

MINING MUNICIPALITIES AND DISTRICTS IN POLAND IN THE PERSPECTIVE OF EQUITABLE TRANSFORMATION

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Purpose: On the basis of their own research, the authors of the article undertook to determine the factors determining future social and economic development and to develop recommendations for strengthening active economic, social and labour market policies in mining municipalities and districts in Poland – in the perspective of the "European Green Deal" plan and "Just Transition"

Design/methodology: the results presented in the article were obtained on the basis of the implementation of questionnaire research, expert interviews, literature review, critical literature analysis, documentation analysis, statistical descriptive analysis.

Findings: As a result of the analyses and surveys carried out, the article presents an extensive set of conclusions, the most important of which are those relating to social. The presented attempt of the prospective approach to the phenomena and processes which may result from the transformation of the hard coal mining in Poland is aimed at better understanding of the role which may be fulfilled in the future by the local self-government in the area of which the operating or disused mines and mining enterprises are located. Secondly which are related to the perspective of the hard coal mining transformation process, first of all showed terms the scale of challenges faced by mining municipalities. The indicated processes are nowadays dominated by the challenge of creating new ecological solutions of high quality both in the sphere of their social acceptance in the utilitarian dimension. It is a process that allows for a better understanding of the role of local government in the transformation process, which will probably take up, in a fragmentary way, economic, social and environmental challenges resulting from the contemporary development of economy based on knowledge and determined by the Industrial Revolution 4.0.

Originality: the findings and recommendations of the study may become relevant for practitioners and researchers dealing with climate change mitigation, strategy implementation, cross-sectoral partnerships and sustainable development of transformed areas.

Keywords: Industry 4.0, climate, transition, mining, labour.

1. Introduction

The reform of hard coal mining in Poland is an important social and economic issue. This issue is particularly linked to the process of implementing the 'European Green Deal' plan. The plan has a key focus on accelerating the reduction of greenhouse gas emissions. The European Green Deal – as its authors note – is necessary for Europe to become the first climate-neutral continent by 2050, and they are pleased to note that the plan puts sustainable development at the heart of the European Union's policy-making process. The Green Deal should be a tool to shape the agenda and lead to the integration of sustainability criteria into all EU policies, macroeconomic priorities and financial instruments. The Plan stresses that it should be an instrument to achieve the objectives of the Biodiversity Strategy and the Paris Agreement and to fully implement the UN 2030 Agenda for Sustainable Development and the Sustainable Development Goals, as well as to make an ambitious EU contribution in the context of the post-2020 policy framework for international biodiversity conservation (Communication From The Commission, 2019). Further decarbonisation of the energy system is key to achieving the 2030 and 2050 climate targets. Energy production and consumption in economic sectors is responsible for more than 75% of EU greenhouse gas emissions. Energy efficiency must be prioritised. An energy sector based largely on renewable sources must be developed, complemented by the rapid phase-out of coal and the decarbonisation of gas. At the same time, the EU's energy supply must be secure and affordable for consumers and businesses (Marszowski, 2020, pp. 1-131).

It seems that the objectives of the Green Deal quoted above enforce the need for a diagnosis of the social and economic implications that may arise from the process of transformation of the hard coal mining sector and its environment. It is worth noting that in the case of the sector under study, restructuring processes take place in an area of very high concentration of social and economic resources. It is related to the social and economic structure of the Silesian Voivodeship, which is the most populous voivodeship in Poland, and at the same time to the concentration of industries related directly and indirectly to the hard coal mining sector (Babbie, 2005). In this context, an assessment of the public perception of the process of fair transformation may be important for the condition and development prospects of this sector – and may be a fundamental recommendation for the creation of programmes aimed at strengthening the national energy policy based on clean technologies. Bearing in mind the effects of many years of transformations of the hard coal mining sector in Poland, it should not be overlooked that further reform of this important sector of the national economy may result in social acceptance or rejection of the directions of its further transformation (Lipiński, 2017, pp. 1-17). This becomes particularly important for the sector and its environment, which are

systematically subjected to pressure resulting from its adaptation to changing political, economic and social conditions¹.

2. Materials and Methods

In order to determine the factors determining future social and economic development and to develop recommendations for strengthening active economic, social and labour market policies in mining municipalities and districts in Poland - in the perspective of the "European Green Deal" and "Just Transition" plan - survey research was conducted in the 3rd quarter of 2020. According to the assumptions adopted in the research, the study focuses on selected 28 mining municipalities from the area of the Lower Silesian, Lublin, Silesian and Lesser Poland Voivodeships. In 2019, the study area had a population of 702404 people. The area was divided into small rural municipalities (Puchaczów 5081 inhabitants), medium urban municipalities (Knurów 39207) and large urban municipalities (Rybnik 141347) (Table 1).

