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Managing a mining enterprise in rapidly changing conditions as exemplified by Polska Grupa Górnicza SA

Introduction

Polish mining enterprises (mining companies and mines) often carry out their mining operations in considerably more difficult geological and mining conditions when compared to a number of leading hard coal mining companies across the globe. In addition, underground mining must be carried out in compliance with the legal requirements regarding occupational and public safety. In these circumstances, and adding the fact that hard coal mining is not a highly competitive industry by nature, it should be pointed out that managing a mining enterprise in Poland is an enormous challenge (Tajduś and Turek 2019).

In addition, mining enterprise management, which includes planning and decision-making, is becoming increasingly difficult in a market economy, where such companies are faced with constant changes in the demand for coal on both domestic and foreign markets. This results not only from the specific processes employed in mining production, but also from the necessity to conduct effective economic operations in constantly and rapidly changing conditions (Bąk 2018a; Jonek-Kowalska 2017). The management boards of these enterprises

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are constantly looking for effective solutions to the problems caused by the variability of the business environment, and are trying to develop plans that will enable them to conduct profitable operations in the long term. Although Polish mining enterprises have made considerable strides in the development and use of various decision-making techniques in the last thirty years, the problems that need to be addressed are so numerous and important that the process of managing such enterprises needs to be improved on a continuous basis (Jonek-Kowalska 2018).

The aim of this paper is to present the management method of a specific mining enterprise, Polska Grupa Górnicza SA, which has dealt with significant changes both internally and in the hard coal mining industry since its establishment.

1. The essence of change management in a mining enterprise

The primary objectives of a mining enterprise, or any enterprise, are (or at least they should be) to conduct profitable economic operations and to maximize the achieved profits. However, this depends on a number of factors, the essential consideration being customer demand for the offered product, i.e. coal. A mine, as a basic entity making up a mining enterprise, is a location where, through the implementation of mining production processes, commercial coal is produced to respond to the demand of recipients. As an economic entity, it is largely shaped by the existing external conditions – its business environment. To effectively manage a mine and, more broadly, a mining enterprise, it is essential to identify the components, mechanisms and trends of changes in the business environment. Only then will it be possible to design and implement changes in its method of operation and/or organization in such a way that would allow the enterprise's survival and continued growth in a changing environment. The general and market environment of a mine is best described in a way that highlights the components of the market as a set of significant variables characterizing the functioning of that mine. The respective variables, when identified and isolated, determine the method of managing a mine and the mining enterprise as a whole (Turek 2007).

The following should be taken into account in the process of managing a mining enterprise:

- the management method and volume of production is affected by the mine's environment (including the market environment), which is characterized by a relatively high variability,
- adjusting to the changes in the environment is a precondition (unfortunately only one of many) of survival and development of a mining enterprise,
- conducting long-term (strategic) activities that would be accompanied by appropriate short-term (operational) activities is necessary, at the level of both mines and the entire enterprise,.

When changes are introduced in a mining enterprise, the variability of conditions often makes predictions difficult and adjustment actions involve a considerable risk. The scale of

changes may vary – from gradual ones meant to enhance the operations or slowly adjust to the changes in the business environment, to changes in the enterprise's processes, to sweeping changes in the operations often combined with organizational change (Bijańska 2017). Adjustments to operations involve preparing a new approach aligned to the new situations created by the external environment, e.g. the introduction of the market economy or globalization. This mainly involves stimulating entrepreneurship, attaching special attention to production quality and enhancing the ability to compete on the market. In this context, it is necessary to develop a strategy based on the innovations that reflect the use of new technologies and production organization (Drucker 2006). The foundation of strategic planning is the properly executed analysis of a company's external and internal business environments, i.e. a strategic analysis. An analysis of the internal business environment should focus primarily on the needs of the recipients. Determining the demand for coal must involve both quality and quantity parameters, as the accumulation of an unsellable product all too frequently generates problems in practice.

As for an analysis of the external business environment, this should involve both the immediate and further environment. The factors that should be taken into account include political considerations, the status and trends in technological development and the interests of the local community. Accurately predicting changes in the respective elements of the business environment should allow the development of scenarios for the further growth of the enterprise, taking the use of synergic effects at the point of contact between the mining enterprise and its environment into account.

Managing change, like managing an enterprise, is a process. All managers take actions which are interrelated and lead to the achievement of the desired goals. This process involves four basic functions: planning, organizing, motivating and controlling (Gilbert et al. 2001). In this process, it is not possible to determine ready-made operational patterns that lead to achieving specific goals. The two fundamental reasons for this are as follows:

- changes take place in a team of individuals that is an enterprise and, due to this, the process of change will be disturbed at all times by the human factor – a natural resistance to change,
- the enterprise is operating in a dynamic environment – changes occurring in this environment may significantly affect the adopted assumptions as to the course of changes and disturb their progression.

