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Analysis of the socio-environmental policy of selected mining companies on the basis of non-financial reporting

Introduction

Activities in the environmental and social aspects are gaining importance in terms of the basic operational activity of enterprises. In domestic conditions, this is related to the provisions of Directive 2014/95 / EU, which impose the obligation of non-financial reporting. The scope of the reported indicators, in accordance with the GRI guidelines, is referred to the issues of rational deposit management.

The rational management of mineral deposits is imposed by the Environmental Protection Law (Articles 125 and 126 of Journal of Laws 2001 No. 62 item 627) and the Geological and Mining Law (Journal of Laws 2011 No. 163 item 981) with several articles. Among them, one can distinguish Article 22 Paragraph 3 – prohibition of the concurrent use of two or more licenses issued by the Staroste (head of the poviat [administrative unit]); Article 26 Paragraph 3 – an obligation to include in the deposit development plan requirements for the comprehensive and rational use of the main and accompanying minerals; Article 32 Paragraph. 4 Subparagraph 1 – the minimum resource utilization and the operations necessary

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for the rational development of the deposit; Article 101 – institution of the mineral deposit gains. In addition, Article 108 Paragraph 2 Subparagraph 2 – the obligation to include operation plan specific activities necessary to ensure rational management of the mineral deposit in the mining plant, and Article 129 Paragraph 1 Subparagraph 2 and 3 and Paragraph 3 – regulations regarding closure of a mining plant.

The management of mineral deposits covers many stages, starting from the exploration and recognition of the potential deposit, through preparatory and unproductive development, exploitation, transport, processing of minerals and reclamation and development of the post-mining area. The effects of the activities carried out include those identified by: vibrations, noise, degradation of land and vegetation, emission of dust and gas pollution, change in the structure of surface and underground waters, liquidation of transport, residential and industrial infrastructure. The results of the mentioned mining activity have a significant impact on the natural environment and on human beings (Pietrzyk-Sokulska et al. 2015; Castilla-Gomez and Herrera-Herbert 2015; Bell and Donnelly 2006). Both the environmental and social aspects occupy a vital place in the rational economy of the mineral deposit as a complex and multifaceted problematic relating to all stages of the deposit functioning (Jurys 2009; Szamałek 2011; Geoportal and Schwarz 2014).

For several years, the attention of the state has been addressed to issues related to the raw materials policy (PSP 2018). Work started in 2005 aimed at the preparation of the PSP project by the Ministry of the Environment. Unfortunately, for years, a coherent document has not been prepared. The work was carried out intermittently and although the subject matter was still considered important (as the White Book of Mineral Resources Protection (MŚ 2015), Poland's Raw Materials Policy – About the Thing That Was Not There (Hausner et al ed. 2015), The Raw Materials for Industry, Action Plan for Securing the Supply of Non-Energy Minerals (MR 2016), and scientific papers published in this field (e.g. Kulczycka et al. 2015). It was not until 2016 that the Government Plenipotentiary for the State's Raw Materials Policy was appointed. His first tasks included the preparation of the concept and then the Draft of the State's Raw Material Policy (PSP 2018) then, after the government accepted the document, coordination and monitoring the implementation of the provisions contained in it.

The raw material policy will aim at rational management of raw materials resources and setting directions for investments in this field, consistent with the current state of know-ledge and development stage of technology, while contributing to strengthening Poland's position in the international arena (PSP 2018). Well-designed regulations have a chance to ensure the security of raw materials, taking care of both the interests of the state and its citizens.

In this article, the authors present verification of the rational deposit management of aggregate producers based on the analysis of the implementation of indicators compliant with the GRI guidelines by three companies. The assessment of the impact of companies operating in the aggregate industry on the environment and society was also undertaken. This analysis is particularly important because deposits of rock minerals occur in large numbers and are located throughout Poland. The location of deposits whose users are the entities discussed is presented in Figure 1.

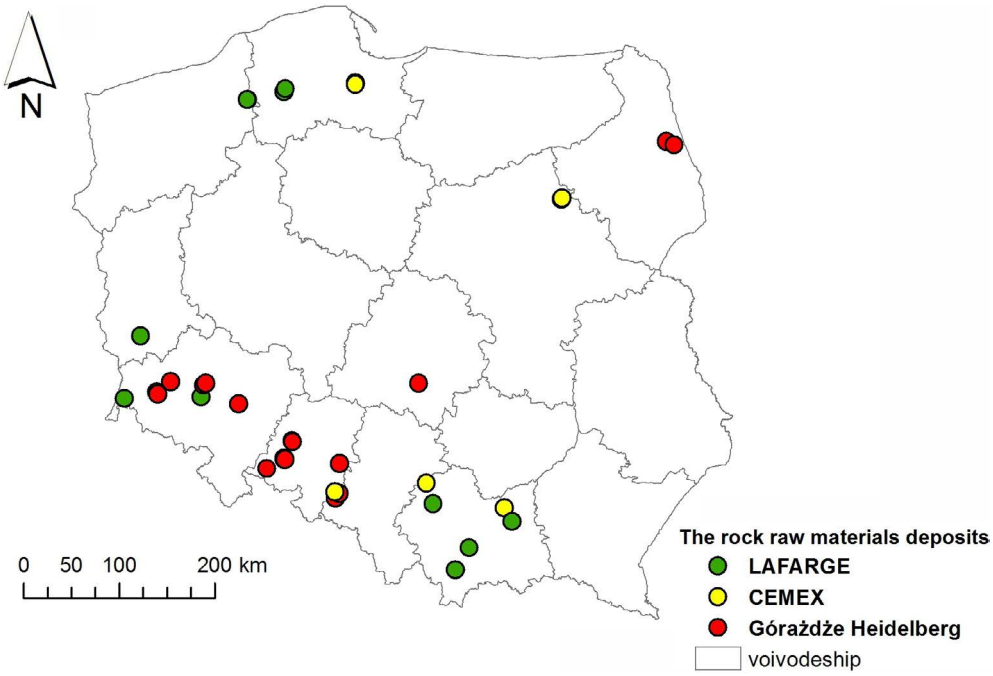

Fig. 1. The location of deposits whose users are companies: Lafarge, Cemex, Górażdże Heidelbergcement (own study based on data System MIDAS)

