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The interplay between home and host logics of accountability in multinational corporations (MNCs): the case of the Fundão dam disaster

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**The interplay between home and host logics of accountability in multinational corporations (MNCs): the case of the Fundão dam disaster**

**Abstract**

**Purpose** – The major purpose of this paper is to answer the overarching questions of how multi-national corporations (MNCs) address the multiple institutional logics of accountability and pressures of the field in which they operate and how the dominant logic changes and shifts in response to such pressures pre- and post- a disaster situation.

**Design/methodology/approach** – In-depth interpretive textual analyses of multiple longitudinal datasets are conducted to study the case of the Fundão dam disaster. The data sources include historical documents, academic articles, and public institutional press releases from 2000 to 2016 covering the environment leading to the case study incident and its aftermath.

**Findings** – The findings reveal how MNCs’ plurality of and, at times, conflicting institutional logics shape the organizational behaviors, actions and non-actions of actors pre-, peri- and post-a disaster. More specifically, the predominance bureaucracy embedded in the state-corporatist logic of the host country before a disaster allows the strategic subunit of an MNC to continue operating while causing various forms of environmental damage until a globally visible disaster triggers a reversal in the dominant logic towards the embrace of wider, global emergent social and environmental accountability.

**Originality/value** – This paper contributes to discussions regarding the need to explore in depth how MNCs respond to multiple institutional pressures in practice. This study extends the literature concerning disaster accountability, state-corporatism and logic shifting by exploring how MNCs respond to the plurality of institutional logics and pressures over time and showing how, in some cases, logics not only reinforce but also contrast with each other and how a globally exposed disaster may trigger a shift in the dominant logic governing MNCs’ responses.

**Keywords** – accountability, institutional logics, multinational corporations (MNCs), state-corporatism, multiple embeddedness

**Paper type** – Case study

## 1. Introduction

Multinational corporations (MNCs), which are defined as corporations that “(...) engage in foreign direct investment (FDI) and own or control value-adding activities in more than one country” (Dunning 1992), have become key players in the global economy, together with their strategic subunit alliances. MNCs often expand their business operations through strategic alliances in the form of, e.g., joint ventures, which are increasingly common worldwide (Xu & Shenkar, 2002). MNCs are simultaneously embedded in their country of origin and their host country, which often exhibit different institutional profiles and features (Muzio & Faulconbridge, 2013; Sundaram & Black, 1992). This phenomenon, dubbed “multiple embeddedness” (Meyer et al. 2011, p. 235), raises critical issues regarding whether and to what extent MNCs apply their home standards and logic when entering into business operations abroad or rely on the standards and logic of their host country (Kapelus 2002).

Institutional logics are patterns of norms, assumptions, values, beliefs, and rules that provide meaning to the social reality and guide the decision-making of actors (Lounsbury, 2007; Lounsbury, 2008; Thornton 2004). Extant investigations of the “country-of-origin” effect (COE) have revealed that MNCs generally operate in distinctive ways when managing their operations in host countries (see, e.g., Ferner, Quintanilla, & Varul, 2001; Tan, 2009). Moreover, in some cases, MNCs may move their business activities to host countries, which oftentimes have competing and contradictory logics (Cho et al., 2011; Greenwood et al. 2010) based on particular interests, such as less stringent environmental regulations and lower labor costs (Kapelus, 2002). In this situation, MNCs have been found to often depart from their home standards and institutional logic, fall short of maintaining adequate minimum social and environmental standards (Ferner et al., 2001), implement environmental standards and policies that serve their own preferences (Child and Tsai, 2005), or adopt strategies to conform their regional practices with the loose ethical and environmental restrictions that apply in emerging countries (Arnold, 2003; Bartling & Fischbacher, 2011).

Various international agreements and treaties (e.g., United Nations, 2011, United Nations, 2017) have been developed that aim to promote more socially and environmentally responsible and sustainable operations by MNCs. Moreover, it has been pointed out that MNCs may be discouraged in adopting behaviors that may lead to a loss of global legitimacy (Kostova, 1999). The problems described above do not appear to have been resolved. Along these lines, Greve and Zhang (2017), Kim et al. (2010) and Besharov and Smith (2014) have called for studies to address how MNCs respond to multiple institutional logics – cultural beliefs that shape the behaviors of actors – in practice. Despite the rapidly growing research on institutional logics, most previous studies overlook the cross-border situations of MNCs, in which MNCs with institutional logics originating in their home country are challenged to adjust to the emerging institutional logic and environment of the host country (Meyer & Hammerschmid, 2006; Suddaby & Greenwood, 2005; Tan & Wang, 2011). These struggles resonate with challenges faced by hybrid organizations, as they similarly incorporate competing institutional logics (see Pache & Santos, 2013). This may even be compounded by their often status as global players, with high visibility, operations and impacts beyond their home and host country.

To address these scholarly calls and related practical challenges, the major purpose of this paper is to answer the overarching question of how MNCs operate and respond to multiple institutional logics and requests for accountability as they face pressures from multiple embeddedness and how responses to such pressures change and shift before, during and after a disaster situation. Utilizing interpretive textual analysis, this paper analyzes the trajectory of the case of disruption of the Fundão dam, focusing on the period from BHP Billiton's entry into a joint venture with Vale under Samarco in 2000 to the signing in 2016 of a framework

agreement post-disruption. In light of the main objective, the contributions of this study are threefold. First, this study extends the disaster accountability literature by focusing on MNCs' multiple institutional pressures and strategic responses (Greenwood & Suddaby, 2006; Marano & Kostova, 2016; Pedersen & Gwozdz, 2014) and examining how these factors change as a consequence of a disaster. Drawing on the institutional logic framework (Friedland and Alford, 1991, Meyer and Hammerschmid 2006, Thornton, 2002; Thornton et al., 2012), the study explores the ways in which an MNC responds to the plurality of institutional logics and pressures over time, showing how logics in some cases reinforce but also contrast with each other and how a globally visible disaster may bring about a shift in the dominant logic governing an MNC's responses (Greenwood et al., 2011; Tan & Wang, 2011; Xu & Shenkar, 2002). Second and more specifically, the study extends the state-corporatism (Vasudeva et al., 2015, Vasudeva et al., 2013a, Vasudeva et al., 2013b) and logic shifting (Amaeshi et al., 2008, Bartling & Fischbacher, 2011; Cragg and Greenbaum, 2002) literature by showing how adaptation to and acceptance of a host-country state-corporatist logic and its associated bureaucratic norms allowed Samarco to continue operating undisturbed following local, sub-optimal environmental standards for several years despite the resulting smaller damages and disasters. However, it also shows how the Fundao Dam disaster brought about an apparent reversal in the dominant logic, whereby the joint venture had to embrace higher standards of environmental responsibility to face global and local pressures. Thus, this study employs an institutional logic lens (Thornton et al., 2012) to better understand the behavior of social actors, whose agency roles are crucial for understanding institutional identity and change.

The findings of this study suggest that MNCs' actions and behaviors, as well as their responses to disasters, are significantly affected by the multiplicity of institutional logics in which they are embedded (Thornton, Ocasio, & Lounsbury, 2012). The continuous interplay between the plurality of logics of accountability drove the different organizational behaviors, actions and nonactions of BHP, Vale and Samarco surrounding the Fundão dam collapse and caused shifts in their relevance and actions (Vasudeva, Alexander, & Jones, 2015). The remainder of the paper proceeds as follows. Section 2 reviews the relevant literature on MNCs, institutional logics and multiple embeddedness. Section 3 discusses accountability and responsibility in the context of MNCs. Section 4 describes the methodology of the study. The case of the Fundão dam disruption and the results are presented in section 5. The study's findings are further discussed in section 6. Section 7 draws conclusions and reflects on the possible implications of the study.

**2. Multinational corporations and multiple institutional logics**

Institutional theories provide a relevant conceptual basis to analyze MNCs' practices and strategic behavior in response to the dual pressures they face from home country integration and host country orientation (DiMaggio & Powell, 1983; Marano & Kostova, 2016; J. Meyer & Rowan, 1977; Westney, 1993; Xu & Shenkar, 2002). In various relevant institutional research studies on MNCs, the institutional logics perspective has become a widespread analytical concept (see, e.g., Egels-Zandén, Lindberg, & Hyllman, 2015; Kostova & Roth, 2002; Marano & Kostova, 2016; Pache & Santos, 2010). The concept was first introduced by Friedland and Alford (1991), who argue that society is formed by multiple institutional demands directed by so-called institutional logics. Dunn and Jones (2010, p. 114) define institutional logics as "(...) cultural beliefs and rules that shape the cognitions and behaviors of actors (...)" and that provide those actors with means-ends designations and rationales for goals and actions (see also Greve & Zhang, 2017; R. E. Meyer & Hammerschmid, 2006; Orlitzky, 2011; Thornton, 2002; Thornton & Ocasio, 1999; Thornton et al., 2012). Institutional logics further provide a collective understanding of how topics and decisions are framed

(Orlitzky, 2011) and are a “taken-for-granted social prescription” that legitimates organizational activity (Battilana and Dorado 2010, p. 1420).