In implementing the function of organizing, it is extremely important to prepare an appropriate diagnosis of the current state of the enterprise, particularly with regard to the accurate identification of the resources held (especially geological), the potential to use them and to compare the status of these resources with the resources held by the competition. The extraction and production capacities and resources held determine the capability to address the demand of recipients. Data reliability is a very important consideration in preparing the diagnosis.

The planning involved in the change management process should define a set of necessary organizational, technical and personal actions implemented on the basis of resources

which are held or must be obtained, aimed at achieving the desired effects of the introduced changes. This was aggregated by C. Bainbridge (Bainbridge 1996), who divided the process of designing changes into five separate stages:

a) creating a vision of all changes – designing the process,
b) preparing a detailed description of change and documenting the process,
c) beginning the process of preparing the team for change,
d) removing the elements that make change difficult,
e) introducing new skills in the broad meaning of the term.

Figure 1 presents a schematic of this process.

In the planning stage it is also necessary to perform an analysis of the risk which may be associated with the plans to be implemented and then to develop a risk management method. Identifying, assessing and measuring risk and developing potential countermeasures will significantly increase the probability of successfully implementing the plan under preparation (Wodarski 2009).

A change introduced in an enterprise can be effectively managed only when there is proper management of the human factor – the team. As a result, it is necessary to constantly observe the prevailing sentiments and approach of the team to the implementation of the planned projects. Favorable results can only be achieved if:

- the changes being introduced are explained in detail, stating the reason behind them and the assumed objectives,
- the team is properly motivated to complete the planned projects (Dubiński and Turek 2014).

Another condition for the proper management of the implemented changes must be controlling – exercising supervision over the course of implementation of the assumed objectives and the constant, ongoing monitoring of their effects.

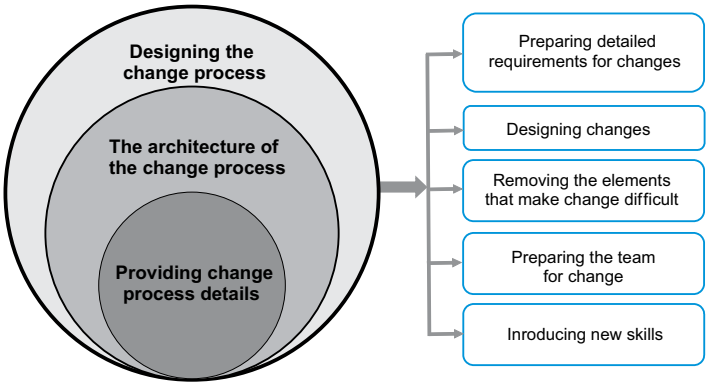

Fig. 1. Designing change in the enterprise
Source: on the basis of (Bainbridge 1996)

Rys. 1. Projektowanie zmiany w przedsiębiorstwie

2. Changes in the operations of Polska Grupa Górnicza from establishment until now

In early 2015 the financial situation of the largest coal company Kompania Węglowa SA was so serious that it could end in immediate and disorderly insolvency. As a result, on January 7, 2015 the Council of Ministers adopted *The Insolvency Plan for Kompania Węglowa SA* (Repair plan... 2015). It involved the liquidation of four of the company's mines, the sale of one mine and the introduction of a voluntary leave program for employees. However, due to a public outcry, its initial provisions were modified and the new assumptions were taken into account in the agreement concluded with the Inter-Union Protest and Strike Committee, the trade union organizations operating within Kompania Węglowa SA and the Management Boards of Spółka Restrukturyzacji Kopalń SA (the Mine Restructuring Company), Kompania Węglowa SA and Węglokoks SA. Pursuant to this agreement a new entity called Węglokoks ROW Sp. z o.o. was established, which in September 2015 adopted the name Polska Grupa Górnicza Sp. z o.o. (PGG). On April 29, 2016 an agreement was concluded for the sale of Kompania Węglowa SA to Polska Grupa Górnicza Sp. z o.o., involving eleven mines (Bielszowice, Bolesław Śmiały, Chwałowice, Halemba-Wirek, Jankowice, Marcel, Piast, Pokój, Rydułtowy, Sośnica, Ziemowit), four departments (Mining Capital Improvement Works Department, Information Technology and Telecommunications Department, Repair and Production Department, Combined Heat and Power Plants) and the support, governance and supervisory functions of what is known as the central unit, i.e. an organized collection of intangible and tangible assets used for the purposes of conducting economic activities, including in terms of extraction, processing and sale of hard coal, methane and other associated mining products and their related operations.

