LEGITIMACY THEORY IN PRACTICE: THE MARIKANA MASSACRE AND THE MARIANA DAM COLLAPSE ANALYSIS

Ana Filipa Pinto Alves

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Manuel Emílio Mota de Almeida Delgado Castelo Branco

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Abstract

In the last decades, corporations have been increasingly reporting on their social and environmental activities, to highlight transparency and accountability towards their business activities. This positive trend is strongly driven by stakeholder pressuring in various dimensions. However, in the context of major crisis/ incidents, questions have been raised on how companies may use Corporate Social Responsibility disclosures to regain legitimacy and restore reputation towards those negative situations. This study will rely on two corporate examples of legitimacy-threatening events: the Marikana massacre (2012) associated with *Lonmin* and the Mariana disaster associated with *Samarco* and *BHP Billiton*. Taking as a basis the three companies mentioned, this study will analyze how their CSR disclosures have evolved, both quantitatively and qualitatively, within the timeframe "before, during and after" the incident. The intention for the two major scandals to constitute a multi-case is lingered on the fact that they have not been extensively researched and both have resulted in different impacts to different stakeholders. Findings extend and corroborate the previous literature research on the legitimacy theory, by demonstrating that companies did, in fact, change their CSR disclosure patterns and strategies, presumably by attempting to regain legitimacy after the incidents.

Key words: Corporate Social Responsibility, Legitimacy theory, CSR disclosure, Content analysis, Mining accidents

Resumo

Nas últimas décadas, as empresas têm vindo a reportar sobre as suas atividades sociais e ambientais de modo crescente, para enfatizar a transparência e responsabilidade no que diz respeito às suas atividades de negócio. Esta evolução positiva é acentuadamente influenciada pela pressão imposta por todas as partes interessadas da empresa, em várias dimensões. No entanto, num contexto de ocorrências corporativas graves/ incidentes, algumas questões têm vindo a ser levantadas relativamente ao modo como as empresas podem usar a comunicação pública associada à Responsabilidade Social Corporativa (RSC) para recuperar legitimidade e restaurar a sua reputação, perante essas situações negativas. Este estudo irá basear-se em dois exemplos de incidentes corporativos que põe em causa a legitimidade das empresas: o massacre de Marikana (2012) associado à *Lonmin* e o desastre de Mariana (2015) associado a *Samarco* e *BHP Billiton.* Tomando por base as três empresas mencionadas, este estudo irá analisar a forma como as suas comunicações de RSC evoluíram, tanto quantitativamente como qualitativamente, ao longo do horizonte temporal "antes, durante e depois" do incidente. A intenção de elaborar um multi-caso é baseada e motivada pelo facto de ambos os incidentes corporativos gerarem diferentes impactos em grupos de interesse distintos. Os resultados expandem e corroboram a literatura desenvolvida sobre a teoria da legitimidade, demonstrando que as empresas, de facto, alteraram os seus padrões e estratégias de comunicação de RSC, presumivelmente numa tentativa de recuperar a sua legitimidade após os incidentes.

Palavras-chave: Responsabilidade Social Corporativa, Teoria da Legitimidade, Análise de Conteúdo, Indústria Mineira

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1. Introduction

Corporate Social Responsibility is a concept that has been evolving both in theoretical and practical terms. Besides being an extensively researched topic, it has become a crucial element for corporations as well, as they strive for embedding the theme into their daily practices and culture, in order to fulfill business/ organizational objectives. One of the most common definitions is the one established by Carroll (1979), which contemplates the encompassing of "economic, legal, ethical, and discretionary expectations that society has of organizations at a given point of time". On other perspectives, Woods (1991) mainly highlights the interconnection between business and society, while McWilliams and Siegel (2001) focus more on the "social good" originated from companies' actions. On a more contemporary view, Ahmadu et al. (2015) summarize the idea of CSR into six core characteristics: voluntary, internalizing and managing externalities, multiple stakeholder orientation, alignment of social and economic responsibilities, practices and values and beyond philanthropy.

In what regards the business communication on CSR initiatives throughout the years, the pressure for companies to disclose information on environmental, social and ethical topics has significantly increased. Transparency has become a recurrent topic on the table for stakeholders, who want to ensure that their interests are covered and that compliance is being taken seriously. Earlier on this matter, Tilt (1994) pointed out the existence of "pressure groups" with major influence on Corporate Social Disclosures, which in nowadays context would be applied to investors, employees, NGOs, society and so on. The referred study also finds evidence regarding the fact that these "pressure groups" believed that legislation and minimum disclosing requirements should be established. Consequently, social and environmental issues have increasingly started to be addressed more openly, in line with business activity and its potential associated impacts.

There are different forms in which companies rely on in order to disclose the referred themes: an annual report, an integrated report or a differentiated document exclusively dedicated to non-financial themes, usually entitled "Sustainability Report", "Environmental Report" or "Citizenship Report", as discriminated by Thorne et al (2014). In their study, in which 221 Canadian companies were taken into account, "external scrutiny from stakeholders" was identified as being the main reason for companies to issue a standalone CSR report, as being part of their "public relations agenda".

Analysing the evolution of recent years, according to the "2017 KPMG International Survey of Corporate Responsibility Reporting" (KPMG, 2017), N100 companies (largest 100 companies by revenue in a sample of 4.900 companies) continue to approximate towards the trend observed regarding G250 companies (world's 250 largest companies by revenue based on Fortune 500 ranking), in terms of growth in global CSR reporting since 1993. It also highlights that the rate for G250 companies has remained stable between 90% and 95% in the last four years. Despite the seemingly favorable trend, its practical impact on society has always raised many doubts. Milne and Gray (2007) highlighted the use of CSR reporting by corporations for legitimation purposes, adding that there is not much evidence on the practical impacts of this quantitative positive trend on tackling the "growing desecration and social injustice of planet Earth". Throughout the years, and as sustainability reporting trends reinforce, questions regarding its legitimacy arose, namely the link with reputation management and financial performance. Reputation is very often associated with CSR disclosures as being one of its main drivers (KPMG International, 2011, 2013). As for financial performance links, the relation between social disclosures and the market has early been reviewed as positive and valued by the "ethical investor" (Anderson and Frankle, 1980). However, this should not be taken as linear, as it intrinsically depends on the particularities of the context: organizational size, stakeholders' motivations, country-specific and industry/ sectoral-specific factors for instance. More recently, diverse studies regarding this particularities have been taken and the conclusions regarding whether or not the connection between CSR disclosures and financial performance is significant has varied from study to study (Matuszak and Różańska 2017; Beck et al 2018; Platanova et al 2018; Dai et al 2018).

The true intentions behind firms' willingness to disclose social and environmental information are very often considered a polemic matter. To prove whether companies are doing it out of altruistic or self-centered motivations is very subjective and hard to achieve. In a context of major negative incidents, fluctuations in the quantitative and qualitative factors of social and environmental disclosures of the firms involved may suggest that these type of disclosures could be used as an instrument to tackle backlash, reputation and the deterioration of financial performance. These type of variations have been extensively analyzed in major cases such as the Siemens AG corruption scandal (Blanc et al. 2017), the BP Gulf of Mexico oil spill (Arora et al. 2016) and major airline accidents (Vourvachis et al. 2016). Even though that this type of analysis, and these studies, in particular, have provided very useful insights on the changes of CSR information disclosure in the event of a corporate scandal, it is very limited to specific sectors and should be applied to a broader set of areas were legitimacy-threatening events are more prone to happen.

With this study I intend to extend the analysis previously referred and to address the interpretation of changes in CSR disclosures on a context of serious accidents that occurred in the mining industry. It relies on two specific cases in which both social and environmental legitimacies were threatened, representing especially sensitive areas in the mining industry. In this sense, this study will focus on two major incidents based on their dimension and aggravated social and environmental consequences: the Marikana Massacre (2012) and the Mariana Mining Dam Collapse (2015). The objective and motivation of constructing a multi-case rely on the different impacts inherent to both cases. On one hand, the Marikana killings mostly impacted labor relations and employees and, on the other hand, the Mariana dam collapse mostly affected local communities and deteriorated the surrounding landscape. With this in mind, from a researching point of view, it will be insightful to analyze both scenarios and understand the tendencies and particularities associated with each one.

This study intends to examine how the firms associated with the referred incidents (*Lonmin* associated with the Marikana Massacre, and *Samarco* and *BHP* associated with the Mariana Dam Collapse) publicly reacted through their CSR disclosures in the context of the major scandals they were confronted with, which could potentially damage its legitimacy. This is, it aims to understand how companies' CSR public disclosures tended to adapt over time, considering a before, during and after the incident framework. Overall, taking into account the information contained in annual and sustainability reports, the main objective is to assess whether these specific cases induced significant quantitative and qualitative changes on disclosure patterns and strategies: on one hand, it aims at analysing whether there is a positive correlation between the negative occurrences and the total amount of corporate disclosures and, one the other hand, to assess which and how legitimation strategies were used.

In the following section, some context regarding how CSR is portrayed in the mining industry is given. In the third section, the theorical framework is introduced and developed. The fourth section outlines background information regarding the incidents and the associated companies. In the fifth section, the methodology used to execute this study is presented. The sixth and seventh sections contain the study's results and its respective discussions. The last section outlines the study's conclusions, contributions, limitations and suggestions for future research.

2. Background on CSR in the Mining industry

2.1. Evolution of Corporate Social Responsibility in the Mining industry

The Mining industry is one of the biggest businesses in the world, making large amounts of money every year. Its extent is also what generates the need for mining companies to be responsible and accountable for their actions and business activity. The nature of the impacts associated with mining, as assessed by Mancinia and Salab (2018), mostly rely on land use and territorial matter, environmental impacts which affect health, and human rights. As a result of these impacting occurrences through time, the mining sector is seen as a "controversial industry", as labeled by Cai et al. (2011). On the environmental dimension, mining companies have long been identified as negative contributors, since they are considered to play a part on potential long term damage and irreversible detrimental effects, as highlighted by Viveros (2016). In what regards the social impacting associated with the industry, Singh et al. (2016) enumerated six main impacts that are reflected on the local communities in which the business operates: housing displacement, resettlement, unemployment, health and safety, ecosystem services and social-political conflicts.

