Abstract: The crisis caused by the Rio Doce disaster is an extreme case that contributes to thinking about the role of events focused on local political dynamics and the applicability of the FCA outside the context of North America and the European Union. This article develops an analytical model to compare the different types of responses of the municipalities of Colatina and Linhares, in the state of Espírito Santo, to deal with the impacts caused by the failure of the Fundão dam in Mariana (Minas Gerais, Brazil). The analysis combines the assumptions of the advocacy coalition approach (ACF) and the focused events literature to examine the nature of the coalitions formed and the degree of policy changes implemented in both municipalities, which were observed, before the disaster, through the legacy of relations between the various political and social actors in terms of state capacities, and, after the disaster, from the nature of the problems, the coalitions formed and the new instruments adopted to deal with these issues at the local level. To this end, this article presents a brief overview of coalitions and decisions implemented at the state levels, drawing on secondary literature, and further explores the sub-national level by comparing two municipalities in Espírito Santo, Colatina and Linhares, which had variations in the types of problems, coalitions and responses adopted to the Rio Doce technological disaster. This is, firstly, to broaden the debate on the governance of the Rio Doce disaster, more focused on the construction of rules, agreements, mobilizations and alliances established at the federal and state levels, to understand how the municipalities dealt with their weaknesses (absence of civil society organizations, limited state capacity, weak regulation and management of impacts by the company itself - RENOVA), developed coalitions with distinct beliefs and response patterns (types of instruments used rather than policy change or learning) to respond to the crisis caused by the Rio Doce disaster (as several studies suggest). Furthermore, exploring the discretionary nature of change beyond the already naturalized political learning and the often unattainable change in political beliefs (Mintrom and Vergari, 1996), in local peripheral contexts, may be a way to think the other way around (counterfactual), i.e. bring new clues to advance understanding of the gaps in the processes in which these changes (do) happen.

Keywords: Advocacy Coalition Framework; Focussing Events; Multilevel Contention; Doce River disaster.
Radical Uncertainty, Multilevel Contention, and Ineffective Reaction. Colatina and Linhares fighting against Doce River disaster

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1. Introduction

This article develops an analytical model to compare the different types of responses of the municipalities of Colatina and Linhares, in the state of Espírito Santo, to deal with the impacts caused by the failure of the Fundão dam in Mariana (Minas Gerais, Brazil). The analysis combines the assumptions of the advocacy coalition approach (ACF) and the focused events literature to examine the nature of the coalitions formed and the degree of policy changes implemented in both municipalities, which were observed, before the disaster, through the legacy of relations between the various political and social actors in terms of state capacities, and, after the disaster, from the nature of the problems, the coalitions formed and the new instruments adopted to deal with these issues at the local level.

The crisis caused by the Rio Doce disaster is an extreme case that contributes to thinking about the role of events focused on local political dynamics and the applicability of the ACF outside the context of North America and the European Union. Understanding how the nature of policy change happens is still a challenge for the literature that is interested in policy decision-making processes. Studies that relate external events as "moments of crisis" that can impact on policy change usually explore long periods of time in which events such as economic situations, regime change, natural and technological disasters have influenced the dynamics of certain public policies, especially, having as empirical source cases located in the United States and the European Union (Birkland, 1997; 1998; 2000; Albright, 2011).

The Rio Doce case, although recent, helps to illuminate some important gaps in this debate, by being seen as a counterfactual, if we look at the legacy of asymmetric relations between state and non-state actors and institutions from different federative levels and political arenas that contributed to form distinct coalitions with varied power resources that influenced the decisions subsequently taken in the complex subsystem of compensation, reparation and mitigation policies for the damage caused at the regional and local levels. Why in peripheral contexts, such as Brazil, can the change be of a different nature in situations of technological disasters such as that of the Rio Doce? Why is it that instead of conflict between the different coalitions, when we shift our gaze to the local level, we see two modalities of cooperation, namely: informal institutional cooperation and formal corporate cooperation? In other words, why was the technological disaster in the Rio Doce not a sufficient condition for the minority coalition to attract the attention of potential allies to provoke major changes in the public policy belief system at the federal, state and local levels? If this external event did not contribute to alter the belief system at the regional, nor federal level, what were its impacts at the local levels, in terms of the relations
between the contending coalitions, the nature of the problems, and the types of responses implemented (in comparison on the coalitions and decisions implemented at the state level)? To this end, this article presents a brief overview of coalitions and decisions implemented at the state levels, drawing on secondary literature, and further explores the sub-national level by comparing two municipalities in Espírito Santo, Colatina and Linhares, which had variations in the types of problems, coalitions and responses adopted to the Rio Doce technological disaster. This is, firstly, to broaden the debate on the governance of the Rio Doce disaster, more focused on the construction of rules, agreements, mobilizations and alliances established at the federal and state levels, to understand how the municipalities dealt with their weaknesses (absence of civil society organizations, limited state capacity, weak regulation and management of impacts by the company itself - RENOVA), developed coalitions with distinct beliefs and response patterns (types of instruments used rather than policy change or learning) to respond to the crisis caused by the Rio Doce disaster (as several studies suggest). Furthermore, exploring the discretionary nature of change beyond the already naturalized political learning and the often unattainable change in political beliefs (Mintrom and Vergari, 1996), in local peripheral contexts, may be a way to think the other way around (counterfactual), i.e. bring new clues to advance understanding of the gaps in the processes in which these changes (do) happen.

