



A Study on the Disclosure of Environmental Information of the Company Vale S.A.

Un estudio sobre la divulgación de información medioambiental de la empresa Vale S.A.

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Abstract: As a result of the environmental impacts caused by companies from the most diverse sectors and the growing need to emphasize the measures and actions that have been taken by them to mitigate the impacts resulting from their operational activities, the disclosure of environmental information occurs voluntarily through the Sustainability Reports, evidenced with an informational character. This research aims to analyze the level of environmental disclosure of the Sustainability Reports of the company Vale S.A. in the period from 2016 to 2020. For this purpose, the Scorecard content analysis method was used, which makes it possible to investigate aspects of a qualitative and quantitative nature regarding the environmental practices carried out by the company. Through the results, there is an evolution in the level of disclosure of environmental information in the years 2019 and 2020 for the "hard" disclosure and a constancy in the results of the "soft" disclosure, in addition to a correlation between the level of disclosure and the environmental accidents recorded by the entity. It is concluded that there was concern on the part of Vale S.A. in highlighting the actions and projects to remedy the environmental incidents caused, as well as the innovations and future goals for the company.

Keywords: *Disclosure; Sustainability Report; Scorecard.*

Resumen: Teniendo en cuenta los impactos ambientales causados por las empresas de los más diversos sectores y la creciente necesidad de enfatizar las medidas y acciones que han estado tomando para mitigar los impactos derivados de sus actividades operacionales, la divulgación de información ambiental se lleva a cabo voluntariamente por medio de Informes de Sostenibilidad que son divulgados informativamente. Esta investigación tiene como objetivo analizar el nivel de divulgación ambiental de los Informes de Sostenibilidad de la empresa Vale S.A. en el período de 2016 a 2020. Para ello, se empleó el método de análisis de contenido Scorecard, que permite conocer aspectos de naturaleza cualitativa y cuantitativa relativos a las prácticas ambientales ejercidas por la empresa. A través de los resultados se verifica una evolución en el nivel de divulgación de información ambiental en 2019 y 2020 para la divulgación "dura" y una constancia en los resultados de divulgación "blanda", además de una correlación entre el nivel de divulgación y los accidentes ambientales registrados por la entidad. Se concluye que hubo preocupación por parte de Vale S.A. en evidenciar las acciones y proyectos para remediar los incidentes ambientales causados, así como las innovaciones y metas futuras de la empresa.

Palabras clave: *Evidenciación; Informe de Sostenibilidad; Cuadro de Mando.*

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INTRODUCTION

In order to ensure corporate growth and environmental management, mitigating impacts on nature, environmental accounting uses disclosure methods to promote information transparency involving environmental assets and liabilities and investments made by the entity in general environmental matters. The disclosure of information obtained is made through Sustainability Reports presented by voluntary and non-voluntary entities (ROSA et al., 2011).

According to Rover et. al. (2012), the requirement in relation to social and environmental practices exercised by companies by their various users, has caused reflections in the management and in the manner of disclosure of this information. The search for disclosure and accountability by companies has become constant when it comes to environmental information.

In Brazil, the disclosure of this information is not mandatory; disclosure occurs on a voluntary basis. Within this context, companies seek to show, by means of Social and Sustainability Reports, the measures they have adopted to reduce the environmental and social impacts caused by the exercise of their activities. According to Nossa (2002), the factor that leads companies to voluntarily disclose their environmental information is competition. Not disclosing this information when their competitors do is a competitive disadvantage in the eyes of stakeholders.

Considering environmental management and concerns, the negative impacts on the environment need to be reduced, and for this, companies need to know and understand the effects that cause degradation to the environment as a result of their operational activities. Companies must show in their reports, suitable measures to reduce the impacts generated (BATISTA, MELO E CARVALHO, 2016).

According to Law N° 10,165/2000, which deals with the National Environmental Policy in Brazil, some activities are considered of high environmental impact, and these are more likely to cause major environmental disasters that, therefore, will bring serious consequences if they occur. These disasters, also called environmental accidents, are potentialized in all environments, and because they directly affect life and ecosystems, they are based on specific rules.