It is not unusual for MNCs to operate in environments where multiple institutional logics coexist (Kostova & Roth, 2002; Marano & Kostova, 2016). Indeed, the different environments in which MNCs operate often confront them with multiple, diverse, fragmented and conflicting demands (Kostova, Roth, & Dacin, 2008). Balancing these conflicting pressures, obtaining legitimacy and maintaining it in multiple host country environments are among the key challenges faced by MNCs (Kostova and Zaheer (1999); Kostova and Roth (2002); Xu & Shenkar, 2002). Kostova (1996) refers to the extent of dissimilarity between the home and host country environments as “institutional distance.” As suggested by Muzio and Faulconbridge (2013), Kostova and Roth (2002) and Kostova & Zaheer (1999), institutional distance leads to “institutional duality,” whereby MNCs and their strategic subunits operating in foreign countries are expected to simultaneously respond to and comply with the institutional demands and the constituents of the host environment as well as the institutional pressures exercised by the global headquarters in the home country (Kostova & Roth, 2002, p. 216). The institutional duality perspective underlines that MNCs may face substantial challenges when trying to apply their home country practices and models in host countries with different regulations, norms and business operations (Muzio & Faulconbridge, 2013). This could provide an opportunity for an MNC and its strategic subunits to conform with local host country expectations, which may conflict with home country logics (Greenwood et al. 2010; Kapelus 2002) and the wider global emergent social and environmental accountability logics (Cho et, al., 2011; Eisenstadt, 1980; Greenwood et al. 2010).

It has been argued that the concept of institutional duality suggests that MNCs and/or their strategic subunits may seek to conform to the institutional pressure that is stronger, whether it emanates from the home country environment or the host country environment (Greenwood et al. 2010; Kostova & Roth, 2002). In these situations, MNCs are confronted with conflicting “prescriptions for behavior” (Greve and Zhang 2017). In fact, MNCs that face multiple conflicting pressures when operating within different institutional spheres may be able to satisfy some demands while violating others (Pfeffer & Salancik, 1978). In doing so, MNCs could potentially jeopardize their legitimacy (Pache & Santos, 2010).

In addition, Thornton et al. (2012) argue that society is shaped by different institutions or ‘institutional orders’ that coexist and possibly contradict each other. Each institutional order has a distinct set of expectations (logics) that shape and describe its rationality. Since they are part of the social system in a given society, the behavior, interests and preferences of individuals and organizations are shaped, influenced and legitimized by the rationality driven by the underlying logics of these institutional orders (Friedland and Alford, 1991). Furthermore, Besharov and Smith (2014) argue that even though institutional logics influence actors’ cognition and action, those actors influence and determine how logics are instantiated within organizations since actors are likely to be centered in one or more institutional orders than others (Thornton et al., 2012, Besharov and Smith, 2014). This interplay between institutional structures and individual agency shapes organizational decisions, behaviors and outcomes (Thornton and Ocasio, 2008). From a theoretical perspective, considering that multiple institutional logics permit an examination of how actors’ behaviors are institutionally enabled and constrained rather than institutionally determined, using the institutional logic framework helps overcome one of the major criticisms of neo-institutional theory, i.e., that it pays limited attention to the agency role of social actors (e.g., Thornton et al. (2012)).

Although a number of studies have contributed to our understanding of the multiple competing and coexisting logics in MNCs (see, e.g., Pache & Santos, 2010; Swan, Bresnen,

Robertson, Newell, & Dopson, 2010), more research is deemed necessary to provide insights on how MNCs manage the complexity of multiple institutional logics in practice and what types of specific organizational responses MNCs provide to conflicting institutional demands, especially when their accountability is at stake (Greenwood, Raynard, Kodeih, Micelotta, & Lounsbury, 2011; Pache & Santos, 2010). This study examines the diverse institutional logics of BHP Billiton (MNC), its strategic subunit Samarco, and its local host partner Vale and focuses on how those organizations coped with those multiple logics in the context of the Fundão dam disaster case. The findings advance the studies of Greenwood et al. (2010) and Thornton et al. (2012) by illustrating the impacts of host state-corporatism logics and the agency role of MNCs in enforcing the home country-oriented pluralist logic of accountability and their interplay with the wider global emergent social and environmental logic represented by environmental communities, NGOs and pressure on MNCs' behavior and responses in a disaster situation.

### 3. Accountability, MNCs and state-corporatism

As globalization leads to accelerated growth in the number of MNCs and their operations worldwide, the importance of their accountability has never been more evident (Amba-Rao, 1993; Safari & Parker, 2017). Accountability has been described in different ways, including as a matter of transparency, disclosure, and responsibility and as a form of constructing and presenting a narrative of past corporate events, policies or actions (Gray, Owen, and Maunders, 1988; Roberts and Scapens, 1985; Shearer, 2002; Siddiqui & Uddin, 2016; Wild, 1994; Swift, 2001, p. 17). Parker (2014) notes that company accountability is associated with the observable actions of corporate actors. In this regard, accountability in its widest sense represents a "duty to humanity" (see also Gallhofer & Haslam, 1993; Unerman & O'Dwyer, 2007) that facilitates the pursuit of social acknowledgement or social change via the actors' actions. Similarly, Gray et al. (1988) contend that the accountability relationship between a corporation and the wider society is inherent in the social contract between them and the assumption of business deriving its existence from society (Amaeshi, Osuji, & Nnodim, 2008).

The breakdown of accounting and accountability in disaster situations in particular has been the subject of prior studies. The lack of a moral aspect in the concept of accountability, the failure to extend beyond calculative accountability (Baker, 2014), the legal structures in society (Cooper et al., 2011) and the bureaucratic nature of the accounting disaster-relief system (Sargiacomo, et al., 2014) are among the factors considered to contribute to the suffering of some victims in the context of humanitarian and environmental disasters. Furthermore, organizations could face institutional complexity whenever they confront multiple and even conflicting requests for accountability, to which they might respond differently depending on the potential impact of the responses on their social legitimacy (Greenwood et al., 2011). The complexity emerging from multiple institutional logics would be greater for MNCs, as their operations are embedded in multiple countries and often exhibit competing logics (Muzio & Faulconbridge, 2013; Sundaram & Black, 1992). Several MNCs, such as Nike and Gap (see Arnold, 2003), have exhibited, in their operational regions, behaviors conforming to the loose ethical and environmental accountability logics that apply in their emerging host countries rather than deploying a universal code of ethics.

Given the intensification of investments by MNCs in various business activities in developing and emerging nations, several groups and institutions monitor and report on the accountability as well as the performance of these MNCs (Miles & Munilla, 2004). As suggested by Kostova and Zaheer (1999) and Child and Tsai (2005), some international corporations are subject to greater accountability and responsibility for failures in their home country than in their host country because they often must address the expectations of wider

constituencies. However, the actual extent and content of their accountability and responsibilities remain at best ambiguous, as their definition and translation in practice may depend on and reflect the interplay of conflicting and changing logics governing MNCs and their subunits. Controversial industry sectors such as chemicals and mining have experienced a series of ecological disasters in the past few decades (Belal, Cooper & Khan, 2015; Milne & Patten, 2002). The mining industry, in particular, has increasingly become an area of intervention for MNCs (e.g., through joint ventures). Mining sectors are inevitably localized because resources are extracted from host sites, which often affects the communities in and around those areas (Newenham-Kahindi, 2011). Given the severity of mining disasters caused by MNCs, activists, communities, scholars and other stakeholders have called for responsible mining companies to become more accountable for their societal and ecological impacts (Calvano, 2008; Miles & Munilla, 2004).

While the majority of accountability and social responsibility studies have focused on reporting and disclosure, there is a consensus among accounting scholars regarding the need to elaborate on the ways in which MNCs and their leaders are held accountable and render accounts of their operations (Cho, Guidry, Hageman, & Patton, 2012; Messner, 2009; Sinclair, 1995), particularly in the context of a disaster situation. In particular, the realities of mining companies' activities worldwide demonstrate that there are substantial gaps to address in how MNCs face competing logics and how they respond to the social and ecological disasters their operations cause in the countries where they operate (see, e.g., Calvano, 2008; Newenham-Kahindi, 2011).

