the largest municipalities in terms of population, i.e., Bełchatów and Szczerców, and five in the remaining villages. Their selection was also purposeful and based on accessibility,

with each study group including one representative from the municipal office who also met the requirement of residing within the municipality. Theoretically, a narrative approach was used, while the technical approach utilized a standardized list of questions aimed at exploring the issues raised in the survey in greater depth. Particular emphasis was placed on respondents' assessments of the current conditions and quality of life in the municipality in the context of environmental protection, as well as their concerns about the project's closure. Both questionnaire and unstructured interviews were conducted by a group of students of the Faculty of Geographical Sciences of the University of Lodz as part of their teaching activities related to the functioning and organization of villages and rural areas.

Table 1. Size of the sample selected for the study in relation to the total number of inhabitants in selected rural municipalities of the Bełchatów Industrial District (Source: Own study based on data from the Central Statistics Office (BDL GUD 2024) and own conducted surveys)

Municipality	Population in thousands	Number of respondents
Bełchatów	12,718	60
Kleszczów	6,801	40
Kluki	4,418	25
Rząśnia	4,924	25
Sulmierzyce	4,396	20
Szczerców	8,140	50

The vast majority (69%) of the sample consisted of men, which is dictated by the dominant economic profile of the surveyed area, associated with a predominance of male-dominated professions. In terms of age structure, middle-aged and young people dominated – nearly half were under 50, and one in ten was under 30. The vast majority of respondents (62%) were, or still are, employees of the Bełchatów mining and energy complex. The research was supplemented by an analysis of source materials covering topics related to the development of the Bełchatów region, including monographs and publications issued by the Bełchatów Brown Coal Mine on the occasion of its anniversaries.

3. Attitudes of rural residents towards industry and energy transition in the light of the literature

Attitude is one of the key concepts in social sciences, referring to a relatively permanent disposition

of a person to react in a certain way towards objects, people, social groups, ideas or phenomena (<https://sjp.pwn.pl/slowniki/postawa.html>). Attitudes shape the behaviour of individuals in social situations and influence their relationships with their environment. In the literature (e.g. ZIMBARDO & LEIPPE, 1991; ARONSON & WILSON, 2013), it is assumed that an attitude is a lasting evaluation (positive or negative) of an object, person, phenomenon or idea, which is expressed in three basic components:

- *cognitive*, which refers to beliefs and opinions about the object of the attitude;
- *affective*, expressed in the form of feelings and emotions towards the object;
- *behavioural*, which is understood as the readiness to act in a certain way towards that object.

WOJCISZKE (2022) also points out that attitudes fulfil several important functions in social life. In his opinion, these include:

- a cognitive function, which helps to interpret reality,
- an instrumental function, which facilitates the achievement of goals and adaptation to reality,
- a defensive function, which protects against fear and uncertainty, and
- an expressive and value function, which allows for the expression of beliefs and identity.

Generally, social attitudes are examined in various contexts within the literature. However, they most often concern issues such as stereotypes and prejudices, changes in attitudes resulting from persuasion, the relationship between attitudes and behaviour, as well as attitudes towards social groups, institutions, or values.

Interest in this issue, also in the field of geography, grew particularly. In the 1960s, it was related to the cultural shift that took place within the discipline and the emergence of behavioural geography. The pioneer of this research in Poland is considered to be DOMAŃSKI (1983, 1985, 1987, 1990), who was the first to undertake the study of social attitudes, preferences, and perceptions. However, the works of JAGIELSKI (1977), TAYLOR (1980) and KORTUS (1981) were the first to introduce this issue into Polish literature. The research conducted at that time developed in two directions (trends) – the first involved the study of human spatial behaviour. At the same time, the second focused on the study of spatial perceptions, attitudes and preferences, referred to as the geography of perceptions (TOBOLSKA, 2010).

It is worth adding that the development of this research in Poland was also facilitated by the intensive industrialisation process that had been pushed forward since the 1970s. This was linked to a shift in the scientific community's focus from the perception of the country's industrialisation process

and its consequences to the study of the adaptation processes of various environments, including rural ones, to the successive changes resulting from the transformation. At that time, however, this research aimed to present a subjective picture of the changes in the industrialised region, including the identification of living conditions and quality of life of the inhabitants and their assessment in the context of the construction of large industrial investments (IGNAR, 1971; TOBERA, 1985; DOMAŃSKI & LIBURA, 1986; CISZEWSKA, 1987). Nowadays, due to changes in the approach to the environment, including the promotion of the ideas of sustainable development and just transition, researchers are increasingly focusing on identifying the attitudes of local communities towards planned changes in the energy or industrial sector in the context of environmental protection (CZAPLIŃSKI, 2005; TOBOLSKA, 1997; 2010; PEREPECZKO, 2010, 2012, 2014; KULAWIAK & SULIBORSKI, 2022; KUCHARSKA, 2018). This "new reality" associated with preparations for the gradual phasing out of these investments, which are crucial for the Polish economy, with all the economic and social consequences this entails, has identified another area of interest for the development of rural areas, including those of an industrial nature. The need to adapt to the conditions of a low-carbon economy and adopt a sustainable development strategy forces rural communities to develop new strategies for coping with these new realities, which in turn has opened up a new field of discussion and analysis for researchers in this area. As a result, works have appeared in the literature postulating not only the diversification of sources of livelihood for the local population, including promoting an innovative attitude conducive to undertaking new types of activity (rural entrepreneurship vs. entrepreneurship in rural areas), or promoting the need for greater involvement of rural communities in obtaining EU funds, but also identifying their satisfaction or dissatisfaction with the current situation.

