

BARRIERS AND DETERMINANTS OF RESTRUCTURING EMPLOYMENT IN THE MINING INDUSTRY UNDER THE JUST TRANSFORMATION MECHANISM. SURVEY RESULTS

Piotr HETMAŃCZYK

Główny Instytut Górnictwa, Plac Gwarków 1, 40-166 Katowice; phetmanczyk@gig.eu,
ORCID: 0000-0001-8816-6037

Purpose: The purpose of using the method is to obtain information on the social perception of the employment restructuring process in the mining industry, taking into account the phase of design, implementation, monitoring and impact assessment for the industry and local communities.

Design/methodology/approach: The theses presented in the article have been verified using: literature review, critical literature analysis, document research and comparative analysis. The article presents a research method enabling social assessment of barriers and determinants of the employment restructuring process in the mining industry under the just transition mechanism. The method of researching the social perception of the hard coal mining employment restructuring process, due to the specificity and complexity of the issue under consideration, uses various, mutually complementary methods and techniques of social research: quantitative and qualitative.

Findings: As a result of the analyzes and surveys carried out, a set of conclusions can be presented, the most important of which include conclusions relating to social issues – implementation of the economic transformation in mining communes and poviats is possible in the coming years, but the communes are not prepared for the transformation. The negative effects of the employment restructuring process on the local economy may be noticeable in significant liquidation of enterprises cooperating with entities restructuring industry, reduction of revenues to the budget of local government authorities and reduction of demand on the local market.

Originality/value: The article enriches knowledge and develops a discussion in the area of social perception of the employment restructuring process in the mining industry. The attempt to capture the phenomena and processes presented here that may result from the transformation of hard coal mining in Poland is aimed at a better comprehension of the task that may be played by the local government in the area of which operating or closed mines and mining companies are located. On the basis of the results of the survey, it is mainly noticed that there is a need to define the challenges and tasks that should be undertaken in real action by the institutions responsible for the transformation of mining communes – especially due to the need to limit the social and economic consequences that may appear in the transformation process, both in the area of mining communes mining and in their surroundings.

Keywords: human being, economy, region, model, restructuring.

Category of the paper: Research paper.

1. Introduction

For many years, Poland was among the top five countries with the largest hard coal extraction. At the end of the seventies of the last century, it reached its highest level, exceeding 200 million tons. However, since then, its systematic decrease was recorded and in 2004 it did not exceed 100 million tons (GUS, 2022). In 2021, Poland was ranked 9th in the world mining ranking, supplying 55 million tons of coal (Production..., 2022).

The transformation of the Polish economy, implemented since 1989, entailed the need for deep structural changes, including in the hard coal sector. The restructuring of the industry was carried out through successive government programs. As a result of the implementation of the first of them, entitled "Restructuring of hard coal mining in Poland" (1993-1995), employment in the mining industry fell from over 415 thousands in 1989 to 268 thousands people in 1995 (Tkocz, 2006). This change was mainly due to natural departures (retirements, disability pensions) and redundancies of dual-professional, non-local people, as well as workers employed on the surface of mines related to the non-production function of workplaces. The second restructuring program "Hard coal mining, state and sector policy for the years 1996-2000", which was approved for implementation in 1996, resulted in a relatively slight decrease in employment – to 245 thousands people in 1997. In 1998, the most important restructuring program was adopted to change the size and structure of employment, "The Reform of Hard Coal Mining in Poland in 1998-2002". In the period 1998-2000, 80 thousands people left the mining industry, and the level of employment was 155 thousands. Ultimately, as a result of the actions taken, employment by 2002 fell by 102 thousands people to the level of 140 thousands people. The restructuring carried out – apart from a profound decline in the number of employees, also resulted in changes in the structure of employment. The share of blue-collar workers decreased by 2% in the underground and by 0,4% at the surface (Guminski et al., 2008). On the other hand, the share of engineering and technical employees in the underground (by 1,7%) and the surface (by 1%) was increased, as was the share of administrative and office employees (by 0,5%) (Gumiński et al., 2008). The largest number of people who left from mining during this time, took advantage of the shielding instrument called Mining Social Package (67,026 people, including 36,826 people who chose miners' leaves, 419 people – social benefits, 29,475 people – one-time unconditional severance pay), 23,097 people retired (Gumiński et al., 2008). Since 2004, the "Program for restructuring the hard coal mining industry in the years 2004-2006 and the strategy for the years 2007-2010" have been implemented. As a result of its implementation, in the years 2004-2006 employment in the hard

coal mining industry decreased by another 17,1 thousand people occurred mainly as a result of the retirement of employees and the use of mining benefits (Informacja..., 2007) and resulted in further changes in the employment structure – the share of blue-collar workers in the underground decreased (by 0,7%) and on the surface (by 0,6%) and the share of administrative and office workers (by 0,1%) (Informacja..., 2007). On the other hand, the share of engineering and technical workers in the underground (by 0.8%) and on the surface (by 0.7%) increased (Informacja..., 2007). As a result, at the end of 2021, 75,5 thousand people were employed in the Polish hard coal mining industry, of which 77,5% were underground workers (Zatrudnienie..., 2022). Thus, in the period 1989-2021, 339, 5 thousand people left the hard coal mining industry.

