

## THE CSR CONCEPT IN THE POLISH METALLURGICAL SECTOR - SELECTED ACTIVITIES IN THE AREA OF THE NATURAL ENVIRONMENT

Marcin RATAJCZAK, Tomasz ROKICKI

*Warsaw University of Life Sciences, Warsaw, Poland, EU*

[marcin\\_ratajczak@sggw.pl](mailto:marcin_ratajczak@sggw.pl), [tomasz\\_rokicki@sggw.pl](mailto:tomasz_rokicki@sggw.pl)

### Abstract

The aim of the article is to present selected actions taken in the field of natural environment as an important area of corporate social responsibility by enterprises from the metallurgical industry in Poland (division into steel, copper, zinc and lead producers). Analysis was carried out in the field of environmental policy, areas of impact on the natural environment and reduction of consumption of materials, raw materials, fuel, energy and water in the surveyed companies. Research on the opinion of entrepreneurs on the concept of CSR, its scope and application of the principles of social responsibility were carried out in January and February 2018 and included 93 micro (0-9 people), small (10-49 employees) and medium (50-249 employees) metallurgical enterprises conducting economic activity of the Mazowieckie voivodeship. The research was carried out by means of a diagnostic survey, and the basic research tool was an electronic questionnaire that was sent to the surveyed entities. The survey was sent to all metallurgical entities operating in the studied voivodeship - 93 questionnaires were fully and correctly completed. The material obtained in this way was subjected to mathematical - statistical analysis. The arithmetic mean, independence test  $\chi^2$ , Chuprov convergence coefficient and C. Pearson coefficient (corrected and regular) were used. The results of the research showed medium interest of the small and medium-sized entrepreneurs from the metallurgical sector in their activities for the benefit of the natural environment. Documented and measurable environmental policy objectives were primarily developed by the owners of business entities producing steel and copper.

**Keywords:** Corporate social responsibility, natural environment, SME, metallurgical sector

### 1. INTRODUCTION

The metallurgical industry in Poland is one of the most important branches in the entire economy. Production in the Polish metallurgical industry has been growing over the last few years and is expected to grow at least until 2019. It should also be emphasized that metallurgical products constitute a significant position in Polish foreign trade, but in recent years there has been an outflow of foreign investments in this industry [1, 2]. In Poland, the vast majority of steel production accounts for steel, and copper production is also noticeable [3]. The share of other metals, such as zinc and lead, is small. Since 2009, when the aluminum smelter in Konin has been closed, there is no entity dealing with this type of production in Poland [4].

For several years in Europe, in the metallurgical industry, there is a growing interest in the concept of corporate social responsibility (CSR) and the implementation of its selected areas [5,6,7]. It is certainly related to greater knowledge in this field and promoting the implementation of this concept in business by the European Commission under a document called the Green Book - understanding social responsibility as an idea, under which companies voluntarily incorporate social and environmental issues into their business operations and in relations with their stakeholder groups [8,9].

Corporate social responsibility (CSR) is a concept according to which companies at the stage of strategy building voluntarily take into account social interests and environmental protection, as well as relations with

their stakeholders [10]. Pursuant to the guidelines of the first international standard of social responsibility ISO 26000, the natural environment is analyzed in terms of activities related to reduction of pollutant emissions and implementation of new technological solutions as well as protection and repair of damage in the environment, mainly through environmental policy, reducing the consumption of raw materials, fuel, energy or water [11,12].

In recent years, more and more metallurgical companies in Poland declare that they operate in accordance with the principles of social responsibility [13]. One of the factors initiating the interest in this concept among Polish steel enterprises were strategies implemented by companies that had long existed in the European Union and growing expectations of business partners and European organizations [14]. More and more Polish companies from the metallurgy sector understand this concept and undertake activities for social sustainable development in the aspect of the natural environment, conduct business responsibly and honestly, take care of clients, employees, business and social partners, are aware of their obligations in the market economy, the need to create patterns that allow to reconcile good financial results with activities for the benefit of society and the natural environment [15,16].