Rys. 1. Lokalizacja złóż surowców skalnych podmiotów wydobywczych: Lafarge, Cemex, Górażdże Heidelbergcement (opracowanie własne na podstawie systemu MIDAS)

Research finds that the largest consumer of raw materials next to the energy sector is construction using, among others, raw rock materials (Chartym 2018). Mining activity can both cause conflict and bring benefits to local communities; for example, in the form of income from commune budgets from the mining fee. In addition, the selection of the analyzed group of minerals is justified by a small number of available studies in the field of corporate social responsibility for this sector of the mining industry. The study of data published in integrated reports may contribute to improving the image of the industry and increasing public awareness of this topic which, in turn, may be conducive to reducing the risk of supplying raw materials

1. GRI and non-financial reports

In addition, the impact of mining activities on the natural environment along with the minimization of these losses as well as industry-man relations is not without significance. The contribution of transparent deposit management towards its development should pre-

vent the possibility of social conflicts emerging through solutions compensating for losses and exposing benefits to communities subject to the impact of mining activities. The sustainable management of deposits is therefore a comprehensive issue covering many aspects.

Verification of the compliance of the conduct of mining industry leaders (fossil fuel and metallic minerals) with the principles of sustainable development is now easier; for example, due to the preparation and publication of financial and non-financial reports (integrated reports prepared in accordance with the principles of GRI – Global Reporting Initiative) (Pactwa and Woźniak 2017; Woźniak and Pactwa 2017).

Global Reporting Initiative defines the principles and indicators for reporting, among others non-financial data in light of sustainable development. Enterprises can use these guidelines to measure and report their economic, environmental and social achievements, regardless of type of industry, business profile, size of the company or localization. The original version of the guidelines (G1) was issued in 2000, the second (G2) in 2002, the third (G3) in 2006 (Polish version G3 in 2009). In 2011, an update and supplement was published third generation guidelines (G3.1.), and in 2013 a fourth generation of guidelines was created (G4), in force today. It deals with the standard seven items of the guidelines as basic chapters and non-financial data reports. These include: strategy and analysis, organization profile, and identification relevant aspects and scopes, stakeholder engagement, report parameters/profile, governance organizational/supervision, ethics and integrity (Woźniak 2017). From 2020, the GRI G4 guidelines will be replaced by the new GRI Standards, which consists of 3 general new chapters and signature (GRI Standards 2017): Economic – GRI 200, Environmental – GRI 300, Social – GRI 400.

From the relationship between CRS and GRI, it can be determined that CSR is a strategy for socio-environmental activities within the enterprise function, and the GRI is the most recognizable, international tool of these activities.

The socio-environmental monitoring of companies producing rock raw materials (including aggregates) is much more difficult (in the line with CSR). Producers of rock raw materials do not make the data public and if they do, it concerns large international corporations.

2. Characteristics of the analyzed group of enterprises and data sources

The domestic industry of rock raw materials (their mining, processing and processing) creates various types of enterprises:

- small and medium entities that usually use one sub-type of mineral,
- enterprises, which include several mining plants, filling various types of minerals,
- companies with branches throughout the country, e.g. specializing in road construction and aggregate production,
- international concerns implementing CSR standards.

For this purpose, three representatives (international concerns) were selected from among many entrepreneurs participating in the domestic market, i.e.: Cemex, Górażdże HeidelbergCement and Lafarge. Only they implement non-financial reporting using the GRI guidelines. The other identified entities on the aggregate market among others OMYA Sp. z o.o., Mineral Polska Sp. z o.o., EUROVIA Polska SA, Kopalnie Surowców Skalnych in Bartnica Sp.z o.o. belonging to the Basalt-Actien-Gesellschaft group), but none of them use the GRI tools in reporting.

The selected three entities have a similar business line, focusing on the cement, aggregate and concrete industry. Data from reports prepared through the above companies was the material used for the analysis.

The Górażdże Heidelbergcement Group is a leader in domestic cement production and one of the largest producers of ready-mixed concrete and aggregates in Poland (it belongs to the international Heidelbergcement Group present in 40 countries). The three lines of business in the Górażdże group producing cement, aggregates and concrete correspond to the following: Górażdże Cement Heidelbergcement Group (3 limestone mines, 1 cementing, 1 cement mill); Górażdże Kruszywa Heidelbergcement Group (16 opencast mines located mainly in the south-west and north-east of Polanda); and Górażdże Beton Heidelbergcement (61 ready-mixed concrete plants) (www.gorazdze.pl).

Cemex is a global leader in the field of building materials. In Poland, it is one of the leading producers of cement, ready-mixed concrete and aggregates, which consists of the main production plants to the total of: 41 concrete plants, 6 aggregate mines, 2 cement plants (in addition, 3 sales centers and construction warehouses, 1 grinding plant, terminal and water distribution center). The aggregate mines form 5 gravel pits and one quarry (dolomite mine). Mines located in the northern part of the country, like the Mirowo mine, exploiting sands and gravels, mixtures of crushed aggregates and broken stone. Sands and gravels are mainly exploited in the Bierawa gravel pit (in the south of the country), Borzęcin (south-east) and Rostki–Borowce (northeast). The Cemex business line is completed by the Jaroszowiec quarry in south-central Poland (www.cemex.pl).

