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THE ANALYSIS OF FACTORS, BARRIERS AND CONDITIONS THAT AFFECT THE ATTRACTIVENESS OF MINING IN- VESTMENT IN POLAND - OWN RESEARCH

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Abstract: The mining sector is one of the most important elements of economies in the world, having a huge impact on the economic situation in individual countries. An economy's development at any level would be impossible without access to the most important energy resources, chemicals, metals or construction materials. Therefore, the condition and the possibility of the development of the mining sector in each country should be constantly monitored and properly shaped. On the other hand, to ensure the proper stimulation of growth and the inflow of new capital, investments are necessary. Consequently, an appropriate level of investment attractiveness is an important issue both in the context of the sector and the entire economy. The article presents the concept of investment attractiveness and the current situation of the mining sector in Poland. The paper's results are based on a survey of factors, barriers and conditions that affect the attractiveness of mining investment in Poland.

Keywords: *investment attractiveness, mining sector, mining investment*

INTRODUCTION

Countries all over the world perform various actions to improve their competitiveness and also improve the investment attractiveness. We can distinguish eight main groups of factors affecting the level of international competitiveness, prepared by The

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World Economic Forum (WEF) (Bieńkowski, 2008): the open-ness of the economy, the role of the state, finance, infrastructure, management, labor and institutions. On the other hand, the KTU Department of Economics and International Trade carried out the research in 1999 - 2008, on the basis of which it was found that competition intensity can be described by these main factors: market shares distribution, market rate of growth, market profitability (Snieška, 2008). The above factors are a very comprehensive approach to the international competitiveness. In considering this issue in more detail, it should be noted that the mining industry is one of the most significant sectors in shaping the global economic situation in the world (Ranosz, 2014). Stern and Kandermodel (2012) developed a model which shows that the expansion of energy services was the most important factor explaining growth until the second half of the 20th century when labor-augmenting technical change becomes paramount. Likewise, in the case of Poland, the mining sector is a very important element which influences the situation and condition of the whole economy, and thus also the competitiveness in the international context. Additionally, in Poland, a country with access to rich natural resources, government should pursue all efforts and investments in order to maximize the opportunities posed by available reserves of raw materials. Therefore, how to improve investment attractiveness of the mining sector in Poland is a very important issue in the both the context of the sector and the country.

As an introduction to the research results presented in the article, we outline the concept of investment attractiveness and the current situation of the mining sector in Poland. Whereas the main objective of the study was to determine the attractiveness of investment in the mining sector and identify best practices - technological, legal, environmental and social - concerning the acquisition of mineral resources in Poland. Implementation of the survey is an attempt to diagnose the key factors determining the attractiveness of investment in the mining sector as well as identify obstacles investors from the mining industry must meet.

THE CONCEPT OF THE INVESTMENT ATTRACTIVENESS

The term attractiveness is derived from the Latin expression *attractio*, which means attraction, and is translated into the Polish language as an appeal. According to the dictionary of foreign words, it is the characteristics of what is attractive, which arouses interest (Stawicka et al., 2010). The concept of investment attractiveness is complex and involves many factors important from the point of view of potential investment and the economic activity (Raszkowski, 2011). The attractiveness of investment in accordance with the one of the abovementioned definitions is the ability to persuade investors to choose the place for investment (Czerwieniec, 2007). The concept of investment attractiveness is also closely linked with the concept of competitiveness of the area, which means the ability to achieve success in economic competi-

tion. Competitiveness of the country is now determined not only by its national advantage in the international division of labor, but also the combined level of competitiveness in all its regions (Kramin et al., 2014).

Whereas competitiveness is most often understood as the ability of companies, industries, regions and countries to generate a relatively high income and a high level of employment in the conditions of international competition. In order to reflect, as accurately as possible, the multidimensional nature of the concept, many variables, which are the basis for the assessment of spatial differentiation of individual benefits (factors) should be taken into consideration: the availability of transport, labor costs, size and quality of labor resources, market capacity, the level of development of economic and social infrastructure, the level of economic development, and the level of public safety (Trakowski, 2015).

The literature reveals several definitions of investment attractiveness in a different context than the general or regional. For example, according to A. A. Thompson and Strickland (1984) or Ch. Hill and G. Johnes (1992) evaluation of investment attractiveness of the sector focuses on factors such as: the size of the market and its growth rate, profitability, intensity of competition, development conditions, the impact of seasonality and cyclicity, capital and technological requirements, and the characteristics of the social and political environment. On the other hand, Dziechciarz gives (2009) criteria for evaluating the attractiveness of the market segment classified in four groups:

- 1) Assessment of the competitive situation:
types of competitors, degree of concentration, changes in the type of competitors and their composition in the segment, competitors entering and coming out of the segment, the change in share in the segment, substitution (products and technologies), the degree and type of integration,
- 2) Technological factors:
maturity and volatility of technology, complexity, diversity, patents and copyrights, technology, manufacturing process,
- 3) Evaluation of the financial and economic aspects:
profit margins, factors such as leverage or economies of scale, barriers to entry and exit (financial and non-financial), capacity utilization,
- 4) The criteria for social and political:
social attitudes and their trends, statutory regulations and control bodies, the impact of pressure groups and government factors such as unions.