From the very first days of the company's operations, PGG mines implemented a program of improving effectiveness by implementing savings initiatives. To obtain maximum synergistic effects, a project was implemented to combine mines into more effective production units – integrated mines. Since July 1, 2016 three integrated mines within PGG's structure have been established:

- the Ruda mine – established by combining the Bielszowice, Halemba-Wirek and Pokój mines,
- the ROW mine – established by combining the Chwałowice, Jankowice, Marcel and Rydułtowy mines,
- the Piast-Ziemowit mine – established by combining the Piast and Ziemowit mines

and two independent mines Bolesław Śmiały and Sośnica. In December 2016 a separated part of the Pokój mine under the name KWK Pokój I was transferred to Spółka Restrukturyzacji Kopalń SA (SRK).

To provide further possibilities of effectively using the production assets of Katowicki Holding Węglowy SA (KHW) in the form of mines, as well as protecting more than several thousand jobs, the managements of KHW and PGG in signed a letter of intent February 2017 on the sale of selected KHW assets to PGG. After obtaining the analyses taking the positions

of both the National Treasury (the only shareholder of the PGG and KHW companies represented by the Ministry of Energy) and the financial advisors into account, it was assumed that the transaction would be carried out as a non-tender sale of KHW's selected assets to PGG. The sale transaction was effected on April 1, 2017 and involved the acquisition by PGG of four mines: Mysłowice-Wesoła, Murcki-Staszic, Wujek (Ruch Wujek and Ruch Śląsk) and Wieczorek. In December of the same year Polska Grupa Górnicza was converted from a limited liability company into a joint stock company.

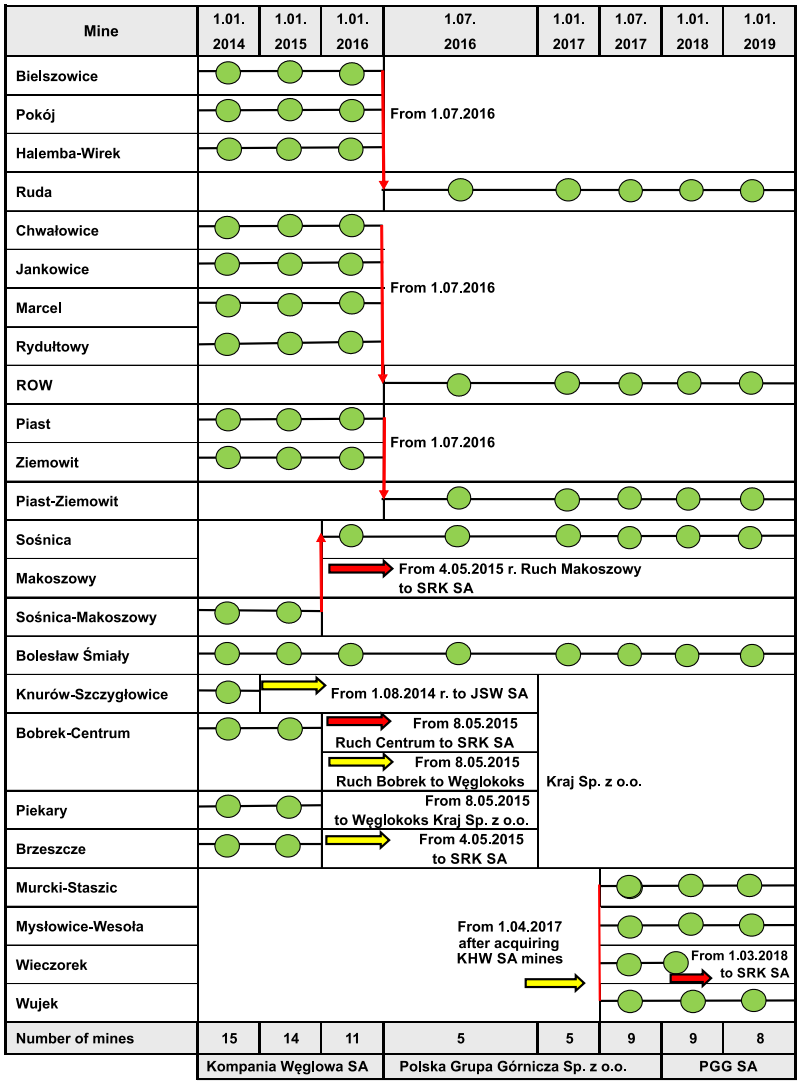

Fig. 2. Changes in PGG's organizational structure
Source: on the basis of (Bąk 2018b)

Rys. 2. Zmiany w strukturze organizacyjnej PGG

Actions aimed at simplifying the organisational structure were continued in 2018, by transferring to SRK:

- Ruch Śląsk from the Wujek-Śląsk mine in January,
- the Wieczorek mine in March,
- the redundant parts of the ROW and Mysłowice-Wesoła mines in December,

and also all shares in Śląskie Centrum Usług Wspólnych Sp z o.o, which was an organized part of KHW from 1996.

Figure 2 presents the changes in PGG's organizational structure presented above in the period from its establishment until the end of 2018.