The article presents a research method enabling social assessment of barriers and determinants of the employment restructuring process in the mining industry under the just transition mechanism. This subject is a difficult research area, because the speed and deepening dynamics of changes cause overlapping of various elements. The subject of the method is the diagnosis of barriers and determinants of employment restructuring under the just transformation mechanism, including such issues as: assessment of the instruments proposed to be used to manage surplus employment, effects in the area of local economy and economy, effects in the area of natural environment, specific local problems (e.g. economic, social), as well as an indication – based on experience – of other instruments to mitigate the effects of restructuring as part of a just transition. The method was verified in pilot studies carried out in mining communes. The obtained results should be treated rather in terms of demonstrating the possibilities of the method itself than as a real picture of the situation.

As a result of the economic transformation of mining subregions, entire value chains will be liquidated or their current business profile changed (Magretta, 2014)¹, in which currently, there are workplaces focused on mining hard coal and companies associated with them. Closing mines will be accompanied by a change in the production profile of mining-related companies, which will lose their existing customers for their products and services. In order to support the diversification of the activities of companies from the mining and mining-related industries, it will be necessary to implement the necessary production and logistics investments contributing to changing the profile of activity, introducing new products, services, processes or gaining new markets, as well as maintaining or creating new jobs that will enable employment for people leaving from declining sectors.

In connection with the long-term goal of carbon climate neutrality adopted by the European Union by 2050 (Komisja Europejska, 2019), the Śląskie Voivodeship faces a huge challenge to carry out a just transition (Kiewra et al., 2019; McCauley, Heffron, 2018)², which will require

¹ The value chain is the sequence of activities undertaken by a company to develop, manufacture, sell and deliver a product and then provide after-sales services.

² A just transition is a process of systematic and gradual changes which, in the long perspective, will allow the region's economy to be based on modern, environmentally neutral industries. Approximately one million people working in mining and mining-related industries will be directly affected.

changes at the social, economic and technological level as well as the transition from carbon-intensive industries and energy sources to clean energy technologies.

In order to mitigate the effects of the energy and socio-economic transformation, including the liquidation of employment in the mining sector, it will be necessary to provide by 2030 almost 82,5 thousand new jobs, including those working in mining-related companies (Umowa społeczna..., 2021). The effects of actions taken in the process of just transformation of the region will be felt mainly in the mining sector, but will also be noticeable in sectors requiring deep restructuring, such as energy, metallurgy, chemical, mineral, machinery and transport.

In order to mitigate the socio-economic consequences of the transformation of the region, it is necessary to prepare the key stakeholders of the transformation process for the upcoming changes, establish and maintain permanent cooperation between employee organizations, employers' organizations, economic self-governments and scientific and research institutions, systematically inform local communities of mining subregions, and support the process of managing the socio-economic transformation. One of the challenges will also be the proper functioning of social dialogue as the basis for effective problem solving. The subject of social dialogue is the joint shaping of professional relations, working conditions, wages, social benefits, as well as other issues of economic policy that are of interest and competence to all parties, as well as relations between partners and their mutual obligations. Dialogue, however, allows for the search for a practical consensus and balanced decisions, especially in such an important topic as transformation, which facilitates their social acceptance.

In view of the problems described above, it is also important to correctly define the term transformation, which will be used in all analyses, research and expert opinions. The term transformation has its origin in Latin – "transformation" and means conversion – applying to social, economic, political, technological or IT areas. The term transformation is commonly synonymous with another term, which is change. It is significantly rarely associated with the term development or progress (Lipiński, 2017).

In such a context, it should be noted that the term transformation is perceived as more complex and, at the same time, narrower than the term change mentioned above. On this basis, it can be concluded that known transformations are changes, but not every change will be a transformation. This is how the term is perceived by R. Lipiński, who simultaneously defines the term change as follows: change is any noticeable modification of any element of reality. Meanwhile, transformation in its source should be perceived as a non-trivial and intentional process of changing one fragment of the environment implemented at a given time, which is designed to create a new and sustainable state of the environment (Lipiński, 2017).

2. The social diagnosis method of assessing the barriers and determinants of the hard coal mining employment restructuring process - a quantitative element

The purpose of using the method is to obtain information on the social perception of the employment restructuring process in the mining industry, taking into account the phase of design, implementation, monitoring and impact assessment for the industry and local communities.

