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## **ENVIRONMENTAL ISSUES AS A NON-FINANCIAL REPORTING AREA USING THE EXAMPLE OF SELECTED COMPANIES LISTED ON THE WARSAW STOCK EXCHANGE**

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**Abstract:** The purpose of this article is to assess the comparability of non-financial disclosures on the impact of economic activity on the natural environment in reports of selected companies listed on the Warsaw Stock Exchange. The ten largest listed companies listed in the WIG-20 index were selected for the study. The analysis of the reports was based on the following disclosure categories: Materials and raw materials, Fuels and energy, Water, Biodiversity, Emissions to the atmosphere, Waste and Effluents, and Others. Within these categories, 14 key environmental non-financial indicators were defined. The empirical study carried out confirmed that the non-financial reports analyzed in all of the seven categories of disclosures were not fully comparable. The research methods used were: literature studies, analysis of legal regulations, analysis of secondary data, as well as methods of induction and synthesis.

**Keywords:** non-financial reports, natural environment, GRI Standards, Non-Financial Information Standard, CSR.

### **1. Introduction**

Reporting the environmental aspects of a company's operation lies at the heart of the concept of sustainable development. Many years ago it was recognized that the preservation of natural assets should have priority over economic development (Pakulska, 2000, p. 45). Today, environmental reporting is the subject of many valuable

studies, and the report itself is an effective tool for conducting communication between the company and the environment.

The measurement of ecological phenomena concerns both the negative impact of business activity on the environment, and the actions to prevent environmental degradation, reduce or eliminate this impact today and in the future, as well as remedying the already existing effects of the company's activity (Macuda, 2015, pp. 101-102). The complexity of these issues and the flexibility accepted in the Polish legal system in the selection of non-financial indicators for its disclosure (Accounting Act..., 2019, Article 49b, point 8), and reporting of information related to the natural environment is associated with many difficulties.

The literature on the subject includes numerous publications on the issue of environmental reporting in Poland. Examples include studies by Paszkiewicz, Szadziewska (2011), Dyląg, Puchalska (2014), Piłacik (2017), and by Lulek and Sadowska (2020). The document entitled "Reporting extended non-financial information for 2017 in accordance with the Accounting Act – first experiences and good practices" is also particularly important from the point of view of the conducted considerations (*Raportowanie rozszerzonych informacji...*, 2019). However, these studies do not answer the question: is the information on the natural environment presented in non-financial reports comparable?

An attempt to answer this research question is this article, the purpose of which is to assess the comparability of non-financial disclosures on the impact of economic activity on the natural environment in the reports of selected companies listed on the Warsaw Stock Exchange. The ten largest companies included in the WIG-20 index in terms of market capitalization were selected for the study, conducted based on non-financial reports for 2019.

This article complements the existing scientific achievements related to non-financial reporting, identifying the dysfunctional area of disclosing non-financial information on the environmental impact of economic activity, i.e. comparability.

The following research methods were used for the purpose of this article: literature studies, analysis of legal regulations, analysis of secondary data in the form of non-financial reports, as well as methods of induction and synthesis used in the formulation of applications.

## **2. The natural environment as the subject of non-financial reporting – theoretical and legal considerations**

The importance of the triple bottom line concept resulted in the natural environment becoming an important, if not the most significant, area of non-financial reporting. The need to disclose the impact of economic activities on the environment, both in Poland and in the world, does not raise any doubt.

Environmental reporting is a term commonly used to describe an entity's disclosure of environmental data, whether verified (audited) or not, in terms of

environmental risk, environmental impact, policies, strategies, objectives, costs, obligations. and environmental performance for those who are interested in such information (United Nations Conference on Trade and Development UNCTAD, 2002). Both in theory and in practice, there is a large variety of forms of reports, different motivations for their preparation, as well as the wide scope of the presented information and the adopted evaluation indicators.