In light of the achievements of contemporary literature on the subject, the attitudes of communities in industrialised regions towards changes in their local environment caused by the closure of mines, power plants, etc., are diverse – ranging from protective to pragmatic to passive – and largely depend on the factors shaping these attitudes. The differences in the approach of local communities to this issue are largely influenced by the degree of environmental degradation – the higher it is, the greater the acceptance of the inhabitants for change, including the protection of their living environment at the expense of closing mines, power plants or other burdensome industries (PONDEL, 2015; WCIÓRKA, 2016). Another differentiating factor is demographics

and the level of trust in state institutions, including local authorities in particular (DULEWICZ, 2017; DZIUBACKA, 2015). Research has revealed that younger residents are more likely than older ones to perceive the negative impact of industry on their environment and way of life, and show greater faith in pro-environmental technologies and measures. At the same time, lower trust in local authorities weakens pro-environmental commitment and, consequently, acceptance of the proposed changes. Many authors also emphasise the role of social capital and social ties, stressing that the impact of these factors is directly proportional to integration around pro-environmental projects (DEVINE-WRIGHT, 2009; PAPUZIŃSKA, 2016; BEIERLE & CAYFORD, 2002). In addition to the above, individual experiences related to the nuisances of industry in the local environment, i.e. noise, pollution, population density, as well as access to green areas and recreation, are also important in the perception of changes taking place in the local economy (KOWALSKA & SZTUMSKI, 2009; DZIUBACKA, 2015).

It is worth adding that despite the high relevance and importance of this issue, including the considerable interest of the scientific community in the problems of the contemporary countryside, the topic of social attitudes of rural residents in industrialised areas – in contrast to the period of intensive industrialisation of the country, when industrial regions were subject to intensive scientific exploration and were the subject of a significant number of studies – is addressed only incidentally.

Meanwhile, the changes taking place today give rise to problems and conflicts in rural communities that are no less dramatic than those that occurred when they underwent intensive functional, landscape and social changes under the influence of large industrial investments. It is not without significance, as DZIUBACKA (2015) aptly noted, that these large investments often caused these villages to lose not only their agricultural character, but also their environmental values and assets in the form of a specific cultural landscape, and therefore, the postulates of diversification of income sources do not necessarily apply here. The primacy of the needs of local restructured industry over the needs of the region is not conducive to the implementation of the multifunctional development paradigm... Therefore, as we read further, "... just as in the period of real socialism, when the direction or quality of changes taking place under the influence of industrialisation was inferred from observations of their course 'in industrialised regions', so today they seem to be the area where the economic and social effects of many years of functioning in changed socio-economic realities are most clearly

focused and thus become the most measurable. Thus, it is highly likely that these regions constitute a rich, even unique source of information not only about the direction, dynamics and social consequences of the transformations taking place within them, but also about the strategies adopted by their inhabitants to manage change (adaptation to it) (DZIUBACKA, 2015: 71).

4. Concerns and expectations regarding the energy transition – research results

As already mentioned, the Bełchatów mining and energy complex will be gradually phased out in the coming years. According to plans, the last power unit is to be shut down in 2036, which means that from 2038, the mine and power plant will be closed, and the region will face a profound transformation. This raises the important question of whether the region is ready for this and whether the loss of its main and largest employer poses a real threat to the quality of life of its residents in various aspects.

In light of previous studies (including DAŃKOWSKA & SADURA, 2021; JAWORSKA-POSIŁA & TROCHIMIAK, 2022), the inhabitants of the Bełchatów region do not show much interest in the future of their region, which researchers attribute to the fact that the issue of phasing out the energy industry is not widely publicised. In the group of people who are interested and informed, those who not only fear the upcoming changes but also view them negatively predominate. The second most prevalent opinion was that the phase-out of this investment will have both negative and positive consequences, with the positive ones being more often articulated by younger people, i.e. those under 30 years of age. What residents fear most is the loss of attractive jobs, business conditions, the activities of non-governmental organisations and a deterioration in their current living conditions. It therefore seems that residents understand that the upcoming changes will have a negative impact on both their financial situation and the municipality's ability to finance its residents. Among the positive aspects, the most frequently mentioned were those related to the natural environment, including improvements in the natural environment, reductions in noise levels, increases in the number of green areas, and enhancements in the aesthetics of the surroundings (DAŃKOWSKA & SADURA, 2021).