By analyzing the different external perceptions towards this industry, it is common knowledge that the general public's judgment on this industry is significantly pejorative. Viveros (2016) also corroborated these perceptions, referring that the social and environmental domains of CSR are seen, in a stakeholder perspective, as disregarded and aggravated by mining companies, which is illustrated in Figure 1. This analysis also corroborates Sharma and Bhatnagar (2015) perspective, which highlights the poor public opinion towards the mining industry regarding social and environmental impacts, when compared to performance in other areas, such as product pricing and quality.

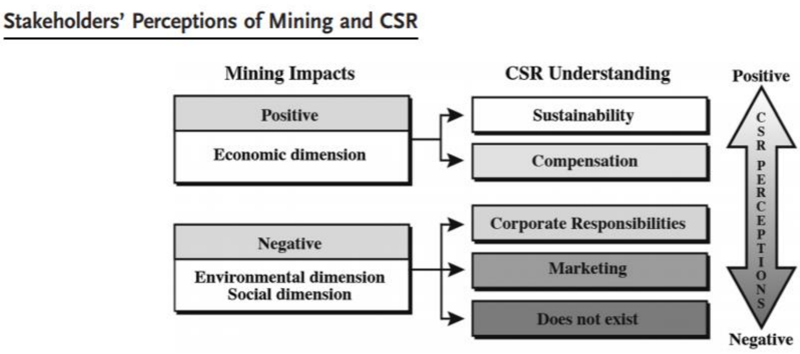

Figure 1. Descriptive model of mining impacts and CSR perceptions

Source: Viveros (2016, p.59)

Overall, the authors have identified common tendencies when linking CSR with the mining industry and analyzing perception patterns: (i) Pressure groups have long been targeting mining companies, threatening their legitimacy; (ii) The financial sector is reluctant towards the mining industry in what concerns risk management and CSR, which is reflected on the fact that many mining companies are refused eligibility for Socially Responsible Investing (SRI); (iii) The main and still very contemporary challenge is to sustain a "license to operate".

Thus, it is possible to conclude that the referred multidimensional impacts were not, however, unnoticed by mining companies' stakeholders. At a certain point, different categories of stakeholders took a pressuring position towards mining companies and it definitely has changed the way the mining sector approaches CSR. On one hand, and according to Dashwood (2012) insights, environmental NGOs largely contributed to establishing this debate and influenced other types of stakeholders. Additionally, in what regards the general public, the development of technology and social media also changed CSR perceptions associated with the mining sector, as referred by Kirschke (2013). Consequently, Dashwood (2012) refers to the importance of a small number of mining companies taking initiative at an initial point, which has paved the way to position the industry to align with "shifting societal value". Moreover, another decisive factor on this evolution was the global norms/ standards imposed by international institutions and followed by large multinational companies. On this matter, Dashwood (2012) identifies two high-level dynamics: the global level and the firm level. At the global level, mining companies started to feel pushed by societal norms, emphasized by relevant international institutions and initiatives – UN Global Compact, OECD Guidelines for Multinational Enterprises, IFC Performance Standards, etc. -, and felt the obligation to comply. On the other hand, this influence led to the acceptance and "validity of sustainable development" among large mining companies, at the firm level. The validation of CSR within the industry has triggered corporations to put CSR on the business agenda and to design risk management strategies. One of the most illustrative examples associated with this evolution is the creation of the International Council on Mining and Metals (ICMM) in 2001, with the claimed goal of improving sustainable development performance within the industry, by promoting environmental and socio-economic activities (ICMM, n.d.). According to Frederiksen (2018), these initiatives, both at individual and at the sector level, are also a consequence of the competition for capital and new legal challenges in excelling CSR engagement.

From these insights, it is possible to take conclusions regarding the stakeholders' main role in influencing mining companies to actually act upon CSR and sustainable development, as revised by Dashwood (2012). Their influence is reflected on relevant business-related potential impacts, enumerated by KPMG (2006) as being the following: license to operate, productivity, reputation, capital, and operational expenditure, and access to capital.

2.2. CSR disclosures in the Mining industry

With the evolution of CSR as a general concept came the necessity of reporting on CSR-related topics to keep up with international initiatives and to sustain its very fragile legitimacy. According to Walde (as cited in Dashwood, 2012), "in the early 1990s, fewer than half a dozen mining companies around the world were reporting on their CSR policies". Nevertheless, the current picture is significantly different. According to KPMG (2016) and their survey on CSR reporting, out of the 15 sectors surveyed globally, the mining industry is the one to report on CSR related-matters the most.

In what regards the evolution in the reporting formats and overall topics, Jenkins and Yakovleva (2006) demonstrate different types of formats to which mining companies adhere to, as illustrated in Figure 2. The authors then proceed to reach the conclusion that there is a trend regarding the increasing elaboration and utilization of stand-alone Sustainable Development and/ or CSR Reports as communication methods for engaging externally – mining companies are progressively moving from "Standard" and "Economy" formats to a "Deluxe" typology. Evidently, this evolution is highly dependable on the economic size of the company and financial means, which is why *BHP* Billiton, Rio Tinto, and Newmont are matched with the "Deluxe" format.

Table 4
Classification of top 10 mining companies according to reporting formats (adapted from Satterbaxter [57])

Format	Companies
Deluxe: full website, full printed report, summary printed report, brief Annual Report section.	BHP Billiton, Rio Tinto, Newmont
Standard: full website, summary printed report, brief Annual Report section.	Anglo American, AngloGold, Amplats, Barrick Gold, Xstrata
Economy: comprehensive section in the Annual Report, the same information available as a download from the website.	CVRD, MMC Norilsk

Figure 2. Classification of top 10 mining companies according to reporting formats

Source: Jenkins and Yakovleva (2006, p. 281)

In terms of content, reports have evolved in the sense of increasingly including a wider extent of topics, while progressively adhering to Global Reporting Initiative (GRI) standards and moving towards external verification of the reports. Moreover, the authors also point out the development of codes of conduct and policy statements and the larger utilization of the website for CSR purposes.

3. Theoretical Framework

3.1. Legitimacy Theory

The concept of legitimacy has been reviewed and adapted extensively, as efforts were made to tackle its ambiguities. The concept has broadened over time, as many authors have applied and allocated the concept to different areas and purposes. Notwithstanding, it is crucial to discriminate the definition of legitimacy to provide a solid basis for further analysis in this study.

In one of the earliest literature approaches, Schlusberg (1969) refers to legitimacy as implying "the ability to have one's actions and values perceived as correct and proper by those who are affected by them", as it portrays a notion of acceptance. In an organizational point of view, Dowling and Pfeffer (1975), approached the concept as establishing the connection between organizational activity and its surrounding environments, this is, the societal level. In line with this view, Meyer & Scott (1983) emphasized that "organizational legitimacy refers to… the extent to which the array of established cultural account provide explanations for existence", even though that these authors focused more organizational outside perception. Suchman (1995) opted to construct a broader definition of legitimacy that could include both referred perspectives:

> ***Legitimacy*** *is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions.* (Suchman 1995, p. 574, emphasis in original)

In order to understand what legitimacy stands for in an organizational context, it is also relevant to analyze its purpose per se. Tilling and Tilt (2010) developed and reviewed the concept of "legitimacy as a resource flow", highlighting the definition asserted by Hearit (1995), which states that "legitimacy functions as an organizational resource". The authors establish a parallelism between legitimacy and money, thus implying the importance of both as a resource needed for the organization's survival. Remaining in this line of thought, Hybels (1995) approaches it in a more detailed way:

> ***Legitimacy*** *often has been conceptualized as simply one of many resources that organizations must obtain from their environments. But rather than viewing legitimacy as something that is exchanged among institutions, legitimacy is better conceived as both part of the context for exchange and a by-product of exchange. Legitimacy itself has no material form. It exists only as a symbolic representation of the*

collective evaluation of an institution, as evidenced to both observers and participants perhaps most convincingly by the flow of resources. [. . .] resources must have symbolic import to function as value in social exchange. But legitimacy is a higher-order representation of that symbolism – a representation of representations. (Tilling and Tilt 2010, p. 58, emphasis in original)

In Hybels (1995) perspective, the dimension of the societal level to which legitimacy is related to is deconstructed. The author considers that, for a relevant use and perception of the legitimacy theory, the different stakeholders and its influence should be examined, not only society in general. On Figure 3., Tilling and Tilt (2010) discriminate four types of stakeholders considered of high relevance and the respective resources controlled, as a summary of Hybels (1995) insights regarding key organizational constituencies.

Stakeholder	Resources controlled
The media	Few "direct resources" however can substantially influence the decisions of two (if not three) previous groups
The public	Patronage (as customer), support (as community interest), labour
The financial community	Investment
The state	Contracts, grants, legislation, regulation, tax (note that the last three of these could be either a "negative" or "positive" depending on the implementation)

Figure 3. Critical organisational stakeholders

Source: Tilling and Tilt (2010, p.59)

Hybels (1995) intended to separately examine the impacts of each stakeholder, taking into consideration the particularities of each group, the nature of resources controlled variations, as well as the extent of influence. In the particular case of media, the authors assert that its influence may extend to other stakeholder groups, which highlights the granularity of possibilities when talking about legitimacy.