In addition to organizational changes, other projects were carried out in the company that were crucial for its structure. To pursue better opportunities of improving revenues on coal sales, another department was created in July 2018 – Eco-Fuel Production Department. This is a processing and production plant conducting research on the latest solutions in solid fuels, which is unique in Poland. Its main objective is to increase the available volume of "green" coal types, stabilize their quality and adjust the produced fuels to the market requirements (qualified fuels) and current legal acts.

Another step towards reducing the incurred costs and diversifying revenue sources is the planned extension of the Repair and Production Department, the primary task of which has been to secure production for the repair needs of the company's mines. To this end, production assets were acquired in July of last year for the extension process of the department. This would reduce the repair costs incurred for outsourcing the necessary works and will eventually also allow for providing services to other entities.

In addition to the presented activities in the organizational, technical and financial aspects, in the management of Polska Grupa Górnicza SA a lot of significance is also attached to establishing the best possible company-employee relations. In connection with this, the implementation of two programs started in 2018. "Organizacja ucząca się" (A learning organization) (from January) and "PGG Family" (from April).

The ability to learn effectively, positively respond to and quickly implement changes should be embedded in the value system of the company, which then becomes "a learning organization" working to take advantage of employee involvement at all stages. There are four primary assumptions forming the basis of this approach (businessinsider.com.pl):

1. Organizations, like living organisms, can learn – and learning is a core value.
2. The learning process should involve all employees, as each of them has an impact on the organization's future.
3. The organization must properly motivate people to participate in the process of learning and contributing towards the company's development.
4. The learning process should be conscious and constant rather than random.

A company's managers are aware of the fact that its development and stable existence are determined by its ability to not only prepare a good product and maintain appropriate relationships with its recipients, but also to focus on the people employed there. After all, the company's employees and internal processes also play a highly significant role in its functioning.

As a result, in implementing the strategy of an employee-friendly and attractive company, PGG is making efforts to enhance its relationships with its employees. This involves the development of its own non-wage benefit system for PGG employees and their family members (PGG Family). It allows taking advantage of various special offers and discounts in such areas as leisure and tourism, sports, recreation, culture, insurance, shopping.

3. Production and sales management. Integrated management system

In managing a mining enterprise such as PGG, the fundamental area is production management, which involves four functions which determine its effectiveness:

- production organization,
- strategic and operational planning
- workflow organization with an appropriate motivational system for employees,
- control – monitoring the course of the production process.

Production organization involves analyses of the current resources, including. in particular. geological resources and machine-computer equipment. Mining sections are determined with such parameters that provide the best opportunities for achieving the highest mining volumes. Equipment is chosen later. In this context, analyses are conducted regarding the feasibility of maintaining the current structure of headings so that redundant locations could be liquidated, which would reduce the incurred operational costs.

The specific nature of underground mining operations makes the planning process subject to numerous internal and external factors. The most significant of these include natural hazards and the current geological conditions. These often limit the volume of output and directly cause an increase in the costs of the conducted operations and carry the risk of failing to perform the adopted tasks. As a result, all planning assumptions, at the stages of both the roadway and excavation works, should undergo a detailed analysis of the risk that could result in a failure to meet the adopted assumptions. To ensure the effective operation of the company and its mines, the planning stage also involves developing economic analyses regarding the profitability of the planned projects with an economic assessment of the feasibility of excavating a given bed of coal or its part.

Workflow organization involves developing schedules for such workflows that would facilitate:

- the safe performance of the works,
- the reasonable use of the coal bed,
- the effective use of working time and the machines and devices held.

This is also connected with striving to maintain an appropriate number of employees having the required professional qualifications, many of whom are covered by motivational remuneration systems.

In the production process it is extremely important to inspect the implementation of the works and supervise their current regulation. The generated analyses and reports allow tracking the flow of the production process and also facilitate the enhancement of its parameters, particularly with regard to:

- improved production organization,
- the reliability of machine and device movement and improved production process flow,
- reduced production costs (controlling material wear, energy carriers, capacity utilization, etc.),
- developing reasonable plans for repairs and purchases of machines and devices (recording downtime and faults – their causes, duration and range of damage etc.).

In PGG, systems for implementation control and analyses are supported by Zintegrowany System Wspomagający Zarządzanie Przedsiębiorstwem SZYK 2 (Integrated Management Support System), which comprises seven modules:

- KPT/THPR module – Production scheduling,
- KPT/TRP module – Production settlement,
- KPT/TMRPP2 module – Monitoring and reporting the production process.
- KPT/TGŚP module – Production asset management,
- KPT/TMZZ2 module– Task management,
- KPT/TGZOP module – Coal resources management,
- KPT/TENE2 module – Energy management.