Our analytical efforts are being developed to articulate the results of previous studies that pointed out the different patterns of environmental governance trajectories (Souza, Silva, Szwako and Rodrigues, 2022); and the different instruments - classified as representative, regulatory and enforcement, inspired by the typology developed by Lascoumes and Le Galès (2007, p.12) - adopted by the Municipal Executive and Legislative Powers and by the Public Policy Councils in the two municipalities of Capixaba (Souza and Carlos, 2019; Souza, 2022). In methodological terms, this is a comparison between pairs of municipalities, which share the same territory and were affected by the socio-environmental disaster dynamics, presenting many characteristics in common, such as the close geographical location, situated in the north of Espírito Santo, the average population size and the party political alignment in the context of the state government. On the other hand, it is worth pointing out, among the countless differences in political and socio-economic indicators, the centrality and the dependence of the two counties in relation to the Rio Doce. In the case of Colatina, the supply of water for human consumption was made only and exclusively by the Rio Doce, which made the population of the municipality run out of water soon after the occurrence, causing great chaos in the city, before emergency measures were taken. In Linhares, the arrival of the toxic mud at the mouth of the Rio Doce caused concern among local political actors with the contamination of the lakes and rivers that supply the city, besides generating many protests, especially in the local community linked to fishing, surfing and tourism, and also because it is a natural preservation area.

The research database is divided into two parts: 1) Trajectory of environmental governance: it comprises the actions and instruments instituted by the Executive and Legislative that were surveyed in the Compiled Legislations Portal, by means of searches for key-words related to the terms environment
and Rio Doce (after-2016), in the surveyed municipalities, from 1988 to 2022. Besides, we carried out three semi-structured interviews, with the Municipal Secretary of Environment of Linhares, the Counselor representing the civil society of CONDEMA of Linhares and the Municipal Secretary of Environment of Colatina, all belonging to the last management (2016-2019); 2) Decision-making activity of the Councils and the public policy instruments instituted by the Executive and Legislative: comprise the administrative acts issued by them and published in the Official Gazettes of the municipalities of Linhares and Colatina, collected from the websites of the Official Gazette of the government of the state of Espírito Santo and the Official Gazette of the municipality of the government of Espírito Santo, in the period between 01/01/2015 and 31/12/2018, together with information from additional resolutions that were collected from the official website of the municipality of Colatina in the period prior to the disaster (2013 and 2014).

This article is organized in three sections, besides this introduction and the final considerations. In the next section, we highlight possibilities and limits of the debate on ACF and focused events on policy change and present our model of analysis. The second section presents the context of the disaster and the discussion about the main coalitions and decisions implemented around governance system of compensation, repair and mitigation arrangements for the damage established at the federal and state levels. In the last section, we present the results by analyzing the different coalitions that formed: formal corporate coalition and informal institutional coalition, based on the relationships between various types of actors and instruments used, over the different beliefs/problems in dispute.

2. Advocacy Coalition approach, Focusing event and political dynamics in the local context

The advocacy coalitions approach (ACF) illuminates the complex non-linear political processes that promote or discourage policy change, over time, including the belief system and policy-oriented learning (Sabatier, 1998; Jekins-Smith and Sabatier, 1994). The main argument is that policy making occurs within a political subsystem inhabited by multiple advocacy coalitions that compete with each other to influence policy change according to the beliefs that unite each coalition (Sabatier, 1998). ACF focuses on the discretionary nature of policy change, distinguishing between large and small changes according to the degree to which the previous policy belief system is altered. Large changes involve changes in normative belief systems, while smaller ones may be related to secondary issues or instrumental decisions, such as for example small changes in administrative rules or reallocation of resources, which comprise policy-oriented learning (Jekins-Smith et al, 2017, p. 145).