In the case of this study, most of the results cited here were confirmed. However, since they were

conducted three years later, the level of awareness of some aspects increased among the respondents. The vast majority of respondents (92%) are aware that the mining and energy complex will be closed down within the next decade, which will bring about fundamental changes in their current living environment. The respondents most often obtained this information from the Internet and public media, i.e. the press, radio or television (72%), and less often from friends or family (12%). The information obtained from various sources concerned very different aspects related to the planned closure of this investment. Based on the respondents' statements, it can be concluded that they mainly have general knowledge about the potential reasons for the closure of this investment, articulated, among other things, as the need to move away from coal in favour of creating other, unconventional energy sources – EU policy, including the promotion of sustainable development, or the depletion of the deposit and the low profitability of its extraction.

In contrast, more detailed knowledge concerning, for example, the exact date of closure of this investment, what will happen to it after its closure, or what will replace it, was less widespread. However, it can be concluded that the respondents are very interested in what will happen to the municipality after the closure of this investment, as only 5% of the respondents declared themselves indifferent to the municipality's fate "after coal". The respondents' expectations regarding the future of the region focus mainly on what determines their living conditions and quality of life, i.e. they primarily concern the possibility of finding employment after the closure of the investment (78%), the possibility of maintaining their current standard of living (62%) and the possibility of continuing to receive subsidies for various social activities (43%). Interestingly, the structure of expectations was almost identical in all age groups, indicating that the respondents share similar concerns about the future of their municipality.

In the respondents' perception, two fundamental yet contradictory aspects can be distinguished regarding potential changes in their living environment. The first concern is the socio-economic effects of the closure of the industrial complex, which are negative as they are linked to fears about the future of the municipality and, consequently, the respondents themselves. The vast majority of respondents fear that with its closure, their current standard of living will decline and, in extreme cases, they will become unemployed (Fig. 1).

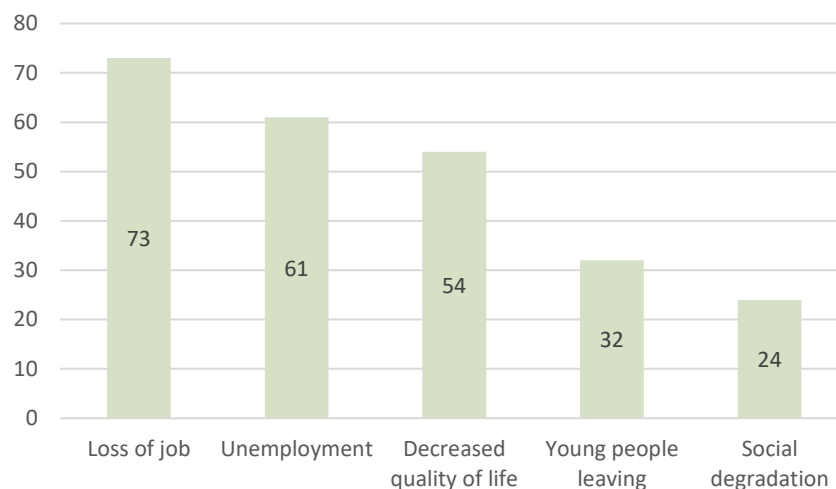


Fig. 1. The most frequently indicated negative consequences of the closure of the Bełchatów mining and energy investment.
(Source: own study based on survey results)

This statement mainly applies to people who are still employed at the plant. Among respondents who are not employees of the power plant or mine, these concerns are slightly less pronounced, but it was equally common to hear that they were worried about the future of their employment. The general attitude of this group of respondents is well reflected in the statement of one of the respondents: *"...I am an entrepreneur, I run a small business focused on the local market, things are going well for me now because people have money, but when they close the mine and the power plant, who knows? Many will*

lose their jobs, and young people will leave, because not everyone can make a living from tourism. Who will buy my products then? I believe many people here share the same sentiment. This is not a favourable situation for us. We are sitting on a time bomb because we don't know what the future will bring..."

The second level of perception of change that emerged during the study relates to the environmental effects of the potential closure of the mining and energy complex and, unlike the economic aspects, it is rather positive (Fig. 2).