The process of selling coal is carried out in a similarly formal fashion as for production management. The following forms of sale are used:

- coal purchase agreement – concluded in writing in the form of a printed or electronic document signed by both parties or by written acknowledgement of accepting the order or offer in written form.
- order,
- sale for non-contractual orders – with the consent of the director of a relevant trade office, only as prepayments taking the current prices of coal in cash sale into account,
- cash sale – carried out by mines to a maximum of eight tons at once (once a day for one contracting party and one means of transport) in a general cargo point of sale on the basis of the payment for coal made at the cash desk, in accordance with the current price list.

The general rule in sales is to safeguard oneself against transaction risk understood as the contracting party's insolvency. If coal is sold on the basis of an agreement or order, the legal and financial situation of the contracting party shall be verified before implementation. If coal is released to the recipient but no payment or prepayment has been made, then an assessment of the financial situation is performed by a professional business intelligence entity.

Before it is sent to the recipient, the product is inspected in terms of the compliance of its quality parameters with the requirements of the Polish Standard and the provisions

of agreements or orders. All sold commercial coal types are subject to final weighing carried out on scales with a valid accuracy certificate from the Central Office of Measures. The quality acceptance procedure of coal and any potential quality or quantity complaints are based on the relevant rules and regulations contained in the documentation of the integrated management system (ZSZ) being developed in PGG.

Aiming at following the rules of a circular economy, which minimizes the generation of waste and the use of resources by taking waste from one process as a resource for another process, PGG sells considerable amounts of methane from underground mine workings in addition to hard coal. For example, only in 2018 the amount used was about 56 million m^3:

- 30.0 million m^3 sold to external recipients,
- 15.0 million m^3 used in gas engines,
- 11.0 million m^3 burnt in boilers.

Last year CHP units powered by gas from demethanization generated a total of 57.0 GWh of electrical power and 143.6 TJ of thermal energy.

The description of sales management mentions the integrated management system (ZSZ) in place at the enterprise. The main objective of its implementation is to enhance the

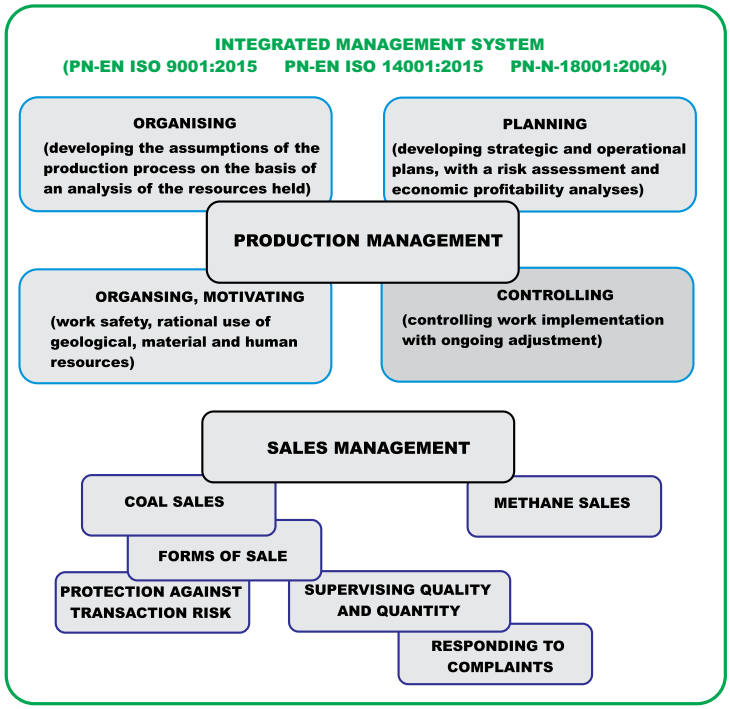

Fig. 3. Integrated management system in PGG
Source: own study

Rys. 3. Zintegrowany system zarządzania w PGG

reputation of Polska Grupa Górnicza SA as a company employing the highest standards of management and providing top quality products, while optimizing the use of resources and complying with health, safety and environmental standards. ZSZ combines the previous management systems for quality, health, safety and the environment which were based on separate standards. This provides a clearly defined, documented and consistent system, which allows the effective and simultaneous management of a number of aspects by establishing and implementing a single policy and its related objectives referring to those aspects (Miller 2003). The range of application of the integrated management system at PGG is shown in Figure 3.

While the integrated management system in place at PGG does not yet include an information security management system, the company has prepared a document entitled "Information Security Policy," which is a collection of internal standards, laying down the general assumptions in this regard. It is a set of rules and procedures making up the necessary and sufficient information security model for the company's business processes.

Conclusion

The presented process of introducing organizational changes in Polska Grupa Górnicza SA, which has been carried out for nearly three years, shows the sheer scale of this task. It can be said that this enterprise has grown from the ruins left behind by the previous mining companies – a net loss of more than PLN 1 billion, PLN 7 billion in financial liabilities and over 4 million tons of unsold coal in heaps.