Table 1.

Breakdown of the analytical area by administrative units based on EUROSTAT and Central Statistical Office statistics and NUTS²

| Lp. | Jednostka administracyjna | Podział administracyjny | Obszar analityczny | Powiat |
|-----|---------------------------|-------------------------|----------------------|---------------------|
| 1 | Babice | gmina wiejska | Babice | Chrzanowski |
| 2 | Bestwina | gmina wiejska | Bestwina | Bielski |
| 3 | Bieruń | gmina miejska | Bieruń | Bieruńsko-Lędziński |
| 4 | Chelm Śląski | gmina wiejska | Chelm Śląski | Bieruńsko-Lędziński |
| 5 | Cyców | gmina wiejska | Gmina Cyców | Łęczyński |
| 6 | Czerwionka-Leszczyny | gmina miejska | Czerwionka-Leszczyny | Rybnicki |
| 7 | Gierałtowie | gmina wiejska | Gierałtowie | Gliwicki |
| 8 | Grębocice | gmina wiejska | Grębocice | Polkowicki |
| 9 | Jastrzębie-Zdrój | gmina miejska | Jastrzębie-Zdrój | Jastrzębie-Zdrój |
| 10 | Knurów | gmina miejska | Knurów | Gliwicki |
| 11 | Lędziny | gmina miejska | Lędziny | Bieruńsko-Lędziński |
| 12 | Libiąż | gmina miejska | Libiąż | Chrzanowski |
| 13 | Ludwin | gmina wiejska | Ludwin | Łęczyński |
| 14 | Marklowice | gmina wiejska | Marklowice | Wodzisławski |
| 15 | Miedźna | gmina wiejska | Miedźna | Pszczynski |

¹ The article is the result of a research work entitled Mining municipalities and districts in Poland in the perspective of equitable transformation commissioned by the Association of Mining Communities in Poland to the Central Mining Institute, More: R. Marszowski, Mining communes and counties in Poland in the perspective of a just transformation, Katowice-Jastrzębie Zdrój, 2020.

² In the NUTS classification (Classification of Territorial Units for Statistics) three levels are distinguished: the first one - covering 6 regions grouping voivodships, the second one - 16 voivodships and the third one - 72 subregions grouping poviats. These three levels also correspond to the three regional levels in the national NTS nomenclature (Nomenclature of Territorial Units for Statistics). The NTS classification also includes two local levels: the fourth - counties and the fifth - communes. More information on the territorial units classifications applied by the NTS is available at: www.stat.gov.pl/statystyka-regionalna/jednostkiteritorialne/.

Cont. table 1

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|----|----------------------|---------------|----------------------|----------------------|
| 16 | Mszana | gmina wiejska | Mszana | Wodzisławski |
| 17 | Pawłowice | gmina wiejska | Pawłowice | Pszczynski |
| 18 | Pilchowice | gmina wiejska | Pilchowice | Gliwicki |
| 19 | Polkowice | gmina miejska | Polkowice | Polkowicki |
| 20 | Pszów | gmina miejska | Pszów | Wodzisławski |
| 21 | Puchaczów | gmina wiejska | Puchaczów | Łęczyński |
| 22 | Radlin | gmina miejska | Radlin | Wodzisławski |
| 23 | Rybnik | gmina miejska | Rybnik | Rybnik |
| 24 | Rydułtowy | gmina miejska | Rydułtowy | Wodzisławski |
| 25 | Siemianowice Śląskie | gmina miejska | Siemianowice Śląskie | Siemianowice Śląskie |
| 26 | Suszec | gmina wiejska | Suszec | Pszczynski |
| 27 | Świerklany | gmina wiejska | Świerklany | Rybnicki |
| 28 | Żory | gmina miejska | Żory | Żory |

Source: Poland in numbers 2019, Local Data Bank, Central Statistical Office, Statistical Office of the European Union EUROSTAT.