3.2. Legitimacy, CSR Disclosures, and Crisis Management

Companies strive to sustain and develop good relationships and/or perceptions with the different categories of stakeholders, in order to remain legitimate. Besides promoting CSR initiatives and programs included in their business activity, corporations need to communicate and elaborate upon their CSR policies and practices, therefore creating an overall external perception that will allow them to operate. To establish this linkage, Colleoni (2013) combined this element of communication with the previously referred legitimacy concepts, thus defining the latter as being "the congruence between stakeholders' social expectations and corporate CSR agenda". Addressing and reporting on social and environmental potential impacts is considered a step forward towards transparency and accountability, as it is expected that companies actually behave in the same way they communicate it, noted by Dai et al. (2018).

The literature has been studying the inherent link between legitimacy and CSR public disclosures and has discovered significant correlation. For instance, Bachmann and Ingenhoff (2016) have assessed, within their sample, that companies can gain (or regain) legitimacy by extensively sharing CSR disclosures, which outweighs stakeholder skepticism. Looking through the lens of the media, according to Dai et al. (2018), CSR public information is able to boost the company's legitimacy.

Even though companies are increasingly pressured by the respective stakeholders and international institutions/ initiatives to comply with responsible business principles, there is still room for flexibility on disclosing what is more beneficial and less detrimental to the company. For instance, when reporting, corporations are able to select which GRI standards they want to communicate on and apply their own indicators, as stated by Waniak-Michalak et al. (2018), meaning that it is perfectly possible to hide negative information that would deteriorate stakeholders' perception. On this line of thought, Arora and Lodhia (2016) have pointed out the tendency of companies to superficially report on reputation-detrimental information when negative incidents occur, thus portraying an example of how organizations can manipulate their disclosures in order to safeguard themselves. Nevertheless, it is also known that companies often manipulate CSR disclosures in order to reflect the desired external perception and tackling legitimacy gaps, as pointed out by Blanc et al. (2017).

Another possible scenario is to use CSR disclosures in order to improve or regain legitimacy, following a crisis or a negative occurrence, in which corporations would expectedly increase their CSR disclosures mainly towards those issues, taking into consideration its crucial role in communicating with stakeholders. Some authors have suggested ways in which tactics of regaining legitimacy can be summarized. O'Donovan (2002) presented four possible corporate responses, based on avoidance, altering social values, shaping perceptions and conformation to publics' values. Also in line with this reasoning, Cho (2009) has highlighted three main categories of mitigation strategies used by companies to soften the situation: Image Enhancement (companies' attempts to "appear legitimate by linking itself to positive social values"), Avoidance/Deflection (companies' attempts to "appear legitimate by redirecting or deflecting attention from specific social and environmental concern issues" and Disclaimer (companies' attempts to "appear legitimate by issuing disclaimer statements, denying its responsibilities"). Also in line with Cho's (2009) set of legitimation strategies is Stephens et al.'s (2005) crisis-message strategies' framework. From a more disintegrated and communication-oriented point of view, the authors highlight how these types of strategies are critical for communicating with stakeholders and building organizational legitimacy, especially in a context of crisis management. Stephens et al.'s (2005) framework is presented as follows (see Appendix 1 for a detailed description of the elements composing this framework):

1. Nonexistence – Companies completely deny of the crisis and attempt to eliminate it.
2. Distance – Companies acknowledge the crisis, but try to "weaken the link between the crisis and the organization".
3. Ingratiation – Companies attempt to "gain public approval" and enhance organizational image.
4. Mortification – Companies attempt to "win forgiveness and create acceptance".
5. Suffering – Companies uses a victimization strategy and aims to draw sympathy from the public.

The literature has been studying specific crisis management cases on this matter, in order to understand if there is a positive correlation between a negative occurrence that would deteriorate the company's reputation and the quantitative and qualitative rise of CSR disclosures, which, accordingly to Cho and Patten (2007), can be seen as a powerful tool to mitigate crisis exposure and to preserve companies' image. The following examples are practical cases which provide diverse outcomes, regarding the analysis of the previously referred correlation:

- Vourvachis et al. (2016), on their study regarding the patterns of CSR disclosure after major airline incidents, found evidence that, in fact, the affected companies have changed their CSR disclosures patterns supposedly to address the legitimacy gap generated;
- Noronha et al. (2015) identified a negative correlation on the context of a China railways accident, as related companies actually reduced CSR disclosures to minimize exposure generated by the accident;

- Linsley and Kajüter (2008), on their analysis of a major risk event at Allied Irish Banks plc., concluded that the bank has attempted to reassure stakeholders through improved disclosures on the annual report.

4. Cases Background

4.1. The Marikana Massacre

Lonmin is a British company and the third largest producer of Platinum Group Metals (PGMs), as referred by The Bench Marks Foundation (2013). Its operations are mostly based in South Africa and by 2012 the company employed over 36,000 people, according to *Lonmin* (2012).

On 16 August 2012, one of the most tragic massacres shaped the history of South Africa and for many, it is considered a turning point in the country's history. On this day, South African Police Service (SAPS) members killed 34 striking miners and left 79 more injured. The strikers were motivated essentially by poor rewards and work conditions – they were demanding for a R12,500 monthly salary -, associated with inequality and injustice, as corroborated by Sorensen (2012) and Alexander (2013). According to Alexander (2013), although the main trigger was considered to the be the unfair and low pay, workers also claimed that their health and safety was compromised, potentiated by "hazardous locations, the arduous character of work (…), shifts lasting more than 12 hours (…), artificial air full of dust and chemicals, high levels of sickness". Furthermore, it is also stated that workers did not had a good relationship with management and sometimes felt disrespected. All combined, these elements provide a negative and unhealthy picture of the exploitation and labor relations context between *Lonmin* and its employees before the tragedy, which has triggered a more severe situation.

In what concerns the company's reaction towards the succeeded, Alexander (2013) considers that *Lonmin* "attempted to absolve itself of responsibility", transferring the "blame" to the hostile relationships between its employees and the National Union of Mineworkers (NUM) and to the fact that the strike was categorized as "wildcat", which in the Industrial Relations dimension is defined as a movement which violates the terms of a collective labor agreement and is not authorized by the responsible union leadership (Gall, 2016). However, according to Power and Gwanyanya (2017), the Marikana Commission was led to the conclusion that *Lonmin* was, in fact, responsible for the hostile tensions gradually generated.

4.2. The Mariana Disaster

Samarco SA is a Brazilian mining company owned by *BHP Billiton* and *Vale* in a joint-venture. Currently, the company has two operational locations, as indicated by their website

Samarco (2019): Germano (Mariana) and Ouro Preto (MG). According to the same source, in 2015 they were considered the "12th largest exporter in Brazil (…) generating around 6 thousand direct and indirect jobs)".

On November 2015, *Samarco* dam gave in and fully collapsed, thus being considered one of the worst environmental accidents from the last 100 years. The impacts of this incident were devastating, both in environmental and social-economic terms. According to Fernandes (2016), the tailing of the dam has vastly spread through multiples regions, "reaching widths of more than 1km in area" and further discharging in the Mariana region. The ecosystem of the area was deeply damaged and considered almost irreversible. In what concerns social impacts, the collapse has caused multiples fatalities and dislodged many more, in a near region named Bento Rodrigues. Moreover, health concerns are also a worrying topic on this incident, since the discharges in Doce River had high concentrations of chemicals and heavy metals. Overall, as estimated by Ramos et al. (2017), more than 3,000 people were affected in these different forms. It's also important to refer that, from an economic point of view, *Samarco* highly financially contributed to the city of Mariana, thus strongly impacting local communities, as pointed out by Salinas (2016).

In what regards the company's position towards the disaster, the company claimed to not being aware of any technical or structural problems with the dam, despite a considerable amount of evidence pointing out to *Samarco's* acknowledgment of those issues, as highlighted by Lo (2018). In a context of severe legal disputes and hostility from local communities, the authors consider that the company "has been hard at work to begin restoring its image – and those of its owners", by communicating and compensating the affected stakeholders. These efforts of reconnecting and regain legitimacy are openly stated by the company itself: "In the case of *Samarco*, in particular, I am convinced that this path is fundamental for regaining the bonds of trust with the many types of public that we interact with." (*Samarco*, 2018).

5. Methodology

On this section, it will be discussed what methodologies and models will be used in order to assess quantitative and qualitative variations of *Lonmin, Samarco and BHP Billiton* when faced with the referred legitimacy-threatening incidents. Firstly, similar studies respective methodologies were reviewed, in order to shed some light on the evolution of both environmental and social disclosures analysis. On the next phase, the chosen research method will be elaborated upon, as long as its elements regarding data collection, timeframe and methods of analysis.

The objective of this study is to deepen the understanding of both incidents and the reactions of these companies', reflected in the way they communicate with stakeholders.

5.1. Methodological aspects of similar studies

In order to understand how these legitimacy-threatening incidents and correlation with variations in CSR disclosures are treated by the literature, Table 2 provides a summarized review on the common methodologies used in studies of the same kind.