Environmental accidents are disasters that negatively affect the environment and the society. According to Decree N°. 7,257/2010, which provides for the National Civil Defense System - SINDEC, disasters result from natural or man-made events, causing substantial losses and leading to failures in the functioning of society. These accidents, in their majority, cause losses and material, economic and environmental damage.

From this perspective, since in recent years environmental accidents have occurred in large proportions involving companies in the mining sector, especially Vale S.A., the following question arises: What is the level of disclosure of environmental information disclosed by the company Vale S.A. in the

period from 2016 to 2020? Within this context the research aims to analyze the environmental disclosure of the company Vale S.A. in the period from 2016 to 2020, identifying the environmental information disclosed by the company analyzed as a result of environmental accidents caused by it and compare the company's disclosure between the periods studied.

Thus, the research is justified by the concept supported by Ribeiro (1992) that part of the wealth of entities is reflected in the environment, since their primary source of resources is taken from it. Vale SA is a mining company and its main raw material is extracted from nature, in the years 2015 and 2019 the company was involved in two major environmental accidents causing the death of hundreds of people, animals of various species, and has caused immeasurable environmental degradation, justifying the choice of the period 2016 to 2020, this period covering information after the first disaster that occurred in Mariana - MG and the interval between the rupture of the second dam of Vale SA located in Brumadinho - MG and the course after the event. Thus, we can compare and analyze the level of disclosure of environmental information of the company before the occurrences.

The impacts caused to the population as a result of the environmental accident in Mariana - MG are experienced to this day by the local community. In the medium and long term, the environmental impacts resulting from the tragedy resulted in damage to the food and drinking water supply services; changes in the hydrological cycle; changes in the cycles of vectors and hosts that exposed local communities to diseases; loss of productivity of rural properties in that area, in addition to the immaterial and historical loss of that community (SILVA et al., 2020).

Given the above, this study is relevant because it seeks to identify the environmental disclosure of the entity, through the company's Sustainability Reports, the initiatives taken by it and the investments made by it to repair the damage caused to the environment, also contributing to debates and future research in the area. It is also justified because there are other published works on the subject which reinforces its importance, such as the researches conducted by Clarkson et al., (2008), Burgwal and Vieira (2014) and Silva et al., (2015).

THEORETICAL FOUNDATION

The term Environmental Disclosure, or environmental evidencing, reflects the disclosure and transparency of information referring to environmental projects, actions and investments practiced by entities to mitigate or eliminate environment degradation practices.

This socio-environmental information portrays, in general, the commitment and transparency of the companies with the environment in which they operate and are provided through reports and statements with sustainable data issued by companies for informational informational purpose.

With the non compulsory disclosure of environmental information by companies and the companies and the inexistence of legal apparatuses, some agencies publish financial reports that make recommendations for the entities. In Brazil, for example, there is the Comissão of Securities - CVM; the Federal Accounting Council - CFC and the Institute of Independent Independent Auditors of Brazil - IBRACON (SALVAN et al., 2017).

Highlight for resolution CFC No. 1.003/04 approved the NBC T 15 - Information of Social and Environmental Nature, coming into force from January 1, 2006; establishes the procedures to be taken by entities in the evidencing of information of and social nature, in order to present the environmental management measures that are being taken. management measures that are being taken.

The disclosure of information of an environmental nature is presented by entities in their their statements and reports, as is the case of the Standardized Financial Statements, Explanatory Notes, Management Reports, Annual Information - IAN, Annual Reports, Social Annual Reports, Social and Environmental Balance Sheets and commonly in Sustainability Reports.

For GRI (2013) Sustainability Reports show users the social and exercised by entities, aiming to present data on investments and environmental expenditures, economic value arising from these resources and distribution of these, in addition to other information such as social relations with employees of the entity.