Prior studies note that compared to their interactions while engaging with (partner) companies in low-corporatist (pluralist) settings, such as the United States, United Kingdom, Australia, and Canada (Gurneeta Vasudeva, Alexander, & Jones, 2014), companies located in high-state-corporatist environments are likely to interact and behave differently while engaging with (partner) companies from more state-corporatist environments as they are subjected to different degrees of skepticism. Such skepticism is most likely a result of the inconsistency of the different norms and values embedded in the state-corporatist and pluralist logics (Vasudeva et al., 2015; Vasudeva, Zaheer, & Hernandez, 2013).

#### 4. Research method

The numerous accounting case studies concerning natural and anthropogenic disasters adopted different methodologies and relied on various data sources (Baker, 2014; Sargiacomo, 2014). Examples range from content analyses of annual reports (Patten, 1992) to analyses of photographic records (Matilal & Höpfl, 2009), national ordinances, laws and decrees (Sargiacomo, 2015), participation in meetings, minutes of meetings and interviews (Sargiacomo, 2015; Siddiqui & Uddin, 2016), direct observations (Lai, Leoni, & Stacchezzini, 2014), and reviews of publicly available data (Baker, 2014; Cooper, Coulson, & Taylor, 2011; Moerman & Van Der Laan, 2005).

For the purpose of this paper, a case study analysis was conducted using a qualitative approach drawing on multiple datasets including, but not limited to, news articles, technical reports, and agreement to ensure the triangulation of sources (see Appendix 1). More specifically, the case of the Fundão tailings dam collapse was studied through textual analysis of publicly available documents (Baker, 2014; Cooper, Coulson, & Taylor, 2011). Our sources cover the period pre- and post- disaster, starting in 2000, when BHP Billiton founded Samarco as a joint venture with Vale, through 2008, when the Fundão dam began operating, to 2016, the time of the Fundão dam collapse and its aftermath. The consideration of the pre- and post-

situation period permits a review of the environment leading up to the case study incident as well as its aftermath (Safari & Parker, 2017).

The analysis first involved a series of archive searches of reports and press releases issued by BHP Billiton, Vale, and Samarco, all of which are available on the companies' official websites (e.g., BHP Billiton, 2017; Samarco Mineração, 2011, 2015a, 2015b). Furthermore, articles containing the words BHP Billiton, Vale, and Samarco were manually reviewed to select articles relevant to the tragedy (See Appendix 1). Special attention was paid to the operations of the Fundão dam in Brazil. This method allowed the researchers to create an archive of a number of news items, including reports, editorials and opinion pieces in both English and Portuguese (e.g., ABC News, 2016; Bartholomeusz, 2016; Fitzgerald, 2016; Globo, 2015; Ker, 2016; Szoke, 2015; Wilson, 2015). This database was augmented with technical reports about the incident (e.g., Instituto Prístino, 2013; Milanez & Pinto, 2016; Morgenstern, Vick, Viotti, & Watts, 2016; PoEMAS, 2015). The appendix lists the documents used in the analysis. Following the prior literature, the foreign language texts were then translated using a 'domestication' translation strategy. This translation strategy refers to the adoption of terminologies that enhance readability of the text in English (Venuti, 1995; Xian, 2008). The translation strategy was conducted by one of the researchers who is both bicultural and bilingual to minimize the strangeness of the textual materials (cf. Kamla and Komori, 2018).

There is no single method for textual analysis (Gallhofer, Haslam, & Roper, 2001), and the study adapted the interpretive textual analysis approach articulated by Laine (2009) and Moerman and Van Der Laan (2005) to analyze the data. Furthermore, initial codes were generated based on the conceptual framework of the study, that is, the three stages of pre-disaster, during the disaster, and post-disaster. Codes were categorized into the relevant stages, and each code listed the relevant passage from the source documents. The initial coding phase was followed by phases of searching for institutional logic and accountability patterns in each stage (see Sections 5.1, 5.2, and 5.3 and Tables 1 and 2). This process involved strict textual analysis of data to identify patterns of accountability and institutional logic, actions and non-actions exhibited by the actors (e.g. ignoring potential risks signaled by minor incidents or observable transparency and accountable actions of corporate actors). In doing so, the data were repeatedly read and re-read by the researcher to identify precise and rigorous patterns (Humphrey et al., 2004; Laine, 2009). The general attributes of state-corporatism and pluralist logics in the context of the study's MNC home-host countries were constructed following the prior literature and are outlined in Table 1. The construct is used to further support the discussion of the data. The map of logics and shifts in dominant logics based on the actors' responses and actions and non-actions pre- and post-disaster is shown in Table 2. The findings are presented in sections 5.1, 5.2, and 5.3.

**Table 1.**  
Home and host logics of accountability map

Logic	Location of dominance	Evidence of dominance-macro level	Attributes of society
State-corporatism (SC)	Samarco (host country)	SC political system and its association with power concentration (Kröger 2012) is the dominant logic of (un)accountability that drives most (non)action in the Brazilian context (Doctor 2007).	SC (i) System of interest-group representation in which the state plays a major role in structuring, supporting, and regulating interest groups with the objective of controlling their internal affairs and their relations (Mericle 1977); SC (ii) The private sector is essentially a reactor to government actions (Schneider 2004); and SC (iii) Ignores wider calls from the global community for social and environmental accountability for the potential risks signaled by minor incidents and requests from local people and communities as its main stakeholder is the state (Schneider 2004).
Pluralist society logic (PL)	BHP (home country)	PL is competition oriented; its norms and values are most likely the dominant logics affecting corporations, such as in the United States, United Kingdom, Australia, and Canada (Vasudeva, Alexander, & Jones, 2014).	PL (i) Accountability is viewed as a matter of transparency, disclosure, and responsibility (Siddiqui & Uddin, 2016); PL (ii) Expands throughout formal reports, discourses, and observable actions of corporate actors (Parker 2014); PL (iii) Represents a “duty to humanity” (Gallhofer & Haslam, 1993; Unerman & O'Dwyer, 2007); and PL (iv) Public opinion, scrutiny and higher recognition of wider global emergent social and environmental accountability (Jenkins & Yakovleva, 2006)

## 5. Samarco and the Fundão dam disruption

This section presents the dynamics of the dominant logics and logic shifts pre- and post-Fundao Dam disruption. The first sub-section provides evidence of the plurality of institutional logics and the dominance of bureaucratic norms in the state-corporatism logic, including evidence of warning signals ignored by the actors involved. The second sub-section describes the disaster, the Fundão tailings dam collapse and its ecological and societal impact, which triggered extensive media exposure of the incident. This section portrays how the extent of media pressure triggered a shift in logic. The third sub-section depicts the shift in the logics of accountability and explains the dominance of the pluralist logic in the aftermath of the disaster.

### 5.1. Stage 1: Preamble – Dominance of the state-corporatism logic

In 2000, the world's largest mining company, Anglo-Australian BHP Billiton Ltd., and the Brazilian mining company Vale do Rio Doce SA entered the joint venture Samarco Mineração SA, which operates the Fundão, Germano and Santarém dams as parts of the Germano mine located in the state of Minas Gerais, Brazil (Escobar, 2015; P. G. d. Fonseca & Fonseca, 2016). Established as a non-operated joint venture, Samarco is owned 50:50 by BHP Billiton and Vale, but neither partner is the operator involved in day-to-day management oversight (Samarco Mineração, 2015b; Wilson, 2015). Hence, Samarco is run independently and overseen by a board that includes representatives of both BHP Billiton and Vale

(Fitzgerald, 2016). The joint venture appeared to expose BHP Billiton to a plurality of institutional logics, including that of the host country. BHP Billiton's CEO, however, claims that it was expected that Samarco would conform to BHP's institutional logic, which is arguably in alliance with the wider global emergent social and environmental accountability logics:

*"But what I would say to you is that, until that time, Samarco was seen as a company that was very keen to embrace the highest standards in the world. They were very keen to adopt BHP Billiton standards." (ABC News, 2016)*

However, a series of events demonstrated the dominance of the host country institutional logic of accountability in practice, which will be discussed next. Well before the disruption of the Fundão dam in November 2015, a number of failures involving Samarco had already occurred (PoEMAS, 2015), but the potential risks signaled by minor incidents and requests from local people and communities were ignored, demonstrating the dominance of the host country state-corporatism logic of accountability (Table 1, SC iii; Table 2, stage 1). For instance, regarding a leakage in 2005, an employee from Samarco claimed the dam should have endured even in the case of excessive rain:

*"The cause was too much rain. We were going through a moment of heavy rainfall, but even so, this dam would have to endure" (Bertoni & Amâncio, 2015). [translation]*

Samarco was sued and fined for operating the Santarém dam without adequately renewing its operating license in 2004. In 2005, the company was sued after water with high levels of turbidity was found in the spillways of both the Santarém and Germano dams. Additionally, in 2005, Samarco was fined for a leak in the Germano dam. However, notably, the fine was never paid, and five years later, the case was closed (PoEMAS, 2015). Subsequently, Samarco removed one of its sustainability reports that reported this 2005 dam leakage from its website under the following justification:

*"The company says the reports are no longer on the site because it is prioritizing disclosures about Mariana" (Bertoni & Amâncio, 2015). [translation]*

In 2006, a leak from one of Samarco's pipelines contaminated the Gualaxo do Norte and Carmo Rivers:

*"In 2006, a new leak, this time of ore pulp, was in Barra Longa (MG), reaching two streams. Samarco had to build a containment basin and distribute cleaning supplies and water to six families using the streams to wash clothes" (Bertoni & Amâncio, 2015). [translation]*

In 2007, the company was fined R\$20,000 for not issuing a safety report on a discharge dam structure. In 2008, 1,890 m<sup>3</sup> of ore slurry leaked from a pipeline in the municipality of Anchieta in the state of Espírito Santo, contaminating a stream. Samarco was fined R\$1.6 million by the Instituto Estadual de Meio Ambiente of the state of Espírito Santo as a result of the incident (PoEMAS, 2015). In 2010, another leak contaminated the São Sebastião River, affecting approximately 30,000 people (PoEMAS, 2015), and Samarco was fined R\$40,000 by IBAMA but was able to reduce the penalty to R\$28,000 (Samarco Mineração, 2011). A member of the local government describes how there was no follow-up from Samarco regarding environmental issues:

*"Two years later, Samarco reintroduced fish into the river. I do not know if it has succeeded, because we have no studies" (Bertoni & Amâncio, 2015). [translation]*

According to a survey conducted in the *Sistema Integrado de Informação Ambiental* (SIAM), which is part of IBAMA (PoEMAS, 2015), Samarco had a total of 19 infringement assessments. These records were mostly related to negligent environmental compliance and mismanagement of project operations that placed the neighboring population and the environment in imminent danger. According to PoEMAS (2015), the first notice of violation in the system dates back to 1996 and refers to mineral extraction; subsequently, the mining company was notified almost every year of irregularities by the state or federal environmental agency: in 1997, 1999, 2000, 2002, 2004, 2005, 2006, 2007, 2008, 2010, 2011, 2013 and 2014 (PoEMAS, 2015). In addition, Samarco received four notices of violations from IBAMA, the federal agency responsible for the environment, between late 2010 and mid-2011. Two were for breach of conditions, one for removing vegetation and another for irregularly damaging the permanent preservation of vegetation, the latter of which resulted from leakages from pipelines that belonged to the company (PoEMAS, 2015). Furthermore, Samarco has disclosed that two other dams located in the same mining region as the Fundão dam face the threat of collapse (Neves et al., 2016). While Brazilian standards recommend stability levels of greater than 50%, those dams present stability levels of only 37% and 22% (Globo, 2015). In fact, 42 of the 735 dams in the state of Minas Gerais have no guarantee of stability (Neves et al., 2016).

The failure of the Fundão tailings dam presents an example of how the cumulative effects of multiple construction and design flaws in combination with improper maintenance and operating decisions can lead to a social and environmental disaster (Morgenstern et al., 2016; PoEMAS, 2015; van Zyl, Shields, Agioutanis, & Joyce, 2016). Interestingly, the dam collapse is only the most recent incident in a series of smaller events that might have served as warning signs but were ignored in risk assessment exercises.

According to Morgenstern et al. (2016), the first incident related to the Fundão tailings dam occurred shortly after the dam was completed in 2009, when it was so badly damaged due to construction defects that the original concept could no longer be implemented and a revised design had to be used. Fundamental changes in the design concept were adopted that allowed for more widespread saturation. These changes in turn introduced the potential for sand liquefaction (Morgenstern et al., 2016). During a period in 2011 and 2012, a second incident associated with water management and slime occurred, further compromising the dam (Ker, 2016; Morgenstern et al., 2016). Another incident occurred in 2012, when a concrete conduit was discovered to be structurally deficient and unable to support further loading. Morgenstern et al. (2016) state that under these circumstances, all of the necessary conditions for liquefaction to trigger the dam failure were in place. Morgenstern et al. (2016), who base their argument on a seismology report by Atkinson (2016), state that the three small-magnitude earthquakes that occurred on the afternoon of 5 November 2015, preceding the dam failure by approximately 90 minutes, would not usually be regarded as consequential to dam structures with robust designs and operations. In fact, small earthquakes are relatively common in the state of Minas Gerais. It should be noted that risk analyses disregard the possibility of dam breakage following minor earthquakes (PoEMAS, 2015). Despite the several incidents prior to the dam collapse in 2015, BHP Billiton claims to have not been aware that its Samarco operation was at risk of failure (Ker, 2016).

As reported by PoEMAS (2015), Samarco had no audible warning systems as required by law or trained personnel to assist the community. It is noteworthy that a sound system was not installed until two days after the dam broke (PoEMAS 2015). A Samarco civil engineer stated that

*“There was no siren signal to the population; there was telephone contact and contact with the authorities” (PoEMAS, 2015, p. 71). [translation]*

The issue is echoed by an OGlobo media report as follows:

*“According to Samarco, its contingency plan was only to call community leaders warning of the tragedy. (...) In addition to the company's emergency action plan being precarious, residents would not have received any reports of the accident or directions to leave the area. (...) Deaths were prevented as some company employees rushed to the village to alert relatives and friends.” (OGlobo, 2016). [translation]*

According to a newspaper report, Bento Rodrigues residents had asked the company several times for sirens to warn against possible dam breaks. However, Samarco declined to respond to this concern, arguing that there was no need to install sirens (PoEMAS 2015). The multiple failures with regard to swift responses and appropriate reactions to warning signals are consistent with the dominance of host country bureaucratic state-corporatist logics (Table 2, stage 1)

Although the exact cause of the Fundão dam failure is unknown, media reports (e.g., Szoke, 2015) and empirical studies (e.g., Morgenstern et al., 2016) have referred to the inadequate compliance of BHP Billiton, Vale, and their operator, Samarco, with the due diligence responsibilities and obligations outlined in the OECD guidelines for multinational enterprises, to which the Australian and Brazilian governments are signatories (OECD, 2011). In an environmental report published in 2013 and commissioned by the state's Environment Ministry, Instituto Prístino, an independent not-for-profit institute, assessed Samarco's Fundão dam operations and declared its concerns about the integrity of the tailings dam. Although the institute recommended against renewing the license, that advice was ignored (Instituto Prístino, 2013).

An example of BHP's conformation to its subunit's logic through the delegation of responsibilities is evident in many warning reports and the ongoing problem that were either missed or ignored by the BHP executives who served on the Samarco board. BHP's CEO, i.e., Andrew Mackenzie, also claimed that he was aware of these reports but had no specific answer as to why they were overlooked as follows:

*“(...) I've heard of all of those reports [warning reports that were either missed or ignored]. (...) Well, if you'd like to give me a bit more details, I'm more than happy to push that into the team in Brazil” (ABC News, 2016)*

These incidents occurred despite the norm that MNCs operating in heavily polluting sectors, such as mining, are generally expected to report and publicly communicate their responsibility for their operations (Hunter and Bansal 2007; Zyglidopoulos 2002). Carlos Eduardo Pinto described the approval of the tailing dam process Samarco underwent as follows:

*“Here in Brazil, it [approval of tailing dam] should take longer than this one did. The environmental authority gave a blank cheque to Samarco, Vale and BHP to carry out the project and operate it, without the controls required under Brazilian law” (ABC News, 2016).*

## 5.2. Stage 2: Disaster-Ecological and societal impact

When the Fundão tailings dam collapsed on November 5, 2015 in Bento Rodrigues, a subdistrict of Mariana in the state of Minas Gerais, 50–60 million cubic meters of toxic waste spread down the Doce River, the second-most-extensive river in Brazil's southeast Atlantic region with a catchment area covering 230 municipalities (Fonseca & Filho, 2017), and

initiated a shocking series of events (P. G. d. Fonseca & Fonseca, 2016; Garcia, Ribeiro, De Oliveira Roque, Ochoa-Quintero, & Laurance, 2017). Due to the disaster, 19 mining workers and citizens died, and nearly one million people were without water and electricity for days (PoEMAS, 2015; Segura et al., 2016).