Table 1. Methodological aspects of similar studies. *Source: Author own elaboration.*

Authors	**Local of study**	**Sample size**	**Industrial sectors**	**Data collection**	**Unit of analysis**	**Statistical analysis**
Blacconiere & Northcut (1997)	Worldwide	72	Chemical	10-K reports	Firm	Test value relevance
Savage et al. (2000)	Canada	2	Pulp and paper	Annual reports, environmental reports, norms and values, news media	Firm	n.a
Zyglidopoulos (2001)	Various	211	Various	Newspaper articles	Firm	Regression
Deegan et al. (2002)	Australia	1	Metals and Mining	Media articles, Annual reports	Firm (*BHP* Ltd.)	Correlation
de Villiers & van Staden (2006)	Africa	100	Metals and Mining	Annual reports	Firm	n.a.
Cho (2009)	France	1	Oil and gas	Annual and CSR reports, website	Firm (Total SA)	n.a
Watson (2011)	South Africa	4	Mining	Annual reports	Firm	n.a
Samkin (2012)	South Africa	1	Defence Equipment	CSR Reports	Firm (Denel)	n.a
Summerhays & Villiers (2012)	Mexico	6	Oil and gas	Annual reports	Firm	n.a
Xu & Li (2012)	China	1	Electronics	News from website	Firm (Foxconn)	n.a
Noronha et al. (2015)	China	5	Railway	CSR reports, websites, press releases, internet	Firm	n.a
Vourvachis et al. (2016)	Various	4	Airlines	Annual reports	Accidents	n.a
Blanc et al. (2017)	Germany	1	Various	Annual and CSR reports	Firm (Siemens)	n.a

Another important piece of the overall methodology is the stakeholder role in these CSR disclosures variations. Depending on the legitimacy-threatening industry, country and impacts, the existent groups of stakeholders are affected differently and it should be assessed on these type of analysis. Blanc et al. (2017) proceed to a stakeholders' and organizational façade analysis, in order to fully understand if stakeholders are differently emphasized in annual reports and CSR reports. In this analysis, the groups of stakeholders expected to be addressed more should be defined up-front, for further categorization. Blanc et al. (2017) defined three categories - rational, progressive and reputation – based on the purpose of their mentions.

In what regards the data collection method, on this specific study field, researchers mainly rely on instruments used by companies to communicate with its stakeholders: annual reports, CSR/ sustainability reports, corporate website, news media, press releases, and so on.

5.2. Content Analysis

For the purpose of this study, I will use content analysis methodology in order to analyse environmental and social public disclosures of the companies involved in the referred incidents. Content analysis is a very common and widely used methodology by authors throughout the years (Abbott & Monsen, 1979; Ingram & Frazier, 1980; Deegan et al., 2002; de Villiers & van Staden, 2006; Cho, 2009; Coetzee & van Staden, 2011; Blanc, 2015), to examine annual reports, stand-alone sustainability reports and corporate website content (most frequently in the form of press releases). It is defined by Krippendorff (2004) as "a research technique for making replicable and valid inferences from texts (or other meaningful matters) to the contexts of their use" and presupposes the selection of practicable criteria. As elaborated by Ingram & Frazier (1980), the proper identification of criteria "will allow any item to be judged as either belonging or not belonging to a particular category". One of the main reasons it tends to be commonly used is its inherent objectivity, derived from the fact that it mostly relies on the coding of qualitative and extensive information into categories, thus transforming it in quantitative and usable data, as acknowledged by Abbott & Monsen (1979).

To execute a content analysis it is necessary to determine which will be the unit of the analysis. In the previous literature, authors consider multiple types of units: word, sentence, paragraph and page proportion. When comparing all types of units and analysing its reliability and suitability, sentence has been pointed out multiple times as being the most reliable one. By tracking words, the researcher may discriminate themes and subthemes more accurately when compared to the use of a sentence, but on the other hand, stand-alone words may lack context when compared to a full sentence. Although one sentence may contain multiple themes, authors still consider it to be the most reliable technique. Deegan et al (2002) highlighted the advantages of using sentences instead of words as being the following: 1) It is not necessary to standardise words; 2) Both intra- and inter-rater coding are more reliable; 3) It allows for a more detailed analysis on specific matters and themes. In what concerns paragraphs and page proportion, although these techniques can be less time consuming than the previously mentioned ones, they may include multiple subjects (Samkin, 2012), which makes proper categorization more difficult and less reliable in theory. Due to the arguments presented, this study will use sentences as the unit of analysis.

Nevertheless, the content analysis' research method also reveals some limitations. One of the most straightforward and commonly referred constraint is the fact that the method is focused on the quantity of disclosure instead of relying on qualitative aspects mostly, as highlighted by Guthrie & Abeysekera (2006). The authors also pointed out the method's subjectivity, as social and environmental reporting tend to portray various narratives and perspectives. Another issue to take into account is the fact that CSR reporting has significantly evolved through years, not only in terms of content, but also in terms of structure and design. It is common for a researcher to only analyse words and numbers, as they are the primary source of information. However, according to Unerman (1999), to achieve a complete and more reliable representation, the analysis should take into account pictures, graphics, diagrams and other forms of representing content.

In what concerns information collection, this study will rely on stand-alone sustainability reports and annual reports from the companies at stake: *Lonmin, Samarco* and *BHP*. To assess the impact of the Marikana massacre on *Lonmin's* disclosures, 5 stand-alone sustainability reports and 5 annual reports were examined (10 in total). As for the Mariana dam disaster, *Samarco* only had 3 sustainability reports available for analysis within the established timeframe (2015-2016 report is bi-annual; 2017-2018 has not been published yet) and its annual reports could not be analysed.[1] Additionally, 5 *BHP* sustainability reports were examined as well (8 in total).

For the purpose of analysing how companies' disclosed information through time when confronted with legitimacy-threatening events, a five-year time horizon was defined for studying each case. Thus, the time horizon surrounding the incidents was divided in three time periods, which follow below:

- Period 1 (pre-incident) – Represents the two-year period before the incident took place. In the Marikana's incident, it represents the period from 2010 to 2011. In Mariana's incident, it represents the period from 2013 to 2014.
- Period 2 (incident) – Represents the year in which the incident has unfolded: 2012 for Marikana's massacre, 2015 for Mariana's dam disaster.
- Period 3 (post-incident) – Represent the two-year period which followed both events. In the Marikana's and Mariana's events, it corresponds to the 2013-2014 and 2016-2017, respectively.

5.3. Content Analysis Index

The first step of this research method was to define the categories which will compose the content analysis index needed to analyse companies' public disclosures. For this purpose, it is crucial to take into account the nature of both incidents, more precisely the stakeholder groups directly impacted and CSR dimensions affected, as illustrated on Table 2. In what concerns the Marikana incident, impacts were essentially centred on employees striking for better working conditions, a situation which has ended up in multiple fatalities. On Mariana dam disaster's case, the impacts were more broad, focusing essentially on the environment surrounding the impacted area and the local communities living around the area in which the dam was installed.

[1] From 2014 onwards, *Samarco's* annual reports only compiled financial statements. No CSR related disclosures were available, thus not allowing to establish comparisons within the established timeframe.

Table 2. Impacts/ CSR Dimensions of the studied incidents.

Companies	Incident	Impacts/ CSR Dimensions
Lonmin	Marikana massacre	Employees
Samarco, *BHP*	Mariana dam disaster	Environment, Community Involvement

Source: Author own elaboration

After determining the main CSR dimensions on which the index will rely on for each case, the elements/ categories for each impacted group were defined accordingly. As these are very particular cases, I developed a specific content analysis index for this study, which was based and adapted from different sources. Categories were defined according to the particularities of each case and in line with what I expected would vary in terms of volume of disclosures.

In the case involving *Lonmin* – in which Employees were the main affected group -, I used Husgafvel et al (2014) approach to social sustainability performance indicators as a starting point to establish the categories. The four main categories, as enumerated in Table 3., are: 1) Compliance; 2) Fair Working Conditions; 3) Health, Safety and Wellbeing; and 4) Employee and Labor Relations. Particularly in what concerns the relevance and rationale around the choice of each category for this specific incident:

- 1) Compliance – This case has put *Lonmin* under a lot of external pressure, with international campaigns and movements being organized to held *Lonmin* accountable for not ensuring compliance, not only with international human rights standards, but also with national obligations, such as the South Africa's Companies Act. With this in mind, it is likely for the volume of disclosures on this matter to increase since 2012, the year of the incident.
- 2) Fair Working Conditions and 3) Health, Safety and Wellbeing – The deadly event was primarily prompted by workers' dissatisfaction towards their working conditions. Although the main motivation for discontent was low pay and the absence of a "living wage", employees' also pointed out the poor working conditions they were submitted to, in terms of excessive overtime and lack of proper training, for instance. Situations of ethnic discrimination have also been identified by workers' testimonials, as highlighted by McClenaghan (2012), which is why a component of "Inclusion and Diversity" was included in the index. Their demands to management also relied on

the fact that they operated under very hazardous conditions and were more prompt to sickness. The components of the "Health, Safety and Wellbeing category" were based on GRI (2018) standard 403. This said, it is expected that disclosures on these themes also increase after the incident.

- 4) Employee and Labor Relations – The key driver of this catastrophic event was, indeed, the tense and unhealthy relationship between management and employees which led to a violent strike. Workers often felt exploited and like their voices did not mattered, while management refused to enter constructive conversations and negotiations. Thus, the volume of disclosures on this category is expected to increase as well.

Table 3. Content analysis index for *Lonmin* CSR disclosures.