Lafarge has 60 locations in the country, 2 cement plants, 10 mines and solid rock aggregate production plants, 5 gravel pits, and several dozen concrete factories. It has established a stable market position in 80 countries. Lafarge has 60 locations in the country, 2 cement plants, 10 mines and plants producing stone aggregate, 5 gravel pits and several dozen concrete factories. It has an established a stable market position in 80 countries. Domestic gravel pits are located in the northern (Ostrowite, Gliśno, Sępólno), western (Żagań-Miodnica) and southern (Dębina Łętowska) part of the country. Two mines exploiting basalt are located in the western part of the country (Lubień and Sulików), three sandstone mines are located (Porąbka, Tęczyn, Klikuszowa) in the south. In addition, the mining of limestone takes place at the Wapienno mine in the north of the country and the mining of dolomite takes place in the south (Radkowice and Dubie (www.lafarge.pl).

The Górażdże Heidelbergcement Group implements good practices in this respect by publishing sustainable development reports and being rewarded for CSR activities (the com-

pany received an award in the "CSR Leafs 2017" ranking, among others). Cemex Polska (2016 main prize, the first balanced report 2010) and Lafarge (the best debut 2016) were among the six distinguished entities in the presentation of non-financial data for 2016 in the national Social Reports competition organized by the Responsible Business Forum and Deloitte Association.

The article discusses the issues of CSR in the mining industry with an emphasis on aggregate producers in Poland (international concerns with headquarters in Poland). The issue of social and environmental liability of the company results from the provisions of the EU Directive 2014/95/EU and Poland's Accounting Act (2016), which implemented the directive. At the beginning of 2017, the presentation of non-financial data became one of the annual obligations of the selected entities. This obligation applies to listed companies, banks and financial sector institutions and other entities of public interest. It is estimated that around 300 domestic companies are required to report.

The Directive clearly defines sources of guidance to help prepare such reports, based on national and EU guidelines. In the context of these assumptions, the authors have already conducted CSR assessment studies in lignite mining and energy, copper ore and hard coal mining (Pactwa and Woźniak 2017; Woźniak and Pactwa 2017, 2018; Woźniak 2017, 2018). These are issues that have been valid for many years also on an international scale (among others Jenkins and Yakovleva 2006; Brown et al. 2009; Perez and Sanchez 2009; Fonseca 2010; Kepore and Imbum 2011; Wirth et. al. 2016). This paper is an attempt to review the implementation of these issues in a separate mining industry targeted at broken aggregate producers in Poland.

3. Social and environmental responsibility

Integrated reports of the companies analyzed are available on the websites of the selected entities (www.gorazdze.pl; www.cemex.pl; www.lafarge.pl). The analysis shows which guidelines are followed by these entities in the preparation of integrated reports based on the international GRI standard. The following tables (Table 1 and 2) provide a list of environmental and social indicators .

3.1. Methodology of analysis

The applied research methodology consisted in the verification of reports being a statement of non-financial data by selected entities of the rock raw materials industry. The detailed identification concerned socio-environmental actions, converging for all entities.

3.2. Environmental and social indicators

Table 1. Indicators included in the environmental category, appearing in integrated reports of selected aggregate producers in Poland (based on reports of Cemex 2015–2016; Lafarge 2016; Górażdże Heidelbergcement Group 2014–2015)

Tabela 1. Wskaźniki zaliczane do kategorii środowiskowej, występujące w raportach zintegrowanych wybranych producentów kruszyw w Polsce (na podstawie raportów Cemex 2015–2016; Lafarge 2016; Górażdże Heidelbergcement Group 2014–2015)

Environmental	Cemex	Górażdże Heidelbergcement	Lafarge
EN1 – materials used by weight or volume	NO	**YES**	**YES**
EN2 – percentage of materials used that are recycled input materials	**YES**	**YES**	NO
EN3 – energy consumption within the organization	**YES**	NO	**YES**
EN5 – energy intensity	NO	**YES**	NO
EN6 – reduction of energy consumption	NO	NO	NO
EN7 – reductions in energy requirements of products and services	NO	**YES**	NO
EN8 – total water withdrawal by source	**YES**	**YES**	**YES**
EN10 – percentage and total volume of water recycled and reused	**YES**	**YES**	NO
EN11 – operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	NO	**YES**	**YES**
EN12 – description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas	NO	**YES**	NO
EN13 – habitats protected or restored	NO	**YES**	NO
EN15 – direct greenhouse gas (GHG) emissions (scope 1)	**YES**	**YES**	**YES**
EN19 – reduction of greenhouse gas (GHG) emissions	NO	**YES**	NO
EN21 – NO_x, SO_x, and other significant air emissions	**YES**	**YES**	NO
EN23 – total weight of waste by type and disposal method	NO	**YES**	**YES**
EN27 – extent of impact mitigation of environmental impacts of products and services	NO	**YES**	NO
EN29 – monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations	**YES**	**YES**	**YES**
EN30 – significant environmental impacts of transporting products and other goods and materials for the organization's operations, and transporting members of the workforce	**YES**	NO	**YES**
EN31 – total environmental protection expenditures and investments by type	**YES**	NO	NO
EN32 – percentage of new suppliers that were screened using environmental criteria	NO	**YES**	NO
Number of reported indicators	**9**	**16**	**8**