The extensive list of publications on environmental reporting (Alazzani and Wan-Hussin, 2013; Balicka, 2016; Cerin, 2002; Jose and Lee 2007; Kuśmierski, 2000; O'Donovan, 2002; Szadziewska, 2012) has resulted in a multitude of concepts in the field of accounting. Examples include green accounting, environmental accounting, ecological accounting and eco-reports, environmental reports, reports for sustainable development (Szczypa, 2012, pp. 77-87). These reports can be external and internal, and the former can be divided into mandatory and voluntary (Pałasz, 2009, p. 173). The content of environmental reports may vary. The minimum scope of the information presented should include, among others: a description of the environmental policy, non-financial disclosures broken down into: raw materials used, energy, water, pollutant emissions, waste and effluents management, as well as environmental protection measures. The mechanism of the proper selection of relevant non-financial data and the manner of their presentation also plays a key role in the process of disclosing information on the impact of economic activities on the natural environment (Dyląg and Puchalska, 2014, p. 26).

In Poland, as a result of the transposition of Directive 2014/95/EU, selected public trust units are required to report extended information on environmental issues (Accounting Act..., 2019, Article 49b (1)). The legal basis in this respect may be national, EU or international regulations. The most important of them include: CERES Principles, Carbon Disclosure Project, the United Nations Global Compact (UNGC) 10 Principles, the European Federation of Financial Analysts Societies (EFFAS) Certified ESG Analyst, TCFD (Task Force on Climate-related Financial Disclosures), the Norm Account Ability's AA1000 Standards, the Global Reporting Initiative (GRI Standards), the OECD Guidelines for Multinational Enterprises, and the ISO 26000 Standard.

The most common framework for non-financial reporting in the world are the International GRI Standards (the Global Reporting Initiative), whereas their Polish counterpart is the Non-Financial Information Standard (SIN) published in 2017. According to them, disclosures in the environmental area should include a minimum of seven groups of information, namely: (I) Materials and raw materials, (II) Fuels and energy, (III) Water, (IV) Biodiversity, (V) Emissions to the atmosphere, (VI) Effluents and Waste and (VII) Others. The detailed scope of disclosures recommended by SIN and GRI Standards, broken down into the categories listed, is presented in Table 1.

The European Commission also reports on disclosing the impact of economic activities on the environment. In accordance with the EC Guidelines on non-financial reporting (2017/C 215/01), environmental reporting should include, among others,

**Table 1.** Environmental issues in the non-financial report – scope of basic disclosures in light of the SIN and GRI Standards

No.	Category	Scope of disclosures	
		Non-Financial Information Standard	GRI Standards
1	2	3	4
I	Materials and raw materials	<ol style="list-style-type: none"> <li>1. Type and quantity (e.g. by weight, volume) of the raw material/material used (with possible indication of renewable sources/recycling).</li> <li>2. Consumption of key raw materials/materials per unit of product or income.</li> </ol>	<ol style="list-style-type: none"> <li>1. Materials/raw materials used, by weight or volume, broken down into renewable and non-renewable.</li> <li>2. Percentage of materials used that are processed input materials.</li> </ol>
II	Fuels and energy	<ol style="list-style-type: none"> <li>1. Total energy consumption in GJ by the main sources of its acquisition.</li> <li>2. Percentage (%) of energy from renewable energy sources (RES).</li> <li>3. Energy consumption per unit of product or income.</li> </ol>	<ol style="list-style-type: none"> <li>1. Total energy consumption in joules, including non-renewable and renewable sources.</li> <li>2. Consumption in joules, watt-hours of total: electricity consumed and sold; thermal energy; energy for cooling; steam used.</li> <li>3. Energy intensity factor.</li> <li>4. The amount of reduction of energy consumption obtained as a direct result of introducing environmental protection programs.</li> </ol>
III	Water	<ol style="list-style-type: none"> <li>1. Total water consumption in m3 (by source – e.g. water-pipe network).</li> <li>2. Volume of water recovered and reused.</li> <li>3. Water consumption per unit of product or income.</li> </ol>	<ol style="list-style-type: none"> <li>1. Total volume of water withdrawn by source.</li> <li>2. The total number of water sources where withdrawal is a significant interference with the resources as a whole.</li> <li>3. Percentage and total volume of water recycled and reused.</li> </ol>
IV	Biodiversity	<ol style="list-style-type: none"> <li>1. List and brief description of valuable natural areas in the vicinity/sphere of the company's impact.</li> <li>2. Indication of the type and frequency of nature monitoring carried out.</li> <li>3. Description of any confirmed environmental damage resulting from the operation of the company.</li> <li>4. Description of activities aimed at monitoring the state of the environment and preventing/limiting/compensating the natural environment for the negative effects of the company's impact.</li> </ol>	<ol style="list-style-type: none"> <li>1. Description of the significant positive and negative impacts of activities, products and services on biodiversity in protected areas and areas of high biodiversity value.</li> <li>2. Provide the size and location of all protected or revitalized habitats, as well as information whether the success of the revitalization process has been approved by independent experts.</li> <li>3. Total number of species in the areas affected by the manufacturing plants by threat of extinction.</li> </ol>
V	Emissions to the atmosphere	<ol style="list-style-type: none"> <li>1. Mass of greenhouse gases emitted to the atmosphere.</li> </ol>	<ol style="list-style-type: none"> <li>1. Gross amount of greenhouse gas emissions in metric tons of CO2 equivalent.</li> </ol>