<table>
<tr><th colspan="2">Incident: Marikana massacre</th><th>Company: Lonmin</th></tr>
<tr><th></th><th>Category</th><th>Components</th></tr>
<tr><td rowspan="4">Employees</td><td>1) Compliance</td><td>Reference to company's adherence/ compliance to:
• International CSR standards on labor rights (e.g. ILO's Declaration on Fundamental Principles and Rights at Work, OECD Guidelines for Multinational Enterprises, etc.);
• National employment law;
• Corporate code of conduct, internal policies;
• External audits.</td></tr>
<tr><td>2) Fair Working Conditions</td><td>Reference to company's practices on:
• Compensation and benefits;
• Training and development opportunities;
• Inclusion and diversity;
• Working hours and overtime.</td></tr>
<tr><td>3) Health, Safety and Wellbeing
based on GRI (2018) Standard no. 403</td><td>Reference to company's practices on:
• Hazard identification, risk assessment, and incident investigation;
• Worker training on occupational health and safety;
• Promotion of worker health;
• Prevention and mitigation of occupational health and safety impacts directly linked by business relationships;
• Promotion of worker general wellbeing.</td></tr>
<tr><td>4) Employee and Labor Relations</td><td>Reference to company's practices on:
• Relationship between management, employees and their representatives;
• Freedom of association and collective bargaining;
• Information, consultation and negotiation processes.</td></tr>
</table>

Source: Author own elaboration

As mentioned before, the content analysis index for the dam collapse incident involving *Samarco* and *BHP* must cover two CSR dimensions which were deeply impacted by the tragic event: Environment and Community Involvement. In what concerns the environmental dimension, I mostly relied on LIM et al.'s (2010) "checklist of categories of social and environmental disclosures" approach as the main basis to this index, along with the index used by Branco et al. (2008) to analyse the disclosures of two Portuguese cement companies on the event of a co-incineration controversy. As enumerated in Table 4., the four environmental categories which composes the index are: 1) Compliance; 2) Discussion of environmental issues; 3) Environmental impacts; and 4) Prevention or repair of damage to the environment. All categories were chosen according to the incident's nature, on the following rationale:

- 1) Compliance and 2) Discussion of environmental issues – Similar to what happened with *Lonmin*, both *Samarco* and *BHP* were scrutinized for not complying with international environmental standards, as well as for operating in locations with lenient regulations, as pointed out by Solly (2018). Moreover, as mentioned before in the theoretical framework, the mining sector itself is seen as one of the most prejudicial industries for the environment and is pressured to acknowledge it and discuss environmental issues. Thus, on the context of a major incident such as this one, the volume of disclosures is expected to increase for both categories.
- 3) Environmental impacts – For the purpose of this study, I find it crucial to track how this category varied through time, knowing that this incident was considered the worst environmental disaster of Brazil's history. I assume the amounts of disclosure will increase on this matter.
- 4) Prevention or repair of damage to the environment – It is, indeed, very relevant to analyse the variation on the amount of disclosures regarding the efforts of *Samarco* and *BHP* to bridge the enormous environmental impacts. It will most likely increase from the year of the incident.

Local communities living in Bento Rodrigues village and nearby locations where highly impacted (both direct and indirectly) and, in some cases, fatally. With this in mind, and on the basis of GRI (2016) Standard 413, two categories were introduced in the content analysis index: 5) Actual and potential impacts on communities and 6) Local community engagement. Both categories are relevant to the analysis, as community impacts related disclosures are expected to increase, in parallel with references to local community engagement efforts to bridge those same impacts.

Table 4. Content analysis index for *Samarco* and *BHP* CSR disclosures.

<table>
<tr><th colspan="3">Incident: Mariana dam disaster</th><th>Companies: Samarco, BHP</th></tr>
<tr><th colspan="2">Categories</th><th colspan="2">Components</th></tr>
<tr><td rowspan="4">Environment</td><td>1) Compliance</td><td colspan="2">Reference to company's adherence/ compliance to:
• International environmental standards (e.g. ISO 14000);
• Industry and country–specific environmental and/or mining laws;
• Corporate codes of conduct, internal policies;
• External audits.</td></tr>
<tr><td>2) Discussion of environmental issues</td><td colspan="2">Reference to company's thoughts on:
• Current global environmental issues and trends, most specifically on the mining industry;
• Challenges the referred issues might bring to business operations in the future.</td></tr>
<tr><td>3) Environmental impacts</td><td colspan="2">Reference to company's environmental impacts which have occurred from business operations.</td></tr>
<tr><td>4) Prevention or repair of damage to the environment</td><td colspan="2">Reference to company's prevention or repair of damage to the environment efforts, including:
• Specific programs designed to prevent and/ or repair companies' incurred environmental impacts;
• Targets established for those environmental programs, report on performance against targets.</td></tr>
<tr><td rowspan="2">Community Involvement</td><td>5) Actual and potential impacts on communities</td><td colspan="2">Reference to company's actual and potential impacts (both positive and negative) on local communities incurred by its operations.</td></tr>
<tr><td>6) Local community engagement</td><td colspan="2">Reference to company's local community engagement, impact assessments, and development programs.</td></tr>
</table>

Source: Author own elaboration

For each legitimacy-threatening incident, the total amount of disclosures is quantified for each of the previously defined index categories, by using the sentence count method. For the case involving *Lonmin,* tables, graphs and diagrams were also part of the analysis, for reliability purposes explained on section 5.2.

6. Research Findings

6.1. Impact of the incidents on the total amount of disclosures

6.1.1. Marikana's massacre – *Lonmin*'s disclosures

Table 5. represents the evolution of *Lonmin*'s amount of disclosures pertaining to the CSR aspects examined throughout the defined timeframe. Firstly, it was concluded that the total volume of disclosures throughout the five years is more extensive in Lonmin's stand-alone sustainability reports (SR) than in annual reports (AR). The analysis of these results led to the conclusion that, in fact, and in line with literature supporting the legitimacy theory, *Lonmin* increased its CSR disclosures at the time of the incident: for SR and AR, *Lonmin*'s volume of disclosures reached its peak in 2012, with values of 604 and 323 sentences, respectively. The increase in AR was much less abrupt.

Table 5. Total volume of disclosures on *Lonmin*'s SR and AR (2010-2014).

Year / Report	2010	2011	2012*	2013	2014
SR	404	355	604	557	378
AR	188	249	323	151	241

* Marikana's massacre

Figure 4. and 5. represent how each content analysis index's category contributed to the evolution of the amount of disclosures, for SR and AR, respectively. In general, the category which has more disclosures associated is "Health, Safety and Wellbeing". However, as shown in Figure 5, there is an exception: during the post-incident period, the number of disclosures of "Employee and Labor Relations" category surpasses the previously mentioned one. I assume this exception is due to the extraordinary circumstances of the incident.

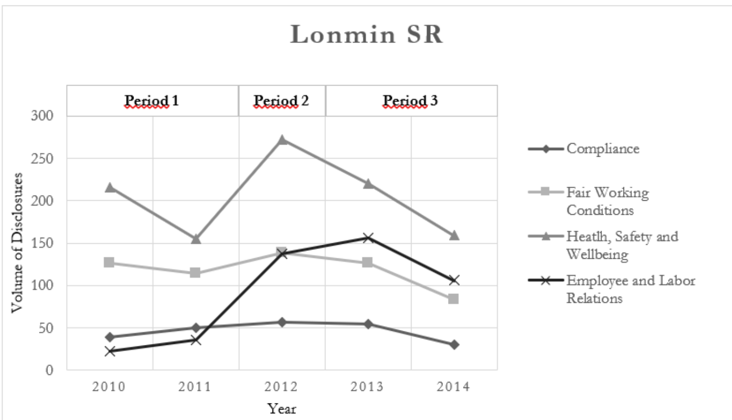

Figure 4. Volume of disclosures on *Lonmin's* SR (2010-2014), per index category.

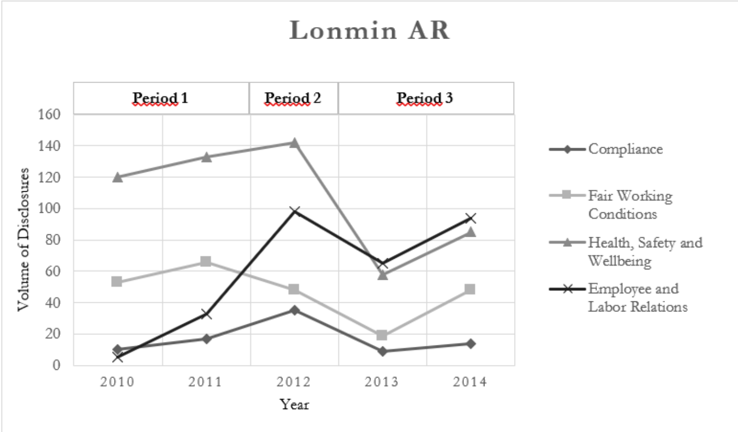

Figure 5. Volume of disclosures on *Lonmin's* AR (2010-2014), per index category

When proceeding to a deeper analysis of how each category evolved through the 3 periods, it was possible to verify that following conclusions:

- Compliance - Although both SR and AR disclosures have increased from Period 1 to Period 2, the variation was not as relevant as initially expected. The slightly increase probably has to do with the companies' legal processes related to the incident (e.g. inquiries) and references to South African law compliance. From Period 2 to Period 3, compliance disclosures suffered a slight decline (more evident in AR disclosures). During Period 3, SR disclosures kept declining, while AR disclosures slightly increased.
- Fair Working Conditions - As shown in Figure 4., representing the evolution of SR disclosures, from Period 1 to Period 2 the volume has indeed increased when the incident took place, but similarly to the previous category, not as much as initially expected. Surprisingly, when analysing AR reports' disclosures, that specific transition even suffered a slight decline. The evolution to the post-incident period was particularly interesting when analysing SR disclosures. During this period, the volume of disclosures reached its lower point within the 5-years period. In what concerns AR amounts, during Period 3 it has re-established to the incident period level.
- Health, Safety and Wellbeing - From Period 1 to Period 2, in line with what was expected in theory, the amount of disclosures has increased in both type of reports, although much more significantly in sustainability reports. Moving to the post-incident period, it was possible to observe a sharp decline in the amount of

disclosures for both groups of reports, although in 2014 AR disclosures reached once again values similar to the pre-incident period.

- Employee and Labor Relations - The evolution of the disclosures’ volume was very similar for both types of reports. During the pre-incident period, variations were very little and references to this category were very low. On the transition to the incident period, I observed a very significant increase to an amount of, approximately, 140 (SR) and 100 (AR). This sharp variation was expected taking into account the nature of the Marikana’s massacre and the huge employee-management tensions associated. During the post-incident period, the volume of disclosures have varied similarly to the previous categories.