Table 2. Indicators included in the social category, appearing in integrated reports of selected aggregate producers in Poland (based on reports of Cemex 2015–2016; Lafarge 2016; Górażdże Heidelbergcement Group 2014–2015)

Tabela 2. Wskaźniki zaliczane do kategorii społecznej, występujące w raportach zintegrowanych wybranych producentów kruszyw w Polsce (na podstawie raportów Cemex 2015–2016; Lafarge 2016; Górażdże Heidelbergcement Group 2014–2015)

Social	Cemex	Górażdże Heidelbergcement	Lafarge
Working conditions			
LA1 – total number and rates of new employee hires and employee turnover by age group, gender and region	**YES**	**YES**	**YES**
LA2 – benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation	NO	**YES**	**YES**
LA6 – type of injury and rates of injury, occupational diseases, lost days, absenteeism, and the total number of work-related fatalities, by region and by gender	**YES**	**YES**	**YES**
LA7 – workers with high incidence or a high risk of diseases related to their occupation	NO	**YES**	NO
LA9 – average hours of training per year per employee by gender, and by employee category	NO	**YES**	**YES**
LA10 – programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	**YES**	**YES**	NO
LA11 – percentage of employees receiving regular performance and career development reviews, by gender and by employee category	**YES**	**YES**	**YES**
LA12 – composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity	**YES**	NO	**YES**
LA13 – ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation	**YES**	NO	NO
Human rights			
HR2 – total hours of employee training on human rights policies or procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained	**YES**	NO	NO
HR3 – total number of incidents of discrimination and corrective actions taken	NO	**YES**	NO
HR12 – number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms	**YES**	NO	NO
Society			
SO1 – percentage of operations with implemented local community engagement, impact assessments, and development programs	NO	**YES**	NO
SO2 – operations with significant actual and potential negative impacts on local communities	NO	**YES**	NO

Table 2. cont.

Tabela 2. cd.

Social	Cemex	Górażdże Heidelbergcement	Lafarge
SO3 – total number and percentage of operations assessed for risks related to corruption and the significant risks identified	NO	**YES**	NO
SO4 – communication and training on anti-corruption policies and procedures	**YES**	NO	NO
SO5 – confirmed incidents of corruption and actions taken	NO	**YES**	NO
SO7 – total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes	**YES**	**YES**	**YES**
SO8 – monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	**YES**	YES	YES
Responsibility for the product			
PR3 – type of product and service information required by the organization's procedures for product and service information and labeling, and percentage of significant product and service categories subject to such information requirements	**YES**	NO	NO
PR5 – results of surveys measuring customer satisfaction	**YES**	**YES**	NO
PR9 – monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	NO	**YES**	NO
Number of reported indicators	13	16	8

The largest number of environmental indicators (according to the GRI G4 guidelines) are reported by Górażdże HeidelbergCement Group (16). Some of them are reported partly due to limitations in the presentation of sensitive data (EN8, EN15, EN21). Apart from 9 indicators (Table 1 – EN2, 3, 8, 10,15, 21, 29, 30 and EN31) compliant with the guidelines (GRI G4 2016). Cemex included two own indicators in the latest report (Cemex Report 2015–2016): Substitution of alternative fuels in Cemex Polska cement plants and heat consumption from alternative fuels (Aspect: Energy). Lafarge also provides four additional indicators (Lafarge Report 2016). The list of implemented norms and standards (Aspect of Managing Environmental Impact), Substitution of alternative fuels in Lafarge cement plants in Poland (Aspect of the Level of Energy Consumption in the Organization and Energy Efficiency), Average and minimum lifetime hectare of land explored by gravel pits; and the minimum surface area needed for the organization and implementation of gravel mining processes (Aspect of Impact of the Company's Activities on Biodiversity and Ecosystems).

The number of social indicators in integrated reports is 16 for Górażdże Heidelbergcement, 13 for Cemex and 8 for Lafarge. In this area, the companies decided to add their own indicators. In the case of Cemex, they are related to the aspect entitled Local community and social investments (indicators : number of grants awarded to NGOs and schools,

number of cities, number of applications submitted and the number of grants awarded to employees under the employee volunteering program, the number of hours worked/number of employees). Meanwhile, the main Aspect at the Lafarge concern was Anti-Competitive Behavior (indicators: number of employees trained in ethics and/or corruption in the year according to the employment structure, list of actions undertaken to promote ethical behavior in the organization) and the Aspect entitled the Health and Safety of Clients, Suppliers and Subcontractors (indicators: frequency indicator of injuries causing lost working time (LTIFR) of subcontractors on the basis of Lafarge plants in Poland, a list of activities supporting customers, suppliers and/or subcontractors in compliance with safety and prevention rules). In addition, Lafarge introduced additional indicators on the following Aspects: Effective Management System, taking key social and environmental risks in the company management system and education on sustainable architecture into account.

In the next stage, the values of selected indicators were compared. The list included only indicators reported by all the companies analyzed.

Out of the group of environmental indicators, only three are reported by all the analyzed enterprises (EN8 – total water withdrawal by source; EN15 – direct greenhouse gas (GHG) emissions; and EN29 – monetary value of significant fines and the total number of non-monetary sanctions for non-compliance with environmental laws and regulations, Table 1).

In the case of the values describing the EN8 indicator, Cemex declares the consumption of approx. 1.5 liters of water per Mg of aggregates (1.38 liters in 2015 and 1.43 in 2016) which, with a total water consumption in aggregates equal to 5.95 mln m^3 (in 2016) it seems to be a highly understated value. Comparing the unit water consumption by Górażdże Heidelbergto Cemex, the difference in the reported data reaches two orders of magnitude which undermines the accuracy of the presented reporting data, all the more so since water consumption in aggregate production accounts for approx. 88% of total consumption (including cement and concrete).