1	2	3	4
		<ol style="list-style-type: none"> <li>2. Mass of other substances emitted into the atmosphere by type (e.g. SO<sub>x</sub>, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>).</li> <li>4. Greenhouse gas emissions per unit of product or revenue.</li> <li>5. Emission of other substances per unit of product or income.</li> </ol>	<ol style="list-style-type: none"> <li>2. Greenhouse gas intensity factor.</li> <li>3. The size of the reduction of greenhouse gas emissions obtained as a result of pro-environmental projects.</li> <li>4. Emissions of ozone-depleting substances.</li> <li>5. Emissions of nitrogen oxides, sulphur oxides and other significant emissions to air in kg.</li> </ol>
VI	Effluents and Waste	<ol style="list-style-type: none"> <li>1. Total mass of waste broken down into hazardous and non-hazardous.</li> <li>2. Total weight of waste broken down by management method.</li> <li>3. Total volume of discharged wastewater with an indication of the treatment method.</li> <li>4. Emission of waste and wastewater per unit of product or revenue.</li> </ol>	<ol style="list-style-type: none"> <li>1. Total volume of wastewater by quality and destination.</li> <li>2. Total weight of waste by type of waste and methods of waste management.</li> <li>3. Total number and volume of significant spills (location, volume and type of material, e.g. oil spill).</li> <li>4. Weight of hazardous waste transported, imported, exported or processed.</li> </ol>
VII	Others	<ol style="list-style-type: none"> <li>1. Description of other significant types of environmental pollution emitted by the company's operating activities.</li> <li>2. List of failures with environmental effect and possible contamination.</li> <li>3. List of potential infringements of environmental protection regulations in connection with which administrative proceedings have been initiated.</li> <li>4. The total amount of final penalties imposed in connection with the violation of environmental protection regulations.</li> <li>5. Number of audits in terms of compliance with environmental protection regulations at subcontractors.</li> </ol>	<ol style="list-style-type: none"> <li>1. The degree of reduction of the environmental impact of products and services.</li> <li>2. Percentage of recovered materials from sold products and their packaging.</li> <li>3. The amount of significant fines and the total number of non-financial sanctions for non-compliance with environmental law.</li> <li>4. Total expenditure on environmental protection and investments by type.</li> <li>5. Percentage of new suppliers who were selected on the basis of meeting environmental criteria.</li> <li>6. Number of environmental impact complaints (submitted, reviewed and resolved).</li> </ol>

Source: own elaboration based on (Standard Informacji Niefinansowych, 2017, pp. 22-27 and GRI Standards, 2016, pp. 244-303).

the disclosure of relevant information on pollution prevention and control, the impact of energy consumption on the environment, emissions to air, use and protection of natural resources (e.g. water, land) and the related protection of biodiversity, and waste management. Furthermore, pursuant to the Communication issued on June 20, 2019: Guidelines on non-financial reporting: Supplement on reporting climate-related information (2019/C 209/01), the European Commission obliges certain business

entities to report the impact of their activities on climate change, while pointing to the need for scenario analysis as a method to describe the impact of climate change on a company.