According to Da Rosa et al. (2011), the disclosure and evidencing of this information are made voluntarily, in order to communicate and as an act of satisfaction to society, in order to bring closer to the in order to bring the stakeholders closer to the company. The act of disclosing information is not financial economic statements, the information provided is the basis for decisions about the environmental decisions about the environmental impacts caused by the entity in the course of its activities, reduction and control of expenses, in addition to improvements in the image of the organization before society. (CARLAN AND MARETH, 2016).

Voluntary disclosure theory is used to explain the level of environmental disclosure practices. environmental disclosure practices. For Burgwal and Vieira (2014) voluntary disclosure can bring corporate advantages because it highlights the impact of business activities on the environment, while, presents to users the environmental programs and measures taken. According to Tribesse-Ono and Panucci-Filho (2013) the initiative to disclose the environmental and social environmental and social statement reflects transparency, because it reveals information beyond the scope of the disclosure of economic and financial data, it exposes the programs in the social and environmental sphere within and outside the company. The theory of voluntary disclosure legitimizes that companies that have development with regard to their environmental practices do not hide the impacts caused by it in the

course of its operations, informing their users about the environmental activities that it develops (BURGWAL AND VIEIRA, 2014).

METHODOLOGY

This study is classified as a case study, documentary and survey, since the collection of information of environmental nature was conducted in the Sustainability Reports of the company Vale S.A. For Gil (1999), this type of research makes use of materials that have not yet had an analytical treatment or that can still be reformulated based on the research objectives. As an instrument of analysis for the construction of this research, the Sustainability Reports of the company Vale S.A. were used, referring to the periods from 2016 to 2020. The choice of the period was based on the assumption of evaluating the level of environmental disclosure of the entity during the course of the environmental disasters in which the company was involved mainly in the years 2015 and 2019.

For the purpose of identifying the quantity and quality of the disclosed information, the content analysis technique was used. Content analysis consists in the application of a mix of procedures for data analysis, aiming through systematic and objective procedures to understand the content that is between the lines of the information, quantitative and qualitative indicators and understanding of variables (BARDIN, 2011).

The study used the disclosure index adopted by Clarkson et al. (2008), which included items classified into "hard" - quantitative and "soft" - qualitative disclosures. The "hard" disclosure adopts 29 measures, divided into 4 categories that are objective; while the "soft" disclosure is divided into 3 categories, which are subjective and adopts 16 measures. As a measurement tool, the environmental information found in specific identification items was quantified, followed by disclosure analysis ranging from 0 for "did not disclose" and 1 for "did disclose" and for some items from 0 to 6 for the evidencing level, in the categories format.

Each category represents a specific subdivision of information that can be disclosed: 1) 'governance structure and management systems'; 2) 'credibility' of the disclosures made in the report; 3) 'Environmental Performance Indicators - EPI', in cases where the company evidences EPI with respect to historical trends, emission targets and industry average data, where additional scores are scored; 4) 'environmental expenditure'; 5) 'disclosure of environmental vision and strategy'; 6) 'environmental profile' of a company vis-à-vis current and future environmental regulations; and, 7) 'environmental initiatives' that a company is participating in (CLARKSON et al. , 2008). Data was collected in September 2021 by consulting the B3 database and the official website of the company Vale S.A., where the Sustainability Reports for the years 2016 to 2020 were searched.

RESULTS AND DISCUSSIONS

For the purposes of this research, Vale S.A.'s social and environmental information was evaluated in relation to disclosure levels, extracted from its Sustainability Reports for the period 2016 to 2020. After ascertaining the data collected, the results were presented in Table 1. It is possible to identify in the analysis of the "hard" - quantitative - disclosure that Vale S.A. evidenced in its Sustainability Report for the year 2020 the highest number of information, with a total of 34 points out of a total of 79 points, representing 43.03% of the total possible score. Among the years analyzed, the company obtained a lower score in the years 2017 and 2018, remaining with 25 points, about 31.64% of the total. With regard to "soft"-qualitative disclosure, Vale S.A. maintained constancy when disclosing its environmental information throughout the analyzed period, scoring in the years 2017, 2019 and 2020 a total of 15 points, which represents 93.75% of the possible points. In 2016 the company scored 13 points, and in 2018 a total of 14 points, accounting for 81.25% and 87.5% respectively.