In 2015 (data for 2016 is not published yet), Heidelberg Górażdże Kruszywa used 129 liters/1 Mg of aggregate, with some mines working in a closed circuit, while getting back to the tank from which it was collected, the water used in the refining process has not been included in the calculations. Here, mining plants extracting aggregates consume the most water, as in the case of Cemex. Thanks to the investments made in Górażdże Heidelberg Kruszywa, the water used in the refining of aggregates is mainly collected from own mining excavations and then returned to them again. Thanks to this practice in most of the mines belonging to the Heidelberg Group, 100% of the water consumed comes from its own excavation, which allows for a significant saving of natural water resources. In comparison, Lafarge declares that one of the goals is to reduce water consumption in the production process and use water from mines for the irrigation of agriculture area and forests. The report gives the total water consumption in 2016 as 13.5 mln m^3 – aggregated data for Lafarge Beton Towarowy Ltd., Lafarge Kruszywa and Beton Ltd. and Lafarge Cement SA. This value seems to be overstated in consideration of all (included in the report) types of water intake sources, i.e. deep-sea, surface, drainage or urban networks, the level of water consumption is approx. 4.2 mln m^3.

Another environmental indicator, the values of which are found in the reports of all the discussed companies – the EN15 (Table 3) Compared to the previous year, both Cemex and Górażdże Heidelberg reduced CO_2 emissions, which is not only the effect of fuel combustion as the cement sector is primarily responsible for CO_2 emissions. As much as 63% of CO_2 emissions come from raw materials used for cement production, i.e. from the decomposition of calcium carbonate in what is called process emission, without which it would be impossible to produce cement.

None of the companies presented have been charged with penalties for infringements of environmental protection regulations (EN29 indicator), wwhich proves that adequate efforts are made so as not to burden the environment.

Table 3. Comparison of socio-environmental indicators (based on reports of Cemex 2015–2016; Lafarge 2016; Górażdże Heidelbergcement Group 2014–2015)

Tabela 3. Porównanie wskaźników społeczno-środowiskowych (na podstawie raportów Cemex 2015–2016; Lafarge 2016; Górażdże Heidelbergcement Group 2014–2015)

Cemex	Górażdże Heidelbergcement	Lafarge
EN8 – total water withdrawal by source [l/Mg] [m^3]		
1.50 l/Mg / 5.95 mln m^3	129 l/Mg	4.20 mln m^3 (13.51 mln m^3)
EN 15 direct greenhouse gas (GHG) emissions (scope 1) [mln Mg CO_2]		
1.29	1.84	2.01
EN29 – monetary value of significant fines and the total number of non-monetary sanctions for non-compliance with environmental laws and regulations		
none declared		
LA1 – total number and rates of new employee hıres and employee turnover by age group, gender and regıon		
1 146	1 153	1 532
LA6 – type of ınjury and rates of ınjury, occupatıonal dıseases, lost days, absenteeısm, and the total number of work-related fatalıtıes, by regıon and by gender		
no fatal accidents		
LA11 – percentage of employees receıvıng regular performance and career development revıews, by gender and by employee category		
96.5%	100% employees administrative and managerial staff	all employees
SO7 – total number of legal actions for antı-competıtıve behaviour, anti-trust, and monopoly practices and theır outcomes		
two completed cases	one procedure in progress	zero
SO8 – monetary value of sıgnıficant fınes and the total number of non-monetary sanctıons for non-compliance wıth laws and regulatıons		
5 and 15 000 PLN	two completed cases without specifying a value	zero

The reports of all three discussed companies contain information on five indicators belonging to the social category. These are: LA1 – total number and rates of new employee hires and employee turnover by age group, gender and region; LA6 – type of injury and rates of injury, occupational diseases, lost days and absenteeism, and the total number of work-related fatalities, by region and by gender; LA11 – percentage of employees receiving regular performance and career development reviews, by gender and by employee category; SO7 – total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes; and SO8 – monetary value of significant fines and the total number of non-monetary sanctions for non-compliance with laws and regulations (Table 2).

The first index (LA1) shows the total employment structure in companies (not including the division into aggregates, cement and concrete sector). For detailed information on indicators, see Table 3. In each of the companies, most of the employees are men (over 75%) belonging to the 30–50 age group. Each of the entities gives the employee a fluctuation ratio, understood as the ratio of the number of employees who have left in a given year to the number of all employees, then multiplied by x100, broken down by sex and age. The data presented in the reports (Cemex Reports 2015–2016; Lafarge 2016; Górażdże Heidelbergcement Group 2014–2015) show that the largest rotations take place in the youngest group of employees.

In their reports, each of the presented companies indicates the fact that they are making efforts to improve the safety of employees. In Górażdże, a campaign was organized under the slogan "You do not grass up. You are reporting! You save lives!", to encourage employees to report threats and potentially accidental events. As a result, 99 notifications were recorded in 2014 and 23 more notifications in the following year. Compliance with safety rules also applies to subcontractors for whom trainings are organized at the Health and Safety Center. A special system of passes is used for employees of external companies, which prohibits access to the area of the Górażdże Group to employees who violate health and safety rules and regulations (three warnings will block the pass).