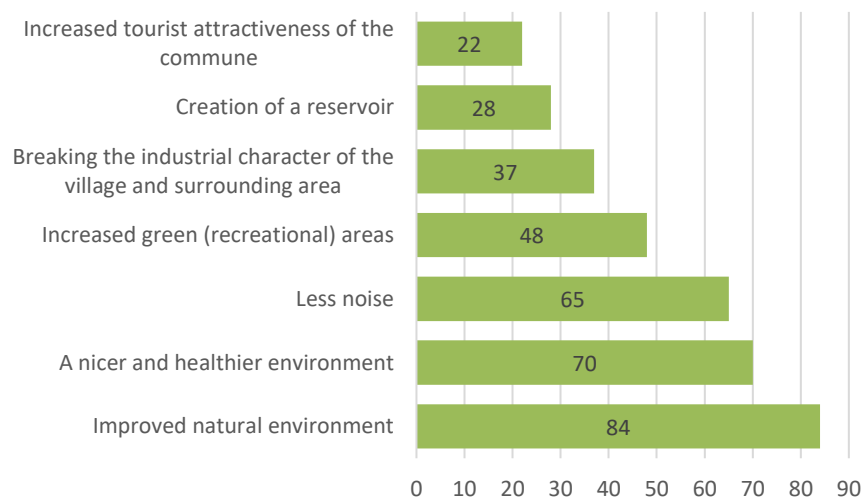


Fig. 2. The most frequently indicated positive consequences of the closure of the Bełchatów mining and energy investment
(Source: own study based on survey results)

However, its articulation is strongly correlated with the age of the respondents. It is much more pronounced in the minds of younger residents. In their group, almost everyone noticed the negative impacts that the mine and power plant had on the

environment. One gets the impression that they represent a typical logic according to which it pays to lose something in order to gain more. Therefore, during the study, they expressed greater approval of its phasing out, pointing out that it would significantly

improve the quality of the municipality's natural environment. This is due to the fact that young people are much more open to new trends and ideologies, and are also more accepting of technological and environmental changes. They also have greater trust in modern technology than older people and therefore have a greater need to adopt pro-ecological behaviours and are willing to discuss transitioning away from coal in favour of alternative sources in their environment. It is also important to note that with age, people's expectations of the environment also change. The study revealed that younger respondents value the recreational qualities of the environment more than its health aspects, which is understandable, as they tend to enjoy better health. Therefore, this social group also mentioned the development of green areas and recreational areas (61%) as consequences of the plant's closure much more often.

Older respondents (over 50 years of age), although they also mentioned the negative effects of the mine on the environment, most often pointing to noise, high dust content in the atmosphere and smog, were much less likely to see this as a positive argument in favour of closing the plant. On the contrary, during the research, it was even possible to encounter the statement that *"...coal is still the most environmentally friendly source of energy, arguing that the plant is equipped with the latest technology to absorb carbon dioxide, sulphur and other harmful compounds emitted into the atmosphere..."*. This leads to the conclusion that the social and economic benefits generated by the plant's operation outweigh the environmental (ecological) disadvantages in this social group. In part, this opinion stems from the older generation's greater attachment to traditional sectors and, consequently, their greater reserve towards renewable energy sources and new technologies, which they see as a threat to the existing social order. It is worth noting that in this group of respondents, the revitalisation of these areas in an ecological direction was rarely mentioned as a positive consequence of the closure of the mine and power plant (23%).

A telling example of the attitude of "older respondents" towards environmental issues in the context of the planned closure of the mine and power plant is the statement of one of them, who is now retired but was a long-time employee of the mine and remembers the times when the investment was still being developed. He recalls: *"...this area has always been very poor, with sandy, infertile soil, stunted forests, wetlands and marshes, so this investment saved the land from extreme poverty. What good is a clean climate if there is nothing to live on when they close it down? Now it's beautiful,*

there's money and no one complains...". This respondent therefore shares the view of the majority of people in this age group that the negative effects on the community will only be felt when the investment is closed down, and not during its operation. Thus, they argue, only then will their living conditions significantly deteriorate.

Against this background, the respondents' answers to the question *"If it were up to you to decide whether to close the plant, would you do so?"* were interesting (Fig. 3).

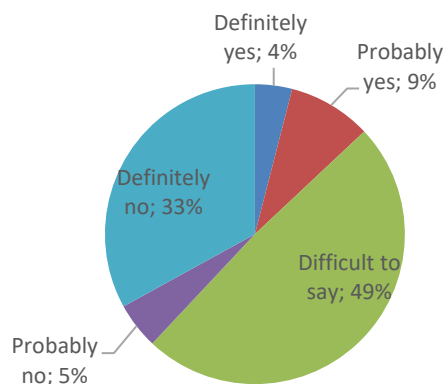


Fig. 3. Structure of respondents' answers to the question "Are you in favour of closing the Bełchatów investment?" (Source: own study based on survey results)

Indirectly, this question was intended to reveal the respondents' perception of the relationship between industry and the environment. It must be acknowledged that this question posed considerable difficulty for the respondents, as evidenced by the fact that nearly half (49%) were unable to provide a clear answer. This was because a large group of people genuinely believe that, with the current development of technology and civilisation, a symbiosis between industry and the environment is possible and that the development of one does not necessarily eliminate the other. In the respondents' minds, environmental protection and industrial production are equally important, and therefore, there should be no conflict between these goals. According to the respondents, environmental protection cannot come at the expense of development and social welfare. However, among those who were able to express an opinion, the majority were opposed to closing the symbiosis (33%).