The research was conducted on a purposive sample of 105 experts according to the following criteria: commune, Local Government Unit (hereinafter referred to as JST), workplace. In the research the methods of descriptive and comparative statistics as well as literature review, critical analysis of literature, research of documents and comparative analysis were applied. Out of the sample of 105 experts, 100% accepted the invitation to participate in the research. The purposive sample of experts from the surveyed mining municipalities and districts by gender in the study was as follows: 58 interviews were conducted by women (55.24%) and 47 by men (44.76%). Respondents with higher education constituted a population of 104. Only one respondent had secondary education. On the other hand, with regard to the type of work performed, in alphabetical order the persons surveyed were: mayor, director, chief specialist, inspector, head of the department Chairman of the Municipal/City Council, secretary, treasurer, village head, specialist. In this light, only the indicated persons – as demonstrated by the pilot study of the research tool – could fully address the issues and problems posed in the study, such as e.g. the impact of the EU energy and climate policy on the need for economic transformation of mining communes and districts, the financial and organizational preparation of mining communes and districts for the economic transformation, whether mining communes and districts have a vision for economic development unrelated to mining, how the quality of life in mining communes and districts after moving away from coal to alternative energy sources will change, etc.

Analysing the distribution of the persons surveyed according to the criterion of place of work, in relation to the municipality – in alphabetical order – they represented: Babice, Bestwina, Bieruń, Chełm Śląski, Cyców, Czerwionka Leszczyny, Gierałtowice, Grębocice, Jastrzębie-Zdrój, Łędziny, Libiąż, Ludwin, Marklowice, Miedźna, Mszana, Pawłowice, Pilchowice, Polkowice, Pszów, Puchaczów, Radlin, Rybnik, Rydułtowy, Siemianowice Śląskie, Suszec, Świerklany and Żory. According to the criterion of administrative unit, experts represented the following counties: Bielsko-Biała, Bieruńsko-Łęczyński, Chrzanowski, Gliwicki, Jastrzębie-Zdrój, Łęczyński, Polkowicki, Pszczynski, Rybnicki, Siemianowice Śląskie, Wodzisławski, Żory. The research used the method of questionnaire interview with the use of a questionnaire and CATI interview technique (Babbie, 2005).

The knowledge on factors determining the future social and economic development of mining communes and districts in Poland - in the perspective of the "European Green Deal" and "Just transition" plan was expanded by individual expert interviews, which were conducted using the CAWI method – i.e. an online expert interview questionnaire. Local experts (institutional leaders) representing deeply diverse social backgrounds, occupation and professional experience were invited to participate in the interviews. When building the methodology of the study, it was assumed that the experts would have a university degree, be characterized by extensive life and professional experience, recognition in their social and professional environment, and through their profession they directly or indirectly create the socio-economic image of municipalities and mining districts and are direct stakeholders in the process of equitable transformation. All experts participating in the research held managerial positions in the examined territorial self-government units – who were at the same time representatives of municipalities associated in the Association of Mining Municipalities in Poland (gives SGGP). In total we obtained 10 complete – and acceptable due to methodological correctness – expert interviews in the research.

Describing the methodology of the conducted research it is worth noting that the term transformation has its source in Latin – "transformation" and means a transformation – relating to social, economic, political, technological or IT areas. As numerous sources indicate, the term transformation is most often a synonym of another term, i.e. change. Indeed, it is less often associated with the term development or progress. In this context, it should be noted that the term transformation is perceived as more complex, and at the same time narrower, than the above-mentioned term change. On this basis, therefore, it is possible to formulate the conclusion that known transformations are changes, while not every change will be a transformation. This is how this term is perceived by R. Lipiński, who at the same time defines the term change in the following way: 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 realized at a given time, which is aimed at creating a new and, above all, permanent state of the environment (Lipiński, 2017, pp. 1-17).

However, Jan Szczepański defines the term transformation in a different way. He perceives transformation as one of three fundamental ways of transforming reality, including (Szczepański, 1999):

- reforms,
- revolutions,
- transformations.

The term transformation defined in this way is a process changing the state of objects existing in the real world, a change transforming the nature or essence of something, aiming to change the existing order.

3. Discussion

In the light of the definition of the term transformation – while maintaining the hierarchy of objectives described in the "European Green Deal" plan – the need arises in the areas of mining municipalities that will undergo transformation for authoritative cooperation between the three key stakeholders in this process, i.e. local communities (representation of local – territorial government), employers and representation of state policies. To conclude, the changes induced by the transformation in mining municipalities concern, in particular, aspects of the activities of companies in high-carbon economic sectors, taking place in their civilizational, cultural and socio-economic area. The increase in their novelty and speed, as well as the increase in the intensity and complexity of the environment of the high-carbon economic sectors, leads them to be described as turbulent. Thus, it becomes almost certain that transformed areas must be equipped with strategic solutions responding to the very extensive, diverse, unstable and complex socio-economic changes in their area and environment. Hence, assuming that the decision-making processes shaping the dynamic or even "turbulent" changes which may occur in the high-carbon economic sectors – will create a coexistence mechanism which should fit into the indicated dimensions and make dependent the occurring relations between mining municipalities, high-carbon sectors, enterprises and their environment.