It should also be stated that social responsibility should be taken into account both inside and outside the enterprise, as the basis of business, and not as additional actions and ethical procedures undertaken in selected areas and activities of the organization [17,18]. Comprehensive activities of metallurgical enterprises regarding employees, society or the natural environment, having a consistent system of values on which all of the company's operations are based, is the possibility of its stable and proper functioning [19, 20]. Certainly, it will allow to avoid many risks and costs resulting from unethical behavior and incorrect decisions, all the more in such an important industry sector, which is certainly the metallurgical industry in Poland [21].

The aim of the article is to present selected actions taken in the field of natural environment as an important area of corporate social responsibility by enterprises from the metallurgical industry in Poland (division into steel, copper, zinc and lead producers).

## **2. MATERIALS AND METHODS**

Research on the opinion of entrepreneurs on the concept of CSR, its scope and application of the principles of social responsibility were carried out in January and February 2018 and included 93 micro (0-9 people), small (10-49 employees) and medium (50-249 employees) metallurgical enterprises conducting economic activity of the Mazowieckie voivodeship.

The research was carried out by means of a diagnostic survey, and the basic research tool was an electronic questionnaire that was sent to the surveyed entities. The survey was sent to all metallurgical entities operating in the studied voivodeship - 93 questionnaires were fully and correctly completed. The material obtained in this way was subjected to mathematical - statistical analysis. The arithmetic mean, independence test  $\chi^2$ , Chuprov convergence coefficient and C. Pearson coefficient (corrected and regular) were used.

The analyzed sample was dominated by micro-enterprises - 63 %, small enterprises - 22 %, and medium-sized enterprises - 15 %. Men were owners of 68 % of metallurgical enterprises analyzed, and women - 32 % of business entities from the surveyed sector.

Almost 75 % of the respondents conducted activities in the field of steel production, which is characteristic for small and medium metallurgical companies in the scale of the whole of Poland. About 15 % of the respondents were involved in the production of copper, which resulted from the frequent localization of business entities near large urban agglomerations (distribution and sale of copper goods offered), especially in the vicinity of Warsaw, Radom, Skierniewice, Ciechanow or Plock. The remaining two sections, zinc and lead, accounted for around 10 % in the structure of the surveyed entrepreneurs.

### 3. RESEARCH RESULTS AND DISCUSSION

The results of research conducted among small and medium-sized enterprises from the metallurgical industry show the average interest in environmental policy activities. About 11 % of respondents do not take any steps to implement ecological solutions and do not create environmental solutions. Over 60 % of respondents indicated that specific environmental solutions were implemented in the company and are accompanied by documented, real and measurable goals. On the other hand, every fourth owner of these activities refers only to the pro-environmental sensitivity, that is, the propagation of knowledge and sensitizing stakeholders to the aspect of environmental protection. It must be said that this is rather a declaration stage than the implementation of environmental principles in business practice by these companies from the metallurgical sector in Poland.

In order to examine the statistical independence between the type of production in the metallurgical companies studied and the implementation of environmental policy by them, the  $\chi^2$  independence test was carried out, which showed that the analyzed variables are interdependent (**Table 1**). Documented and measurable environmental policy objectives were implemented by steel-producing owners, and pro-environmental sensitivity was mainly promoted by people involved in the production of copper and zinc. In turn, a clear lack of actions in this direction took place among entrepreneurs offering lead on the market. The calculated coefficients have shown that the strength of dependence between these features is moderate.

**Table 1** Determination of statistical independence between the type of production in the metallurgical companies studied and the development and application of environmental policy [own study]

$\chi^2$ TEST OF INDEPENDENCE	
Hypothesis: H <sub>0</sub> : [tested variables are independent] H <sub>1</sub> : [tested variables are not independent]	
$\chi^2 = 15.77 > \chi^2_{\alpha} = 6.55$ the null hypothesis H <sub>0</sub> is rejected in favor of alternative hypothesis H <sub>1</sub> at $\alpha = 0.05$	
T Czuprow's convergence coefficient	T <sub>xy</sub> = 0.68
C Pearson contingency coefficient - simple	C <sub>xy</sub> = 0.74
C Pearson contingency coefficient - corrected	skorC <sub>xy</sub> = 0.87
Variable X: The type of production in the metallurgical companies surveyed Variable Y: Development and application of environmental policy	

Every tenth respondent admitted that he does not implement measures to protect the environment and does not even wonder how their company affects the natural environment. About 24 % of respondents said that they analyze the environment and try to implement pro-environmental solutions, but only consider aspects closely related to the nature of the company's operations. It is certainly very positive that almost 65 % of entrepreneurs dealing with metallurgy in Poland declared constant concern and analysis of their business activities in the field of environmental protection as well as undertaking actions and specific solutions in this area.