The picture obtained was supplemented by a question about the place of the natural environment in the respondents' hierarchy of values. Among the ten values included in the questionnaire, five were related to the environment, i.e., a healthy climate, clean air, pleasant surroundings, quietness, and recreational areas. The results of the study revealed a

widely known pattern in our society, according to which the most desirable goods are housing, good earnings and satisfying work (employment). Environmental values were ranked relatively in the middle of the established hierarchy, indicating that they are of average importance to the respondents. Among them, clean air and a healthy climate are of the highest priority, which is consistent with scientific research. It is well known that air quality is often closely linked to the overall quality of the environment. Air pollution contributes to the degradation of forests, arable land, water and the entire biological sphere. It is the most important source of threat to the biological balance in nature (TOBERA, 1985).

Interesting conclusions were also drawn from the question about the degree of satisfaction of the respondents with their current living and housing conditions in the commune. It revealed a high positive correlation with the overall optimism declared by the respondents regarding the future of their municipality. The study showed that the better the current needs of the residents were met, the more likely they were to express optimism. Thus, among pessimists, 58% were dissatisfied with their current living conditions in the municipality, among moderate optimists, 38% were dissatisfied, and among extreme optimists, only 18% were dissatisfied. This distribution of responses suggests that people who are more satisfied with their current living conditions are also more resourceful and therefore have greater faith in their abilities, which gives them confidence that they will be able to cope in any situation.

5. Summary

The Bełchatów Industrial District has been one of Poland's key energy centres for decades. The Bełchatów Brown Coal Mine and the Bełchatów Power Plant, located in this area, have significantly shaped the socio-economic landscape of the region, influencing both the employment structure and the identity of the local community. In recent years, with the European Union's pressure for decarbonisation and energy transition, challenges have emerged for the future of the region and its inhabitants. An analysis of the social attitudes of the inhabitants of the Bełchatów Industrial District towards industry and transition revealed that they are characterised by a duality, which stems primarily from the age of the respondents. On the one hand, mainly among young people, there is an awareness of the need to move away from coal due to economic and environmental factors. However, on the other hand, there is also an attitude, underpinned by fear, that a change in the established direction, based on a

strong dependence on traditional industry, will result in job losses, the migration of young people, and, consequently, the marginalisation of rural areas and the region. It is therefore necessary to take measures not only to neutralise the direct negative effects of the transition, but also to provide information and education to local communities on the need for such changes. Currently, as LEWANDOWSKA-CZUŁA (2024) has rightly pointed out, the very concept of a just transition, especially among older people, raises many concerns and uncertainties, in line with the principle that residents expect certain socio-economic changes but do not want to bear the direct costs of the transition. This position was also confirmed during the present study, in which the question: *"What do you think should be the priority for local authorities after the closure of the Bełchatów mining and energy investment?"* The most popular answers were: maintaining the labour market and quality of life at the current level, taking care of the municipality's finances, including the possibility of using existing social subsidies (e.g. for home modernisation, children's holidays, education, language courses, etc.), retaining and attracting entrepreneurs, as well as measures that can be described as "how to keep residents in the municipality". These are very important demands, as research by various authors (including the *Meritum report* - JAWORSKA-POSIŁA & TROCHIMIAK, 2022) indicates that the majority of residents do not have specific plans in connection with the closure of this investment. Only 14% of respondents to the question *"What do you intend to do after the closure of the mine and power plant?"* answered *"acquire new qualifications"*, and 7% said *"start my own business"*. However, as many as 30% answered *"I don't know"* and another 29% said *"nothing"* (JAWORSKA-POSIŁA & TROCHIMIAK, 2022, 59). These results, therefore, indicate a certain passivity on the part of the Bełchatów region's population and an attitude that "things will work out somehow". It is worth adding that the position declared by the respondents is justified by the general approach of the local authorities to the problem of phasing out this investment. As can be read in the report (ibid),

Although the municipal authorities are aware of the difficult situation that awaits their municipalities after the closure of the mine and power plant, *they "remain in a kind of slumber, sometimes even in denial of the inevitability of the end of coal and the power plant..." Transformation, as we read, is an irreversible process, but this is so obvious that no one in the region accepts it or wants to debate it* (the town of Bełchatów)..."(p. 53). And despite the fact that there are already official plans to close it down, there are voices full of hope and faith that it

is not yet a foregone conclusion, that it is not yet clear whether the investment will ultimately be closed down or how quickly this will happen.

In light of the above-mentioned research, there is no doubt that the future of the region, and thus the attitudes of its inhabitants towards the planned transformation and climate change, will largely depend on the effectiveness of transformation programmes, the feasibility of alternative employment and the degree of involvement of residents in the decision-making process.