Despite this, after numerous changes, of which the organizational ones were the most difficult, the company has found a fully controlled and publicly acceptable solution. Thanks to:

- obtaining good technical and economic results on its operations (Table 1) and
- spending considerable amounts of money on capital expenditure (Table 2),

the company now faces a huge opportunity to become a stable and effective coal producer providing good quality parameters. This is definitely also due to the effect of the appropriate management of an extremely wide range of changes introduced in the enterprise. The objectives to be achieved were well thought-out and a number of actions allowing operational cost reductions were implemented. Most importantly, however, these changes were introduced with effective human resources management. As the team was constantly reminded of the relevance of the changes introduced and the goals to be achieved, the actions were not conducted against the will of the employees, but with their support.

The paper presents results of research conducted in AGH University of Science and Technology no. 16.16.100.215.

Table 1. The technical and economic results obtained by KW SA, KHW SA and PGG SA in 2015–2018 (PLN thousand)

Tabela 1. Wysokość nakładów inwestycyjnych KW SA, KHW SA i PGG SA w latach 2015–2018 [tys. zł]

No.	Total coal sales	Unit	2015		2016		2017		2018	
1.	Commercial coal mining	tonnes	KW	27 205 867	KW	8 387 286	KHW	1 912 100	PGG	29 710 421
					KHW	9 480 490				
			KHW	10 570 000	PGG	15 205 495	PGG	28 097 942		
2.	Total coal sales	tonnes	KW	28 504 474	KW	9 448 791	KHW	2 011 186	PGG	29 152 044
					KHW	9 786 752				
			KHW	10 635 010	PGG	16 142 756	PGG	27 763 871		
	◆ domestic	tonnes	KW	23 792 305	KW	7 993 773	KHW	1 812 075	PGG	27 686 143
					KHW	8 655 581				
			KHW	9 344 051	PGG	13 864 711	PGG	24 315 792		
	◆ exports	tonnes	KW	4 712 169	KW	1 455 018	KHW	199 112	PGG	1 465 901
					KHW	1 131 171				
			KHW	1 290 958	PGG	2 278 045	PGG	3 448 080		
3.	Coal stock at end of period	tonnes	KW	3 566 569	KW	523 008	KHW	0	PGG	773 642
					KHW	230 238				
			KHW	580 185	PGG	574 630	PGG	599 986		
4.	Total employment at end of period	people	KW	34 401	PGG	31 429	PGG	43 325	PGG	41 909
			KHW	14 081	KHW	13 036				
	◆ underground	people	KW	25 706	PGG	23 923	PGG	33 611	PGG	32 696
			KHW	11 228	KHW	10 329				
	◆ surface	people	KW	8 695	PGG	7 506	PGG	9 714	PGG	9 213
			KHW	2 853	KHW	2 707				
5.	Total sale price of coal	PLN/tonne	KW	233.91	KW	210.98	KHW	276.65	PGG	311.50
					KHW	253.26				
			KHW	274.34	PGG	223.08	PGG	277.54		
	◆ sale price – domestic	PLN/tonne	KW	239.49	KW	217.30	KHW	278.97	PGG	304.44
					KHW	252.98				
			KHW	273.66	PGG	226.75	PGG	270.65		
	◆ sale price – exports	PLN/tonne	KW	205.75	KW	176.25	KHW	255.53	PGG	444.72
					KHW	255.35				
			KHW	279.24	PGG	200.74	PGG	326.11		
6.	Unit cost of sold coal	PLN/tonne	KW	267.57	KW	254.11	KHW	316.86	PGG	286.24
					KHW	281.41				
			KHW	297.65	PGG	248.10	PGG	267.32		

Table 1. cont.

Tabela 1. cd.