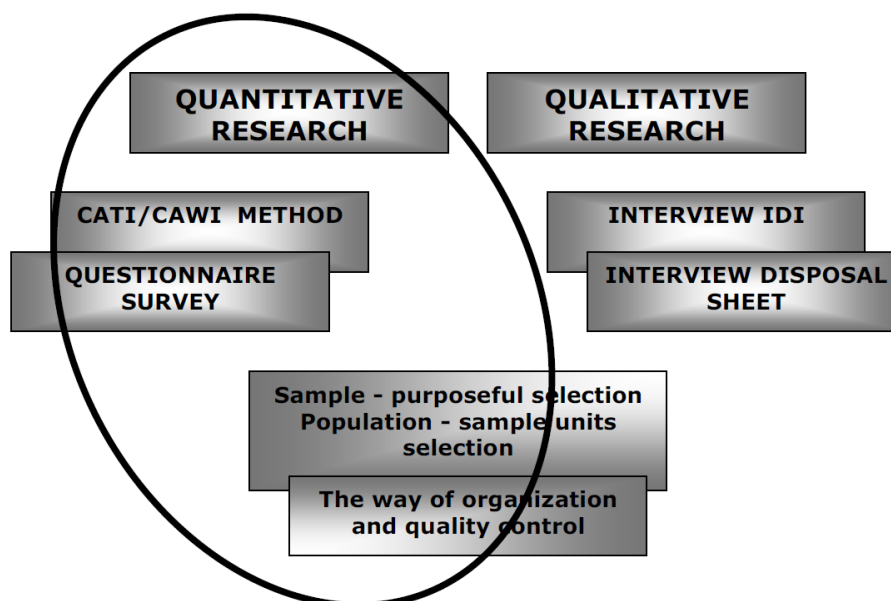


Figure 1. Social assessment diagnosis method of employment restructuring process.

The method of researching the social perception of the hard coal mining employment restructuring process, due to the specificity and complexity of the issue under consideration, uses various, mutually complementary methods and techniques of social research (Figure 1):

- quantitative evaluation studies – which include: a survey, a survey technique (CATI/CAWI), which is a technique of collecting information consisting in filling in questionnaires by the respondent himself, usually with a high level of standardization. CAWI (Computer Assisted Web Interview) and optional CATI (Computer Assisted Telephone Interview) will be used, if necessary, to supplement the study. However, the basic method will be a survey carried out via the Internet (Batorski, Olcoń-Kubicka, 2006). The CAWI research technique is an interview conducted by receiving a questionnaire or survey via the Internet and completing it online. It is currently one of the most popular and dynamically developing methods of scientific research. Thanks to the sense of anonymity and the possibility of participating in the survey at a time convenient for the respondent, it allows you to collect reliable data. A feature of CAWI research is also the fact that we are sure of reaching a specific target group, which was extremely important from the point of view of this research. This type of survey also

allows you to eliminate the "pollster effect", i.e. the influence of the person conducting the survey on the answers given, which is of great importance for the reliability of the results obtained.

- qualitative research – described in separate article.

The purpose of quantitative research is to assess the impact of actions taken in the field of employment restructuring on the immediate environment, which include:

1. Social assessment of the impact on the condition of local communities and the local economy.
2. Evaluation of instruments used at the local level to mitigate social and economic effects.
3. Specific local problems, including positive phenomena (e.g. social, economic, environmental) related to the course and results of restructuring.

The tool used for quantitative research is a questionnaire covering four thematic blocks:

1. Factors determining the need for economic transformation.
2. Financial preparation of the region for economic transformation.
3. The impact of the closure of mining plants on the local environment, e.g. entrepreneurs, labour market.
4. Anticipating and mitigating the possibility of negative social consequences related to the process of closing mines and protecting employees from dismissal.

One of the most important issues to be examined (questions in the questionnaire) is the assessment of the instruments used to mitigate the effects of employment restructuring in terms of their adequacy and effectiveness, as well as the sustainability of the achieved results. It is worth noting that the studies carried out so far have not focused on a comprehensive assessment of the solutions applied from the point of view of the support beneficiaries themselves.

In quantitative research, the proper population of respondents are representatives of local government authorities, labour market institutions, local economic self-government institutions and local development agencies, i.e. people (sample unit) with knowledge about the effects of industry restructuring for the poviats. Due to the spatial area of the research (poviats where business entities of the restructuring industry were or are located), significant diversity of the population of research participants (knowledge about the effects of restructuring) and the substantive scope of the research (social, economic and environmental issues at the local level), purposeful selection of the research sample, taking into account the following criteria:

- spatial – the research will cover the selected poviats in which the economic entities of the restructured industry were located (28 poviats),
- knowledge and activities of experts to mitigate the effects of industry restructuring at the local level – it was assumed that the sample would include representatives of: local government authorities (city/poviat board or head of the department related to the industry restructuring process), labour market institutions (employment offices), local economic self-government and local development agencies (related to the restructuring of the industry).