References

- Aronson E., Wilson T.D., Akert R.M. 2013. *Psychologia społeczna: Serce i umysł*. Wydawnictwo Zysk i S-ka.
- Bainton N., Kemp D., Lèbre E., Owen J.R., Marston G. 2021. The energy - extractives nexus and the just transition. *Sustainable Development*, 29(4): 624–634.
- Beierle T.C., Cayford J. 2002. *Democracy in Practice: Public Participation in Environmental Decisions*. Washington: RFF Press.
- Ciszewska B. 1987. Zagrożenia zdrowia ludności zamieszkałej w strefie oddziaływania hut miedzi w Legnicko-Głogowskim Okręgu Przemysłowym. *Człowiek i Środowisko*, 4: 575–590.
- Czapliński P. 2005. Postawy społeczności lokalnych wobec działalności przemysłowej (Przykład małych miast podregionu śląskiego), *Problemy rozwoju małych miast w wymiarze lokalnym i regionalnym*, (ed.) K. Heffner, T. Marszał. *Biuletyn KPZK PAN*, 220: 272–281.
- Dańkowska A., Sadura P. 2021. *Przespana rewolucja. Sytuacja społeczna w regionie bełchatowskim u progu transformacji energetycznej*. Raport z badań. Fundacja Pole Dialogu. Krytyka Polityczna.
- Devine-Wright P. 2009. "Rethinking NIMBYism: The role of place attachment and place identity in explaining place-protective action." *Journal of Community & Applied Social Psychology*, 19(6): 426–441.
- Domański B. 1983. Badania regionalnych wyobrażeń i preferencji decydentów przemysłowych", *Przegląd Zagranicznej Literatury Geograficznej*, 3: 25–42.
- Domański B. 1985. Ocena lokalizacji fabryki obuwia w Nowym Targu, *Zeszyty Naukowe UJ, Prace Geograficzne*, 62: 37–54.
- Domański B. 1987. Niektóre problemy użyteczności badań postaw i preferencji społecznych dla potrzeb planowania przestrzennego, *Zeszyty Naukowe Uniwersytetu Jagiellońskiego. Prace Geograficzne*, 70: 7–22.
- Domański B. 1990. Społeczności miejskie wobec uprzemysłowienia. *Zeszyty Naukowe Uniwersytetu Jagiellońskiego. Prace Geograficzne*, 82.
- Domański B., Libura H. 1986. Geograficzne badania wyobrażeń, postaw i preferencji, *Przegląd Geograficzny*, LVIII, 1–2: 143–164.
- Drobnik A. (ed.) 2022. *Sprawiedliwa transformacja regionów węglowych w Polsce. Impulsy, konteksty, rekomendacje strategiczne*. Wydawnictwo Uniwersytetu Ekonomicznego w Katowicach, Katowice.
- Dulewicz J. 2017. Postawy i reakcje polskiego społeczeństwa wobec zanieczyszczenia środowiska naturalnego w kraju (1971–1989). *Polska 1944/45-1989*, 15: 79–96.
- Dziubacka K. 2015. *Przemysł w kulturowym krajobrazie wsi. Uwarunkowania jakości życia – kierunek i dynamika zmian*, Oficyna Wydawnicza Atut, Wrocławskie Wydawnictwo Oświatowe, Wrocław.
- European Commission, 2018. *EU coal regions: Opportunities and challenges ahead*. Brussels.
- Galgóczy B. 2020. Just transition on the ground: Challenges and opportunities for social dialogue. *European Journal of Industrial Relations*, 26(4): 367–382.
- Henry M.S., Bazilian M.D., Markuson C. 2020. Just transitions: Histories and futures in a post-COVID world. *Energy Research and Social Science*, 68: 101668.
- Ignar M. 1971. Warunki bytu ludności regionów uprzemysłowionych w dotychczasowych badaniach i publikacjach. *Zeszyty Badań Rejonów Uprzemysławianych*, 48, Wydawnictwo IRWiR, PAN, Warszawa.
- Jagielski A. 1977. *Geografia ludności*. Państwowe Wydawnictwo Naukowe, Warszawa.
- Jaworska-Posiła B., Trochimiak K. 2022. *Wygaszenie przemysłu energetycznego w Bełchatowie a jakość życia mieszkańców regionu bełchatowskiego. Ocena jakości życia w badanych gminach oraz postawy mieszkańców i przedstawicieli jednostek samorządowych wobec procesu transformacji*. Raport. Meritum, Łódź. <https://transformacja.larr.pl/wp-content/uploads/2022/12/Wygaszanie-przemyslu-energetycznego-w-Belchatowie-Meritum-Raport.pdf>
- Kashour M. 2023. A step towards a just transition in the EU: Conclusions of a regression-based energy inequality decomposition. *Energy Policy*, 183: 113816.
- Kawecka-Wyrzykowska E. 2022. Wyzwania dekarbonizacji polskiej gospodarki: rola węgla, *Społeczeństwo i Polityka*, 4(73): 67–90.
- Kortus B. 1981. Geografia przemysłu i jej aktualne problemy badawcze. *Przegląd Geograficzny*, 53: 285–294.
- Kowalska A., Sztumski J. 2009. *Socjologia środowiska*. Wydawnictwo Śląsk, Katowice.
- Kucharska P. 2018. Wpływ działalności przemysłu wydobywczego i energetycznego na środowisko życia ludzi – szansa czy zagrożenie? Przykład KWB i Elektrowni Bełchatów. *Gospodarka w Praktyce i Teorii*, 53(4): 65–80.
- Kulawiak A., Suliborski A. 2022. Przemiany społeczno-gospodarcze w gminie Kleszczów po uruchomieniu kopalni węgla brunatnego i Elektrowni Bełchatów oraz ich społeczna percepcja. *Prace Komisji Geografii Przemysłu Polskiego Towarzystwa Geograficznego*, 36(1): 90–107.
- Kunikowski G. 2025. Ryzyka transformacji energetycznej – systematyczny przegląd literatury, *Studia Bezpieczeństwa Narodowego*, 35: 63–92.
- Lewandowska-Czuła A. 2024. Społeczna perspektywa zrównoważonego rozwoju Wielkopolski Wschodniej – w kierunku ekologizacji regionu i sprawiedliwej transformacji. *Rozwój Regionalny i Polityka Regionalna*, 72: 131–152.
- Michalik S., Zieliński D. 2024. *Transformacja energetyczna w Polsce w świetle strategicznych dokumentów rządowych*. Warszawa: Sieć Badawcza Łukasiewicz – ITECH Instytut Innowacji i Technologii.
- Otlhogile M., Shirley R. 2023. The evolving just transition: definitions, context, and practical insights for Africa. *Environmental Research: Infrastructure and Sustainability*, 3(1): 013001.
- Pai S., Harrison K., Zeriffi H. 2020. A systematic review of the key elements of a just transition for fossil fuel workers.