The question that arises in this context is what instruments should be the key content shaping the indicated mechanism? It seems that the factors determining the ability of future actions to shape the indicated mechanism – characteristic for creative thinking about the relations taking place between mining municipalities, high-carbon sectors, enterprises and their socio-economic environment will be: an appropriate level of coherence of actions taken in line with the monitored area, an appropriate level of coherence of actions in line with the expectations of mining municipalities, high-carbon sectors, enterprises and their environment, ensuring, through actions taken, an increase in knowledge about the changes taking place caused by the transformation and the possibility of effectively responding to the challenges faced by stakeholders in transformed areas (Communication From The Commission, 2019).

In the light of the above theses and regularities, as a result of the research carried out, conclusions determining the main directions of development of mining communes, strategic areas of development challenges and recommendations strengthening the development of mining communes and districts in the perspective of the fair transformation process were defined as precisely as possible.

On this basis, we formulate the first of numerous conclusions, which proposes that the SGGP consider making 2021 the year of full participation of mining municipalities in the fair transformation process – according to the principle that since transformational changes cannot be stopped, one should learn to benefit from them. The main message of the year of full

participation of mining municipalities in the process of equitable transformation should be the recognition that the overarching goal of the year is to strive to secure better living conditions and fuller social inclusion for the residents of mining municipalities through full participation in the labour market – thus promoting social and professional activity among the residents of mining municipalities to give them a fuller life.

On the other hand, on the basis of all the trends, processes and forecasts observed as a result of the research, it seems that in the perspective – as experts point out – of the inevitable occurrence of the transformation process, it may turn out to be important for mining municipalities to promote actions aimed at an evolutionary, not short-term, transition from coal-based energy sources to low-emission sources – if it is possible, striving for it to be a multi-stage and long-term process. It may be equally important to strive for solutions in accordance with which the principle will be adopted of introducing directly to individual communes – or their unions – funds for implementation of the fair transformation process, on the basis of a list of indicative projects entered at the stage of creating the TPST and indicating their support, so that the social effects of the departure from coal are as low as possible. At the same time, consideration should be given to the need for mining municipalities to seek state intervention appropriate to the scale of challenges – in the areas of transformed municipalities – with simultaneous provision of mining municipalities with reliable and comprehensively planned proposals for transformational measures limiting their spontaneity. The indicated action should be supported by the development of programmes for diversifying the dynamics and pace of the fair transformation process, which will take into account the developmental conditions specific to mining municipalities – which at the same time differentiate them (Frankowski, Mazurkiewicz, 2020).

On the basis of the above initial findings of the research, it should be clearly emphasised that in all debates and discussions the representatives of the local government should clearly and determinedly present the position that the transformation process is coexisting in the face of already defined challenges, which exceed in every organisational and management dimension the possibilities of their stimulation by mining municipalities. Examples: development of Renewable Energy Sources and other low-carbon technologies, natural, environmental policy challenges, high CO₂ emissions, depletion of minerals, systematic increase of coal mining costs.

These processes are currently dominated by the challenge of creating new quality ecological solutions. It is a phenomenon that allows for a more complete understanding of the role of local government in the transformation process, which will probably – to the best of its abilities – take up, in a fragmentary manner, economic, social and environmental challenges related to ecology, resulting from the contemporary development of economy based on knowledge and determined by the Industrial Revolution 4.0 (Marszowski, 2020, pp. 1-131).

In this light it will be extremely important to promote knowledge among TSU employees on the concept and vision of shifting from coal to alternative energy sources. Employees of territorial self-government units should be given an opportunity to participate in educational programmes presenting knowledge about shifting from coal to alternative energy sources. This objective is strengthened by the research participants' recognition that the transformation process is a long-term solution from which there is no departure. In this perspective, the Silesian Voivodeship as an energy resource and guarantor of energy security of Poland gives way to the vision of a region with innovative industry with disappearing mining. This is confirmed by the vision, in which in mining communes and districts the economic transformation in the coming years is fulfilled successfully, despite such limitations as: lack of economic preparation of mining communes for the transformation, social resistance to the challenges resulting from the transformation, lack of vision of new employment for retiring professionally active mining staff (Szczepański, 1999).