Regardless of the definition and its context, actions aimed at enhancing the attractiveness of the investment should be treated comprehensively, consecutively implemented and continuously monitored, and special consideration should be given to domestic and foreign investors having funds and expressing interest in incurring capital expenditure in the area (Raszkowski, 2011). In turn, the improve of investment attractiveness can be defined as a reduction of costs, risks and barriers to doing busi-

ness, while emphasizing that the actions conducive to its improvement are a long-term process, not a single event (Jarczewski, 2014).

THE MINING SECTOR IN POLAND

Poland in terms of the amount of mineral resources is a country, which is rich in mineral resources and the various types of minerals, but some of them have to be imported. There are also reserves of some minerals including sulfur, coal, aluminum, ceramic etc., but they do not guarantee their full utilization due to environmental, economic and social concerns. Insufficient provision relates in particular to natural gas, crude oil and raw rock, whose reserves are exhausted. The main directions of use of minerals determine their membership in four groups of mineral resources:

- energy (hard coal, lignite, petroleum, natural gas, uranium, shale and tar sands)
- metallic raw (ore Cu, Zn-Pb, etc.)
- chemical (salt stone and potassium-magnesium, sulfur, etc.)
- rock (raw building, road, ceramic, etc.).

In Poland, in mining and quarrying operates a total of 4 532 entities (date from the Central Statistical Office (CSO) 2014), primarily micro enterprises employing up to 9 persons - 3 932, as well as small - 432; medium (50-249 persons) - 125, only 31 units are registered as large, and extra 12 as very large (employing over 1 000 persons) (Hausner et al., 2015). In 2005, Polish companies have brought up a total of 97.9 million tons of coal. For comparison, in 2012 the operation was reduced to less than 80 tons. This means that in 7 years the exploitation of coal deposits declined by more than 18%. Importantly, the same consumption of this raw material fell by only 6% (data from the CSO). The reasons for this state of affairs can certainly be traced back to the decarbonization policy of the European Union (Kasztelewicz 2011), which places great emphasis on renewable energy sources (RES). However, RES technologies are associated with high financial outlay, a relatively long return, and in the case of Polish unstable legal environment. Poland cannot afford to allocate sufficient amount of investments to move away from conventional technologies for new renewable energy technologies, particularly in the access to such a rich resource base - Poland historically is based on carbon and cannot change this situation quickly and radically (Kasztelewicz 2011).

Mining is undoubtedly one of the most important sectors of the Polish economy. The value of production in mining and quarrying in 2010 amounted 3 051 million USD, which accounted 0,7% of the value of GPD (Ranosz 2014). Table 1 shows the sufficiency of the most important deposits operated in Poland (for extractions and consumption like in 2013) (Hausner et al., 2015).

As the above table shows, Poland has the largest resources of rock salt (of the mentioned raw materials), which sufficiency (426 years) is also by far the longest.

Next in order is hard coal, the sufficiency of resources is estimated to 50 years. Also resources already developed are clearly the largest for hard coal. Relatively high sufficiency of resources was given also for sulfur and Ore Cu - 41 and 39 years. While by far the smallest amount of resources Poland has for Ore Zn-Pb whose sufficiency is only 2.5 years, gas (11 years), petroleum (16 years) and lignite (18 years).

Tab. 1 Sufficiency of selected raw materials in Poland (data from 2013)

Minerals	Deposit balance, m. tons		Extraction in 2013, m. tons	Industrial resources, m. tons	Sufficiency of industrial resources (for extractions like in 2013), years
	Amount in 31.12.2013	Which are developed			
Lignite	22 683,98	1 514,49	66,14	1 1164,67	18
Hard coal	51 414,48	19,484,87	76,5	3 839,52	50
Petroleum	24,38	23,87	0,926	15,419	16
Natural gas (bn. m ³)	132,07	110,40	5,489	62,176	11
Ore Zn-Pb	74,29	16,08	3,328	8,18	2,5
Ore Cu	1 761,96	1 446,38	30,647	1 205,27	39
Sulfur	510,05	24,17	0,55	23,80	41
Salt stone	86 098,18	15 832,48	4,20	1 791,88	426
Sands and gravels	17 972,50	5 455,81	173,27	3 614,42	20

Despite rich natural resources an analysis of the advantages of Polish products industry raw materials on the international market, indicates that they are no longer competitive - Poland ceased to be the country specializing in the export of raw materials still in the 90s. Importance of the raw materials sector to the national economy stems not so much from its export opportunities, but it determines to a large extent to obtain advantages in subsequent links of the chain of domestic making of value-added (Hausner et al., 2015). Therefore, the condition of the entire sector is very important for the economic situation of the whole country and should strive for improvement, including by improving the investment attractiveness. Mining in Poland without a thorough modernization, will fail to meet the ever more restrictive regulations and standards imposed by the European Union and does not provide adequate support for the development of the economy - if there is no money for investment, despite the possession of large reserves of coal, the prospects of extraction from Polish mines in a few years will fall drastically (Kasztelewicz 2012). To identify the most important barriers, conditions and factors affecting the investment attractiveness of the sector is necessary to locate the areas that are most problematic for operators in the sector and hamper their development.

RESEARCH METHODOLOGY

In order to perform quantitative and qualitative analysis, we have selected a survey questionnaire as a tool for data collection. The study was conducted on a sample of research numbering 165 respondents in the period from November 2015 to May 2016. The respondents were representatives of the management of different levels of mining and exploration companies, as well as consulting companies, financial institutions, scientific research institutions, public administration institutions and non-governmental organizations registered in Poland. Some of the companies have foreign capital or invest outside the Polish borders.