No.	Total coal sales	Unit	2015		2016		2017		2018	
7.	Unit result on the sale of 1 tonne of coal	PLN/tonne	KW	–33.79	KW	–44.09	KHW	–40.12	PGG	25.21
					KHW	–28.07				
			KHW	–23.24	PGG	–25.02	PGG	10.31		
8.	Revenue on economic activity	PLN thousand	KW	8 627 332.00	KW	3 118 713.00	KHW	662 032.00	PGG	9 543 421.00
					KHW	2 935 553.00				
			KHW	3 474 982.00	PGG	4 148 435.00	PGG	8 493 816.00		
	◆ revenue on coal sales	PLN thousand	KW	6 663 654.50	KW	1 984 405.80	KHW	556 578.00	PGG	9 079 319.80
					KHW	2 479 349.80				
			KHW	2 918 322.05	PGG	3 601 182.80	PGG	7 708 054.80		
9.	Costs of economic activity	PLN thousand	KW	9 180 348.00	KW	2 659 153.00	KHW	822 441.00	PGG	8 918 553.00
					KHW	3 219 327.00				
			KHW	3 812 328.00	PGG	4 529 677.00	PGG	8 338 860.00		
	◆ costs of sold coal	PLN thousand	KW	7 626 961.90	KW	2 401 075.70	KHW	637 261.00	PGG	8 344 437.91
					KHW	2 754 058.02				
			KHW	3 165 480.37	PGG	4 005 000.00	PGG	7 421 901.30		
10.	Result on coal sales	PLN thousand	KW	–963 307.40	KW	–416 669.90	KHW	–80 683.00	PGG	734 882.09
					KHW	–274 708.22				
			KHW	–247 158.32	PGG	–403 817.20	PGG	286 153.50		
11.	Gross financial result	PLN thousand	KW	–553 016.00	KW	459 560.00	KHW	–160 409.00	PGG	624 868.00
					KHW	–283 774.00				
			KHW	–337 346.00	PGG	–381 242.00	PGG	154 956.00		
12.	Net financial result	PLN thousand	KW	–959 219.00	KW	459 560.00	KHW	–153 338.00	PGG	493 395.00
					KHW	–376 817.00				
			KHW	–238 432.00	PGG	–319 849.00	PGG	90 154.00		
13.	Total liabilities	PLN thousand	KW	4 400 000.00	KW	no data	KHW	2 614 447.00	PGG	8 113 779.00
					KHW	2 606 304.00				
			KHW	2 688 008.00	PGG	4 958 012.00	PGG	7 576 030.00		
14.	Total long-term and short-term receivables	PLN thousand	KW	no data	KW	no data	KHW	124 968.00	PGG	727 436.00
					KHW	180 948.00				
			KHW	263 550.00	PGG	382 036.00	PGG	663 289.00		

Table 2. The amount of investment outlays of KW SA, KHW SA and PGG SA in 2015–2018 (PLN thousand)

Tabela 2. Wysokość nakładów inwestycyjnych KW SA, KHW SA i PGG SA w latach 2015–2018 [tys. zł]

No.	Item	2015		2016		2017		2018	
I.	**Investment construction – total**	**KW**	**264 923.9**	**KW**	**57 606.5**	**KHW**	**43 822.5**	**PGG**	**502 460.0**
		KHW	**225 338.7**	**KHW**	**179 159.7**	**PGG**	**318 194.6**		
				PGG	**161 701.5**				
1.	Cross-cuts	KW	99 488.0	KW	31 008.9	KHW	30 179.1	PGG	245 416.8
		KHW	167 384.7	KHW	134 913.0	PGG	155 206.6		
				PGG	86 907.2				
2.	Rising headings	KW	63 196.8	KW	14 213.4	KHW	2 393.2	PGG	56 577.0
		KHW	14 927.0	KHW	8 956.0	PGG	58 758.4		
				PGG	28 840.4				
3.	Mechanical coal processing plants	KW	18 437.1	KW	3 102.9	KHW	2 540.9	PGG	10 663.9
		KHW	5 584.3	KHW	1 336.3	PGG	9 187.8		
				PGG	9 887.6				
4.	Environmental protection	KW	4 406.6	KW	1 066.1	KHW	873.5	PGG	3 218.0
		KHW	852.7	KHW	2 079.0	PGG	1.2		
				PGG	660.0				
5.	Other investments	KW	79 395.4	KW	8 215.2	KHW	7 835.8	PGG	186 584.3
		KHW	36 590.0	KHW	31 875.4	PGG	95 040.6		
				PGG	35 406.3				
II.	**Purchase of fixed investment assets**	**KW**	**214 061.4**	**KW**	**59 648.1**	**KHW**	**4 673.6**	**PGG**	**641 378.4**
		KHW	**102 666.3**	**KHW**	**89 006.4**	**PGG**	**344 702.6**		
				PGG	**134 742.5**				
III.	**Total capital expenditures on fixed assets (I + II)**	**KW**	**478 985.3**	**KW**	**117 254.6**	**KHW**	**48 496.1**	**PGG**	**1 143 838.4**
		KHW	**328 005.0**	**KHW**	**268 166.1**	**PGG**	**662 897.2**		
				PGG	**296 444.0**				
IV.	**Expenditure financing sources**	**KW**	**478 985.3**	**KW**	**117 254.6**	**KHW**	**48 496.1**	**PGG**	**1 143 838.4**
		KHW	**328 005.0**	**KHW**	**268 166.1**	**PGG**	**662 897.2**		
				PGG	**296 444.0**				
1.	◆ own funds	KW	410 825.9	KW	102 271.0	KHW	48 496.1	PGG	916 679.5
		KHW	328 005.0	KHW	268 166.1	PGG	503 592.6		
				PGG	243 728.9				
2.	◆ loans, leasing	KW	68 159.4	KW	14 983.6	KHW	–	PGG	226 322.5
		KHW	–	KHW	–	PGG	159 304.6		
				PGG	52 715.1				
3.	◆ Funds for Environmental Protection and Water Management	x		x		x		x	
4.	◆ budget subsidies	x		x		x		x	
5.	◆ other funds, prevention	KW	–	KW	–	KHW	–	PGG	836.4
		KHW	–	KHW	–	PGG	–		
				PGG	–				
V.	**Expenditure on operational headings and wall reinforcement**	**KW**	**1 034 040.4**	**KW**	**307 237.2**	**KHW**	**74 359.0**	**PGG**	**1 274 085.9**
		KHW	**311 424.0**	**KHW**	**282 519.3**	**PGG**	**1 034 626.0**		
				PGG	**536 751.2**				
VI.	**Total capital expenditure – CAPEX (III + V)**	**KW**	**1 513 025.7**	**KW**	**424 491.8**	**KHW**	**122 855.1**	**PGG**	**2 417 924.3**
		KHW	**639 429.0**	**KHW**	**550 685.4**	**PGG**	**1 697 523.2**		
				PGG	**833 195.2**				