Besides the sentence count method used to evaluate CSR disclosure evolution, other type of items such as graphs, tables and diagrams were also tracked. Overall, this type of items are not used much throughout *Lonmin’s* reports. Unlike the sentence count method, which has registered peak values on the year of the incident, for categories “health, safety and wellbeing” and “employees and labor relations” the positive variation occurred during the post-incident interval (Period 3), for sustainability reports analysed, as illustrated in Figure 6.

SR	2010	2011	2012	2013	2014	AR	2010	2011	2012	2013	2014
Compliance	0	0	0	0	0	Compliance	0	0	0	0	0
Fair Working Conditions	8	7	6	5	4	Fair Working Conditions	0	2	1	2	2
Health, Safety & Wellbeing	18	10	11	13	15	Health, Safety & Wellbeing	3	5	8	3	5
Employee & Labor Relations	2	2	1	5	7	Employee & Labor Relations	0	0	1	0	0

Figure 6. Amount of graphs, tables and diagrams on *Lonmin’s* SR and AR reports (2010-2014)

6.1.2. Mariana’s dam disaster – ***Samarco*** and ***BHP*’s** disclosures

6.1.2.1 ***Samarco***

Disclosures in *Samarco’s* reports could only be analysed within Period 1 and Period 2, since the company decided to start launching bi-annual sustainability reports when the incident occurred. As illustrated in Table 6., throughout the whole period of analysis, *Samarco* has disclosed significantly more on environmental matters, even though total community involvement disclosures gradually approached a similar level when the incident occurred. The progression of the total volume of disclosures is also in line with the legitimacy theory, as it significantly increases and reaches a peak of 557 sentences at the time of the incident's reporting period.

Table 6. Total volume of disclosures on *Samarco's* SR (2013-2016).

Year / CSR dim.	2013	2014	2015*-2016 (bi-annual)
Total Environment	187	157	298
Total Community Inv.	71	111	259
Total volume	258	268	557

* Mariana's dam disaster

Focusing specifically on the CSR dimensions affected, the results highlighted in Figure 7. and 8. point out some general considerations right away. On the environmental analysis, it was possible to identify that, throughout both periods, the company had the highest volume of disclosures related to prevention and/or repair of damage to the environment. In parallel, in what regards to community involvement, *Samarco* mostly disclosed information on local community engagement actions. Regarding the results obtained for each CSR dimension affected, some conclusions were drawn:

- Environment - As shown in Figure 7., all four categories of disclosures fluctuate in a similar ascendant pattern, which is in line with the legitimacy theory. In what concerns environmental impacts, a marginal increase was verified from Period 1 to Period 2. Both "compliance" and "discussion of environmental issues" categories demonstrated a marginal increase during the transition to the incident period. As initially expected, the most significant positive variation was observed on disclosures which portray information regarding prevention and/or repair of damage to the environment actions, which has largely contributed for the total volume of disclosures in 2015-2016.

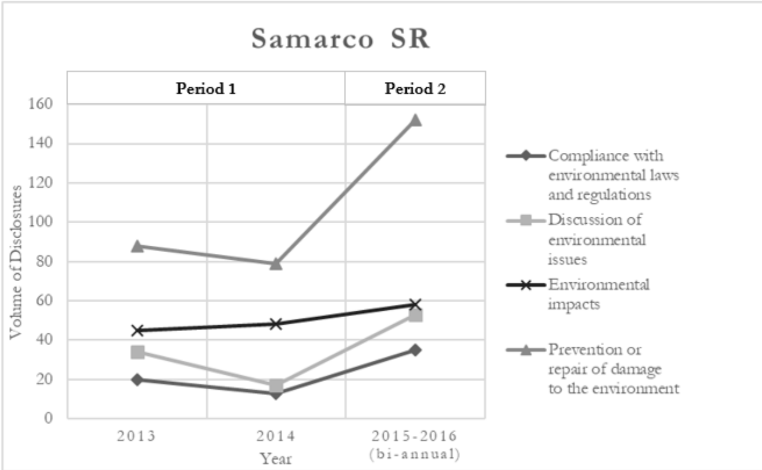

Figure 7. Volume of disclosures – environmental dimension - on *Samarco's* SR (2013-2016)

- Community Involvement - As pointed out in Figure 8., both categories' amount of disclosures has significantly increased from the years before the incident to the period in which it has occurred, thus being in line with the study's assumptions. It is possible to establish a parallelism with the previous CSR dimension in a way that: prevention and engagement disclosures have abruptly increased (thus contributing as the biggest stake to the total volume), while, in comparison, impact-related information grows very little.

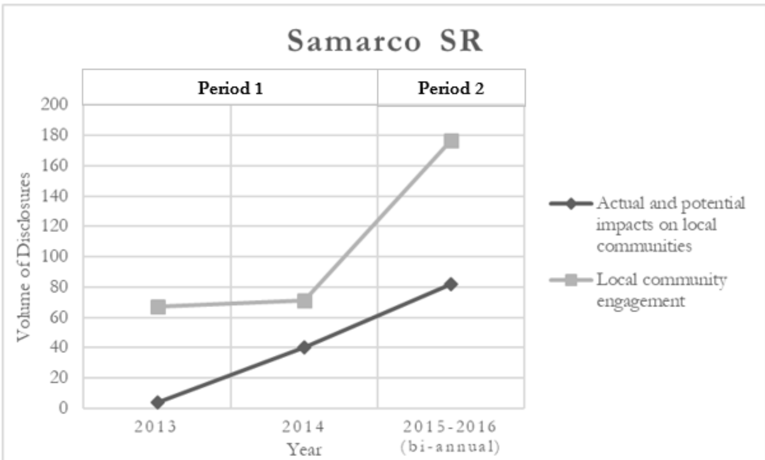

Figure 8. Volume of disclosures – community involvement dimension - on *Samarco's* SR (2013-2016)

6.1.2.2. *BHP*

Unlike *Samarco*, which had already included the incident in their 2015 reporting, *BHP* only materialized it in the next year's (2016) reports, as their reporting period only went from July 2014 to June 2015 (the dam collapsed on November 2015). Therefore, according to the legitimacy theory, peaks on *BHP* disclosures were expected to happen on 2016. According to Table 7., the previous assumption was verified, although the increase of disclosures' volume from 2015 to 2016 was very little when compared to *Samarco*'s.

Table 7. Total volume of disclosures on *BHP's* SR (2010-2014).

Year / CSR dim.	2013	2014	2015*	2016**	2017
Total Environment	222	286	314	306	170
Total Community Inv.	191	175	217	259	148
Total volume	413	461	531	565	318

* Mariana's dam disaster
** *BHP* materialized the incident in its report

Taking a closer look at how *BHP* changed its patterns of disclosure in the specific CSR dimensions affected, and using Figure 9. and 10. for reference, I was able to conclude the following:

- Environment - The variation on the amount of compliance-related disclosures was very residual, throughout the 5 years horizon, with a slight increase in the year of the incident. Environmental impacts-related disclosures did reach its maximum on 2016 as expected with a subtle increase, identically to *Samarco*'s disclosures behaviour. Nevertheless, one particular difference stands out: the amount of related disclosures is lower than the ones associated with the discussion of environmental issues, which was not the case for *Samarco*. Furthermore, it significantly declines during the post-incident period, until below the pre-incident period levels. "Discussion of environmental issues" category also reaches its peak on 2016 as expected, but similarly to the previous category, sharply declines below pre-incident levels. Finally, in what concerns disclosures of prevention/repair of environmental damage, surprisingly the volume has suffered a significant decline from 2015 to 2016, which is not in line with the legitimacy framework. During the post-incident period, it kept decreasing and has the same behaviour as the previously analysed categories.

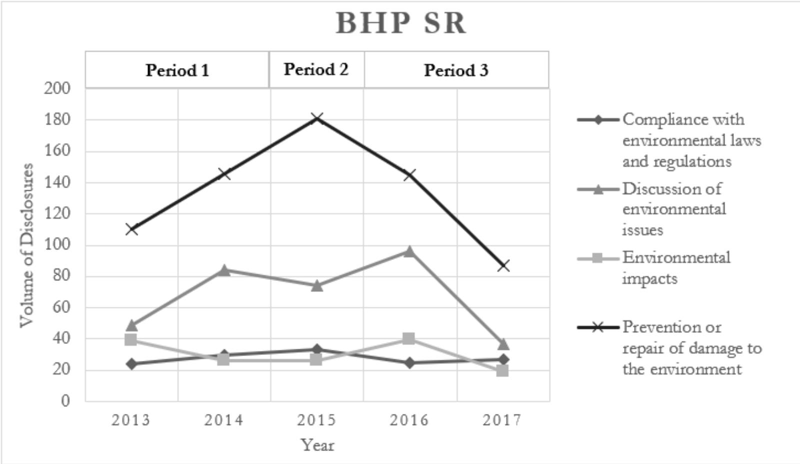

Figure 9. Volume of disclosures – environmental dimension - on *BHP's* SR 2013-2017

- Local Communities - As shown in Figure 10., the evolution of both categories is, in general, similar. Aligned with what was presumed, both reach its peak on 2016, followed by a significant decline during the post-incident period, especially in what concerns local community engagement disclosures. In line with *Samarco's* analysis of results, again the increase on actual and potential impacts on local communities' disclosures was expected to be more significant. Here, the same previous logic on the environmental impacts' evolution can be applied.