The main objective of the research project was to determine the level of investment attractiveness and identify best practices for the acquisition of mineral resources in Poland. Since 1997 the Fraser Institute has researched the attractiveness of countries or mining regions. In each report it assessed the investment attractiveness in the light of the impact of national policies, including the legal, environmental and social aspects on the potential of mining in the world. Research conducted by the Fraser Institute is based on surveys of various companies and individuals in various positions. Countries and regions such as Australia, Finland, Sweden, Nevada, Chile, Quebec, which combine a wealth of mineral resources with friendly mining policies achieve the highest index determining the attractiveness of investments. Other countries rich in raw materials such as Portugal, Bulgaria, Poland occupy a midfield position in the list. The project "Citizens wealthy in resources" implemented in Poland formulated recommendations with regard to reform of the management of natural resources in Poland, and developed the index of development of an effective resource in 2012, which showed that Poland is at the end of the list of European countries in terms of the effects of natural resource management.

The questionnaire consisted of three parts: 1. investment attractiveness factors, 2. Conditions for investment, and 3. Barriers to investment. In each section there were several questions that were evaluated based on the Likert scale. Likert scales are a common format for ratings surveys. Likert scales are characterized by standard rules of verification, unidimensionality, reliability and the ability to capture many aspects of the examined phenomenon. Scale is used to measure attitudes towards the studied phenomenon. In order to obtain reliable information on the attractiveness of investment in the mining sector seems to be one of the right way for possible use in empirical research. Correlation analysis between the parts of the questionnaire shows that the answers to the questions from different subgroups largely overlap – mutual correlations show, for example, answers to questions regarding taxes and legal aspects. By using factor analysis, we can determine the number of factors and their significance. Respondents rank quality from high to low or best to worst using five or seven levels (Allen & Seaman, 2007). The form of questions and answers allowed to assess the "strength of support" to the subject. Every part of the survey had their own five-scale

response. This scale was designed to determine the difficulty or ease of allegations relating to the mining sector. The part concerning barriers has been enriched with the scale of the validity of the barriers, that audited entities paid attention, developed by a point rating method. Point rating method is based on an assessment of the characteristics by using points which are allocated according to the accepted scale of values, and points are weighed by ranks assigned to individual characteristics (Butra et al., 2009).

In the survey also were placed two open-ended questions, where respondents could provide more detailed responses. These questions concerned the indication of other factors affecting the attractiveness of investment and problems of investing in mining. In addition, the survey contained also questions about the size and type of business and investment operations abroad.

SURVEY RESPONDENTS

In the study, the majority of respondents were from organizations engaged in mining (34%), exploration (26%) and advisory or consultancies companies (14.5%). Scientific institutions, in particular universities accounted for 12% of the respondents, and financial institutions 5.5%. 6% of respondents' answers were representatives of state and local administration.

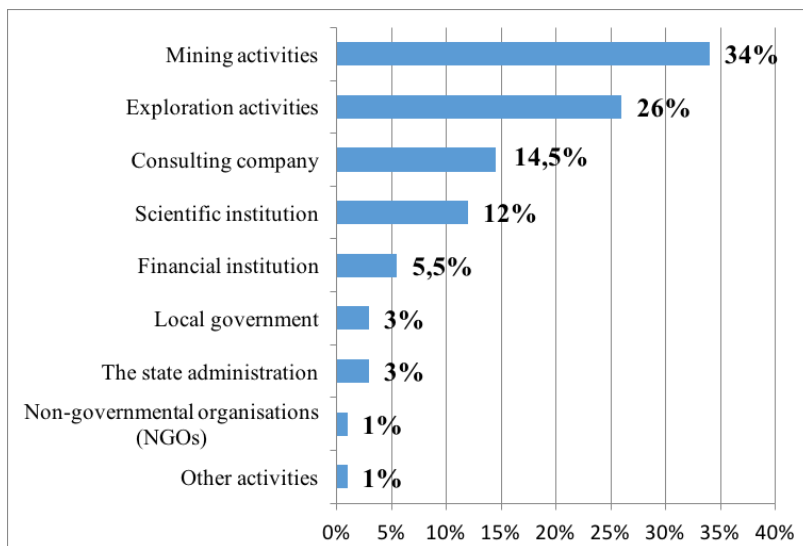


Fig. 1. Entities participating in the study

It should be mentioned that the responses come from the Marshall's Offices of several Polish provinces, which is important for reasons of attractiveness of mining invest-

ment to the region – Marshal grants concessions for the extraction of minerals, which are not reserved for the Minister of the Environment, at the request of the entrepreneur in an administrative process (Act of 9 June 2011 on Geological and Mining Law, Art. 24 and 26). As another activity (1%) respondents most often served the activities related to services for the mining industry. Non-governmental organizations also accounted for 1% of the surveyed entities. Percentage of subjects in the study are shown in Figure 1.

Individuals that responded to the survey were most frequently representatives of the company at a specialist level (36%), and representatives of management (17%). Respondents choosing the answer "different position" frequently served technical positions (16%). Only 15% of the members were from management body and 16% of respondents occupied a supervisory position. Figure 2 shows the positions of professional people surveyed. Figure 2 shows the positions of professional people surveyed.