In the macro dimension, the problem of destabilisation of Poland's energy security raised by experts is interesting. This current of thinking is confirmed in the context of the perception of transformation, in which the vision of a threat is rejected and the necessity of change and the development opportunities resulting from it for mining municipalities are emphasised. Nevertheless, in the light of the research carried out, it must be acknowledged that mining municipalities are not financially prepared for the transformation process. This is confirmed by the regularity in which the fact that a decisive group of surveyed experts does not know such sources is revealed. Hence, another regularity, which is the statement that the period of transition of mining communes and districts to a new model of economic development not based on mining should last for a minimum of 10 years and more and be supported by implementation of activities and legal solutions at the national and regional level, which will enable the functioning of profitable mines assuming the introduction of innovative solutions for coal enrichment, in perspectives related to obtaining hydrogen as a result of applying the process of coal gasification, technologies related to wind energy and photovoltaics. In summary, the experts concluded that mining municipalities and districts are not prepared to move to a new economic development model as a result of the transition, arguing their position as follows:

- uncertainty of tomorrow – COVID-19,
- lack of a clear national programme for the transition,
- the current situation does not allow for a smooth and efficient transition to the new model, as we do not know how the transition will take place, what is already envisaged for implementation in this sphere,
- lack of assumptions and resources to implement the transition to the new model,
- mining municipalities do not have adequate economic strength,

- in this area lack of resources to implement the transition as well as legal provisions and guidelines and regulations for financing the transition,
- the difficult and very difficult budgetary situation of the mining municipalities blocks their readiness for the transition for an extended period,
- municipalities will be deprived of serious budgetary revenue,
- loss of municipal functions for many municipalities, for which the transition period will result in depopulation and an economic crisis,
- in mining municipalities there is too much tradition and long-standing form of functioning on the basis of mining and there is no alternative to the transition,
- lack of mental preparation of the inhabitants of mining municipalities – social resistance,
- lack of implementing measures and regulations, e.g. for the development of post-mining areas,
- lack of alternative jobs for employees of closing mines.

The above conditions are confirmed by another regularity related to the lack of knowledge among territorial self-government units' employees about programmes which would present a concept and vision of shifting from coal to alternative energy sources in the form of strategic solutions.

Taking into account the area of development opportunities, special attention in mining municipalities should be paid – taking into account their developmental directions – in the perspective of transformation to the following areas: supporting activities in the field of searching for new coal enrichment technologies in order to produce environmentally friendly fuel and development of ecological and innovative coal combustion installations, consolidation and development of common thermo-modernisation of buildings and improvement of energy efficiency in industry and services, zero waste policy – more recycling and reasonable utilisation of waste, supporting development of cheaper modern energy technologies, and development and implementation of the concept of ecological education – covering the population from the youngest age (Impact transforming business, 2021).

As the research results indicate, these solutions are not facilitated by the lack of an appropriately developed social dialogue in the area of economic transformation of mining communes and districts, the voice of social organisations and local communities unnoticed in discussions on the shape and direction of economic transformation, the impact of transformation on the quality of life in mining communes, especially determining the crisis situation in the labour market. In connection with a potential crisis situation in the labour market, experts have concluded that it is necessary – in the perspective of the transformation – to promote retraining and other forms of active labour market policy treated as a model of support only for those leaving mining jobs and unable to find a new job, to guarantee aid measures encouraging former miners to remain active on the labour market, to limit the number

of students educated in mining professions, to stimulate demand for labour in areas integrated with coal mining, especially in manufacturing and construction, and to promote professional training for former miners, with the necessity of their certification.

In conclusion, on the basis of the research carried out, the following fundamental conclusion can be drawn. Planning a complete withdrawal from coal mining in municipalities and mining districts in Poland in the opinion of experts is impossible and involves acceptance of the challenge of a just transition (Nowakowska, Rzeńca, Sobol, 2021, p. 25).