The general characteristics of the research used in the model of social assessment of barriers and determinants of the employment restructuring process are presented in Table 1.

Table 1.

Purpose and sample of methodology that enables carry out barriers and determinants diagnosis of social assessment of the employment restructuring process

	Quantitative research	Qualitative research
Purpose	Impact evaluation of the undertaken restructuring activities on the immediate environment	Evaluation of employment restructuring in the industry (design, implementation, monitoring phases along with the instruments used) and its effects in the economic, social and environmental dimensions
Sample selection criteria	Spatial – 28 poviats where business entities of the restructured industry were or are located (with a significant impact on the local economy). Competence - knowledge and activities of experts to mitigate the effects of industry restructuring at the local level	Knowledge resulting from participation in design, programming or executive (implementation, monitoring) restructuring processes
Study population	These are people with knowledge of the effects of industry restructuring for the poviat, representing: <ul style="list-style-type: none"> – local government authorities, – labour market institutions, – local economic self-government institutions, – local development agencies. 	Representatives: <ul style="list-style-type: none"> – government administration at the voivodeship level, – enterprises in the industry, – industry organizations (associations, associations), – sectoral/regional trade union structures.

Source: Own elaboration.

3. Results of the pretesting application of the method

3.1. Research assumptions

In order to determine the social assessment of the barriers and determinants of the employment restructuring process under the just transition mechanism, a survey was conducted in the third quarter of 2022 on a target sample of 50 experts. Research participants are 100% representatives of local government units that operate in the area of 28 mining communes. According to the adopted research assumptions, these are employees of local government units performing managerial functions in their workplace, characterized by long work experience and life and professional experience. The selection of experts for the survey was dictated primarily by the purpose and problem scope of the survey developed for the purposes of the survey, and the complexity of the questions it contains. In this light, only the indicated persons – as demonstrated by the pilot study of the research tool – could fully refer to the issues and problems posed in the study. The study used the method of questionnaire interview conducted as a tool, which is a questionnaire, and the interview technique CATI (Babbie, 2005).

After pretesting, which was carried out on a sample of three experts, the survey consists of five questions regarding the characteristics of the respondent, 26 basic, closed and open questions. Questions relating to the characteristics of the respondent concerned:

1. Respondent's gender.
2. Age of the respondent.
3. Respondent's education.
4. Workplaces.
5. Type of work performed.

The main questions – as indicated earlier – included issues related to:

1. Factors determining the need for economic transformation.
2. Financial preparation of the region for economic transformation.
3. The impact of the closure of mining plants on the local environment, e.g. entrepreneurs, labour market.
4. Anticipating and mitigating the possibility of negative social consequences related to mine closure process and protecting employees against dismissal.

As part of the pretesting, the following elements of the questionnaire were verified:

1. Technical correctness: analysis in terms of transition rules, logic and order of questions asked, instructions for interviewers, etc. (technical notes),
2. linguistic correctness: analysis in terms of the complexity and logic of sentences, comprehensibility of the used vocabulary and abbreviations (language and editorial comments),
3. substantive correctness: analysis of the selection (relevance, validity, completeness) of questions (e.g. control) and indicators (cafeteria) for closed questions (substantive comments).

Based on the comments and opinions obtained in the pretesting, the structure of the questionnaire, questions and cafeteria was clarified and the questions were unified in terms of language and the response categories used were standardized. As a result, a research tool was obtained that was technically, linguistically and substantively correct. This tool was used for the proper research as a source of research material for analyses.

The results of the survey were developed with a division into previously adopted problem groups, according to thematic blocks, closed and open questions, using the technique of statistical inference. Cross tables and descriptive statistics were used in statistical inference techniques. Main measures and parameters used in descriptive statistics are: arithmetic average, standard deviation, median and modal.

The surveyed respondents expressed their opinions by choosing the answers: "Yes" or "No" and "Difficult to answer" on the basis of an extensive scale of ratings, according to the level of importance: very high, high, medium, low and irrelevant and justification of the answers provided. In order to obtain the correct categorization, the answers with the indication of very high and high importance and the answers with the indication of medium, low and not important were summed up.

3.2. Description of the research sample for the survey

GIG address data was used to construct the research sample. The sampling frame for the development of the sample is the list of local government units (LGU) operating in mining communes, received from the GIG database.

On the basis of the operator, a random sample of 50 experts was selected for the research, according to the following criteria: commune, local government unit, place of work. All experts accepted the invitation to participate in the research.

The distribution of the sample according to the following criteria is presented below: gender, education, type of work performed, place of work, commune/powiat.

The target sample of experts from the surveyed mining communes by gender, carried out in the research, was as follows: 16 interviews were given by women (33,3%) and 34 by men (66,7%). All respondents held higher education. In turn, due to the type of work performed, in alphabetical order, the surveyed persons are: career advisor, director, expert, head of department, head, chairman of the Commune/Town Council, specialist, deputy director, deputy manager.