After flowing through and polluting the Doce, Gualaxo do Norte, and Carmo Rivers, the mud reached the Atlantic Ocean, leading to high levels of water contamination (Allen, Cunliffe, & Easterby-Smith, 2017; Segura et al., 2016). During the passage of the mud, 80% of Bento Rodrigues was destroyed, and the cities of Barra Longa, Governador Valadares and Colatina were seriously impacted (IBAMA, 2015a and b; Segura et al., 2016). In the affected regions, the toxic mud degraded indigenous lands, threatened endemic and rare species of marine fauna and eventually caused a significant loss of biodiversity (Garcia et al., 2017). Consequently, the dam collapse damaged and paralyzed economic activities and tourism in the affected areas, destroyed the livelihood of fishers and farmers through water contamination and damage to agricultural areas and forced schools and universities to close (Allen et al., 2017; PoEMAS, 2015; Segura et al., 2016). Additionally, more than 1,200 people lost their homes and possessions due to the dam break (PoEMAS, 2015).

The collapse of the Fundão tailings dam has been described as the worst accident of its kind in history and the greatest ecological disaster in Brazilian history (P. G. d. Fonseca & Fonseca, 2016; Marta-Almeida, Mendes, Amorim, Cirano, & Dias, 2016). Years after the collapse of the dam, the dimensions of the economic and environmental consequences are still uncertain. Nevertheless, evidence has been provided that 7,000 km<sup>2</sup> of toxic plume has reached biodiversity conservation areas in the Atlantic Ocean, including the Abrolhos National Park and three marine protected areas, Costa das Algas, Santa Cruz, and Comboios in the state of Espírito Santo, threatening endemic and rare species of marine fauna (IBAMA, 2016b, Miranda and Marques, 2016). Furthermore, Bento Rodrigues and Paracatu de Baixo will have to be completely rebuilt (Garcia et al., 2017). Together with previous dam failures (Hunter and Bansal, 2007, Kapelus, 2002), this disaster increased the pressure and scrutiny on the mining sector with respect to its environmental practices, risk-taking approach and accountability to its stakeholders (Martin, Davies, Rice, Higgs, & Lighthall, 2002).

The Fundão dam risk assessment outlined in the environmental impact assessment is based solely on qualitative analyses that are not supported by mathematical modeling projections of possible disaster scenarios (SETE, 2013). The risk assessment did not refer to social groups that might be affected in the event of disruption or to the geographic areas and ecosystems that were potentially threatened by the dam. The possible effects of a potential catastrophic event focused on three large-scale impacts: solids entrainment and mud in the watercourse, damage to facilities, and injuries and deaths among the downstream population (PoEMAS, 2015). Without further specifications, the loss of human lives was projected as a possible risk of the tailings dam operation. However, the risk assessment did not refer to possible biodiversity (flora and fauna), economic (tourism and fisheries) and cultural losses (including historical and archaeological) (PoEMAS, 2015; SETE, 2013). The risk of a possible failure of the Fundão tailings dam was classified as moderate and was therefore underestimated (PoEMAS, 2015). The following extract provides an example of a reference to a global logic of accountability:

*“[business enterprises should] have in place policies and processes through which they can both know and show that they respect human rights in practice. Showing involves communication, providing a measure of transparency and accountability to individuals or groups who may be impacted and to other relevant stakeholders, including investors.”*  
(United Nations, 2011, p. 24)

Prosecutors stated that Samarco ignored its basic responsibilities and accused the mining companies of not taking into account the fate of communities downstream or even of their own employees, as there were no sirens or warning lights in case of disaster (PoEMAS, 2015). Although Samarco claimed to support community welfare through voluntary actions (Samarco Mineração, 2015a), fundamental and urgent measures to guarantee the human rights of the affected communities were taken only after requests by the rescue team, public pressure and judicial intercession (PoEMAS, 2015).

The Samarco disaster received wide local and national news coverage (Prado and Pinto, 2020; Mourão and Sturm, 2018). Perusing Factiva data in the English-language media from the date of the disaster (05/11/2015) to the date of the signing of the agreement (02/03/2016) demonstrates that BHP Billiton experienced high international media exposure regarding the Samarco case, slightly higher than Vale. Of the 4,576 articles referring to Samarco during the period, 3,358 (73%) articles cited Samarco, BHP, and Vale, 726 (16%) articles cited only Samarco and BHP, 316 (7%) articles cited only Samarco, and 176 (4%) articles cited only Samarco and Vale. A substantial example was related to the Four Corners story, which was dedicated to interviewing BHP's CEO regarding the topic of Samarco (ABC News, 2016).

### 5.3. Stage 3: Aftermath- Domination of pluralist logic

After the Fundão dam disaster, families were taken to the sports center in Mariana and housed in hotels only after the intervention of the Public Ministry, which considered the sports facilities inadequate for families. Most of the immediate costs incurred due to the disaster were covered by federal, state, and local governments and the victims' families; Samarco has not provided any compensation or allowance for the affected families, although it announced the creation of a relief fund for victims in Mariana (PoEMAS 2015). Among the citizens, there was great ambivalence about receiving support or guidance from Samarco, which they held responsible for the loss of their property.

The media coverage and exposure appeared to trigger a shift in logic by BHP from conforming to the sub-unit's logic of accountability to taking control of the situation and adhering to its host country's values, illustrating a shift in logic to dominance of a pluralist logic of accountability (See Table 1, PL i, ii, and Table 2, stage 3). In an interview with ABC news, the BHP CEO of the time claimed that

*"The people of Brazil, the people of Mariana have my absolute determination that we will fully play our part in helping to rebuild your homes, your community and your spirit" (ABC News, 2016).*

This statement shows further alignment to the global logic of accountability on business enterprises' accountability for remediation as follows:

*"Where business enterprises identify that they have caused or contributed to adverse impacts, they should provide for or cooperate in their remediation through legitimate processes." (United Nations, 2011, Page 24)*

This was despite BHP's initial response to distance itself from the disaster situation and hold the local operators responsible for the operation:

*"BHP owns 50 per cent of the mine, but after the collapse rushed to say the local operator was responsible for the entirety of the mine's operations - despite having two executives from BHP on its board" (ABC News, 2016).*

Further actions taken by BHP in the aftermath of the disaster due to public pressure reveal a shift in dominant logic from the bureaucratic host's state corporatism-oriented institutional logic to the global (e.g., ignoring warning signals) and home country's pluralistic institutional logics, which are subject to a higher level of accountability standards (Table 2). The evidence shows that succumbing to external pressure, BHP Billiton, together with Vale and Samarco, signed an agreement on 2 March 2016 with the Brazilian federal and state authorities that established a 15-year-plus framework to compensate for the damages caused by the Fundão dam collapse (Bartholomeusz 2016). The agreement consists of transaction terms and conduct adjustments and can be considered an extrajudicial instrument or an extrajudicial settlement of conflicts (Rodrigues, 2004).

The agreement creates a private foundation that will be responsible for all recovery actions, remediation and compensation associated with the dam rupture. A committee composed of representatives of the government is responsible for monitoring and supervising the foundation's programs. Notably, companies from the Vale group were major campaign contributors to both the president and the governors of Minas Gerais and Espírito Santo (PoEMAS 2015). Milanez and Pinto (2016) note that the exclusivity of executive agencies is a major risk for monitoring activities. The most striking feature of the agreement is the absence of representatives of the communities affected by the disaster.

The agreement appears to have limitations in many aspects, such as objectives, transparency of goals (Bizer and Jülich 1999; Cunningham and Clinch 2004) and effective monitoring systems (Bizer and Jülich 1999; EEA 1997). For example, Milanez and Pinto (2016) note that the agreement seems to illustrate a number of requirements that are unlikely to be met by people whose houses were destroyed and who consequently lost all of the documents in their possession. Additionally, the agreement seems to prioritize protecting the assets of the companies over protecting the affected populations and the environment (Milanez & Pinto, 2016). Milanez and Pinto (2016) also note that agencies such as the Ministry of Agrarian Development, the Ministry of Social Development, the Ministry of Health, and their state counterparts could have participated in the discussions. However, a decision was made not to involve them either in the preparation of the agreement or in its implementation.