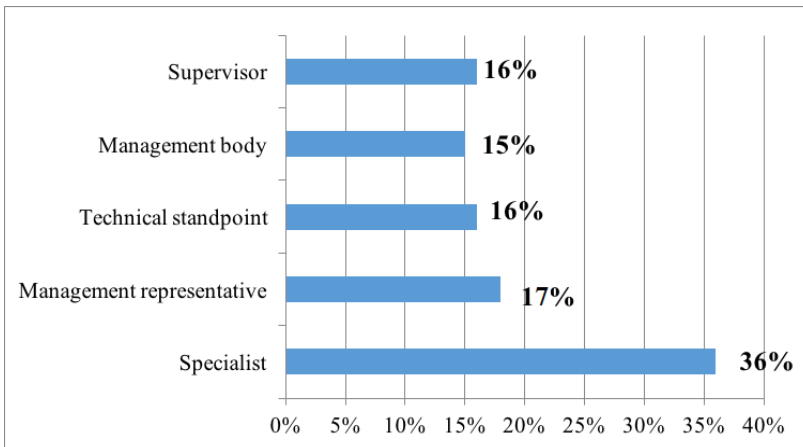


Fig. 2 The positions of professional people surveyed

Respondents were reluctant to answer all questions about the sources of financing, the participation of the State Treasury, the volume of employment, or the amount of funds involved in the exploration or mining. Only 20% of respondents replied on the sources of funding, of which over 17% represented companies with domestic capital and without the participation of the State Treasury. In contrast, 12% of surveyed companies are companies employing 31 to 100 employees. Respondents most often served organizations for mineral mining of processing, such as: coal 23%, lignite 21%, metal ores 18% and 14% of the rock materials (most often mentioned raw material is basalt).

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investment in the mining sector and identify best practices - technological, legal, environmental and social - concerning the acquisition of mineral resources in Poland.

FACTORS OF THE INVESTMENT ATTRACTIVENESS

The factors of attractiveness and barriers that are included in the questionnaire were selected by analyzing existing data, and are based on research conducted by The Fraser Institute in 2013.

The following factors are rated neutral or rather unfavorable for investment in the production area by the respondents, as shown in Figure 3. As the factor most unfavorable for investment respondents chose the environmental regulations including consistency, procedures, length (51%) and application of the law by the administration in this time-absorbing procedures and predictability of decisions (50%). The study shows that, the characteristics of the current tax system, such as transparency, the amount of predictability is one of the main determinants influencing the attractiveness of mining investment.

The specificity of mining activity causes generally applicable taxes and other additional payments and charges. There are taken taxes and charges resulting from the use of property of the State Treasury. Mining activity is closely related to the violation of environmental sustainability and this is why mining companies are also obliged to establish various types of collateral and financial guarantees to cover the costs of decommissioning the negative effects of their activity, especially those affecting the environment. All financial burden on businesses is an important component of production costs, which affects the efficiency and competitiveness of the extraction of mineral resources. Too high loads may discourage investment in mining activity.

Another unfavorable factor for investments is the applicable legal system (47% of companies surveyed), access to resources and their protection against development (49% of respondents). The examined entities considered as neutral factors: socioeconomic conditions, social conditions (47%), and the conditions of employment (39%). In respondents' opinion labor costs (37%) are a neutral factor for the attractiveness of investment in Poland.

In terms of favouring factors, the respondents indicated the level of security. According to 43% of the respondents it is a decisive factor for the attractiveness of investments. Another enabling investment factor for the Polish mining sector, indicated is a highly qualified and competent personnel, which 51% of companies indicated. Prevailing conditions and technological development are favorable factors for investment on the Polish market. The possibility of investment support, both through the structural funds, national funds and the increasingly friendly financial system create the right conditions for investment and development of the Polish mining industry (47%).

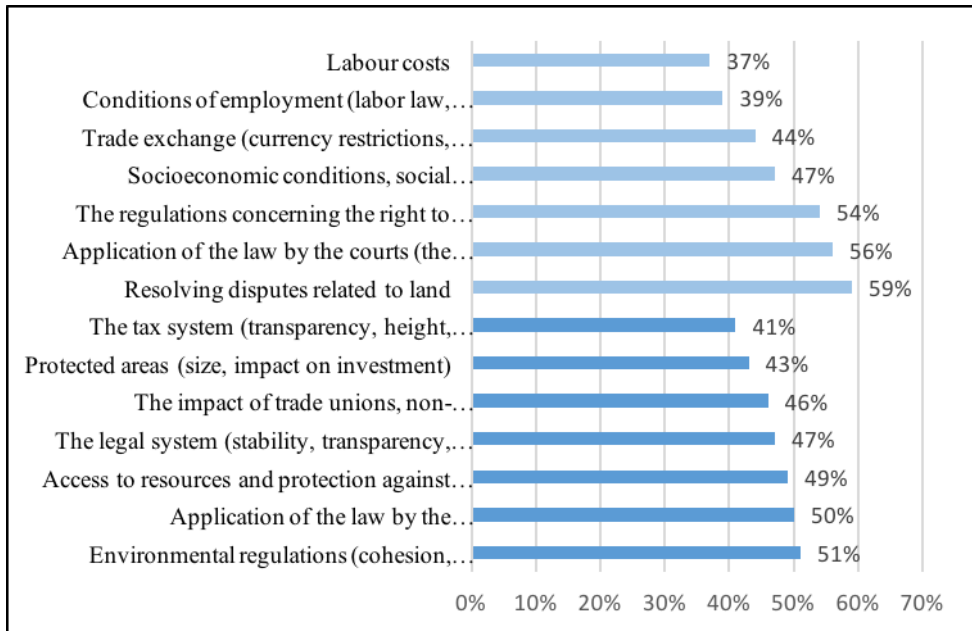


Fig. 3 Factors of the investment attractiveness (neutral and rather unfavorable)