Analyzing the distribution of the surveyed people according to the criterion of the place of work, in relation to the commune – in alphabetical order – they represented: Bieruń, Bytom, Jastrzębie-Zdrój, Rybnik, Rydułtowy, Siemianowice Śląskie, Tychy. According to the administrative unit criterion, the experts represented the following poviats: Bieruńsko-Lędziński, Bytom, Jastrzębie-Zdrój, Pszczyński, Rybnicki, Siemianowice Śląskie, and Wodzisławski.

3.3. Findings

The first of the issues raised concerned the factors determining the need for economic transformation. Nearly 92% of respondents believed that the EU energy and climate policy is not the only factor determining the need for economic transformation of mining communes and poviats. The systematic increase in the cost of coal mining (27,3% of respondents), the degradation of the natural environment (24,1%) and the depletion of minerals (21,2%) were also considered important factors. Less often, it was indicated that the reason for abandoning coal is high CO₂ emissions (12,1%) and the development of renewable energy sources RES (9,1%).

The next question concerned the assessment of moving away from coal in favour of alternative energy sources as a prospective solution for the country's economy. In the case of this question, the question of leaving has been unequivocally resolved. More than 50% of respondents believed that this is a prospective solution, from which there is no way out. Only 33% of respondents were of the opposite opinion. 16% of respondents were unable to answer this question, stating that it was difficult for them to answer it.

In the context of the development potential of mining communes and poviats, it is interesting to ask about the possibility of economic transformation in mining communes and poviats in the coming years. The result obtained from the study indicates an optimistic approach

to the fulfilment of the transformation. Three-quarters of respondents considered this solution possible. Nearly every sixth expert (16,7%) was of the opposite opinion. It should be noted that more than 8% of experts could not resolve this issue. The conditions indicated by the experts limiting the fulfilment of the transformation are also important, among which the most important include the lack of a vision of new employment for professionally active mining personnel leaving work in the sector, the lack of economic preparation of mining communes for the transformation, social resistance to the challenges resulting from the transformation. In the macro dimension, the problem of destabilization of the country's energy security, raised by experts, is interesting.

The assessment of six factors that are important for the economic development of mining communes and poviats in the transformation phase was the content of the next question posed to experts representing local government units from mining communes and poviats. It asked about the importance of the indicated factor for the development of the study area. In order to organize the obtained results, the following steps were taken. First of these is the ordering of the factors by summing up the answers according to importance: high and very high. In the second phase, the assessed factors were categorized due to the level of their importance for the economic development of mining communes and poviats in the transformation phase. For this purpose, the factors were arranged in a system from the highest to the lowest level of importance (Table 2).

Table 2.

Factors of importance for the economic development of mining communes and poviats in the transformation phase

Factors	Importance assessment in %						
	1	2	3	4	5	6	7
supporting activities in the area of searching for new coal enrichment technologies in order to produce environmentally friendly fuel	66,7	16,7	0,0	16,7	16,7	50,0	0,0
development of ecological and innovative coal combustion installations	58,3	0,0	25,0	16,7	25,0	33,3	0,0
supporting high-efficiency energy generation technologies based on hard coal	50,0	0,0	33,3	16,7	25,0	25,0	0,0
efforts of the government, entrepreneurs and the social side to change the climate policy, which includes taking action on the European Union forum aimed at changing the provisions of the climate policy, including, inter alia, climate package with regard to the use of coal	58,3	16,7	25,0	0,0	25,0	33,3	0,0
implementation of solutions that will allow Polish coal to be competitive with raw material imported from other countries	50,0	8,3	25,0	16,7	25,0	25,0	0,0
support for coal companies in the process of obtaining financing for the implementation of investments in the form of sureties and/or guarantees for investment loans granted by, for example, Bank Gospodarstwa Krajowego and the State Treasury	50,0	25,0	25,0	0,0	33,3	16,7	0,0

Legend: 1. importance level, 2. Not applicable, 3. Low, 4. Average, 5. High, 6. Very high, 7. No response.

Source: Own elaboration.

In accordance with the adopted analytical approach, it is possible to distinguish the factors of the highest importance for the economic development of mining communes and poviats in the transformation phase. These are the following three factors (Table 2):

- supporting activities in the area of searching for new coal enrichment technologies in order to produce environmentally friendly fuel,
- development of ecological and innovative coal combustion installations,
- efforts of the government, entrepreneurs and the social side to change the climate policy, which includes taking action on the European Union forum aimed at changing the provisions of the climate policy, including, inter alia, climate package with regard to the use of coal.

Experts assessed the support of coal companies in the process of obtaining financing for investment implementation in the form of sureties and/or guarantees for investment loans granted by, for example, Bank Gospodarstwa Krajowego and the State Treasury.