Assuming a successful scenario for the development of the activities outlined above, it seems that the following further activities can be given priority in the perspective of a just transition. First of all, the development of guidelines for a horizontal and coherent programme for the SGGP preparing all policies implemented in transformed municipalities for the transformation phenomenon. Simultaneously, together with the programme under development, preparation of proposals for activities to strengthen the participation of transformed mining municipalities in decisions shaping their present and future – at the regional and national levels – in the perspective of fair transformation (e.g. Forum for Fair Transformation of Mining Municipalities at the Polish Prime Minister's Office). Strengthening the measures taken, it would be appropriate to give the public employment services in transformed mining municipalities a superior role in the work on preparing thematic proposals for social and professional activation of municipal communities. The need to prepare guidelines for a programme of intergenerational integration, in particular based on the diversity management method, in the area of activity of the SGGP could be included in this activity (Korhonen, Hankasalo, Seppälä, 2018, pp. 37-46).

Without waiting for developments, it is worth considering the development of an educational programme presenting the economic and social consequences resulting for mining municipalities from the fair transition process – further determined by demographic and technological changes (Communication From The Commission, 2019). In view of demographic changes and specific cultural and social conditions, it may be important to prepare a package of economic and social measures dedicated primarily to women in mining municipalities. In this context, the issue of education and health should be given priority in mining municipalities in activities promoting social and professional activity in the process of equitable transformation.

At the same time, in order to strengthen the social perception of the activities undertaken in mining municipalities, it is worth considering the preparation of an information campaign presenting the effects of the transformation on small and medium-sized enterprises (SMEs), the consumption model, public finances, health and social protection policy and migration. Continuing, taking into account the social sphere in the process of fair transformation, it seems that it would be required to consider developing a programme to counteract marginalisation, differentiation and social exclusion of the inhabitants of transformed mining municipalities (Frankowski, Mazurkiewicz, 2020)

The above-mentioned actions should, above all, be conducive to minimizing the fear of unemployment, social unrest, the outflow of young and most mobile qualified personnel from mining municipalities to development centres. This would mean unfavourable changes in the population living in mining municipalities.

Focusing on the strategic activities outlined above for the development of mining communes, it seems extremely important to focus attention and effort on the postulate on the need to give a new dimension to communal policies in order to link them more fully with European Union Strategies – in particular the European Green Deal Programme. This postulate may more fully incorporate mining municipalities into the development process, which will be determined by larger structures – and through the participation of mining municipalities in the creation of European policies, become a key impulse for their position within the structure of the European Union and for the benefits derived from the implementation of an action strategy shaped in this way (Marszowski, 2020, pp. 1-131).

It seems that equally important in light of the above conclusions is the need to focus on the need to strengthen and develop social capital in mining municipalities. As numerous experiences prove, without the participation of social capital one cannot count on the creation of externalities – particularly in the labour markets. It seems that this is a necessary condition for achieving the goal assumed in the optimistic forecast scenario for mining municipalities, i.e. a permanent increase in employment and successful development of the SME sector in these municipalities. Therefore, it is recommended to consider the need to develop a programme for the growth of social capital of the inhabitants of mining municipalities (Szczepański, 1999).

In conclusion, the need to take up the activities and challenges outlined above can be justified by the fact that, as experts point out, Poland is currently not fully prepared to develop alternative energy sources to coal. The sector of new energy sources is only just developing and can only draw on the experience of other European Union countries in this development.

In the context of the above-described regularities determining the process of drawing conclusions, the strategic areas in which the greatest challenges should be expected in mining municipalities – in the experts' opinion – are:

- the evolutionary transition in mining municipalities from a high-emission to a low-emission economy,
- protecting the transformed mining municipalities from potential shocks,
- moving away from employment in mining towards a smooth and controlled transfer of qualified staff,
- shift of qualified staff to other economic sectors,
- optimising the readaptation of post-mining areas,
- social security for those losing their jobs, respect for property and the common good, and concern for the development and interests of the inhabitants of mining districts.

On the basis of the determination of the areas of intervention in the analysed mining municipalities, a concept and a vision of the planning and project anticipation process are formed on the basis of the research results, which may make up the entirety of the objectives to be achieved – often referred to as strategic objectives. The above thesis determined – on the basis of the research results – the development of a set of project proposals that are dedicated to the SGGP and individual mining municipalities. This action was accompanied by the conviction that a correct reading of the meaning of the perspective of just transformation allows the formulation of the following further thesis - the design concept is primarily associated with the exemplification of a strategic transformation objective and is contained in the content of the design vision (Stalewski, Szpak, 2000).