The activities of mining companies are characterized by a large level of impact on the environment (Sobczyk 2007). As can be inferred from the article of Kasztelewicz (2012) - on the one hand, the mines give jobs but on the other hand, risks associated with accidents underground, mining damage negatively affecting the image of the activities of the mining sector. Therefore, an extremely important determinant of the development of the mining sector is the relation with the local community and the idea of a positive image of the mining industry in the public opinion. It is also worth to mention that the socio-economic conditions, social conditions and the impact on the local community are essential factors in the investment in the mining sector. According to the respondents, factors such as geographical location, transport infrastructure, markets and the experience and technical competence resulting from mining tradition also matter. Respondents also recognized that the close cooperation of the mining sector with universities and research institutes is the determinant of the development of an investment attractiveness factor. Figure 4 shows all of the factors identified by the respondents as definitely favorable and more favorable.

The questionnaire included the additional open questions. The first concerned the factors affecting the investment attractiveness of the Polish mining sector. Here, the most respondents pointed to: a large lignite resources, a well-recognized resource base in previous years, and access to resources and market. The second question related to an open discussion on mining and exploration investment abroad. A study shows that a lot of companies would like to invest / lead mining operations abroad. Most often,

respondents pointed to countries such as Germany, Denmark, Canada, Asia and the USA.

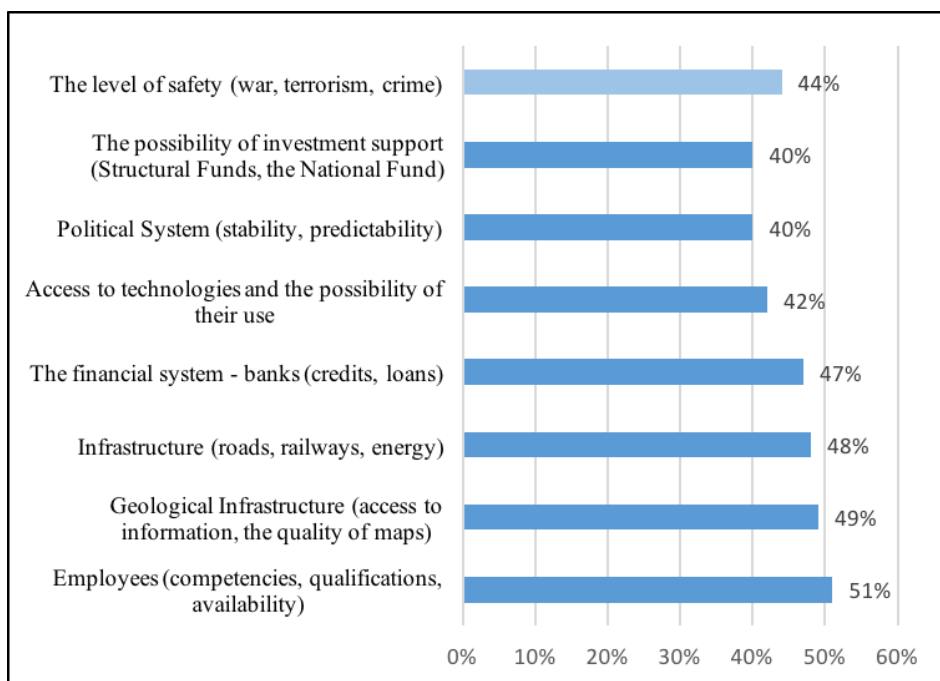


Fig. 4 Factors of the investment attractiveness (definitely favorable and more favorable)

FACTORS AFFECTING THE INVESTMENT ATTRACTIVENESS

The second part of the survey were the statements relating to the conditions in Poland, which may affect the operation of companies in the mining sector. Figure 5 indicates the factors strongly unfavorable or rather unfavorable, while Figure 6 shows the conditions that the respondents pointed as a favorable or more favorable factor conducive to investment in the mining sector.

As a basic determinant “definitely” or “rather unfavorable” respondents considered Polish legislation (70%) and Polish legislation (68%). For 65% of companies the legal system in Poland is not clear, and the amount of capital needed in Poland is not sufficient (59%). Respondents pointed out to an unstable legal system (52%) as a factor unfavorable investment in the mining sector.

However, according to the surveyed entities, highly skilled workers (71%) and good infrastructure (62%) are by far favorable factors that further investments in the mining sector. More than half of the respondents considered that, companies investing

in Poland do not encounter obstacles related to property, and trade flows are not affected by barriers. Respondents also recognized the existing financial system, as part of supporting entrepreneurs in the realization of investments (52%).