The issue of the possibility of planning the process of a complete departure from coal mining in mining communes and poviats is another cognitive area in the completed studies. Based on the results of the research, it should be stated that, according to experts, it is impossible to plan a complete retirement. Such an assessment was expressed by nearly 60% of the respondents. Only every sixth of the respondents was of the opposite opinion. Nearly every fourth respondent could not answer this question (23,3%).

Another problem area taken up in the research is the financial preparation of mining communes in Poland for economic transformation. When diagnosing this area, experts clearly recognized that mining communes are not financially prepared for the transformation process. This assessment was indicated by all respondents.

Analyzing the sources from which the economic transformation of mining communes and poviats can be financed, based on the results obtained, it can be concluded that two such sources predominate. These are: Fund for Just Transition Program for Silesia, National Fund for Environmental Protection and Water Management, which were mentioned by every third respondent. Every fourth respondent saw the Cohesion Fund as a source of financing the transformation process.

The next question is related to the issue of the transition period of mining communes and poviats to a new model of economic development not based on mining. In response to this question, the experts unequivocally decided that 10 years and more (83,3% of responses). The other answers were not relevant to the issue raised in the question.

In the area of economic issues, the next question concerns the reference to the new model of economic development not based on mining for mining communes and poviats. The answers given by the experts do not solve the dilemma contained in the question. This is evidenced by the percentage of responses, which was as follows. 50% of the respondents answered yes, 25% did not and 25% did not know. Interesting in this cognitive area there are statements of experts recognizing the existence of mining communes based on a different solution than the

model based on the liquidation of mining. Experts see the opportunities in the implementation of activities and legal solutions at the national and regional level that will allow the operation of profitable mines, assuming the introduction of innovative solutions for coal enrichment, in the perspectives related to obtaining hydrogen as a result of using the coal gasification process, technologies related to wind energy and photovoltaic.

Are mining communes and poviats prepared to move to a new model of economic development as a result of the transformation and do they have a vision of economic development unrelated to mining? Experts, expressing their assessments in the first cognitive scope of the above questions, unequivocally recognized that mining communes and poviats are not prepared to move to a new model of economic development as a result of transformation. Such an assessment was expressed by more than seven out of 10 respondents. Every fourth respondent was unable to answer the question asked. Respondents who considered that mining communes and poviats were not prepared to transition to a new model of economic development justified their assessments with the following arguments:

1. no clear national agenda for transition,
2. lack of assumptions and funds for the implementation of the transition to the new model,
3. mining communes do not have adequate economic strength,
4. in this area, there are no funds for the implementation of the transition, as well as no legal regulations and guidelines and regulations regarding financing the transition,
5. heavy and very difficult budgetary situation of mining communes for a long time block readiness to pass,
6. communes will be deprived of significant budget revenues,
7. lack of mental preparation of the inhabitants of mining communes—social resistance,
8. lack of measures and implementing regulations, e.g. regarding development post-mining areas,
9. lack of alternative jobs for employees of closed mines.

Another issue concerns the identification of the possible future significance of the factors determining the economic transformation of mining communes and poviats. To this end, experts determined the level of importance for 12 factors.

The results of the answers obtained were ordered in the same way as the factors that are currently important for the economic development of mining communes and poviats in the transformation phase, i.e. in the first stage of the analysis, the ordering of factors by summing up the answers according to importance: high and very high. In the second phase, the assessed factors were categorized according to the level of their future importance for the economic development of mining communes and districts in the transformation phase. For this purpose, the factors were arranged in a system from the highest to the lowest level of importance (Table 3).

Table 3.

Factors of future importance for the economic development of mining communes and districts in the transformation phase

Factors	Importance assessment in %						
	1	2	3	4	5	6	7
widespread thermal modernization of buildings and improvement of energy efficiency in industry and services	33,3	16,7	25,0	25,0	0,0	33,3	0,0
zero waste policy - more recycling and reasonable waste disposal	58,3	0,0	33,3	8,3	33,3	25,0	0,0
supporting the development of cheaper modern energy technologies	100,0	0,0	0,0	0,0	33,3	66,7	0,0
development and implementation of the concept of ecological education - covering the population from the youngest age groups	41,7	0,0	25,0	33,3	16,7	25,0	0,0
creation of an efficient public transport network - all vehicles are emission-free and public transport is free	41,7	8,3	16,7	33,3	25,0	16,7	0,0
shaping active civic attitudes	50,0	8,3	25,0	16,7	33,3	16,7	0,0
prepare a long-term heating plan and reduce air pollution	83,3	0,0	0,0	16,7	33,3	50,0	0,0
developing a system of social support in the field of energy poverty	75,0	0,0	0,0	25,0	41,7	33,3	0,0
stable level of taxes and local law	50,0	0,0	16,7	33,3	8,3	41,7	0,0
principles of sustainable development based on basic human and animal rights and combating climate change	33,3	0,0	41,7	25,0	25,0	8,3	0,0
create mechanisms to limit imports of used, high-emission cars	25,0	25,0	50,0	0,0	8,3	16,7	0,0
transition to community energy, which is the foundation of the energy transformation in Poland and moving away from fossil fuels towards energy based on renewable and distributed sources	58,3	8,3	0,0	33,3	25,0	33,3	0,0

Legend: 1. importance level, 2. Not applicable, 3. Low, 4. Average, 5. High, 6. Very high, 7. No response.