Some of the literature on the dynamics of political processes highlights the role of exogenous factors (Baumgarther and Jones, 1993; Kingdom, 1995, Sabatier and Jekins-Smith, 1993, Birlkand, 1998, Albright, 2011), such as socioeconomic conditions, public opinion, the composition of ruling
coalitions, authoritarian intervention and the impacts of other policy systems (Smith, 2000). In addition, other aspects may fall into this category, such as crises, disasters and the dynamics of external events (Jenkins-Smith et al, 2017, p. 144; Kingdom, 1995).

After numerous reviews of empirical studies applying the FCA, Jenkins-Smith and colleagues (2017) review the hypotheses on the patterns of policy change attributed to external events, including crises and disasters, pointing to the high probability of greater policy change occurring when there are disruptions of this nature. But, according to this perspective, for this change to occur, it is necessary to associate this source of change with one or more potential factors, such as increased public attention, change in the political agenda, or mobilization of the minority coalition to exploit the external event and attract the attention of new actors.\[13\]

Birkland (1997; 1998), based on the concepts of ACF and other approaches to the political process (Kingdom, 1995 (multiple flows) and Baumgartner and Jones (punctuated equilibrium), develops a theory of policy change and policy-oriented learning in response to focused events such as natural and technological disasters. These events can gain national or global media attention, raise an agenda for the political agenda, encourage the formation of new institutions, and also enable the formation of new advocacy groups or coalitions within a political subsystem to propose new ideas to the problems arising from these failure events that may affect other communities (Birkland, 1998, Albright, 2011, Kingdom, 1995). Birkland (1998), analyzes the case of disasters, as an example, natural ones such as earthquakes and hurricanes and technological ones such as the Exxon Valdez oil spill in Alaska (year) and the Three Mile Island nuclear accident (1979), to demonstrate how focused events altered dominant issues on the agenda of a given domain, as they led to the mobilization of interest groups (minority and majority) that were able to influence the agenda after these events. The study goes on to explain how differences in the compositions of political communities and the nature of events can influence group dynamics and the outcomes of political processes. In summary, the author infers that when public interest in a particular issue is low, the expansion of the agenda is largely influenced by professionals from inside and outside government to induce other actors for policy change. On the other hand, when public interest is relatively high or easily mobilized, a focused event may attract high mobilization of interest groups, but may also be disrupted by aggressive counter mobilization efforts. This process is more likely when the nature of the event and the damage done are more ambiguous. In other words, the less clear the nature and the damage done by the event, the less the issue will grow and the less influence it will have on the institutional agenda (Birkland, 1998: 73- quasi verbatim quotation - revise).

Albright (2011), from the same perspective, uses the advocacy coalitions approach and the focused events literature to examine government policy responses to the recurrent experiences of extreme flooding in Hungary (1998-2001), identifying the factors that influenced the occurrence of policy change and the policy-oriented learning resulting from the interactions between individuals, organizations and institutions. The study points to an important policy change, in the belief system of
how to manage flooding, which was the implementation of a government programme in 2003 that included beliefs of both coalitions that disputed this issue (engineers and ecologists), i.e. both economic development and environmental protection objectives (ecologists). The author argues that processes external to the flood policy subsystem, such as the democratization process and entry into the European Union, together with the occurrence of extreme floods, influenced the coalition of individuals and organizations to push for policy changes.

As we have seen, the ACF is an important analytical tool for identifying which actors, coalitions and ideas are in dispute and explaining the nature of policy changes in a given policy subsystem, including at critical moments, such as disasters and other external events. However, many challenges remain for this research agenda, such as explaining the situations in which disasters and other external shocks produce small changes or perhaps no political change at all (Jenkins-Smith et al, 2017; Mintrom and Vergari, 1996).

It is important to highlight, according to Jenkins-Smith and his collaborators (2017, p. 142), that studies that apply the ACF must understand public policies not only as government action or inaction, but also as the translation of a belief system, observed through objectives, rules, incentives, sanctions, subsidies, fees and other instruments that regulate a certain political subsystem. However, the slippery task of identifying the belief system has been criticized for being poorly systematized (Han, 1995, Jenkins-Smith et al, 2017). Han (1995) points out that beliefs are best inferred when we investigate what actors do rather than what they say, while Sabatier (1988) favors inference through the application of questionnaires and analysis of documents and content.