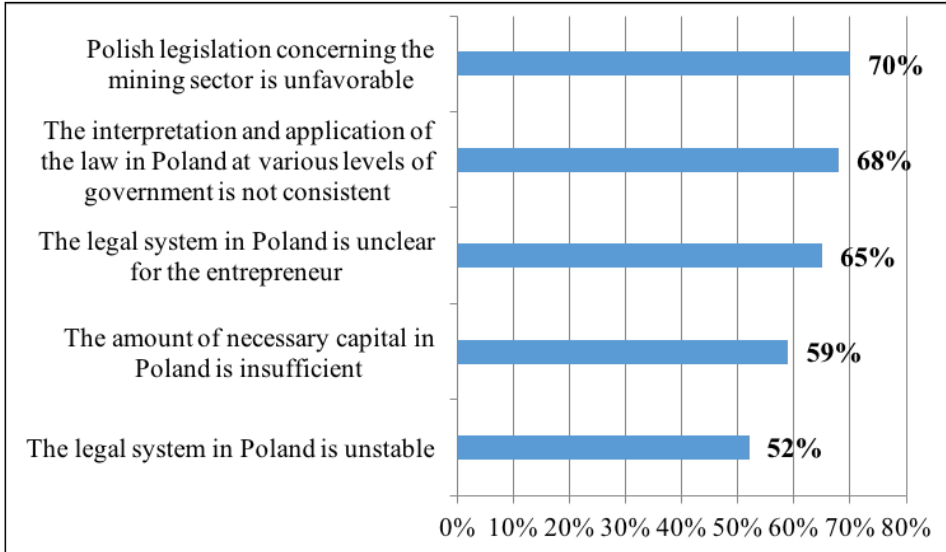


Fig. 5 Unfavorable conditions for the investment in the mining sector

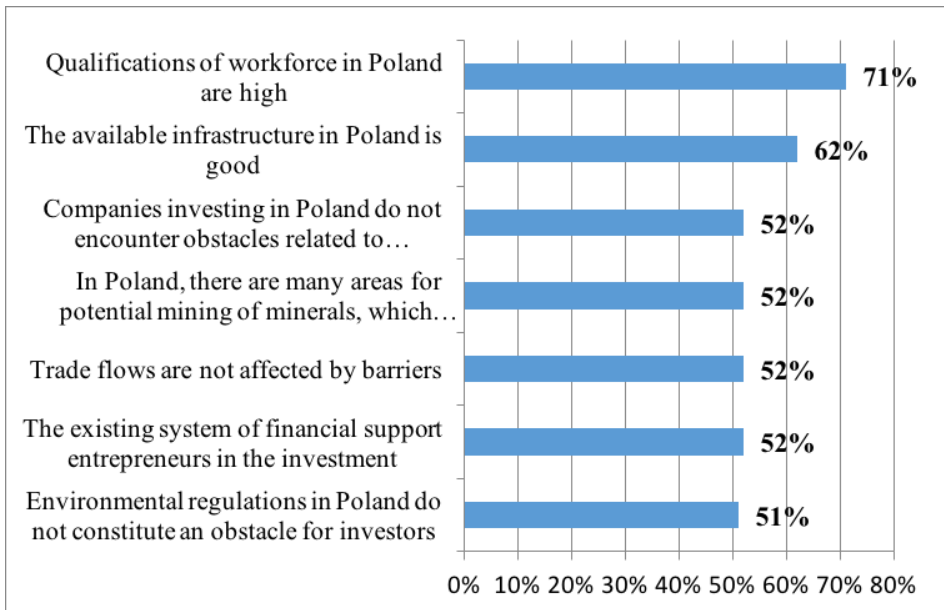


Fig. 6 Conditions conducive to the investment in the mining sector

BARRIERS TO THE GROWTH OF THE INVESTMENT ATTRACTIVENESS

The third part of the study concerned the barriers to the development of sector and barriers which discourage enterprises of the mining sector to investment. The survey questionnaire asked respondents to assess the barriers affecting the abandonment of mining investment. Adopted a scale from 1 to 5 where: 1 - no barriers, 2 - small barrier, 3 - average barrier, 4 - high barrier, 5 - biggest barrier.