Table 2.  
Map of shift in dominant logic

Stage	Timeline	Corporation	Example of evidence of actions or nonactions	Source	Dominant Logic
Stage 1: preamble and environment	2004	Samarco	Samarco fined R\$3,700 for not renewing its license for Santarém dam.	(PoEMAS 2015)	SC(ii)
	2005	Samarco	Samarco fined for leakage in the Germano dam. Due to bureaucratic failure, the fine was never paid, and the case was closed after 5 years.	(PoEMAS 2015)	SC(ii)
	2005	Samarco	Samarco fined R\$42,500 for leakage in the Santarém and Germano dams.	(FEAM, 2006)	SC(ii)
	2006	Samarco	Leakage from a Samarco pipeline.	(Bertoni & Amâncio, 2015)	SC(ii)
	2007	Samarco	Samarco fined R\$20,000 for not producing a structural safety report for one of its dams.	(PoEMAS 2015)	SC(ii)
	2008	Samarco	Samarco fined R\$1.6 million for a leakage.	(Bertoni & Amâncio, 2015)	SC(ii)
	2010	Samarco	Samarco fined R\$28,000 for a leakage. Members of the local government of Guaçui (ES) reportedly experienced difficulty contacting Samarco for information regarding the incident.	(Samarco Mineração, 2011) (Alcoforado, 2010) (Bertoni & Amâncio, 2015) (PoEMAS 2015)	SC(ii); SC(iii)
	2014	Vale	Companies belonging to the Vale group donate R\$12 million to the reelection campaign of the president of Brazil and R\$3 million to the competing candidate.	(TSE 2015)	SC(i)
Fundão tailings dam collapse					
5/11/2015					
Stages 2 and 3: disaster and aftermath accountability	2015	Samarco	There was no audible warning system; some communities received warning via phone calls, and others did not; only after the Fundão tailings dam collapse did the government halt Samarco's activities in the municipality of Mariana. Although the government had a range of options to punish Samarco, such as halting the company's activities, revoking its license, or canceling its permit, the only punishment imposed before the tragedy was fines.	(PoEMAS, 2015) (O globo 2016)	SC(ii); SC(iii)
	2015	Samarco	Offers counseling to the residents of Barra Longa; rescues fish from the Rio Doce; provides a lecture regarding professional qualifications for young people; rescues over 600 animals; offers victims offered rented houses.	Press releases, Samarco, November 2015	PL(iii)
	2015	Samarco	Samarco signs first agreement with Ministério Público do Trabalho de MG e ES; improves the supply of freshwater to residents of Colatina.	Press releases, Samarco, December 2015	PL(ii); PL(iii)
	2016	Samarco	Samarco commits to help locals keep their jobs; fixes bridges; Samarco signs another agreement to assist victims of the disaster.	Press releases, Samarco, January 2016	PL(ii); PL(iii)
	2016	Samarco	Samarco fixes up to six bridges; Samarco assesses areas to resettle victims.	Press releases, Samarco, February 2016	PL(iii)
	2016	BHP	Andrew Mackenzie, BHP CEO, interviewed by Four Corners.	Press releases, Samarco	PL(i), PL(ii), PL(iii)
	2016	Samarco, Vale, and BHP	Samarco, Vale and BHP Billiton sign an agreement with União and the governments of Minas Gerais and Espírito Santo.	Press releases, Samarco, TTAC, March 2016	PL(ii); PL(iii)

## 6. Discussion

Extending prior studies concerning the competing and coexisting logics of MNCs (see, e.g., Pache & Santos, 2010; Swan, Bresnen, Robertson, Newell, & Dopson, 2010), the findings provided evidence regarding the institutional complexity faced by BHP, which is a major MNC, and the conflicting institutional logics to which BHP responded differently pre- and post- a disaster situation, i.e., the Fundão dam collapse. These findings advance the studies conducted by Greenwood et al. (2010) and Thornton et al. (2012) by illustrating the impacts of the multiple institutional logics embedded in the host state-corporatism logic, the agency role of BHP in enforcing the home country-oriented pluralist logic and their interplay with the wider global emergent social and environmental logic represented by environmental communities, i.e., NGOs. The findings revealed how the external pressure shaped BHP's behavior and responses to the Fundão dam collapse before and after the disaster. More specifically, the study explicates how BHP faced competing logics and how it responded to the disasters their operations caused in the host countries where they operated.

It has been argued in the literature and by the media that Samarco, as the mine operator, should be held accountable; however, as the joint owners, BHP Billiton and Vale have indirect accountabilities in place for their actions and the consequent societal and environmental impacts throughout their supply chains and business relationships (Szoke, 2015). In fact, within their area of accountability, the companies have due diligence responsibilities that compel them to be able to identify risks, mitigate adverse impacts and, in fact, prevent damage from occurring. These requirements are clearly outlined in the OECD guidelines for multinational enterprises and the United Nations Guiding Principles on Business and Human Rights, with which BHP claims to be compliant (BHP Billiton, 2017; United Nations, 2011, 2017). These guidelines could partially shape the global logic of accountability that have influenced the actors' behaviors.

### *6.1 Multiple institutional logics of accountability and multinational companies*

The case of the Fundão dam collapse provides relevant insights for better understanding the consequences of the multiple embeddedness of MNCs for accountability as well as the local host communities where they operate. The findings are consistent with previous studies concerning institutional duality, such as those conducted by Greve and Zhang (2017) and Greenwood et al. (2010), who indicated that MNCs are confronted with conflicting "prescriptions for behavior" and that MNCs and/or their strategic subunits may seek to conform to the stronger institutional pressure. In the case of the Fundão dam collapse, there was a shift in the institutional logic triggered by the media exposure of the disaster, which is discussed in detail in the following sub-sections 6.2-4. Drawing upon the institutional logic framework and examining the critical events related to the Fundão dam disaster enables us to elaborate on the different stages of the crisis and focus on the shifts in responsibility and accountability relationships between the involved actors and from the host country state corporatism-oriented institutional logic, which was dominant in the pre-disaster situation, to the pluralistic institutional logic originating from the home country and, more generally, the emergent global social and environmental accountability logics (Cho et al., 2011; Eisenstadt, 1980; Greenwood et al. 2010) (Table 2). Indeed, the shift appeared to be triggered by another apparent logic emerged from the societal system of stakeholders, nongovernmental organizations (NGOs) and press and global coverage of the disaster, which shaped the MNC's behavior (ABC News, 2016; Szoke, 2015). Moreover, our findings demonstrate that in this case, the management of multiple institutional logics appears to have shaped possible (non)actions pre- and post- disaster. This finding implies that potential alternative actions located outside the boundaries of the dominant

institutional logic at the time were not fully considered. These considerations and interplay between multiple institutional logics before and after the disaster situation are further developed in the next subsections, i.e., subsections 6.2-4.

### *6.2 Accountability before the collapse: a convergence of different logics?*

Examining the behavior of Samarco before the collapse of the Fundão dam provides strong evidence that Samarco ignored a long list of warnings concerning the possible ecological and social risks related to its activities. These “warnings” came from different local host authorities and stakeholders as well as from less significant incidents, but they were virtually and completely overlooked. On the one hand, it is surprising that Samarco could continue its operations without being substantially affected by these warning signs and external requests. Supported by non-actions from actors (PoEMAS 2015), it is worth noting that these signs were apparently also ignored by Vale and Billiton BHP, or in other words, the latter were (put) in a position to avoid the related responsibilities and accountabilities at both the local and international levels. Consistent with Greenwood et al. (2010) and Kapelus (2002), the findings show the opportunity offered by institutional structure to the MNCs to choose and shift logics and conform with the local logic where they operated. It is especially worth noting that these events did not receive global coverage, which, together with the absence of operational responsibilities for Billiton, allowed the company to ignore “local” issues in the host country.

Although evidently Samarco failed to embrace either global or BHP Billiton’s logics of accountability and standards multiple times, there was no evidence of intervention or investigation by BHP Billiton before the Fundão tailings dam collapse, which attracted global attention. The state-corporatist political system (Doctor 2007) and its association with power concentration (Kröger 2012) embedded in the Brazilian context appears to be the dominant logic of (un)accountability that drove most (non)action before the disaster (also see Table 1 for a map of the logics and Table 2 for evidence of (non)actions). Because Samarco is a part of this system, it could afford to ignore the warning signals and possible risks emerging from its operations. Additionally, the legal and judicial systems do not appear to enforce the relevant rules and do not effectively hold Samarco accountable for its environmental responsibilities.