Furthermore, despite the contributions of the ACF and other synthetic models developed by theories of the political process to overcome the dilemma between what is formulated and what is implemented and to understand the continuous decision-making processes that involve the objectives of public policies and the results achieved (Vildawsky, 1973; Howlett, 2019), some limitations remain. Howlett (2019), for example, highlights that the ACF does not say anything about the implementation process, as the central focus of this analysis is agenda setting and formulation. The author lists, among his weaknesses from the point of view of an implementation theory, that most studies treat civil servants, in the classic pluralist style, as neutral actors in these contentious disputes between coalitions (Howlett, 2019: 416). Therefore, a new generation of studies focused on governance and instruments has been gaining space in this research agenda, such as those that relate state and non-state actors, multilevel processes, state capacities in implementation, among other topics (Hill and Hupe, 2003; Halpern and Le Galès, 2011; Lascoumes and Le Galès, 2007; Bichir, Pereira, Gomes, 2021; Marques et al., 2021).

Thus, we observed that few studies systematically examined the role of events focused on the dynamics of political processes (Birkland, 1997; 1998; 2000; Albright, 2011), especially outside the context of North America and Europe. Most studies that apply the ACF and focused events find that these events open a window of opportunities that potentially impact disputes between coalitions of a given political system and influence political changes. Therefore, our model is built taking into account
some methodological challenges pointed out by the literature, such as the difficulty of operationalizing
the belief system and the need to better understand the implementation processes and to explore the
cases in which these changes do not fully occur, as well as the applicability of these analytical models
in different contexts, which allows us to compare similaridades e diferenças entre os cases, and better
articulate the regional and local levels of analysis, and with that, broaden the debate on the role of events
focused on the discretion of political changes.

Firstly, we present a discussion of the existing literature to the description of the Rio Doce
subsystem, including relevant external characteristics to the subsystem and prone to change, the
dynamics of external events or focused events, and the main coalitions formed in the construction of
the established agreements to stress three main points: the difference between this disaster and other
environmental disaster in Brazil; the substantial different kind of reaction between states and
municipalities; and the relevance of state-city contention to explain the infectivity of public reaction
towards the river pollution.

Then, at the local level, we compared the analyzed municipalities, before and after the disaster,
through the nature of the problem (physical characteristics and socioeconomic context) and the legacy
of relations between political and social actors in terms of state capacities and the instruments adopted
in the environmental governance system to understand the different coalitions of actors formed, as well
as the different types of instruments adopted to deal with the multiple problems faced by municipal
governments.

The analytical potential of looking at the local level and patterns of emerging relationships
through a set of adopted instruments resides not only in the need to identify the decisions implemented
by coalitions of actors before and after the disaster, but, above all, to understand how the municipalities
dealt with their weaknesses (limited state capacity, absence of civil society organizations, weak
regulation and management of impacts by the company itself - RENOVA), developed coalitions with
distinct beliefs and response patterns (types of instruments used rather than policy change or learning)
to respond to the crisis caused by the Rio Doce disaster. In other words, the instruments inform and
focus on the different capacities of action of the actors and organize power relations in a certain way
(HALPERN, LE GALÈS, 2011; LASCOUMES, LE GALÈS, 2007; HALPERN, LASCOUMES AND
LE GALÈS, 2021).\textsuperscript{15}
### Table 1. Outline of the analytical structure

<table>
<thead>
<tr>
<th>Analysis dimensions</th>
<th>Description of mechanisms</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>National and regional subsystem</td>
<td>Coalitions formed and disputes observed at national and regional levels.</td>
<td>Conflicts between two coalitions (Business and State × justice system and civil society) and protests</td>
</tr>
<tr>
<td>Municipal subsystem</td>
<td>Basic characteristics social, cultural, institutional and physical.</td>
<td>Water collection solely and exclusively by the Rio Doce &amp; rivers, 69 lakes...</td>
</tr>
<tr>
<td>belief system</td>
<td>Origin of the problem or types of impacts in the municipalities studied;</td>
<td>Water &amp; Environment and Tourism.</td>
</tr>
<tr>
<td>Relational political capabilities / embedded autonomy or fittings</td>
<td>Legacy of relations between State and society: environmental governance, councils and the strength of civil society</td>
<td>Limited state capacity: absence of civil society organizations, weak regulation and management of impacts by the company itself – RENOVA.</td>
</tr>
<tr>
<td>Instruments Formal¹</td>
<td>Representative (Executive, legislative, justice system and civil society) regulatory (Executive and legislative) Inspection (Executive and legislative)</td>
<td>+ Representative &amp; + Regulatory</td>
</tr>
<tr>
<td>Informal Instruments²</td>
<td>Extra, inter and intra Institutional</td>
<td></td>
</tr>
</tbody>
</table>