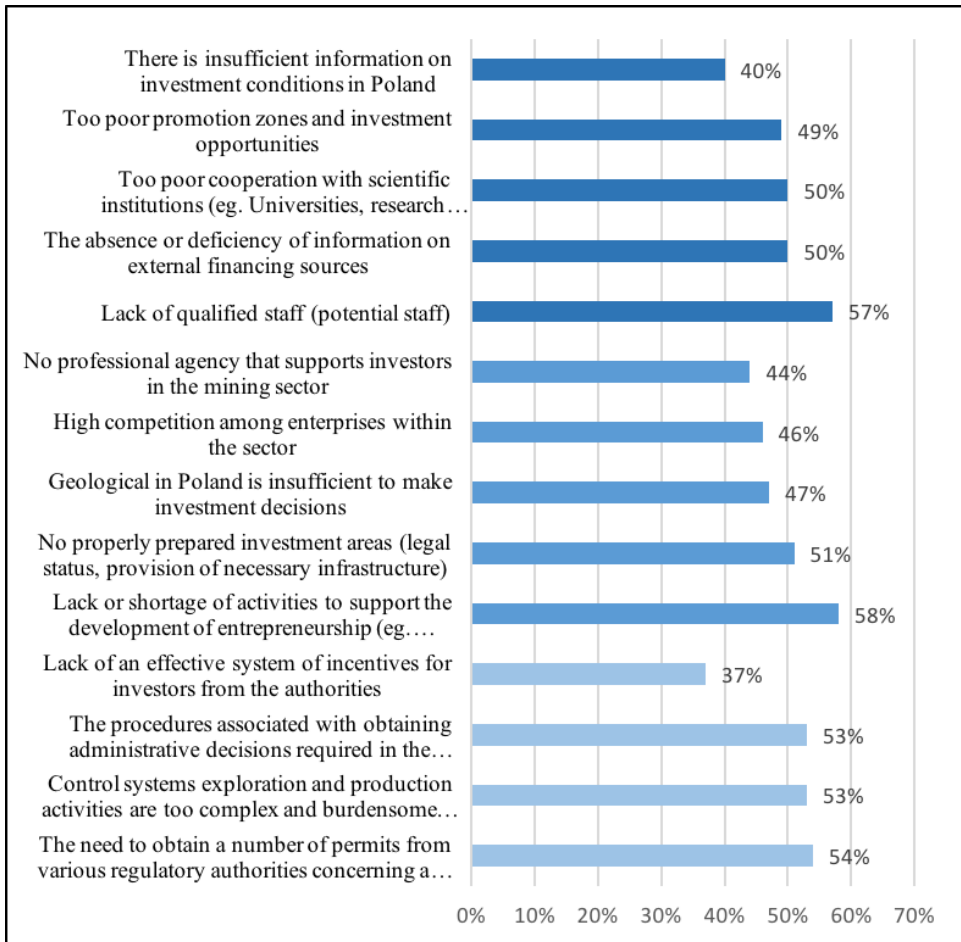


Fig. 7 The barriers to mining investment

As those having the greatest impact on the failure of investment respondents considered the legal administrative system:

- the need to obtain multiple approvals from different authorities concerning a single investment project (54%),

- procedures associated with obtaining administrative decisions required in the investment process (bureaucracy, long terms) (53%),
- control systems exploration and production activities are very complex and burdensome for investors (53%),
- a long term and high capital intensity of investments (53%),
- lack of activities to support the development of entrepreneurship (respondents noted the lack of counseling and training), the lack of an effective and stable system of incentives for the development of new technologies (58%),

Figure 7 shows a list of all the barriers identified in the study.

As an additional barrier respondents considered: promoting "green energy" regardless of the cost, reduction of CO₂ emissions by the EU, increasing competitiveness in the international market, obstruction of starting and running by the local government, lack of information on investment conditions in Poland, discrimination against private entities in relation to the privileged state actors, lack of comprehensive strategic document defining the action of the State in terms of raw materials and energy policy, long investment cycle, difficulties in obtaining concessions, high tax burden and changing rules, and lack of an effective and stable system of incentives for the development of new technologies cause a decrease in interest in investments in the primary sector in Poland. And according to 51% of companies surveyed, environmental regulations do not constitute an obstacle to carrying out investments in Poland.

In this part of the questionnaire was also an open question regarding the additional investment barriers, which are not included in the study. The surveyed entities paid special attention to discrimination against small businesses, erroneous administrative decisions, lengthy procedures for judicial, high capital intensity and lack of professional advice and training. Based on these indications, we wanted to choose the biggest barrier on the abandonment of investments in the mining sector in Poland, using the point rating method presented by Butra et al. (2009). The first stage of the analysis was determined the hierarchy rank by placing in the row. Assumptions:

- features are designated by K_1, \dots, K_n
- important feature should be assigned a larger number of
- assumed that: $r(K_0) = 0, r(K_n) = 10N > K$

There were five features of the barriers mentioned by respondents: Discrimination (K_1), wrong decisions (K_2), long procedure (K_3), high capital intensity (K_4), lack of advice (K_5).

Was considered to:

$$r(K_1) = \frac{1}{2} [r(K_0) + r(K_n)] \quad (1)$$

$$r(K_1) = \frac{1}{2} (0+10) = 5 \quad (2)$$

Was considered to:

$$r(K_1) < r(K_2) < r(K_n) \quad (3)$$

$$r(K_2) = \frac{1}{2} (5+10) = 7,5 \quad (4)$$

Next:

$$r(K_2) < r(K_3) < r(K_2) \quad (5)$$

$$r(K_3) = \frac{1}{2} (7,5 + 10) = 8,75 \quad (6)$$

Next:

$$r(K_0) < r(K_4) < r(K_1) \quad (7)$$

$$r(K_4) = \frac{1}{2} (0+5) = 2,5 \quad (8)$$

Next:

$$r(K_1) \leq r(K_5) < r(K_2) \quad (9)$$

$$r(K_5) = \frac{1}{2} (5+7,5) = 6,25 \quad (10)$$

The rank order for sequence of features from most important to least important it is: K_3, K_2, K_5, K_1, K_4 .

The respondents as the most important aspect in deciding about the failure of investment in the mining sector recognized lengthy procedures judicial-administrative (weight value 5), then the wrong administrative decisions (in respondent's opinion) (4), followed by lack of counseling and training systems (3), discrimination of small businesses (2) and at the last position high capital intensity (1).

CONCLUSION

Poland as an economically developing country is a significant producer of minerals, in which the tax system, administrative, judicial and legal regulations are a big barrier. A great asset of the investments in Polish mining sector is highly qualified and competent personnel. Operation of many research and industry institutes leading research for the development of the mining sector, and also the possible use of Structural Funds affect the attractiveness of the mining sector. Prevailing technological and development conditions are the advantages of the investment on the Polish market.