Considering the fact that the considered solutions should be implemented in the dimension of the local government unit, which is the commune, it is worth noting, following Ślusarz and Brodziński, that the essence of strategic planning of the area (region, voivodeship, powiat and commune) is the optimisation of the processes of its functioning and development (Impact transforming business, 2021; Nowakowska, Rzeńca, Sobol, 2021, p. 25). The continuation of the above approach is another one, which states that the main function of strategic planning of the development plan of a given area is to maximize the effectiveness and efficiency of management of the object of the strategy by the subject of the strategy in order to develop the economic, social and environmental plane of this object (Korhonen, Hankasalo, Seppälä, 2018, pp. 37-46). As a result of the anticipation of the planning function, it is assumed that its subject is first of all the self-government authorities, but also co-operating partners, first of all institutions and inhabitants, including entrepreneurs. The task of local government is, among others, to prepare goals and tasks and to ensure their implementation in agreement with stakeholders. On the other hand, the subject of the strategy are all tangible and intangible elements of a given area and the processes occurring between them (Bukowski, Śniegocki, Wetmańska, 2018, pp. 1-70; Achieving Sustainable Development, 2008). It is emphasized that in the final, cumulative effect, the proper application of strategic management dynamizes and sometimes even conditions local development processes, which can be developed and strengthened through the following project proposals. In the area of evolutionary economic change in mining municipalities, these could be:

- projects aimed at creating alternative energy sources to coal,
- projects aimed at preparing programmes to strengthen alternative economic actors to the mining industry and to enable a smooth transition of underground workers from the mines to employment in new jobs,
- projects aimed at the smooth transfer of financial resources to mining districts for the reclamation of former mining sites in order to prepare them for new investments,
- projects that take action to encourage the development of new economic entities, companies and business institutions in the surrounding area,

- projects aimed at seeking opportunities for the creation of new areas of economic activity on the basis of support for SMEs and large companies already operating in transformed areas,
- projects strengthening the local government's creation of conditions for new investors and companies from the business environment to locate in the area of transformed mining municipalities,
- projects financing the opening of mining communes to innovative and experimental solutions in the R&D area – e.g. related to the use of waste, geological resources, etc.,
- projects dedicated to the objective of precisely defining - with justification - all available concessions for entrepreneurs in order to encourage them to conduct business activity in mining municipalities,
- projects financing the promotion among entrepreneurs of the idea of gaining measurable benefits from investments offsetting the outlays connected with preparing land for investments or training future employees,
- projects financing the prevention of the disappearance of economic activity in the surroundings of transformed mining.

In turn, in the area of changes determined by social processes – in the experts' opinion – the key ones may turn out to be:

- projects strengthening participation of the largest possible representation of regional leaders, municipal associations, organizations and foundations in the process of equitable transformation,
- projects ensuring the widest possible participation of territorial self-government units from the area of mining municipalities in the fair transformation process,
- projects enabling territorial self-government units to skillfully and purposefully define the problem area and cognitive framework for discussion and social dialogue on the just transition process,
- projects ensuring the widest possible social dialogue and consultation in the decision-making phase of the just transition process,
- projects financing the inclusion in the dialogue on the just transition process of associations and unions representing territorial self-government units, trade union organisations, third sector, etc.,
- projects aimed at developing a public information campaign to make communities in mining communities aware of how their future is shaped by the Just Transition process – what awaits them?
- projects aimed at strengthening efforts in mining municipalities to change the culture and social awareness of residents of transformed areas (at present, an economic monoculture is entrenched in this society, shaping a specific culture of life, choosing well-paid jobs exclusively in the mining industry, lack of involvement in the creation of

their own businesses, often associated with a family model based on a non-working woman),

- projects financing 'soft' activities aimed at cultural change associated with very strong mining traditions,
- projects aimed at skilfully and effectively raising people's awareness that there is an alternative to coal,
- projects financing changes in the education system consisting in moving away from education on mining subjects towards education developing mathematical, technical and language skills in order to achieve an increase in the supply of human resources prepared to work in the modern business services sector and information technology,
- projects dedicated to the young generation preparing them for a completely different nature of professional activity in mining communities – with particular emphasis on issues related to the knowledge-based economy,
- projects dedicated to increasing the participation of women in the labour market through increasing their employability, professional mobility,
- projects financing minimization of occurrence of social exclusion areas in mining gminas,
- projects financing the minimisation of possible escalation of social discontent,
- projects financing the reduction of possible increase in professionally inactive population as a result of deliberate deactivation of people at the age of demographic youth,
- projects financing the reduction of depreciation and decline of professional mobility and educational activity of the inhabitants of mining municipalities basing their future in particular on the sphere of social security,
- projects to finance a slowdown in the depopulation of mining districts, in particular the decline in the number of young people wishing to pursue a professional career outside mining.