### 3. The scope of disclosures of the impact of economic activities on the environment – the experience of Polish economic practice

As far as the time period is concerned, the reporting of expanded non-financial information on environmental issues became mandatory in Poland in 2017 (Accounting Act..., 2019, Article 49b (1)). However, it should be noted that the inclusion of information on the environmental impact of activities in the activity report had already been mandatory before that. Despite this, the experience of Polish business entities varies in this respect (Hońko, 2014, p. 126).

The ten largest companies in the WIG-20 index in terms of market capitalization (as of May 27, 2020) were selected for the study. These companies represent various sectors of the economy, namely: games (1), commercial banks (3), mining and production (2), insurance companies (1), articles of daily use (1), metal mining (1), telecommunications (1). The list of companies accepted for the audit is presented in Table 2.

**Table 2.** List of the ten largest companies included in the WIG-20 index in terms of market capitalization, as of 27/05/2020

No.	Company name	Sector	Market value (in PLN billion)
1	CD Projekt	Games	39.69
2	PKO Bank Polski	Commercial banks	28.175
3	PKN Orlen	Extraction and production	28.17
4	PZU	Insurance companies	25.91
5	PGNIG	Extraction and production	22.89
6	DINO Polska	Articles of daily use	18.06
7	KGHM	Metal mining	17.04
8	Santander Bank Polska	Commercial banks	16.94
9	Cyfrowy Polsat	Telecommunication	15.79
10	Bank PEKAO	Commercial banks	14.03

Source: own elaboration based on (GPW, n.d.).

The study was based on the method of analysing the content of secondary data of the surveyed companies. The study covered non-financial reports for 2019. Information on the impact of economic activity on the natural environment was

disclosed as a component of the management board's report or as a separate report – statement/ report on non-financial information. The legal framework for nine analysed companies was the Core version of GRI Standards. The average number of pages in a report is 130 (Table 3).

**Table 3.** Main characteristics of non-financial reports of ten listed companies adopted for audit from the WIG-20 index (data for 2019)

No.	Company name	Report name	Regulations	Number of pages in the report
1	CD Projekt	The Board's report on the activities of the company for 2019	GRI Standards Core	137
2	PKO Bank Polski	The Board's report on the activities of the company for 2019	GRI Standards Core	183
3	PKN ORLEN	Report on non-financial information for 2019	GRI Standards Core	71
4	PZU	Report on non-financial information for 2019	GRI Standards Core	175
5	PGNIG	Report on non-financial information for 2019	GRI Standards Core	68
6	Dino Polska	The Board's report on the activities of the company for 2019	no data	77
7	KGHM	Report on non-financial information for 2019	GRI Standards Core ISO 26000	126
8	SANTANDER Bank Polska	The Board's report on the activities of the company for 2019	GRI Standards Core	158
9	Cyfrowy Polsat	Report on non-financial information for 2019	GRI Standards Core	116
10	Bank Pekao	The Board's report on the activities of the company for 2019	GRI Standards Core	185

Source: own elaboration based on non-financial reports of individual companies made available on their websites.

In accordance with the adopted methodology, the purpose of the study was to assess the comparability of non-financial disclosures on the impact of economic activities on the natural environment in the reports of selected companies listed on the Warsaw Stock Exchange. The analysis of the scope of disclosures in individual companies was based on the categories of disclosures of environmental issues discussed in point 2, i.e.: (I) Materials and raw materials, (II) Fuels and energy, (III) Water, (IV) Biodiversity, (V) Emissions to the atmosphere, (VI) Effluents and Waste and (VII) Others. Each category, based on GRI regulations, was assigned to as many

as three non-financial measures/indicators characterizing issues of key importance for the natural environment (Table 4).