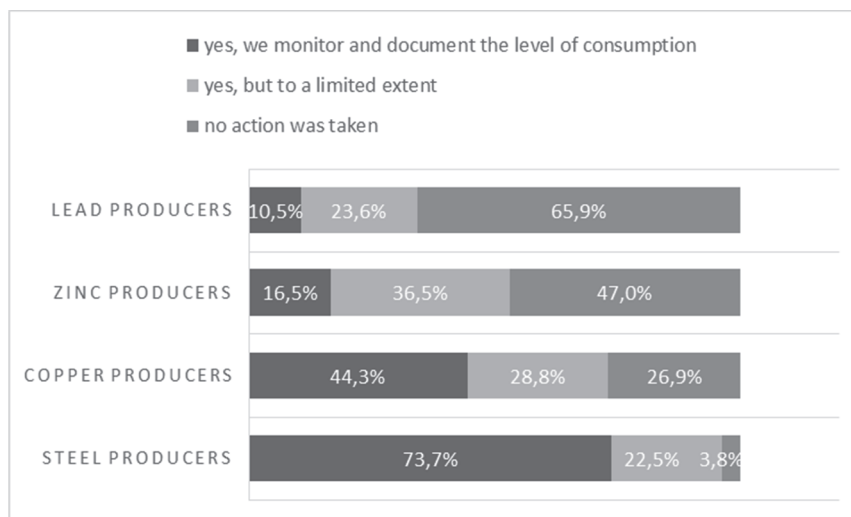
It was also tried to determine the statistical independence between the type of production in the metallurgical companies under study and the identification of areas of impact on the environment - the  $\chi^2$  independence test showed that the variables tested are not mutually independent (**Table 2**). The areas of impact on the natural environment were analyzed to the greatest extent in steel production entities. In turn pro-environmental solutions, closely connected with the company's activity, occurred with the owners producing copper and zinc. Virtually no activities were undertaken in companies offering lead to the Polish market. It is also worth

emphasizing that the calculated coefficients showed a strong relationship between these features, especially this is demonstrated by the high value of the corrected C Pearson's contingency coefficient.

**Table 2** Determination of statistical independence between the type of production in the metallurgical enterprises under study and the identification of areas of impact on the environment [own study]

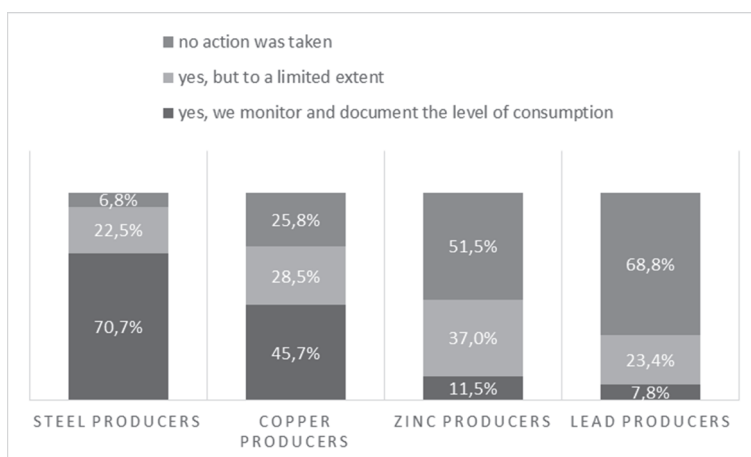
$\chi^2$ TEST OF INDEPENDENCE	
Hypothesis: H <sub>0</sub> : [tested variables are independent] H <sub>1</sub> : [tested variables are not independent]	
$\chi^2 = 13,44 > \chi^2_{\alpha} = 6,23$ the null hypothesis H <sub>0</sub> is rejected in favor of alternative hypothesis H <sub>1</sub> at $\alpha = 0,05$	
T Czuprow's convergence coefficient	T <sub>xy</sub> = 0.67
C Pearson contingency coefficient - simple	C <sub>xy</sub> = 0.75
C Pearson contingency coefficient - corrected	skorC <sub>xy</sub> = 0.89
Variable X: The type of production in the metallurgical companies surveyed Variable Y: Identification of areas of environmental impact	