- Smart Prosperity Institute Clean Economy *Working Paper Series*, 20(4).
- Perepeczko B. 2010. Postawy i oczekiwania proekologiczne mieszkańców wsi obszarów chronionych. *Więś i Rolnictwo*, 146(1): 157–170.
- Perepeczko B. 2012. Postawy proekologiczne mieszkańców wsi i ich uwarunkowania. *Zeszyty Naukowe SGGW - Ekonomika i Organizacja Gospodarki Żywnościowej*, (95): 5–22.
- Perepeczko B. 2014. Uwarunkowanie postaw proekologicznych mieszkańców wsi. *Zagadnienia Doradztwa Rolniczego*, 74(4): 7–18.
- Pondel H. 2015. Środowisko przyrodnicze obszarów wiejskich – czynnik konkurencyjności czy bariera ograniczająca rozwój? *Studia i Prace WNEiZ US*, 41/2: 65–74.
- Schuster A., Zoll M., Otto I.M., Stölzel F. 2023. The unjust just transition? Exploring different dimensions of justice in the lignite regions of Lusatia, Eastern Greater Poland, and Gorj. *Energy Research & Social Science*, 104, 103227.
- Taylor Z. 1980. O społecznej geografii transportu, *Przegląd Geograficzny*, 52: 41–59.
- Tobera P. 1985. Postawy mieszkańców Bełchatowa wobec zmian w ich środowisku życia, (in:) *Zmiany w środowisku przyszłego Bełchatowskiego Okręgu Przemysłowego. Stan z okresu przedinwestycyjnego i wstępnej fazy pracy elektrowni*. S. Liszewski (ed.), Państwowe Wydawnictwo Naukowe UŁ, Warszawa-Łódź.
- Tobolska A. 1997. Postawy pracowników dużych przedsiębiorstw przemysłowych wobec procesu prywatyzacji. (in:) *Przyrodnicze i społeczne walory Mazowsza w dobie restrukturyzacji*. Wystąpienia 46 Zjazdu PTG, Rynia, 235–239.
- Tobolska A. 2010. Zróżnicowanie postaw społeczności lokalnych wobec inwestorów zagranicznych. *Studia Regionalne i Lokalne*, 11(39): 69–88.
- Tomala J., Urbaniec M. 2024. W kierunku sprawiedliwej transformacji – szanse i wyzwania dla regionów górniczych w Unii Europejskiej. (in:) E. Mączyńska, P. Pysz, M. Urbaniec (ed.), *Spółeczna Gospodarka Rynkowa w dobie transformacji energetycznej w Unii Europejskiej i Ukrainie*, Warszawa: Wydawnictwo Polskiego Towarzystwa Ekonomicznego, 169–182.
- Wciórka B. 2016. *Postawy społeczne wobec ochrony środowiska*. CBOS.
- Wojciszke B. 2002. *Człowiek wśród ludzi. Zarys psychologii społecznej*. Scholar, Warszawa.
- Zimbardo P.G., Leippe M.R. 1991. *The Psychology of Attitude Change and Social Influence*. McGraw-Hill.
- Żak-Skwierczyńska M. 2022. Energy Transition of the Coal Region and Challenges for Local and Regional Authorities: The Case of the Bełchatów Basin Area in Poland. *Energies*, 15, 9621.