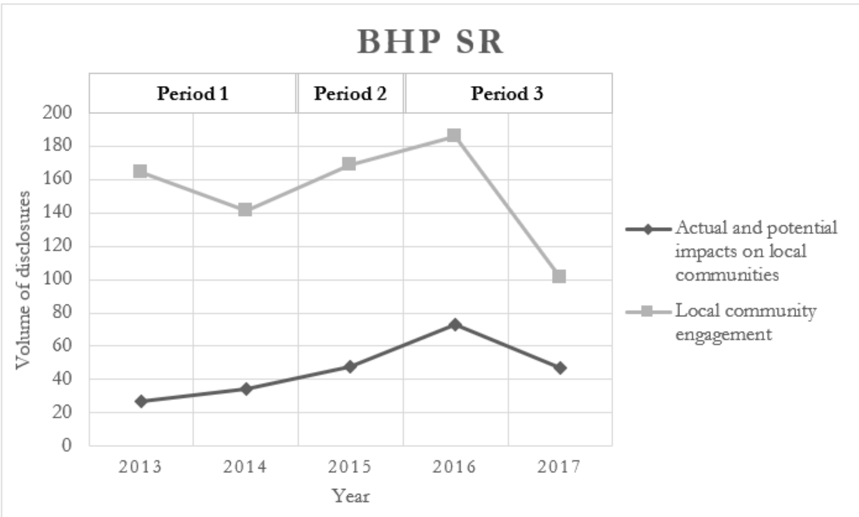

Figure 10. Volume of disclosures – community involvement dimension - on *BHP's* SR (2013-2017)

For the purpose of analysing the disclosures of *Samarco* and *BHP*, I did not consider graphs/ tables/ diagrams, due to how the content analysis index was built. In *Lonmin*'s case, the categories chosen to evaluate the amount of disclosures can be easily discriminated and objectively attributed, not only to sentences, but to other dynamic items. However, in Mariana's case, the categories chosen to compose the index can objectively be attributed to sentences, but not so easily to other type of items (e.g. due to possible overlap of themes and more subjectivity associated).

6.2. Assessment of companies' legitimation strategies

In addition to the quantitative analysis of companies' disclosures, it is also insightful to parallelly understand their discourse towards addressing the incidents and the strategies of legitimation they used to communicate with its stakeholders. Using Stephens et al. (2005) crisis-communication message strategies' framework (see in Appendix 1), below follow the results of the analysis concerning *Lonmin, Samarco* and *BHP*.

6.2.1. Marikana's massacre – ***Lonmin***'s disclosures

On the year of the killings in Marikana, *Lonmin,* although acknowledging the incident, adopted a defensive position towards its responsibility, which is visible in both 2012 sustainability and annual reports. The company clearly had a tendency to channel guilt and responsibility towards other groups of stakeholders, such as governments and the industry itself, as verified in the excerpts below, from the 2012 sustainability and annual reports, respectively:

"*Mining companies cannot assume the roles of government or social organisations. They are not structured to advance social interests, not enforce public order. We will consider how we respond to the challenges posed by Marikana while being mindful of our competencies and resource limitations and, in particular, the way in which we uphold our values within the context of our society (p. 58).*"

"It was easy to blame Lonmin, as some have done, for the spread of unrest in the weeks after our agreement. We reject this accusation. Unrest in the mining sector predated the Marikana dispute, and was growing elsewhere during it. (p. 03)"

These excerpts are examples of a distance-based legitimation strategy, mainly focused on denying full accountability and attributing it to other stakeholders or circumstances. In the

AR excerpt, *Lonmin* also claims that the origin of the incident is misrepresented in the public eye, which is also a detachment strategy identified by Stephens et al. (2005).

Congruent with these findings is also *Lonmin*'s attempt to positively enhance the organization's image. As illustrated in the text fragment below (from 2012 SR), the company seeks public acceptance by raising positive achievements as opposed to the incident's impacts, thus engaging in a ingratiation strategy:

"During a year dominated by upheaval and a breakdown of trust, it is easy to forget the positives. Our investment in the surrounding communities through education and health programmes has increased this year. (p. 15)"

However, in 2013 *Lonmin* has radically change its discourse and crisis-response strategy. The organization has started to show accountability and commitment to address the issues raised by the crisis, as represented the two extracts below from 2013 annual report:

"*The tragic events at Lonmin's Marikana facilities took place in 2012, but clearly the Company is deeply involved in the repercussions, predominantly in working to rebuild trust with employees and communities. (p. 17)"*

"We are committed to addressing the underlying issues that were highlighted by last year's events. (p. 21)"

Within the Stephens et al. (2005) adapted framework, both examples above are clear examples of mortification strategies, in which the company "attempts to win forgiveness of the publics and creates acceptance for the crisis" (p. 417). Moreover, *Lonmin* openly states its commitment to rectify the situation and take action to minimize impacts.

Another clear indication that *Lonmin* had changed its legitimation strategy was the way it started directly addressing the "victims" of the incident and what would be done to compensate them. Retrieved from 2013 sustainability report, the example below also illustrates typical elements of a mortification strategy:

"The program we have put in place to ensure a good education for the children of our employees who died during the Marikana tragedy has been a helpful start, and I believe the compassion and sincerity of our participation in the commemoration ceremony also restored some faith in our integrity, but we know we must do more. (p. 50)"

Overall, the qualitative analysis of *Lonmin's* legitimation strategies through time has revealed a shift from a mix of "distance" and "ingratiation" strategies to a "mortification" strategy striving for public acceptance.

6.2.2. Mariana's dam disaster – *Samarco* and *BHP*'s disclosures

6.2.2.1. *Samarco*

In what concerns *Samarco*'s response to the crisis, it is clear that the company takes full accountability of the succeeded and directly apologizes to the impacted groups, thus engaging in a mortification strategy of repentance. This response type aims to "win forgiveness of the publics", as defined by Stephens et al. (2005). Below follows an example retrieved from the 2015-2016 sustainability report:

> *"Unfortunately, 2015 has established itself as the year in which the Company's bonds of trust with Brazilian society have been sorely tested; We deeply regret the failure of the Fundão tailings dam on November 5, impacting districts in the Mariana region (MG) and municipalities along the Doce River, from Minas Gerais to Espírito Santo. (p. 6)"*

Along the analysed reports, *Samarco* is pretty consistent on the way it addresses its own legitimacy and continues to follow mortification strategies in different forms. As shown in the excerpt below, also retrieved from 2015-2016 SR, *Samarco* shows commitment to amend/ repair the impacts the dam collapse has caused and to compensate the most affected groups. This represents a mix of a rectification and a remediation strategy.

> "*We are mobilized to repair what has been impacted and to organize the terms and costs to cope with the impacts generated - social and environmental - and to do our best to compensate for the loss of residents and relatives of the victims. (p. 6)*"

6.2.2.2. *BHP*

As for *BHP*, its public disclosures followed a similar direction of its' joint venture's. Its discourse around the incident started with fully recognizing the incident and directly apologizing as well. Also in line with *Samarco*, the company has not only elaborated on its remediation and rectification actions directly focused on the main areas affected, but also presented its global review plan to prevent this situation from happening in other locations. Thus, this approach represents a mortification strategy as the company attempts to win forgiveness and create acceptance among stakeholders, as illustrated in the two examples below, retrieved from *BHP* 2016 sustainability report:

"*Our response to this tragedy is a priority for BHP Billiton. We will work tirelessly with the mine operator, Samarco Mineração S.A., our joint venture partner Vale, the community and the Brazilian authorities in the response effort. We are committed to doing the right thing both now and in the long term. (p. 1)*"

"*BHP Billiton initiated a comprehensive review of its significant dams and non-operated minerals joint ventures. The primary purpose of the dams review was to assure the integrity of BHP Billiton's other significant dam structures. (p. 5)"*

Besides the punctual examples presented above, a more structural factor was also identified as belonging to a mortification-driven strategy: both companies have an entire chapter dedicated to the incident, both on annual and stand-alone sustainability reports. On those sections, the companies involved describe in detail the socio-economic and environmental programs and actions in place to manage the dam collapse's impacts. Additionally, in 2017 SR, *BHP* has a specific section named "Lessons Learned" in which the company enumerates specific areas for improvement. On the post-incident period, they report their performance on the established programs.

7. Discussion of research findings

7.1. Impact of the incidents on the amount of disclosures

In both adverse events, the total amount of disclosures point towards a positive correlation between the negative occurrences and the evolution of the corporate volume of disclosures. This inference is consistent with the findings of multiple authors throughout the years (Savage et al., 2000; Deegan et al., 2002; Cho, 2009; Summerhays & Villiers, 2012; Vourvachis et al., 2016; Blanc et al. 2017).

In the specific case of Marikana, disclosures were far more extensive in SR than AR, which is aligned with the mining industry growing tendency to produce exclusive reports (e.g. sustainability, sustainable development) dedicated to the disclosure of environmental and social information, as inferred by Jenkins and Yakovleva (2006). Additionally, it's important to point out that the stakeholder target groups of both type of reports tend to be different: usually SR are more oriented to communicate with employees, NGOs, communities, etc., while AR are mostly consulted by investors. (BSR, 2018). The main affected target group was, in fact, employees.

The key drivers of the positive correlation verified in the results were "Health, Safety and Wellbeing" and "Employee and Labor Relations" related disclosures. The first one is, in general, the category most extensively disclosed throughout the 5-year period, mainly due to the nature of mining work: mining is considered one of the most hazardous sectors to work for (ILO, 2019). Its peak has coincided with the negative occurrence, probably due to, on one hand, the employees' fatalities during the strike and, on the other hand, their claims on the lack of a safe work environment and exposure to sickness prior to the incident. Disclosures regarding industrial relations have outstandingly increased in both type of reports right after Marikana's massacre, considering its weight on the origin of the incident. Nevertheless, the quantitative evolution of disclosure on fair working conditions' practices did not contribute to the total volume of disclosures as much as expected. This might be justified by the defensive crisis-response strategy Lonmin has assumed (as opposed to proactive), influenced by stakeholder pressures (e.g. South African government) to quickly resolve the tensions between management and employee representatives. As this last issue was a priority for the company, to effectively improve and disclose on fairer working conditions might have been belittled.