TABLE 01: Hard and soft disclosure.

Vale S.A.	2016	2017	2018	2019	2020
(A1) Governance structure and management systems (0-6)	4	5	4	5	4
(A2) Credibility (0-10)	7	6	5	7	9
(A3) Environmental Performance Indicators (EPI) (0-60)	19	12	14	16	19
(A4) Environmental expenditures (0-3)	2	2	2	2	2
Hard' disclosure (quantitative) (0-79)	32	25	25	30	34
(A5) Vision and strategic statements (0-6)	5	6	6	6	6
(A6) Environmental Profile (0-4)	3	3	3	4	4
(A7) Environmental Initiatives (0-6)	5	6	5	5	5
Soft Disclosure (qualitative) (0-16)	13	15	14	15	15
Total Disclosed (0-95)	45	40	39	45	49

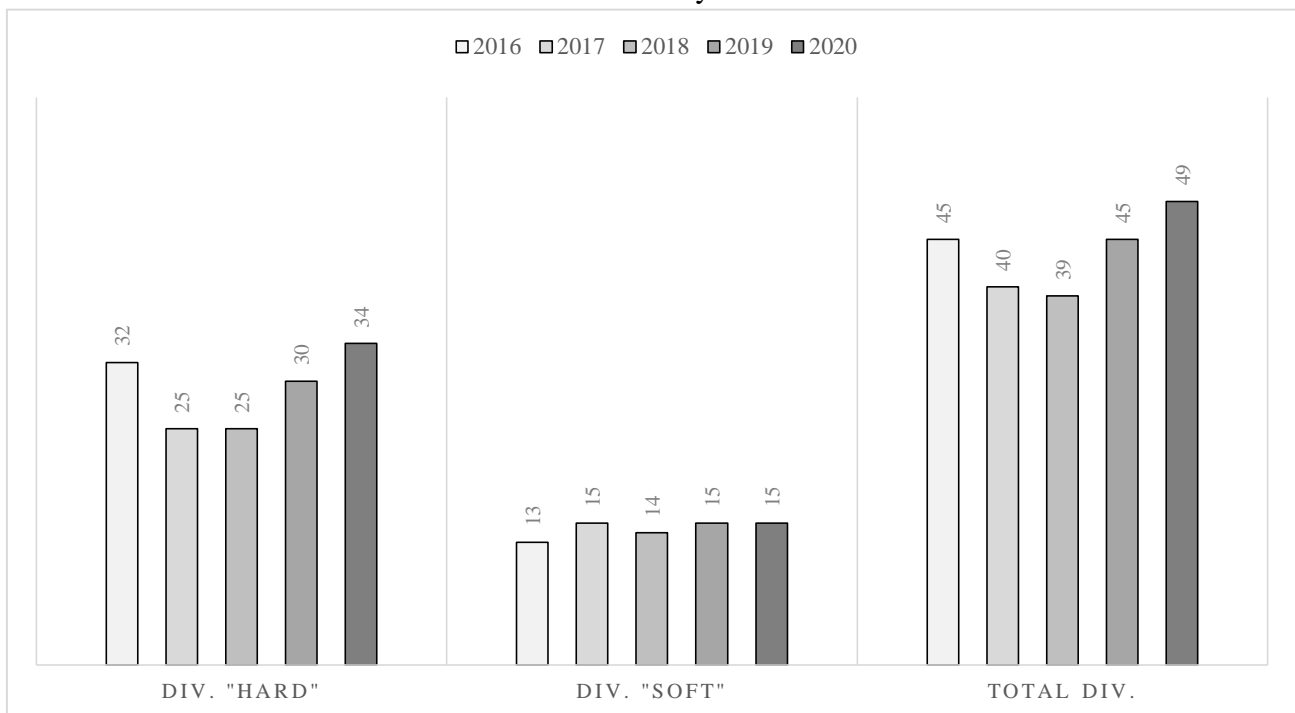
SOURCE: Survey Data (2021).