The directions of activities in the field of security at Cemex are set by the Global Health and Safety Policy. The occupational health and safety management system is based on the PN 18001 standard and is certified by an external auditor (TÜV Rheinland). The second pillar of the system is the corporate HSMS (Health & Safety Management System). In 2016, Cemex received, the National Research Institute Gold Card of Safe Work Leader for 2017–2018 from the Central Institute for Labour Protection. This award means, among others, that the rate of accidents at work and occupational diseases ranks below the national average in the enterprise. An electronic card system for recording potentially accidental events has also been introduced, which contributes to improving working conditions and eliminating risks.

In order to improve work safety, Cemex also organizes e-training completed with a test for subcontractors before being allowed to work. In turn, Lafarge strengthens the care for safety and health through the personalization of safety. Initiatives in this area include, among others, the Security Guardian, who can be any Lafarge employee in Poland. The tutor gives

an example to colleagues and there are 30 people in this role (Cemex Reports 2015–2016; Lafarge 2016).

Another good practice is creating occasions for informal conversations with employees of the VPC visit (Visible Personal Commitment), i.e. visits of the Management Team and management in plants in Poland. Lafarge, like other companies, remembers that not only employees, but also sub-contractors should follow the safety rules. This initiative offers training and checks data related to the health and safety at individual companies. In two groups, Cemex and Lafarge, employee development management is based on the 70/20/10 principle (i.e. 70% through practice, 20% learning from others, 10% through training) (Cemex Reports 2015–2016; Lafarge 2016).

All the groups provide a detailed training program for employees at various levels, without providing detailed information on gender distribution or employee categories (LA11). Cemex provides information about the number of man-hours, where over 22,000 were allocated for training in 2015 (mandatory and qualifying 23% and developmental 77%). Moreover, Górażdże reported that more than PLN 2 million of funds that were spent on all trainings in 2014–2015. In the context of the LA11 indicator, Lafarge communicates that all employees are regularly assessed (Cemex Reports 2015–2016; Górażdże Heidelbergcement Group 2014–2015).

When verifying legal disputes regarding court and administrative proceedings (SO7) in the Lafarge group, no such situations were found, while the Górażdże group conducting two unfinished cases. Similarly, Cemex has two large unfinished proceedings (approximately PLN 19 and 90 million), one with suspended status and two unprocessed cases of a value of PLN 5,000 and 15,000 (SO8), respectively (Cemex Reports 2015–2016; Górażdże Heidelbergcement Group 2014–2015).

Issues discussed regarding the natural environment are related to the rational management of the deposit (volume of emissions, water intake, etc.). The social aspect is not directly related to the above issue, but it is important from the point of view of companies' strategies, including mining ones.

Conclusion

This article has analyzed the social and environmental policy of mining entrepreneurs exploiting rock raw materials. Three mining companies operating in Poland were selected for the analysis: Cemex, Górażdże HeidelbergCement Group and Lafarge. The article presented which companies identify with the full chain of creating company values from raw material extraction to its processing and the sale of products. The presented list of social aspects expressed in the international GRI standard showed that Heidelberg holds the lead (16), then Cemex (13 with the proposition of 2 own indicators) and Lafarge (8 + 4 own) .

In terms of the environmental dimension, Górażdże Heidelbergcement again registered (16) and Cemex (9) along with 2 individual indicators. In turn, Lafarge includes 8 indicators,

of which 4 were from their own suggestion. There is a tendency to introduce own indicators, closely related to the scope of business activity to present achievements better in the field of disclosing non-financial data that fall within the scope of CSR activities. The detailed analysis of the presentation method in the reports of the same indicators then showed a difference in the interpretation and presentation of the data (e.g. LA11).

In addition, the issues discussed in the article have communicated how the mining industry, which is not favorably perceived by public opinion, aspires to be an environmentally and socially responsible sector. Social responsibility firstly applies to corporate responsibility towards employees, and results from the range of reported indicators. The article does not include external stakeholders. Work in this area will be continued through the survey of local communities. The practices presented in the article can thus become a model for the implementation of these activities by other groups of entrepreneurs in Poland.

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REFERENCES

Accounting Act, Act of December 15 2016 (Dz.U. 2017.61) (*in Polish*).

Bell F.G. and Donnelly L.J. 2006. *Mining and its impact on environment*. Taylor and Francis 543 pp.

Brown et al. 2009 – Brown H.S., M. de Jong, M. and Levy D.L. 2009. Building institutions based on information disclosure: lessons from GRI's sustainability reporting. *Journal of Cleaner Production* 17(6), pp. 571–580.

Castilla-Gomez, J. and Herrera-Herbert, J. 2015. Environmental analysis of mining operations: Dynamic tools for impact assessment. *Minerals Engineering* 76, pp. 87–96.

Cemex Reports 2015–2016 – Report of Cemex, Sustainability report 2015–2016. [Online] www.cemex.pl/documents [Accessed: 2018-04-02].

Chartym, J. 2018. Warsaw: let us use the raw materials wealth of Poland. Raw Materials Policy (*Warszawa: wykorzystajmy bogactwo surowcowe Polski*). *Polityka Surowcowa* 1, pp. 46–49 (*in Polish*).

Directive 2014/95/EU of the European Parliament and of the council (2014) of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups. [Online] http://eur-lex.europa.eu [Accessed: 2018-05-02].

Environmental Protection Law, The Act of 27 April 2001 (Dz.U. 2001.62.627) as amended.

Fonseca, A. 2010. How credible are mining corporations' sustainability reports? A critical analysis of external assurance under the requirements of the international council on mining and metals. *Corporate Social Responsibility and Environmental Management* 17(6), pp. 355–370.

Geological and Mining Law, Act of 9 June 2011 (Dz.U. 2011.163.981), as amended (*in Polish*).