The results obtained from the research have also made it possible to develop an extensive proposal of project themes in the R&D area (hereinafter R&D):

- projects financing the conduct of multifaceted monitoring of the impact of the transformation of mining municipalities on their social, economic, environmental and infrastructural environment, as well as the impact of changes on the external environment (other territorial unit closest to the transformed municipality),
- projects financing the development, on the basis of monitoring, of recommendations supporting and updating, in selected areas, the transformation program of mining communes, both at the stage of their construction and implementation, the directions of long-term activities that may limit the effects of transformation in its environment,

- projects financing the preparation of analyses and forecasts concerning the socio-economic environment of mining municipalities from the aspect of supporting them in their ability to compete on an open globalised market in the perspective of fair transformation,
- projects financing the development of programmes in mining municipalities aimed at diversifying their economic structure towards the creation of development-oriented and innovative production and service companies in their vicinity – creating alternative jobs,
- projects financing the development of programmes shaping the image of mining municipalities in their surroundings as a guarantor of the country's independence and energy security,
- projects financing the preparation of analyses concerning the costs and impact of the transformation of mining municipalities on their surroundings.

In conclusion, the phenomena and processes mentioned in the above synthesis in the perspective of fair transformation cause transformations in mining municipalities, in their labour markets, in their education system, inside economic organisations and other institutions operating in their area. Numerous of them are directly or indirectly related to three key future areas that are at the centre of attention in the context of activities undertaken by mining municipalities and districts in Poland. These include in particular:

- **Employment.** There is an undeniable regularity that determines the perception of employment as a key factor shaping full participation in the labour market and social inclusion favourable to the transformation process. In this perspective, we consider investment in human and social capital as a cornerstone for increasing employment opportunities.
- **Family.** The changes brought about by the transformation in the area of work and care for the sake of the well-being of the family and home communities challenge the working life of residents in mining municipalities and districts – and are in principle fully correlated with the need for employment.
- **Health.** The promotion of healthy and active participation in the transformations determined by the transition is relevant to all the activities and challenges undertaken for the more successful development of the societies living in the mining municipalities and districts.

In the context of the above, it should be recognised that municipalities and mining districts face the greatest challenge of modern times and their greatest responsibility is to take all measures to halt the ongoing climate change. We hope that the recommendations presented in this article will contribute to taking effective actions for the benefit of communities of mining municipalities and districts in Poland and its surroundings in the perspective of a just transition.

4. Conclusions

As a result of the analyses and surveys carried out, the article presents an extensive set of conclusions, the most important of which are those relating to social issues – also considered on a political level. In this light, it is worth quoting a view from 10 years ago, in which experts studying the issue of restructuring of the Polish mining industry note that the liquidation of an unprofitable mine is not a problem from the economic or technical point of view, but it is above all a serious social and political problem (Radulov, Ivanov, Nikolaev, Genadieva, 2019, p. 204).

The presented attempt of the prospective approach to the phenomena and processes which may result from the transformation of the hard coal mining in Poland is aimed at – as it was stated in the preface opening the article – better understanding of the role which may be fulfilled in the future by the local self-government in the area of which the operating or disused mines and mining enterprises are located. Secondly, the issues taken up in the chapter, which are related to the perspective of the hard coal mining transformation process, first of all showed in qualitative and quantitative terms the scale of challenges faced by mining municipalities. The indicated processes are nowadays dominated by the challenge of creating new ecological solutions of high quality – of an eco-innovation character – both in the sphere of their social acceptance and in the utilitarian dimension. It is a process that allows for a better understanding of the role of local government in the transformation process, which will probably – to the best of its abilities – take up, in a fragmentary way, economic, social and environmental challenges resulting from the contemporary development of economy based on knowledge and determined by the Industrial Revolution 4.0.

On the basis of the above reflection, it seems that the conclusions and recommendations presented in the article regarding the fair transformation process imply both economic and social challenges that are important for mining municipalities and districts in Poland, among which the following deserve special attention:

- an increase in the importance of mining municipalities' participation in government decision-making, in more friendly conditions shaping cooperation,
- the need for mining municipalities to implement projects based on supra-local mobility and adaptability, as well as social sensitivity,
- the need for mining municipalities to increase social awareness of their responsibility for the process of equitable transformation,
- the disappearance of state policies in the implementation of social functions during the phase of changes taking place and their assumption by local society.

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