Source: Own elaboration.

In accordance with the adopted analytical approach, it is possible to distinguish the factors of the highest importance for the future economic development of mining communes and poviats in the transformation phase. These are the following three factors (Table 3):

- supporting the development of cheaper modern energy technologies,
- preparation of a long-term plan for heating and reducing air pollution,
- developing a system of social support in the field of energy poverty.

The second group consists of factors of moderate importance, to which the participants of the study included:

- creation of an efficient public transport network – all emission-free vehicles, and public transport is free,
- shaping active civic attitudes,
- stable level of taxes and local law,
- transition to community energy, which is the foundation of the energy transformation in Poland and departure from fossil fuels towards energy based on renewable and distributed sources.

Factors that, according to experts, are the least important are:

- principles of sustainable development based on basic human and animal rights and combating climate change,
- setting up mechanisms to limit the import of used high-emission cars,
- widespread thermal modernization of buildings and improvement of energy efficiency in industry and services.

The next twelve questions were aimed at diagnosing the current and future situation of mining communes determined by the process of just transformation and its impact on the direction of development of the transformed areas. The first was the opening question, which focused on the occurrence of communes and poviats in the area of economic transformation well-developed communication with stakeholders (local governments, employment offices). The answers to the question described above unequivocally resolve the issue posed to the experts. More than 55% of the participants in the survey stated in their answers that the existence of properly developed communication with stakeholders in the area of economic transformation of mining communes and poviats is overlooked. Only nearly 17% of respondents were of the opposite opinion. The remaining percentage of respondents (25%) had difficulty in answering.

Communication with stakeholders in the preparation of the transformation process takes place mainly through informing about the preparations, course and expected effects (66,7% of respondents) and evaluating the developed solutions (33,3%). None of the respondents pointed to active participation in the preparation of the transformation programme.

When asked about the direction and strength of the impact of the employment restructuring process as part of the just transition mechanism for the local community and the labour market on the condition of the local community and economy, no clear answer was received.

Nearly half of the respondents stated that no social dialogue was conducted in the communes and poviats as part of the transformation process. The question posed in the study determined the next one, in particular regarding the knowledge of the study participants about civic organizations opposing plans to open new mines. In the case of this question, the answers given settle the issue clearly presented to the experts in the question. Over 83% of the survey participants who answered that they had knowledge indicate that this phenomenon in mining communes may take place and be significant for the economic transformation of mining communes.

Another cognitive area was outlined by the question about the smooth transition of mining personnel to other economic sectors. As in the question on the direction and strength of the impact of the employment restructuring process, the participants of the study were unable to give a clear answer. Every third respondent indicated that there was no smooth transition. It is worth noting that 41% had difficulty answering on this question.

In the next question, the experts were asked to determine whether the restructuring of employment in the mining industry will have a negative impact on social phenomena at the local level. Among the most frequently cited social phenomena were:

- number of unemployed growth,
- appear of the phenomenon of low labour mobility,
- number of addicts growth.

It should be noted that, according to experts (41,2%), there is no question of an increase in the number of homeless people.

When asked whether the restructuring of employment in the mining industry will have negative effects on the local economy, the respondents mainly pointed to:

- liquidation of enterprises cooperating with entities of the restructured industry,
- reduction of revenues to the budget of local government authorities,
- reduction of demand on the local market.

Restructuring of the mining industry is associated by the inhabitants of mining communes with both negative and positive changes. Among the opportunities that may occur, the respondents indicated increasing the reserve of undeveloped land, changing and improving professional qualifications, positive impact on the natural environment and reviving other sectors of the economy.

In the last question, the experts were asked to assess the importance of the indicated ones in the questionnaire of the survey of activities for the labour market of mining communes and poviats in the phase of potential economic transformation. The results of the answers obtained were ordered in the same way as the factors of future importance for the economic development of mining communes and poviats in the transformation phase, i.e. in the first stage of the analysis, the ordering of the factors by summing up the answers according to their importance: high and very high. In the second phase, the assessed factors were categorized due to the level of their future importance for the economic development of mining communes and districts in the transformation phase. For this purpose, the factors were arranged in a system from the highest to the lowest level of importance (Table 4).

According to the adopted analytical approach, three factors of the highest importance for the labour market of mining communes in the transformation phase can be distinguished. These are the following actions (Table 4):

- promoting vocational training for former miners, with the need to certify them,
- guaranteeing aid measures encouraging former miners to remain professionally active on the labour market,
- limiting the number of students educated in mining professions.