In Poland, there are many areas for potential mining of minerals, which are not yet developed. Deterring investment aspects are a major obstacle for obtaining multiple permits for projects and procedures related to obtaining an administrative decision in the investment process. Poland as one of the few countries in the world has all the advantages of continuing to extract coal, or even - as in the case of brown coal - doubling its extraction in the next 20-30 years (Kasztelewicz, 2012). The main conclusion of the study is the fact that the biggest problem of the Polish mining sector are not obsolete technologies, but the poor management in mining company, lack of a system to incentivize investment from the state, and the complicated and unclear legal system.

These restrictions are all the more important due to the increasing pressure of the environmental protection as well as social conflicts, and, thus, the mining industry must undergo a process of technological modernization (Hausner et al., 2015). Poland to comply with regulations and standards imposed by the European Union, at the same time develop its economies, must make full use of the potential and strengths of the

mining sector. The implementation of the survey is an attempt to diagnose the key factors determining the attractiveness of investment in the mining sector, as well as identify obstacles which investors from the mining industry must deal with.

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REFERENCES

- Act of 9 June 2011 on Geological and Mining Law, Art. 24 and 26
- Allen I.E., Seaman C.A., 2007. Likert Scales and Data Analyses, *Quality progres* Vol. 40. No. 7, 64-65
- Bieńkowski W. i inni, 2008. Czynniki i miary międzynarodowej konkurencyjności gospodarek w kontekście globalizacji – wstępne wyniki badań, *Prace i Materiały* Nr 284, Instytut Gospodarki Światowej, Warszawa, 83-98
- Butra J., Kicki J., Kudelko J., Wanielista K., Wirth H., 2009. Podstawy rachunku ekonomicznego w przedsiębiorstwach górniczych, IGSMiE PAN, Kraków, 104-105
- Czerwieniec E., 2007. Bezpośrednie inwestycje zagraniczne w środowisku lokalnym, *Zeszyty Naukowe* nr 94. Pr. Katedry Mikroekonomii AE w Poznaniu. Wyd. AE, Poznań, 15-20
- Dziechciarz M., 2009. Podejścia do oceny atrakcyjności segmentów rynku jako etapu kończącego proces segmentacji rynku, *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu* Nr 51, Wrocław, 14-27
- Hausner J. (pod red.), 2015. Polityka surowcowa Polski – rzecz o tym, czego nie ma, a jest bardzo potrzebne, Fundacja Gospodarki i Administracji Publicznej, Kraków
- Hill Ch., Johnes G., 1992. *Strategic Management*, Houghton Mifflin Comp., Boston, 281
- Jarczewski W., 2008. Atrakcyjność inwestycyjna a rozmieszczenie inwestycji zagranicznych w małopolskich gminach, *Przegląd geograficzny* 80(2), PAN IGiPZ, Warszawa, 223-243
- Kasztelewicz Z., 2011. Wpływ polityki klimatycznej UE na górnictwo i energetykę Polski, Instytutu Gospodarki Surowcami Mineralnymi i Energi Polskiej Akademii Nauk *Zeszyty Naukowe* Nr 81, Kraków, 147-163
- Kasztelewicz Z., 2012. Błaski i cienie górnictwa węglowego w Polsce, *Polityka Energetyczna* Tom 15 *Zeszyt* 4, 7-27
- Kramin M., Safiullin L., Kramin T., Timiryasova A., 2014. Drivers of economic growth and investment attractiveness of Russian regions, *Life Science Journal* 11 (6s), Zhengzhou
- Ranosz R., 2014. Górnictwo i jego znaczenie w gospodarce światowej, *Gospodarka Surowcami Mineralnymi – Mineral Resources Management*, 30(1), Kraków, 5-20
- Raszkowski A., 2011. Atrakcyjność inwestycyjna regionów – wybrane zagadnienia, *Ekonomia* 5(17), Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław, 258-272
- Snieška V., 2008. Research into International Competitiveness in 2000–2008, *Engineering Economics* No 4 (59), Kaunas
- Sobczyk W., 2007. Badania opinii respondentów na temat uciążliwości środowiskowej górnictwa węgla kamiennego, *Górnictwo i Geoinżynieria* *Zeszyt* 3/1, 497-506
- Stawicka M., Kwiecieński L., Wróblewski M., 2010. Raport Analiza atrakcyjności inwestycyjnej regionu w świetle współczesnych trendów, Projekt Analizy, badania i prognozy na rzecz Strategii Rozwoju Województwa Dolnośląskiego

Stern D., Kander A., 2012, The Role of Energy in the Industrial Revolution and Modern Economic Growth, *The Energy Journal*, Vol. 33, No. 3, IAEE

Tarkowski M. (pod red.), 2015. Raport Atrakcyjność Inwestycyjna Województw i Podregionów Polski 2015, Instytut Badań nad Gospodarką Rynkową, Gdańsk

Thompson A., Strickland A., 1984. *Strategic Management*, Business Publication Inc., Plano, 130

https://infogr.am/sektor_wydobywczy_w_polsce website about mining sector in Poland, Fundacja GAP

<http://www.inwestycjegiieldowe.com/2014/03/24/analiza-sektora-wydobywczego/> website about the analysis of the mining sector in Poland

<https://www.fraserinstitute.org/studies/annual-survey-of-mining-companies-2015> website of the Fraser Institute

<https://obywatelekontroluja.pl/raport-obywatele-zasobni-w-zasoby/> website about the project "Citizens wealthy in resources"