Elaboração própria. ¹ By analyzing the decision making of municipal governments after the Rio Doce disaster, it was possible to map the patterns of emerging relationships in view of a set of public policy instruments (Ordinance, Decrees, Normative Acts, Resolutions, Laws, etc.), produced by the Executive and Legislative branches and guided by the interests and aspirations of the different actors involved in these contentious disputes (Halpern, Le Galès, 2011; Lascoumes, Le Galès, 2007). The instruments raised were classified into three types, inspired by the typology developed by Lascoumes and Le Gales (2007, p.12) and adapted to the studied context. ² Relações entre os diferentes atores nos diferentes níveis federativos, ainda pouco aprofundadas, pois só realizamos três entrevistas. 1. Função de mobilização de distintos recursos organizacionais por autoridades públicas em diferentes níveis (municipal, estadual e federal); 2. Refletem as relações entre os atores políticos e sociais, incluindo os do mercado; e 3. Legitima os interesses dos representantes eleitos, as pressões dos mecanismos de mercado e os benefícios para a sociedade em geral.

3. The context of the disaster and reparations agreements at the national and states levels

The rupture of the Fundão dam, 5 November 2015, Mariana - MG, built and operated by Samarco Mineração S/A, was considered the largest technological disaster in the history of mining...
both in volume of tailings released (Bowker and Chambers, 2017, p. 02), and in geographical extent of damage caused to the environment (Ramboll, 2017, p. 34). In addition to destroying 19 lives and leaving more than 1200 people homeless in the region, environmental, social and economic impacts were spreading along the Doce River until it reached its mouth in the Atlantic Ocean, affecting 45 cities in the states of Minas Gerais and Espírito Santo, especially due to water pollution, animal deaths and interruption in the water supply.17

The companies Samarco, Vale and BHP were held responsible for the disaster and more than 20 people involved were denounced by the Federal Public Prosecutor’s Office (MPF) for crimes of flooding, collapse, bodily injury, environmental crimes and aggravated homicide, but to date the cases remain in court and no one has been arrested18. On the one hand, the authorities and competent bodies entered into several agreements, especially the Transaction and Conduct Adjustment Agreement (TTAC) and later the Governance Transaction and Conduct Adjustment Agreement (TAC Gov), with a view to recovery, mitigation, repair and compensation for the damage produced by the mud. These agreements established the governance process of the 42 restoration, mitigation and compensation programs for the damage through the creation of an Interfederative Committee (CIF), a private foundation, RENOVA, to manage and implement the programs and 11 Technical Chambers (CT) to support, supervise, monitor, inspect and validate these actions. On the other side, the municipalities were left helpless, amidst an overlap between the resolution mechanisms implemented (TTAC and TAC gov) and the institutional design of federative policies, and had to make immediate decisions, create intermediary instruments (ie: representative, regulatory, and fiscal – usually less effective) to manage the crisis and establish coordination mechanisms between the different existing and emerging bodies (SOUZA et al, 2019; SOUZA et al, 2022; SOUZA, 2022).

Gurza Lavalle et al. (2022) demonstrate that the disaster governance system, dominated by a corporate logic, had effects of organization and disorganization between the actors and their performances and strategies, such as the pressures, alliances and social struggles, observed from the main responses to the disaster. The authors point out that the establishment of a private foundation to implement actions in the areas of the environment, health, assistance, work and economic development, among others, produced disorganization effects on capacities and local actors. Zorzal Silva (2022), in that same scope, shows that the referred governance system guaranteed the Renova Foundation’s command in the control strategies of repair actions via self-regulation.