Geoportal-Central Geological Data Base (*Geoportal-Centralna Baza Danych Geologicznych*). Nieć, M. Problems of rational management of mineral deposits (*Problemy racjonalnej gospodarki złożami kopalin*). [Online] http://geoportal.pgi.gov.pl [Accessed: 2018-05-05] (*in Polish*).

GRI G4 2016. Global Reporting Initiative GRI. [Online] https://www.globalreporting.org [Accessed: 2017-01-05].

GRI Standards 2017. [Online] https://www.globalreporting.org/standards/gri-standards-download-center/consolidated-set-of-gri-standards/ [Accessed: 2018-10-05].

Hausner et al. ed. 2015 – Bromowicz, J., Bukowski, M., Hausner, J. (eds), Kasztelewicz, Z., Kudłacz, M., Kulczycka, J., Piestrzyński, A, Steinhoff, J. and Wilczyński, M. 2015. Polish Raw Materials Policy – thing about what does not exist and it is very necessary (*Polityka Surowcowa Polski – rzecz o tym czego nie ma a jest bardzo potrzebne*. Fundacja Gospodarki i Administracji Publicznej Kraków, 132 pp. (*in Polish*).

Jenkins, H. and Yakovleva, N. 2006. Corporate social responsibility in the mining industry: Exploring trends in social and environmental disclosure. *Journal of Cleaner Produc*tion 14, pp. 271–284, DOI: 10.1016/j.jclepro.2004.10.004.

Jurys, L. 2009. Rudiments of rational management of small deposits of natural aggregate (*Podstawy racjonalnej gospodarki małymi złożami kruszywa naturalnego*). *Górnictwo Odkrywkowe* 50(2–3), pp. 70–73 (*in Polish*).

Kepore, P.K. and Imbum, B.Y. 2011. Mining and Stakeholder Engagement Discourse in a Papua New Guinea Mine. *Corporate Social Responsibility and Environmental Management* 18, pp. 220–233, DOI: 10.1002/csr.243.

Kulczycka et al. 2015 – Kulczycka, J., Kudełko, J. and Wirth, H. 2015. Role and aim of mineral raw materials policy presented in national strategic documents (*Założenia i cele polityki surowcowej zawarte w krajowych dokumentach strategicznych*). *Przegląd Geologiczny* 63(2), pp. 98–102 (*in Polish*).

Lafarge Report 2016 – Report of Lafarge, Sustainability report 2016. [Online] www.lafarge.pl [Accessed: 2018-04-02].

MR 2016. MR 2016. Raw materials for the Industry. Action plan to secure the supply of non-energy raw materials to neralne Warsaw project 29/06/2016 Ministry of Development (*Surowce dla Przemysłu. Plan działań na rzecz zabezpieczenia podaży nieenergetycznych surowców mineralnych Warszawa projekt 29/06/2016 Ministerstwo Rozwoju*) (*in Polish*).

MŚ 2015. The White Book of Mineral Resources Protection (*Biała Księga Ochrony Złóż Kopalin*), Warszawa 2015, Ministerstwo Środowiska, 59 p. (in Polish).

Pactwa, K. and Woźniak, J. 2017. Environmental reporting policy of the mining industry leaders in Poland. *Resources Policy*, 53, pp. 201–207.

Perez, F. and Sanchez, LE. 2009. Assessing the Evolution of Sustainability Reporting in the Mining Sector. *Environmental Managemen*t 43, pp. 949–961, DOI: 10.1007/s00267-008-9269-1.

Pietrzyk-Sokulska et al. 2015 – Pietrzyk-Sokulska, E., Uberman, R. and Kulczycka, J. 2015. The impact of mining on the environment in Poland – myths and reality *Gospodarka Surowcami Mineralnymi – Mineral Resources Management* 31(1), pp. 45–64.

PSP 2018. The raw material policy of the state. Design (*Polityka surowcowa państwa. Projekt*). Warszawa: Ministerstwo Środowiska (*in Polish*).

Report of Górażdże HEIDELBERGCEMENT GROUP, Sustainability report 2014–2015. [Online] www.gorazdze.pl/ [Accessed: 2014-04-02].

Schwarz, H. 2014. Rational deposit management in the Geological and Mining Law (*Racjonalna gospodarka złożem w Prawie geologicznym i górniczym*). [Online] http://www.amadeus.biz.pl [Accessed: 2014-09-02] (*in Polish*).

System-MIDAS. [Online] http://geoportal.pgi.gov.pl/midas-web/ [Accessed: 2018-11-02] (*in Polish*).

Szamałek, K. 2011. Rational mineral deposit management in the light of mineral resources theory. *Gospodarka Surowcami Mineralnymi – Mineral Resources Management* 27(4), pp. 5–15.

Szuflicki et al. eds. 2017 – Szuflicki, M., Malon, A. and Tymiński, M. eds. 2017. The balance of mineral resources in Poland as of 31 December 2016 (*Bilans zasobów złóż kopalin w Polsce wg stanu na 31 XII 2016 r.*). Warszawa: Państwowy Instytut Geologiczny – Państwowy Instytut Badawczy (*in Polish*).

Wirth et al. 2016 – Wirth, H., Kulczycka, J., Hausner, J. and Koński, M. 2016. Corporate Social Responsibility: Communication about social and environmental disclosure by large and small copper mining companies. *Resources Policy* 49, pp. 53–60; DOI: 10.1016/j.resourpol.2016.04.007.

Woźniak J.and Pactwa K. 2017. Environmental Activity of Mining Industry Leaders in Poland in Line with the Principles of Sustainable Development. *Sustainability* 9(11), 1903; DOI: 10.3390/su9111903.