Appendix 1

Attitudes of rural residents towards changes in their living environment

Purpose of the study: Analysis of the attitudes of rural residents of the Bełchatów Industrial District and their living environment from a local perspective. In particular, the aim of the survey was to capture changes in the awareness of residents of selected villages regarding the socio-economic effects of the potential closure of the Bełchatów mine and power plant.

Target group (respondents): adult residents of selected villages located in the Bełchatów Industrial District (Kleszczów, Bełchatów rural municipality, Kluki, Rząśnia, Sulmierzyce).

The survey is anonymous and its results will be used for scientific and research purposes.

METRIC

Gender: F M

Age:

- a. 18-30
- b. 31-50
- c. 51-70
- d. over 70

Education:

- a. Primary
- b. Vocational
- c. Secondary
- d. Higher

Place of residence:

- a. Kleszczów
- b. Bełchatów rural municipality
- c. Kluki
- d. Rząśnia
- e. Sulmierzyce

1. Have you ever been or are you currently employed at the Bełchatów power plant or mine?

- a. Yes
- b. No
- c. I am a retired employee of the mine or power plant

2. Please rate your level of satisfaction with living in a municipality located in the BOP area.

- a. I am very satisfied
- b. I am rather satisfied

- c. I am moderately satisfied
 - d. I am rather dissatisfied
 - e. I am very dissatisfied
- 3. How would you assess the changes that have taken place in the area where you live since the launch of the mining and energy investment?**
- a. They have gone in the right direction
 - b. Neither good nor bad
 - c. They have gone in the wrong direction
 - d. I have no opinion
- 4. Have you heard about the plans to close the Bełchatów mining and energy investment?**
- a. Yes
 - b. No
- 5. Where did you hear about the plans to close it?**
- a. From the internet
 - b. From the public media (press, radio, TV)
 - c. From friends, family
 - d. Other, please specify
- 6. Based on your knowledge of the plans to close the Bełchatów investment, please indicate the potential reason for its closure**
- a. moving away from conventional energy sources
 - b. environmental and climate protection, the need to implement sustainable development
 - c. EU actions, EU policy
 - d. elimination of Poland's energy independence
 - e. depleting resources and the unprofitability of their extraction (low efficiency of their extraction)
 - f. competition from non-European countries
- 7. In your opinion, is the closure of the Bełchatów mine and power plant a good decision?**
- a. Definitely yes
 - b. Rather yes
 - c. Difficult to say
 - d. Rather no
 - e. Definitely not
- 8. Do you see any benefits in closing the mine and power plant in the near future? (Please justify your answer)**
- a. Yes
 - b. No
 - c. Difficult to say
- Justification
- 9. Please list what you believe will be the negative consequences of closing the Bełchatów mine and power plant in the near future?**
-
- 10. What disadvantages do you think result from living near the Bełchatów power plant and mine? (You may select more than one answer)**
- a. noise
 - b. environmental pollution, dust
 - c. increased traffic
 - d. smog
 - e. soil and air pollution
 - f. excessive land drainage
 - g. other, what?
- 11. What benefits do you see from the impact of the mine and power plant on the environment of your community?**
-
- 12. In your opinion, over the last 25 years, your community has become... (please choose one of the two options provided in each pair):**
- a. More attractive – Less attractive
 - b. Greener – Less green
 - c. Cleaner – dirtier
 - d. Better developed – less developed
 - e. Safer – less safe
 - f. More modern – outdated
- 13. Are you concerned about the future of the municipality after the closure of the Bełchatów investment?**
- a. Yes
 - b. No
 - c. I have no opinion
 - d. I am indifferent

- 14. Are you concerned about losing your job after the closure of the mine and power plant?**
- Yes
 - No
 - It's hard to say
- 15. In your opinion, does the municipality have a chance for further development after the closure of the mine and power plant?**
- Yes
 - No
 - I don't have an opinion
- 16. What do you think should be the priority for local authorities after the closure of the Bełchatów mining and energy investment? (you can select more than one answer)**
- Maintaining the labour market at its current level;
 - Ensuring the improvement of the natural environment of the municipality;
 - Maintaining the quality of life of residents at the current level;
 - Ensuring the financial stability of the municipality, including the possibility of using existing social subsidies (e.g. for home modernisation, children's holidays, education, language courses, etc.)
 - Retaining and attracting entrepreneurs and investors.
 - creating a special economic zone
 - expanding social infrastructure
 - activities from the series "how to retain residents in the municipality"
- 17. What directions of development should be preferred in your municipality after the closure of the mine and power plant? (you can select more than one answer)**
- Development of industrial zones
 - Development of scientific and research facilities
 - Development of geothermal-based sports and recreation
 - Other, please specify:
- 18. Please rate on a scale of 1 to 5 how important the following aspects of human life are to you (1 - lowest rating; 5 - highest rating)**
- Health –
 - Clean air –
 - Healthy climate –
 - Family and loved ones –
 - Professional work –
 - Nice neighbourhood –
 - No noise –
 - Accessibility of recreational areas –
 - Own home –
 - Social acceptance –