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MANAGING A MINING ENTERPRISE IN RAPIDLY CHANGING CONDITIONS AS EXEMPLIFIED BY POLSKA GRUPA GÓRNICZA SA

Keywords

mining company, managing a mining enterprise, Polska Grupa Górnicza SA

Abstract

In Polish mining enterprises, mining exploitation processes are often carried out in much more difficult geological and mining conditions. At the same time, underground operation must be carried out in accordance with the legal requirements concerning work safety and public safety. In these circumstances, taking into account the fact that hard coal mining is by nature a less competitive industry, it should be stated that in Poland managing a mining enterprise is a real challenge. Additionally, in the situation of the functioning of mining enterprises in the conditions of the market economy and constant changes in the economic situation for coal, both on the domestic and foreign markets, the degree of management difficulties, including planning and decision making, is constantly increasing. This is a result of not only the specificity of mining production processes, but also the need to conduct effective economic activity in a constantly and dynamically changing environment. During the implementation of changes in a mining enterprise, the variety of conditions often increases difficulties in the change forecasting system and generates a high risk of implementing adaptive measures. The changes may have a different scope – from gradual, aimed at improving the activities carried out or slowly adapting to changes in the environment, through changes in implemented processes, to radical changes in functioning, often associated with organizational changes.This article aims to present the method of managing a mining enterprise, Poland Grupa Górnicza SA, established during the period of significant changes that took place at that time, both in the company itself and in the hard coal mining industry.

ZARZĄDZANIE PRZEDSIĘBIORSTWEM GÓRNICZYM W WARUNKACH DYNAMICZNYCH ZMIAN NA PRZYKŁADZIE POLSKIEJ GRUPY GÓRNICZEJ SA

Słowa kluczowe

przedsiębiorstwo górnicze, zarządzanie przedsiebiorstwem górniczym, Polska Grupa Górnicza SA

Streszczenie

W polskich przedsiębiorstwach górniczych procesy eksploatacji górniczej często są realizowane w trudnych warunkach geologiczno-górniczych. Równocześnie eksploatacja podziemna musi być prowadzona zgodnie z wymogami prawnymi, dotyczącymi zasad bezpieczeństwa pracy oraz bezpieczeństwa powszechnego. W tych okolicznościach, biorąc jednocześnie pod uwagę fakt, że górnictwo węgla kamiennego z natury rzeczy jest branżą mało konkurencyjną, należy stwierdzić, że w Polsce

zarządzanie przedsiębiorstwem górniczym jest prawdziwym wyzwaniem. Dodatkowo, w sytuacji funkcjonowania przedsiębiorstw górniczych w warunkach gospodarki rynkowej oraz ciągłych zmian koniunktury na węgiel zarówno na rynku krajowym, jak i zagranicznym, stopień trudności zarządzania, w tym planowania i podejmowania decyzji, stale wzrasta. Jest to wynikiem nie tylko specyfiki prowadzenia procesów produkcji górniczej, ale także konieczności prowadzenia efektywnej działalności gospodarczej w ciągle i dynamicznie zmieniającym się otoczeniu. W trakcie wdrażania zmian w przedsiębiorstwie górniczym różnorodność uwarunkowań często piętrzy trudności w systemie przewidywania zmian oraz generuje wysokie ryzyko realizacji działań dostosowawczych. Zmiany mogą mieć różny zakres – od stopniowych, mających na celu udoskonalenie prowadzonych działań lub powolne dostosowywanie się do zmian otoczenia, poprzez zmiany realizowanych procesów, do radykalnych zmian funkcjonowania, często połączonych ze zmianami organizacyjnymi. Niniejszy artykuł ma na celu przedstawienie sposobu zarządzania przedsiębiorstwem górniczym, Polską Grupą Górniczą SA, powstałą w okresie znaczących zmian, jakie miały miejsce, zarówno w samej spółce, jak i w branży górnictwa węgla kamiennego.