In what regards the dam collapse in Mariana, the general behaviour of both companies' (*Samarco* and *BHP*) disclosures are in line with the literature research over the years on this theme (Cho & Patten, 2007; Vourvachis et al., 2016; Linsley & Kajüter, 2008, etc.). The less abrupt increase on *BHP*'s disclosures when compared to *Samarco's* is most likely justified by the nature of their corporate relationship: *Samarco* is a non-operated joint venture partially owned by *BHP,* thus not making the owner company directly accountable for the succeeded. The largest majority of disclosures within the period of the incident corresponded to prevention/ repair and engagement practices, when compared to a much smaller portion of impacts-related disclosures. This corroborates the literature research (Waniak-Michalak et al., 2018; Arora and Lodhia, 2016; Blanc et al., 2017) on how companies may manipulate CSR disclosures to manage legitimacy-threatening events. In this specific case, information on the actual environmental and communitarian impacts (considered to be pejorative in the public eye) was not extensively disclosed, as opposed to information on rectification/ engagement actions, which was for more intensively referenced to outweigh stakeholders' scepticism (Bachman & Ingenhoff, 2016).

On both cases, and in line with Dashwood's (2012) research, the influence of stakeholders largely affected the approach each company took to regain legitimacy. On the mining industry, there are typical business-related potential risks associated with the influence of stakeholders, which is why *Lonmin*, *Samarco* and *BHP* acted accordingly. Taking KPMG (2006) framework as a basis, it is important to note that:

1) *Lonmin*'s unhealthy and tense relationship with its employees led to multiple series of strikes after the incident, thus disrupting business productivity. Moreover, apart from the already atrocious nature of the incident, there were always allegations (although not proved) that SAPS (South African Police Service) were under *Lonmin*'s management influence on the day of the fatal strike (News24, August 2014) – naturally, these factors caused significant reputational damage. Thus, *Lonmin* oriented its disclosure strategy towards levelling these perceptions, focusing on increasing employee-related disclosures (more specifically on employee/labor relations and health, safety and wellbeing matters).

2) Since the dam collapse in Mariana, *Samarco* has lost its license to operate due the severe damages caused to the surrounding environment and local communities living nearby. As of today, the company is still unable to recover its license; the expected date for new validation is on 2020 (Nogueira & Haynes, 2018). Consequently, the company struggles more to access

capital as well. In what concerns *BHP*, it has essentially suffered reputational damage. Both companies, in line with Dashwood (2012), channelled their "disclosing efforts" towards the most affected stakeholder groups, thus vastly improving their environmental and community involvement disclosures

7.2. Assessment of companies' legitimation strategies

Also in line with the positive correlation verified in the quantitative findings, companies have assumed different crisis-response strategies to adapt to the circumstances of the respective adverse events.

Lonmin has adopted a defensive position towards Marikana's fatal confronts right after it happened. During 2012, the company engaged in a mix of distance and ingratiation-based strategies (as posed by Stephens et al. (2005)), aimed at "transferring" the accountability/guilt to other causes and stakeholders while, simultaneously, publicizing the positive accomplishments of company's social and environmental performance. On Cho's (2009) framework of corporate possible responses to crisis mitigation, *Lonmin*'s discourse can be evaluated as belonging to the three strategies defined by the author: the company has attempted to associate itself with positive social perceptions (image enhancement), while manipulating the key drivers of the incident (avoidance/deflection) and denying responsibility (disclaimer). Surprisingly, on 2013, there was an evident shift of the legitimation strategies used until then. *Lonmin* has started to engage in a mortification strategy, in which it attempted to win, not only victims' families' but also general public's forgiveness. Moreover, the company showed commitment in rectifying and properly address the issues. This strategical communication shift coincided with the takeover of a new Chief Executive Officer in 2013 (BBC, 2013), which was probably the main driver for change.

In the incident of the dam collapse in Brazil, the discourse of both *Samarco* and *BHP* was very different from the previous case. Both companies assumed accountability right away, by directly apologizing to the affected communities and ensuring action plans were in place to mitigate and repair the damage done both to the environment and people, thus assuming a full mortification strategy (Stephens et al., 2005). The difference between *Samarco*'s and *BHP*'s approaches rely on the scope of the strategy used. Evidently, *Samarco* disclosures solely focus on Bento Rodrigues and nearby communities, as well as the repair of the environmental landscape. *BHP*, considering its dimension and the ownership relationship with *Samarco*, has broaden its mortification strategy to include other stakeholder groups as targets (e.g. investors), by committing to prevent this type of incident from happening in all its operations worldwide. This is in line with Hybel (1995) perspective, which has highlighted the weight of considering the influence of different stakeholders when assessing the legitimacy theory.

8. Conclusion

8.1. General Considerations

The purpose of this study was to examine how *Lonmin, Samarco* and *BHP* publicly reacted through their CSR disclosures in the face of major adverse events (the Marikana massacre and the Mariana dam disaster), in order to regain legitimacy. On one hand, it aimed at analysing whether there was a positive correlation between the negative occurrences and the total amount of corporate disclosures and, one the other hand, to assess which and how legitimation strategies were used. To achieve this purpose, company's annual and sustainability reports were analysed through the content analysis method.

The findings of this study extend and corroborate the previous literature research on this matter (Savage et al., 2000; Deegan et al., 2002; Cho, 2009; Summerhays & Villiers, 2012; Vourvachis et al., 2016; Blanc et al. 2017), by demonstrating that companies did, in fact, change their CSR disclosure patterns, presumably by attempting to regain legitimacy after the incidents: 1) All three companies total amount of disclosures have significantly increased during the incident period, and 2) They have used different crisis-response strategies to shape their discourse in communicating with its stakeholders.

Regarding the incident of *Lonmin*'s Marikana operations in 2012, the study identified "Health, Safety and Wellbeing" and "Employee and Labor Relations" as the main categories influencing on the rise of overall CSR disclosures, but disclosures on "Fair Working Conditions" evolved below expectations. During the incident period, the company has adopted a mix of distance and ingratiation-based legitimacy strategies, attempting to dissociate itself from responsibility and to deflect public's attention to more positive information, as aligned with legitimacy theoretical framework.

In what concerns the Mariana dam collapse on 2015, both *Samarco* and *BHP* disclosed extensively on positive rectification information (for both Environment and Community Involvement dimensions), while overshadowing incident's impacts-related information. Both companies bluntly assumed a mortification strategy to communicate with its target stakeholder groups and achieve positive acceptance, although in *BHP*'s case the strategy response was broader due to its dimension and ownership relationship with *Samarco*.

Therefore, both incidents influenced companies to act towards the regaining/repairing of their legitimacy, in a context of an industry associated with pejorative perceptions and very looked down upon in what concerns environmental and social matters.

8.2. Contributions, Limitations and Suggestions for Future Research

I consider this study to have three main contributions. First of all, this investigation adds to and corroborates the existing literature supporting the legitimacy theory, mainly on how companies manipulate CSR disclosure practices when confronted with legitimacy-threatening events. The study portrays a very comprehensive approach by having both a quantitative and qualitative analysis, this is: not only it identified the positive trends on the total amount of disclosures, but also qualitatively discriminated how companies strategically communicated with their publics. Secondly, by analysing two incidents which have happened within the same industry, it is insightful to understand how companies can respond differently and draw comparisons. Moreover, the adverse events were chosen wittingly to represent different impacts on distinct CSR dimensions (environmental and social) and allow for comparison. I consider this deconstructed approach to be missing within the established literature around the legitimacy theory. Finally, I believe this study may support stakeholders (especially in the mining sector) to understand how companies can use CSR disclosures as a tool to protect/repair corporate reputation and shape their perceptions.

However, this study also contains some limitations which should be taken into account for future research purposes. It's important to highlight that this study was based on the analysis of two very particular cases within a specific industry, thus it cannot be generalized to other instances. Moreover, its execution was limited to the analysis of some of companies' online information – annual and sustainability reports -, thus not taking into account press releases, media news, in-depth interviews, etc. Additionally, in terms of the results obtained, it is possible that some changes in the volume of disclosures may have been influenced by other factors of which I'm not aware of. However, the previous observation is highly unlikely, as peaks in total amount of disclosures coincided with the incident period, thus being fair to assume so.

For future development of research in this area, it would be insightful to understand and evaluate stakeholders' (both affected and non-affected by the incident) perceptions and reactions towards the companies' attempts to shape their opinions, by using the previously listed legitimacy repairing methods. It would be very interesting to establish a comparison between the corporate intentions behind outlining a legitimacy strategy and the actual effects on stakeholders' perceptions.

Appendix 1

Stephens et al. (2005) Crisis-communication message strategies

Definitions - Type of technical translation message

Nonexistence strategies—says no crisis exists—these are listed in increasing order of response

- Denial—no crisis exists
- Clarification—explains why not
- Attack—confronts those saying crisis exists
- Intimidation—threatens to use organizational power

Distance strategies—acknowledge the crisis—create public acceptance while weakening linkages

- Deny intention (excuse)—minimize the cause
- Deny volition (excuse)—someone else responsible
- Minimize injury (just)—it's not that bad
- Victim deserving (just)—victim caused it
- Misrepresenting crisis (just)—claims crisis description inaccurate

Ingratiation strategies—seek to gain public approval for the organization

- Bolstering—reminds public of existing positive aspects
- Transcendence—places crisis in a larger, more desirable context
- Praising others—goal is to win approval of target group

Mortification strategies—attempt to win forgiveness of the publics and create acceptance for the crisis

- Remediation—offers compensation to help victims
- Repentance—asks for forgiveness
- Rectification—taking action to prevent future recurrence
- Suffering strategy—organization is unfair victim

Suffering strategy—organization is unfair victim

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