Entrepreneurs were also asked about the aspect of reducing the consumption of materials and raw materials in their metallurgical company (**Figure 1**). Systematic monitoring and documentation of materials and raw materials consumption took place only in companies from the steel industry (almost 74 % of indications) and in copper producers (over 44 %) in Poland. To a very small extent, the level of consumption of materials and raw materials was accounted for by producers of zinc (only 16 %) and lead (only every tenth company). There is definitely a negative phenomenon in terms of environment, but also economic for entities from the metallurgical industry.



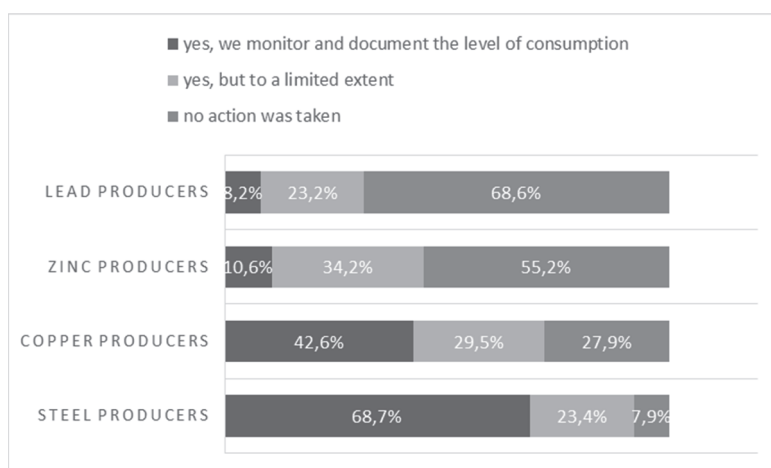
**Figure 1** Reducing the consumption of materials and raw materials in the surveyed enterprises [own study]

The entrepreneurs from the metallurgy sector were also asked about their policies and activities regarding the consumption of fuels and energy (**Figure 2**). Here, also in the largest scope, the reduction of fuel and energy consumption took place in steel production companies (almost 71 % of responses) and copper (over 45 %) in Poland. Very unfavorable situation in the entities producing zinc (more than half does not take any action in this area) and lead (almost 69 % of indications for inactivity in the aspect of reducing fuel consumption or energy).



**Figure 2** Reduction of fuel and energy consumption in the surveyed enterprises [own study]

In the case of studied metallurgical companies producing steel, almost 69 % confirmed that they are trying to monitor, document and limit water consumption (**Figure 3**).



**Figure 3** Limitation of water consumption in the surveyed enterprises [own study]

It is certainly very worrying that only every tenth company offering zinc and lead on the Polish market is taking steps to reduce and save water. The aspects related to the need of heating or sewage disposal are also not taken into account by these entities.

#### 4. CONCLUSION

The results of the research showed the average interest of the small and medium-sized entrepreneurs from the metallurgical sector in their activities for the benefit of the natural environment. Entrepreneurs are trying to manage eco-philosophy and implement documented solutions towards environmental protection, good practices and ecological solutions. Documented and measurable environmental policy objectives were primarily developed by the owners of business entities producing steel and copper. The obtained research results to a certain extent confirm the opinions of other authors that Polish entrepreneurs lack pro-environmental attitude, which is manifested, inter alia, in the fact that companies do not save basic resources and implement ineffectively selected solutions in the field of pro-environmental policy.

Considering the above-mentioned issues, it seems reasonable to continue research in the aspect of the implementation of environmental policy in the SME sector from the metallurgical industry in Poland. Certainly,

an important element for further analyzes in the field of the natural environment should be the issue of cooperation between the SME sector and external partners, including suppliers. It is just setting them requirements related to environmental issues should become a standard among companies promoting and applying the CSR concept, especially in the metallurgical industry. If we adopt such a point of view and take into account all of the above elements, then certainly the pro-ecological measures taken by the SME sector in the metallurgical industry may also increase the competitive advantage on the domestic and global market.

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