Woźniak J.and Pactwa K. 2018. Responsible Mining – The Impact of the Mining Industry in Poland on the Quality of Atmospheric Air, *Sustainability* 10(4), 1184; DOI: 10.3390/su10041184.

Woźniak, J. 2017. Level of use of guidelines for integrated reporting ES(G) data in the mining industry and vertically integrated operators in the energy value chain in Poland (*Poziom wykorzystania wytycznych w zakresie zintegrowanego raportowania danych ES(G) w branży wydobywczej i pionowo zintegrowanych podmiotów działających w energetycznym łańcuchu wartości w Polsce*). *Zeszyty Naukowe Instytutu Gospodarki Surowcami Mineralnymi i Energią PAN* 97, pp. 189–200 (*in Polish*).

Woźniak, J. 2018. Good practices in reporting non-financial data by vertically integrated groups in the energy value chain (*Dobre praktyki raportowania danych niefinansowych podmiotów zintegrowanych pionowo w energetycznym łańcuchu wartości*). *Polityka Energetyczna – Energy Policy Journal* 21(1), pp. 143–154 (*in Polish*).

ANALYSIS OF THE SOCIO-ENVIRONMENTAL POLICY OF SELECTED MINING COMPANIES ON THE BASIS OF NON-FINANCIAL REPORTING

Keywords

natural and crushed aggregates deposits, GRI, rational management

Abstract

The article presents the socio-environmental policy of the selected entities operating in the rock raw materials industry. Integrated reports prepared by mining entrepreneurs may be a source of verification of the "raw materials policy", identified as a manifestation of the care of these entities for the environment and society. Rational deposit management is closely related to the raw material policy. The preparation of integrated reports is compulsory from as of January 2017 (in accordance with Directive 2014/95/EU) for large companies in the EU. These are companies that fulfil the criterion of the number of employees (500 persons for public interest entities required under the Directive to extend non-financial information) and the balance sheet total (>EUR 20 million EUR) or net income (>EUR 40 million EUR). This obligation mainly applies to mining enterprises involved in mining and processing hard coal, lignite or copper ore. The mining of non-energy raw materials is no less important. The rock raw materials are used, among others, in road construction, railways or construction, in the form of aggregates, and stone elements, and also in the paper, cosmetic and ceramic industries. The article aims to analyseanalyze the socio-environmental policy of mining entrepreneurs dealing with the exploitation of rock raw materials in accordance with latest GRI guidelines (Global Reporting Initiative – G4). The scope of activities was compared in accordance with the principles of sustainable development of three large companies operating in the Polish mining industry: Cemex, Górażdże Heidelberg Cement Group and Lafarge. They compared the extent to which and the form in which non-financial data are is presented. It was presented and included which of the mentioned companies take into account the full value chain in the reporting process, from mining operations to processing and sale products, into account.

ANALIZA POLITYKI SPOŁECZNO-ŚRODOWISKOWEJ WYBRANYCH PRZEDSIĘBIORSTW GÓRNICZYCH NA PODSTAWIE SPRAWOZDAWCZOSCI NIEFINANSOWEJ

Słowa kluczowe

złoża kruszyw naturalnych i łamanych, GRI, racjonalna gospodarka

Streszczenie

Artykuł prezentuje istotę racjonalnej gospodarki złożem wybranych podmiotów działających w branży surowców skalnych, w kontekście środowiskowym i społecznym. Zintegrowane raporty przygotowywane przez przedsiębiorców górniczych mogą być źródłem weryfikacji „polityki surow-

cowej", interpretowanej jako przejaw dbałości podmiotów o środowisko i społeczeństwo. Racjonalna gospodarka złożem ściśle związana jest z polityką surowcową. Przygotowanie ww. raportów jest obowiązkowe od stycznia 2017 r. (zgodnie z dyrektywą 2014/95/UE) dla dużych przedsiębiorstw na terenie Unii Europejskiej. Są to przedsiębiorstwa, które spełniają kryterium liczby zatrudnianych pracowników (500 osób dla jednostek zainteresowania publicznego, mających zgodnie z dyrektywą obowiązek rozszerzenia informacji niefinansowych) oraz kwoty sumy bilansowej (>20 mln EUR) lub przychodów netto (>40 mln EUR). Tym samym obowiązek ten dotyczy głównie krajowych przedsiębiorstw górniczych zajmujących się wydobyciem i przetwórstwem węgla kamiennego, węgla brunatnego czy rud miedzi. Nie mniej istotne jest górnictwo kopalin skalnych (nieenergetycznych). Dostarcza ono surowców wykorzystywanych m.in. w drogownictwie, kolejnictwie czy budownictwie, w postaci kruszyw, a także elementów kamiennych, jak również są stosowane w przemyśle papierniczym, kosmetycznym czy ceramicznym. Artykuł ma na celu analizę polityki społeczno-środowiskowej przedsiębiorców górniczych zajmujących się eksploatacją surowców skalnych i sporządzających raporty zgodnie z wytycznymi GRI (Global Reporting Initiative – G4). Porównano w nim i zweryfikowano zakres działań zgodnych z zasadami zrównoważonego rozwoju trzech dużych międzynarodowych firm funkcjonujących w warunkach krajowej branży górniczej: Cemex, Górażdże Heidelberg Cement Group oraz Lafarge. Porównano, w jakim zakresie i w jakiej formie prezentowane są dane niefinansowe. Przedstawiono, które z wymienionych przedsiębiorstw uwzględniają w procesie raportowania pełen łańcuch tworzenia wartości, od działalności wydobywczej po procesy przeróbcze i sprzedaż produktów.