The findings revealed that BHP, which is the study’s MNC, faced multiple conflicting logics operating within different institutional spheres. Apparently, BHP initially conformed to the host institutional logic possibly to satisfy some local demands but faced violating its own home and the wider global emergent social and environmental higher standards logics of accountability. The approach somehow resembles the selective coupling technique defined by Pache & Santos (2013) as “purposeful enactment of selected practices among a pool of competing alternatives” (Pache & Santos, 2013, p.994). The findings show that the behaviors described above can be explained by resorting to the concept and related logic emergent from the host country’s state corporatism environment, a feature reflected in Brazilian society and institutions. State-corporatist institutions were a critical structural linkage between the state and social groups during the twentieth century in numerous countries, and in Latin America in particular (Bicudo de Castro & Mihret 2019; Carvalho 2017; Vasudeva et al., 2015; Vasudeva et al., 2013a). Bicudo de Castro and Mihret (2019) noted that a common characteristic in Brazilian state corporatist society is that interest groups serve as an extension of state bureaucracy. The case of the Fundão dam collapse reminds academics and practitioners that state-corporatism in Brazil is not just “(...) a relic of a distant past but remains a significant state-society linkage (...)” (Houtzager 2001, p. 13). Samarco’s actions and, in particular, their non-actions appear to find support and reinforcement in a system in which the state plays a major role in structuring, supporting, and regulating interest groups with the objective of

controlling their internal affairs and the relations among them. In this specific case, the “state” appeared to allow Samarco to continue its operations, in spite of the existence of potential risks and continuous warning signals. In this context, “(...) the private sector is essentially a reactor to government actions” (Schneider 2004, p. 11). As such, Samarco, profoundly embedded in the host logics of (un)accountability, could ignore alternative, competing logics embodied in the wider calls for social and environmental accountability from the global community or supranational institutions, the potential risks signaled by minor incidents, and requests from local people and communities because its main stakeholder was represented by the state. This logic of “unaccountability” represented by no responses to warning signs of potential social and ecological impacts (PoEMAS, 2015) appears to have converged with the parallel calculative accountability approach (Baker 2014) taken by BHP related to both contractual arrangements (which excluded BHP from responsibility) and the scant apparent impacts of the potential risks on its global reputation.

### *6.3 Accountability and responsibility after the collapse: seeking a new alignment of logics?*

The findings show that the collapse of the Fundão dam appears to have unsettled the existing equilibria and thus brought about new societal demands for shifts in the respective accountability and responsibilities of Samarco and BHP (Table 2). The results and the reflection developed above seem to suggest that there was a convergence of interests and values between BHP and Vale/Samarco up to the time of the dam disruption. However, when the disruption occurred, an underlying conflict appeared to emerge.

In the case of Fundão dam, it appears that the disruption exposed the MNC to a global societal logic of accountability, with BHP having to shift its accountability focus to local host communities (ABC News, 2016), and even go beyond its perceived calculative accountability (Baker 2014; BHP Billiton, 2017) and its contractually stated responsibilities. However, upon a closer examination, the final solution to the disruption appears to be a compromise between the multiple conflicting logics. The analysis shows that although BHP claimed to be adhering to the OECD guidelines for MNCs, instead of relying on such guidelines, it embraced a solution that represented a compromise between international pressures and expectations and the host logics of accountability brought forward by Vale and the Brazilian authorities. BHP apparently was taking “more responsibility” for the Fundão dam disruption than its contractually stated obligations and thus formally responding to the expectations of the international community and stakeholders and embracing a contemporary inclusive logic of accountability. However, in doing so, it was fighting a media backlash that (as shown above) significantly addressed not only Samarco and Vale but also BHP. Thus, BHP also accepted and bent the host logics of accountability dominated by a state-corporatist view (featuring the state bureaucracy) whereby, rather than assuming direct responsibility with host country stakeholders and communities, it bargained for a solution with local authorities/the state that claimed to represent local needs and claims. Thus, the home accountability logic and the local/state-corporatist accountability logic found a seeming compromise, at least on the surface. In practice, the solution translated into a *selective* accountability system in which the final (actual) stakeholders, i.e., the local community surrounding the mine, had no real power to hold the companies accountable for their actions and choices and the related consequences. These findings extend the prior literature by advancing our understanding of hybrid organizations’ behavior in managing competing institutional logics (such as by Pache & Santos, 2013) by showing how MNCs respond to competing institutional logics. In our case, in addition to finding traces of selective accountability, this study provided evidence of traces of decoupling before the disaster and shift

in logics and compromising strategies after the disaster situation, which is further discussed in subsection 6.4.

Following the disaster, the most striking feature of the agreement is the absence of representatives of the communities affected by the disaster, which shows how the underlying logics are more influenced by local state-corporatist bureaucratic norms than home social and environmental accountability values. Even if direct involvement in drafting the agreement was not an option, government bodies could have organized public hearings (Viégas, Pinto, & Garzon, 2014). Rodrigues (2004) states that the decision making when preparing such agreements should be a participatory process. However, community-level participation simply did not happen in practice. Instead, the companies involved, and the government pre-empted any efficient popular movement from organizing itself and having any say in the agreement. In a nutshell, people affected by the dam disruption were sidelined. This finding is in line with the findings of Tubino, Yap and Devlin (2011) in their study of community engagement in Vale's mining operations; they argue that "community pressure has been weak or non-existent and thus there has been no action from Vale" (p. 157). At the state level, in the case of Minas Gerais, Milanez and Oliveira (2015) note the limited financial resources and the involvement of social movements and nongovernmental organizations (NGOs). The EEA (1997) argues that the implementation of agreements is more effective when unrelated parties are involved in the design and implementation of the agreements. Similarly, Bizer and Jülich (1999) note the need for legitimate and relevant parties to be involved during both the negotiation and implementation of such agreements. The authors also suggest that there is a need for public access to the results of monitoring and verification. Cunningham and Clinch (2004) argue that public involvement is a central aspect in the definition of agreements and explicitly note the need for participatory monitoring mechanisms involving both the media and NGOs. Similarly, a report by the OECD (2003) states that the involvement of NGOs increases the chance that the goals will be achieved in practice. It is noteworthy that representatives of the communities affected by the disaster had no opportunity to participate in the negotiation of the agreement (Milanez and Pinto 2016).

#### *6.4 From nondisruptive to disruptive environments: shifts in logics and accountabilities*

Extant institutional logic literature highlights the fact that logics multiplicity potentially leads to conflicts. However, by adopting the dominant institutional logic, companies may be able to expedite the resolution of such issues and continue to conduct their work in a nondisruptive institutional environment (Goodrick & Reay, 2011; G. Vasudeva et al., 2015). Samarco's structure as a joint venture suggests that BHP Billiton chose a societal structure in which it could avoid Samarco's operational risks, which, in turn, allowed Samarco to rely on the dominant local bureaucratic state-corporatist logic. However, shocks such as the dam collapse can disrupt the existing arrangements and accountability relationships and cause imbalances in the dominance of the logics. The Fundão dam collapse signaled that home country values and standards of social and environmental accountability were not satisfied at the local level, and this had been the case for several years. It also signaled that local communities had not been in the position to hold Samarco accountable and responsible for the potential social and ecological risks. However, through the activation and adaptation of institutional logics that were not rooted in its institutional environment but were appropriate for coping with the immediate demands of the local environment, BHP attempted to manage the institutional complexities and contradictions. G. Vasudeva et al. (2015), McPherson and Sauder (2013) and Ocasio (1997) refer to this phenomenon as an "institutional toolkit," whereby companies adhere to their own logics while making use of a repertoire of institutional logics that comprise practices that support them in navigating the issues they face. The adoption of

contrasting institutional logics – in our case, BHP’s adoption of state corporatist’s bureaucratic characteristics that hindered responsive accountable actions – represents a decoupling process from the company’s own institutional logic and, simultaneously, is a compromise that on the surface appears to be consistent with the home country’s social and environmental values.

Expanding prior studies, such as those conducted by Greenwood et al. (2010) and Kostova and Roth, (2002), the findings revealed that consistent with institutional duality, BHP and its strategic subunits sought to conform to the institutional logic emanating from the host country before the disaster situation, also showing traces of decoupling strategies. In the case of the Brazilian setting (host country), the findings further revealed that the bureaucratic and centralized characteristics of state-corporatism hindered conformation with the wider global emergent social and environmental accountability logics. BHP seemed to have adapted to the host logic until the disaster triggered high exposure to the highest media pressure that could potentially jeopardize its legitimacy. The pressure also triggered a shift in logic to a social and environmental logic of accountability and the emergence of a rationality from the wider societal system comprising stakeholders, nongovernmental organizations (NGOs), and the press, possibly to manage the risk of jeopardizing legitimacy, while traces of compromising strategies were also evident.