**Table 4.** List of non-financial measures/indicators adopted for the assessment on environmental issues

Category	Scope of disclosures	Non-financial measure/indicator
Category I	Materials and raw materials	1. Raw materials used by volume and weight, broken down into renewable and non-renewable 2. Percentage of processed materials used
Category II	Fuels and energy	1. Energy consumption including the type of non-renewable and renewable raw materials 2. Reduction of energy consumption achieved
Category III	Water	1. Total volume of water taken 2. Volume of water processed and reused
Category IV	Biodiversity	1. Positive and negative impact on biodiversity
Category V	Emissions to the atmosphere	1. Direct CO <sub>2</sub> emissions 2. Emission reduction 3. Emissions of nitrogen oxides, sulphur oxides and other significant air emissions
Category VI	Effluents and Waste	1. Waste water volume 2. Waste weight
Category VII	Others	1. The amount of significant environmental penalties and the total number of non-financial sanctions 2. Expenditure on environmental protection

Source: own elaboration.

The research material was collected from the websites of individual companies. For the content analysis it was necessary to prepare a coding structure that required the presence or absence of certain non-financial measures/indicators. The zero-one system was adopted for the study, where 1 confirms the disclosure i.e. a non-financial measure/indicator was given in the report, and 0 means its absence. The detailed results of the analysis of the non-financial reports accepted for the audit, divided into seven categories characterizing environmental issues are presented in Tables 5a and 5b.

On the basis of the conducted research it should be indicated that the leaders in the field of disclosure of non-financial information on environmental issues are KGHM and PGNiG. These companies disclosed in their reports 9 out of the 14 recommended non-financial measures/indicators. These reports should be described as comparable. The next five companies presented 8 (ORLEN, PKO BP) and 7 (PZU, DINO, POLSAT) measures/indicators, respectively. The comparability of reports for these companies can be described as average. The lowest score was obtained by CD Projekt (1 point), here one can speak of a lack of comparability. In other cases, the comparability is rather low – PEKAO (5 points) and SANTANDER (4 points).

**Table 5a.** Environmental issues in the non-financial reports adopted for audit (data for 2019) where: (1) confirms disclosure, (0) means no disclosure

No.	Category and scope of disclosures	CD Projekt	PKO BP	ORLEN	PGNiG	PZU
I.	Materials and raw materials:					
	1. Raw materials used by volume and weight, broken down into renewable and non-renewable	0	1	0	1	1
	2. Percentage of processed materials used	0	0	0	0	0
II.	Fuels and Energy:					
	1. Energy consumption including the type of non-renewable and renewable raw materials	0	1	0	1	1
	2. Reduction of energy consumption achieved	0	1	1	0	1
III.	Water:					
	1. Total volume of water taken	0	1	1	1	1
	2. Volume of water processed and reused	0	0	0	0	0
IV.	Biodiversity:					
	1. Positive and negative impact on biodiversity	0	1	0	1	1
V.	Emissions to the atmosphere:					
	1. Direct CO2 emissions	0	1	1	1	1
	2. Emission reduction	0	0	0	1	0
	3. Emissions of nitrogen oxides, sulphur oxides and other significant air emissions	0	0	1	1	0
VI.	Effluents and Waste:					
	1. Waste water volume	0	0	1	1	0
	2. Waste weight	1	1	1	1	0
VII.	Others:					
	1. The amount of significant environmental penalties and the total number of non-financial sanctions	0	1	1	1	1
	2. Expenditure on environmental protection	0	0	1	0	0
	Total (max. 14 pts.):	1	8	8	9	7

Source: own elaboration.