It was possible to verify through the analysis of Vale S.A.'s sustainability reports and data collection, that the "hard" disclosure referring to information on environmental corporate structure, credibility of disclosed information, IDA and environmental expenditures arising from the entity's operational activity had its highest scores in 2016 and 2020, which may be related to the environmental accidents that occurred in 2015 and 2019, arising from the need to demonstrate to information users the measures and actions taken to repair the damage caused to the environment and society.

With respect to "soft" disclosure concerning information about visions and strategies, environmental profile and environmental initiatives, the company obtained its lowest score in 2016, reaffirming once again that the 2015 environmental accident may have influenced the result, since after going through a disaster the company is trying to recover and repair the damage caused, which is more aligned with the "hard" disclosure variables.

Figure 01 represents the score of information disclosed by Vale S.A. by type of disclosure and year. For the "hard" disclosure it was possible to identify a growth of 11.39% in the presentation of information in 2020 if compared to 2017 and 2018, while the "soft" disclosure remained constant during the years 2017, 2019 and 2020 presenting evolution in disclosure if compared to the year 2016.

FIGURE 01: Yearly Disclosure.



SOURCE: Survey Data (2021).

The average of "hard" information disclosed by Vale S.A. during the analyzed period corresponds to 29.20, meaning that the company disclosed in its reports at least 29 of the 79 variables investigated for this category, whereas "soft" disclosure recorded an average of 14 information for every 16 surveyed. In a line of comparative analysis, one can verify the research developed by Burgwal and Vieira (2014), where the level of environmental information disclosure of 28 Dutch public companies was verified, reaching an average of "hard" disclosure of 18.46 and "soft" of 5.28, for the same variables applied to the company Vale S.A.

The results found for Vale S.A. confirm the company's concern in disclosing qualitative social and environmental information throughout the period, since it was always close to the maximum score for such information.

The fact that the company is characterized as having a high environmental impact, according to law 10.165/2000; and that it has already been involved in some disastrous environmental accidents, may have influenced the company to disclose this information.

It is worth noting that Vale disclosed its 2018 Sustainability Report in two parts: the first part is entirely dedicated to the report of actions and developments related to the environmental disaster that occurred in 2019, as well as the description of the entire process of dam management, accident prevention, and emergency response. In the second part, it follows the model of the report already presented previously, changing its structure of presentation of information. In 2019 and 2020, the reports show the evolution of the appropriate measures that have been taken to repair the damage.

CONCLUSIONS

The purpose of this study was to verify the environmental disclosure of the company Vale S.A. in the years 2016 to 2020 through the scorecard methodology, content analysis applied by Clarkson et al., (2008), being possible to reach the qualitative and quantitative results as to the level of evidencing information identified in the Sustainability Reports. To reach the results, social and environmental information was scored according to the investigated categories and variables.

It can be inferred from the results and the document analysis that Vale S.A. presents its reports adopting the guidelines of the Global Reporting Initiative - GRI. Environmental disclosure, although not mandatory in Brazil, is performed voluntarily by companies with the informational purpose, it is noticeable that in recent years and with the environmental accidents caused the search for greater disclosure and good corporate governance practices were present in reports of Vale SA, which can be seen in the results presented.

With the results obtained in the analysis of the "hard" disclosure, it is certified that it concentrates most of the score in view of the fact that it presents the largest number of categories and variables and with that, it was found that the entity, for being a major cause of impact on the environment, is concerned to disclose its projects and actions, as well as its innovations and future goals.

It was also possible to identify a positive relationship between the level of information disclosure and the environmental accidents in which the company was involved. It is suggested for future studies the analysis of the existence of information on environmental assets and liabilities disclosed in the Form 20 - F disclosed by Vale S.A. and the evolution of these over the years, as well as a research on the social and

environmental investments made by Vale S.A. after the environmental tragedies of 2015 and 2019.

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