Table 4.

Actions of future importance for the labour market of mining communes and poviats in the transformation phase

Factors	Importance assessment in %						
	1	2	3	4	5	6	7
promote retraining and other forms of active labour market policy as a form of support only for people leaving jobs in the mining industry who cannot find a new job	16,7	0,0	0,0	83,3	16,7	0,0	0,0
guaranteeing aid measures encouraging former miners to remain professionally active on the labour market	58,3	0,0	25,0	16,7	33,3	25,0	0,0
limiting the number of students educated in mining professions	58,3	0,0	8,3	33,3	33,3	25,0	0,0
stimulating demand for labour in areas integrated with coal mining, especially in production and construction	16,7	0,0	0,0	83,3	8,3	8,3	0,0
promoting vocational training for former miners, with the need to certify them	75,0	0,0	0,0	25,0	41,7	33,3	0,0
taking advantage of the ageing of the population in the area of earlier professional deactivation of mining staff	41,7	0,0	8,3	50,0	25,0	16,7	0,0

Legend: 1. importance level, 2. Not applicable, 3. Low, 4. Average, 5. High, 6. Very high, 7. No response.

Source: Own elaboration.

The second group consists of factors of moderate importance, to which the participants of the study included:

- promoting retraining and other forms of active labour market policy should be treated as forms of support only for people leaving jobs in the mining industry who cannot find a new job,
- stimulating demand for labour in areas integrated with coal mining, especially in production and construction.

The factor which, according to experts, is of the least importance is the use of the ageing of the population in the area of earlier occupational deactivation of mining staff.

4. Conclusions

Following the analyzes and surveys carried out, a set of conclusions can be presented, the most important of which include conclusions about social issues – also considered at the political level. In this light, it is worth quoting the view from 10 years ago, in which experts studying the restructuring of the Polish mining industry note that the liquidation of an unprofitable mine is not a problem from an economic or technical point of view, but is, above all, a serious social and political problem (Stalewski, Szpak, 2000).

The attempt to capture the phenomena and processes presented here that may result from the transformation of hard coal mining in Poland is aimed at a better understanding of the role that may be played by the local government in the area of which operating or closed mines and mining companies are located. On the basis of the results of the survey, it is mainly noticed that

there is a need to define the challenges and tasks that should be undertaken in real action by the institutions responsible for the transformation of mining communes – especially due to the need to limit the social and economic effects that may appear in the transformation process, both in the area of mining communes mining and in their surroundings.

The scope of the research conducted in selected mining communes, due to their pretesting nature, does not allow for the presentation of a full diagnosis of the social assessment of barriers and determinants of the process of restructuring employment in the mining industry under the just transition mechanism, but it does allow for the presentation of certain regularities:

1. The energy and climate policy is not used to determine the economic transformation of mining communes and poviats. Equally, important are the systematic increase in the cost of coal mining, the degradation of the natural environment and the depletion of minerals.
2. Moving away from coal in favor of alternative energy sources is prospective for the country's economy.
3. Implementation of the economic transformation in mining communes and poviats is possible in the coming years. The same factors limiting its implementation can be seen as new employment for mining workers leaving active employment, lack of economic process of mining communes for transformation, as well as social resistance to the threats related to the participation from the transformation.
4. It is important for the economic development of mining communes and poviats in the transformation process to support activities in the area of searching for new technology of coal engagement in order to produce a friendly environment, ecological development and installation of coal installations, as well as striving to establish and the social community to change the climate policy, which is confirmed by the activities on the European Union forum in order to change the provisions of the climate policy, including climatic environment for the use of coal.
5. Mining communes and poviats in Poland are not prepared for social transformation. Analyzing the sources from which the transformation of the organization of mining communes and poviats can be financed, the Fund for Just Transformation of the Program for Silesia and the National Fund for Environmental Protection and Water Management.
6. Mining communes and poviats are not used to transition to a new model of economic development, due to the lack of a clear program for a given process, lack of resources and resources to enter the new model, no economic impact, no impact on this model and no mental preparation of the inhabitants of mining communes – social resistance.
7. The highest importance for the future economic development of mining communes and poviats in the transformation phase are to support the development of cheaper modern energy technologies, development of a long-term heating plan and development of a social support system in the field of energy poverty.

8. The negative impact on the source of the community can appear on principle in the increase in the number of the unemployed, phenomenon of low labour mobility and increase in the number of addicts.
9. The negative effects of the employment restructuring process on the local economy may be noticeable in significant liquidation of enterprises cooperating with entities restructuring industry, reduction of revenues to the budget of local government authorities and reduction of demand on the local market.
10. Important activities for the labour market of mining communes in the industry may include promoting vocational training for former miners, with the need to certify them, guaranteeing aid measures encouraging former miners to remain professionally active on the labour market and limiting the number of students educated in mining professions.

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