**Table 5b.** Environmental issues in the non-financial reports adopted for audit (data for 2019)  
where: (1) confirms disclosure, (0) means no disclosure

No.	Category and scope of disclosures	DINO	KGHM	SANTANDER	POLSAT	PEKAO
I.	Materials and raw materials: 1. Raw materials used by volume and weight, broken down into renewable and non-renewable 2. Percentage of processed materials used	0 0	0 1	1 1	1 1	1 0
II.	Fuels and Energy: 1. Energy consumption including the type of non-renewable and renewable raw materials 2. Reduction of energy consumption achieved	1 1	1 0	1 0	1 1	1 0
III.	Water: 1. Total volume of water taken 2. Volume of water processed and reused	1 0	0 0	0 0	0 0	1 0
IV.	Biodiversity: 1. Positive and negative impact on biodiversity	0	1	0	0	0
V.	Emissions to the atmosphere: 1. Direct CO <sub>2</sub> emissions 2. Emission reduction 3. Emissions of nitrogen oxides, sulphur oxides and other significant air emissions	1 1 0	1 1 1	0 1 0	0 1 0	1 0 0
VI.	Effluents and Waste: 1. Waste water volume 2. Waste weight	0 0	0 1	0 0	1 1	0 0
VII.	Others: 1. The amount of significant environmental penalties and the total number of non-financial sanctions 2. Expenditure on environmental protection	1 1	1 1	0 0	0 0	1 0
	Total (max. 14 pts.):	7	9	4	7	5

Source: own elaboration.

## 4. Conclusion

The methodology and best practices in the field of environmental reporting in Poland have changed significantly in recent years. Respect for the laws of nature is now a prerequisite for the further development of every business entity. Nevertheless, there are some shortcomings in this area of Polish economic practice.

Based on the literature review and own research, the goal was achieved, which was to assess the comparability of non-financial disclosures on the impact of economic activity on the natural environment in reports of selected companies listed on the Warsaw Stock Exchange. The non-financial reports were analysed in all of the seven disclosure categories, i.e. (I) Materials and raw materials, (II) Fuels and energy, (III) Water, (IV) Biodiversity, (V) Emissions to the atmosphere, (VI) Effluents and Waste and (VII). Others, were not fully comparable. The reports were dominated by a verbal description, with a relatively small share of information expressed in numbers and/or as a percentage. It should be noted, however, that the conducted empirical study is characterized by certain limitations, namely: a small unrepresentative sample (therefore the results and conclusions obtained refer only to the companies analysed); a subjective selection of non-financial measures/indicators used for the audit and difficulties in unambiguously determining whether the entity has demonstrated a given non-financial measure/indicator. Nevertheless, the undertaken subject may be a contribution to further in-depth research on the comparability of non-financial reports in Poland.

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## **KWESTIE ŚRODOWISKOWE JAKO OBSZAR RAPORTOWANIA NIEFINANSOWEGO NA PRZYKŁADZIE WYBRANYCH SPÓŁEK NOTOWANYCH NA GIEŁDZIE PAPIERÓW WARTOŚCIOWYCH W WARSZAWIE**

**Streszczenie:** Celem artykułu jest ocena porównywalności ujawnień niefinansowych na temat wpływu działalności gospodarczej na środowisko naturalne w raportach wybranych spółek notowanych na Giełdzie Papierów Wartościowych w Warszawie. Artykuł został podzielony na dwie części. Do badania wybrano 10 największych pod względem kapitalizacji rynkowej spółek giełdowych wchodzących w skład indeksu WIG-20. Badaniem zostały objęte raporty niefinansowe za rok 2019. Analiza raportów została przeprowadzona w siedmiu kategoriach: materiały i surowce, paliwa i energia, woda, bioróżnorodność, emisje do atmosfery, odpady i ścieki oraz pozostałe. W ramach tych kategorii zdefiniowano łącznie 14 wskaźników niefinansowych. Przeprowadzone badanie potwierdziło, że poddane analizie raporty niefinansowe w żadnej z siedmiu kategorii nie były w pełni porównywalne. Wykorzystane metody badawcze to: studia literaturowe, analiza regulacji prawnych, analiza danych wtórnych oraz metody indukcji i syntezy.

**Słowa kluczowe:** raporty niefinansowe, środowisko naturalne, standardy GRI, standard informacji niefinansowych, CSR.