## 7. Conclusion

This study aimed at exploring how MNCs respond to the multiple institutional logics and pressures of the field they operate in and to the related requests for accountability and how responses to such pressures change and shift after a disaster situation. Therefore, this study employs an institutional logic lens to better understand the behavior of social actors, whose agency roles are crucial for understanding institutional behavior and change. Drawing upon an interpretive textual analysis of documents related to the Brazilian Fundão dam disaster over 16 years, this study examines the dynamics of diverse institutional logics converging on BHP Billiton (MNC), its strategic subunit, Samarco, and its local host partner and shows how these organizations responded to the plurality of institutional logics and pressures in the context of the Fundão dam disaster. The study highlights how these logics were translated in practice, how they influenced the behavior of these organizations and how the organizations managed their responsibilities and accountabilities over time (Besharov & Smith, 2014; Egels-Zandén et al., 2015; McPherson & Sauder, 2013). The findings reveal how MNC’s plurality of and at times conflicting institutional logics shaped the organizational behaviors, actions and non-actions of the actors before, during and after the disaster. More specifically, the predominance of bureaucracy norms in the host-country state-corporatist logic before the disaster allowed a Brazilian joint venture, Samarco, to continue to operate while causing various forms of environmental damage until a globally visible disaster caused a reversal in the dominant logic towards the embrace of a home-country pluralist logic. The study also reinforces Friedland and Alford’s findings (1991) highlighting that, far from passively adapting to external pressures, MNCs exert agency in selecting the logics shaping and justifying their decisions, as Billiton BHP appears to embrace global pressures and in doing so deflates global pressure calling for accountability to the local communities. Consistent with institutional duality, BHP and its strategic subunits sought to conform to the institutional logic emanating from the host country before the disaster situation, showing traces of decoupling strategies. In the case of the Brazilian setting (host country), the findings further revealed that the dominant bureaucratic norms embedded in state-corporatism also hindered the adaption of higher global standards of accountability. However, the disaster triggered a shift in logic to manage the risk of jeopardizing legitimacy, while traces of compromising strategies were also evident after the disaster situation.

The findings indicate that MNCs' shift institutional logics in situations of crisis, albeit temporarily, thus addressing the limitations of previous studies (see, e.g., Marano and Kostova 2016; Vasudeva, Spencer and Teegen 2013; Vasudeva, Zaheer and Hernandez 2013) that claim that companies operating in specific institutional environments hold to a consistent set of institutional logics (see also Vasudeva, Alexander and Jones 2015). Hence, MNCs must distinguish between a multiplicity of relative institutional logics, each of which have unique consequences for the company (Battilana and Dorado 2010; Greenwood et al. 2011). The study reinforces Friedland and Alford's findings (1991) that the institutional structure and ability to exert agency in choosing dominant logics have shaped organizational decisions, behaviors and actions. The findings are particularly relevant because they provide additional evidence on how MNCs make decisions regarding which institutional demand to prioritize, satisfy, alter, or neglect in order to obtain legitimacy and ensure their survival (Friedland and Alford 1991; Greenwood et al. 2011; Kraatz and Block 2008; Marano and Kostova 2016; Pache and Santos 2010; Xu and Shenkar 2002).

This study provides support for the benefits of establishing higher standards for societal and ecological risk assessments and a proactive prevention approach by MNCs in response to possible disaster scenarios. Consistent with Baker (2014), this includes a possible shift from 'calculative' accountability to 'narrative' accountability and bringing moral aspects to the concept of accountability logic. The findings also suggest the influence of a social and environmental logic of accountability and the emergence of a rationality from the wider societal system comprising stakeholders, nongovernmental organizations (NGOs), and the press. Both the actors representing the state-corporatism logic and those representing the pluralist logic attempted to compete with the actors signifying this social and environmental logic. An important limitation of the study that is common in case study research is the degree to which the findings are generalizable. However, by showing what actually occurs in this particular case, we highlight potential behaviors and issues whose commonality can be further investigated by scholars and policymakers (Parker & Northcott, 2016). Our findings contribute to a growing stream of literature concerning MNCs' accountability, multiple institutional logics, and how MNCs manage competing institutional logics, particularly in pre-, peri-, and post-disaster situations. We found traces of multiple and shifting strategies. Future research may further explore how multinational organizations manage and choose to adopt or reject specific institutional logics in different critical situations. The lessons from the Fundão dam failure have implications for other global MNCs in the mining industry and other extractive natural resource industries operating in developing and emerging countries (Bice, 2017; Calvano, 2008; Kapelus, 2002; Newenham-Kahindi, 2011). This study will be of interest to scholars and policy makers in the further development of corporate governance and accountability instruments related to multinational corporations.

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## Appendix 1.

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<i>News Articles</i>
<ul style="list-style-type: none"> <li>• Globo 17.11.2015 – “Samarco admite risco de rompimento em mais duas das barragens” (Globo, 2015)</li> <li>• Financial Times 17.11.2015 – “BHP Billiton puts joint ventures under review after dam breach” (Wilson, 2015)</li> <li>• The Sydney Morning Herald 19.11.2015 – “Brazil mine disaster exposes BHP's failures” (Szoke, 2015)</li> <li>• Four Corners 29.02.2016 – “Catastrophic Failure” (ABC News, 2016)</li> <li>• The Australian 03.03.2016 – “BHP breathes a sigh of relief over Samarco dam disaster” (Bartholomeusz, 2016)</li> <li>• The Australian 18.04.2016 – “BHP Billiton to unwind JVs without operational control” (Fitzgerald, 2016)</li> <li>• Financial Review 30.08.2016 – “BHP Billiton didn't believe Samarco dam 'at risk of failure’” (Ker, 2016)</li> </ul>
<i>Technical reports</i>
<ul style="list-style-type: none"> <li>• Instituto Pristino, 2013 – “Laudo Técnico em resposta ao Parecer Único N°o 257/2013”</li> <li>• Grupo Política, Economia, Mineração, Ambiente e Sociedade (PoEMAS), 2015 – “Antes fosse mais leve a carga: avaliação dos aspectos econômicos, políticos e sociais do desastre da Samarco/Vale/BHP em Mariana (MG)”</li> <li>• Morgenstern, Vick, Viotti and Watts, 2016 – “Report on the Immediate Causes of the Failure of the Fundão Dam”</li> <li>• Milanez and Pinto, 2016 – “Considerações sobre o Termo de Transação e de Ajustamento de Conduta firmado entre Governo Federal, Governo do Estado de Minas Gerais, Governo do Estado do Espírito Santo, Samarco Mineração SA, Vale SA e BHP Billiton Brasil Ltda”</li> </ul>
<i>Others:</i>
<ul style="list-style-type: none"> <li>• PoEMAS 2015 Antes fosse mais leve a carga: avaliação dos aspectos econômicos, políticos e sociais do desastre da Samarco/Vale/BHP em Mariana (MG).</li> <li>• FEAM 2006 Parecer Técnico DIMIM n. 062/2006. Samarco Mineração S.A. Mina de Alegria e Germano. Available at: <a href="http://www.siam.mg.gov.br/siam/ai/2005/0001519840532005/1957642006.pdf">http://www.siam.mg.gov.br/siam/ai/2005/0001519840532005/1957642006.pdf</a></li> <li>• Bertoni &amp; Amâncio 2015 Samarco teve outros Quatro Vazamentos de Lama antes da Tragédia em MG. Folha de São Paulo. (12/02/2015) Available at: <a href="http://www1.folha.uol.com.br/cotidiano/2015/12/1713745-samarco-teve-outros-4-vazamentos-de-lama-antes-de-trajedia-em-mg.shtml">http://www1.folha.uol.com.br/cotidiano/2015/12/1713745-samarco-teve-outros-4-vazamentos-de-lama-antes-de-trajedia-em-mg.shtml</a></li> <li>• Samarco Mineração 2011 Relatório Anual de Sustentabilidade 2010</li> <li>• TSE 2015 Prestação de Contas Eleitoriais. Consulta aos Doadores e Fornecedores de Campanha de Candidatos. Available at: <a href="http://inter01.tse.jus.br/spceweb.consulta.receitasdespesas2014/abrirTelaReceitasCandidato.action">http://inter01.tse.jus.br/spceweb.consulta.receitasdespesas2014/abrirTelaReceitasCandidato.action</a></li> <li>• Alcoforado, 2010 Vazamento de minério da Samarco pode atingir cidades do Espírito Santo. Gazeta Online. (07/26/2010) Available at: <a href="http://gazetaonline.globo.com/_conteudo/2010/07/656754-vazamento+de+minerio+da+samarco+pode+atingir+cidades+do+espirito+santo.html">http://gazetaonline.globo.com/_conteudo/2010/07/656754-vazamento+de+minerio+da+samarco+pode+atingir+cidades+do+espirito+santo.html</a></li> </ul>