Santos and Milanez (2017 apud Losekann and Milanez, 2021, p. 07) point out that the federal and state governments made a legal agreement based on the precepts of governance, transfer of responsibilities and absence of the State. However, Losekann and Milanez (2021) show how the affected communities, social movements, such as the Movement of People Affected by Dams – MAB, and justice institutions focused on judicial means to incorporate the demands of those affected, especially regarding participation in the process. The result, according to the authors, was a hybrid system, characterized by slowness, ineffectiveness and inability to respond to the main demands of the
affected population. The political process generated, in this perspective, a structure that confused the concepts of governance and participation. In this sense, the authors question the results of interactions between justice institutions, companies and social movements that led to a different arrangement (TAC - Gov), initially desired by the movement of those affected, but which led to demobilization and frustration over the course of that process.

Coelho (2017) and Milanez et al (2018) highlight the economic and political dependence of municipalities on mining companies and their impacts on the environment. The authors point out that the more inserted the municipality in the mining activity, the more dependent the municipal collection and the generation of employment and income. In the case of the Rio Doce, Jacobi (2022, p. 10) stressed that “several studies already recommended, for several years, carrying out annual geotechnical monitoring on the dikes and dam, risk and accident contingency studies, proof of the effectiveness of the plan and analysis of ruptures indicating possibilities of destabilization and erosion processes. The fact that actions and solutions were not forwarded reveals how much licensing has been neglected”.

Pereira (2022) points to the formation of a productivist coalition (Samarco, unions, federal government and state governments) versus environmental movements, sectors of the company critical of the network and state entities responsible for licensing and environmental controls (MMA, SE and M, entities operations, Ibama, IEMA/ES, FEAM/MG). This productivist coalition imposed its preferences on the actors destined to monitor possible disaster risks. The author, when investigating a period prior to the disaster, observed the extraordinary increase in the company's productive capacity that allowed the installations to grow without control and led, among other consequences, to the rupture of the Fundão dam.

Carlos (2022), on the other hand, analyzes that the incorporation of participation in the TTAC-Gov and the recognition of new territories and affected segments were influenced by social movements and civil society organizations through the combination of extra-institutional, institutional and multilevel repertoires, triggering a wave of regional protests over time. The author highlights the involvement of the Movement of People Affected by Dams – MAB and the Capixaba Forum in Defense of Rio Doce (FCDRD), linked to the Human Rights Movement and the Landless Movement, as important players that acted as incubators for the movement disputes in the affected territories, influencing their organizational and identity formation.

Portela and Szwako (2022), in this perspective, evidenced another contentious tendency in the action of the members of the Federal Public Prosecutor's Office and Federal Public Defender's Office and the same institutions at the states level of Minas Gerais (MG) e Espirito Santo (ES) that formed the Interinstitutional Working Group of Rio Doce (GTIRD) to act in the territory, organize meetings with the population, standardize the performance of public defenders, with the objective of building a new agreement that would include social participation and recognition of regions on the north coast of Espirito Santo. The Forum Norte da Foz do Rio Doce was one of the main spaces for articulation between this group and different organizations of people affected individually, or under entities and
associations, and put on the agenda the recognition of the north of the state of ES as affected by the consequences of the disaster. The GTIRD, for example, acted in obtaining technical reports in partnership with state agencies (Brazilian Institute of Environment – Ibama, State Institute of Environment - Iema, Instituto Chico Mendes, ICMbio/ES, Ministry of Agriculture, Livestock and Supply) to map damage and extent of the disaster, which served as subsidies for the formulation of a technical note produced by the public defenders (ES state and union) that was forwarded to the CIF and Renova recommending recognition of the areas and the initiation of socioeconomic programs for the affected population.

In regard to relations and conflicts with the Legislature, Resende and Amaral (2019) point out that in the legislative assembly of the state of ES, four years after the disaster, 25 proposals were presented by deputies regarding the disaster. Of these, almost 1/3 deal with demands for the return of the mining company's activities, attempts proposed by deputies financed by the Vale group. In another study, Resende (2022), analyzes the propositions in the National Congress in the same period and observes that there was a more intense involvement of the deputies of the affected states (MG and ES) with the agendas of the disaster. In this case, the most recurrent agendas were related to the regulation and inspection of the mining activity, and the least recurrent ones are associated with the assistance of the affected population, which demonstrates that the actions of reparation and compensation were delegated to the governance system (Gurza Lavalle et al, 2022, p. 34).

In summary, the existing literature points out that the governance system (TTAC and TAC-Gov) produced intense legal, political and social conflicts between corporate, governmental and social actors (Jacobi, 2022, p. 11-12). On the one hand, we observe that social movements and civil organizations have aligned themselves with justice institutions (MPT, MPF, DP and the state bodies MP and DP) and some state bodies (Ibama, ICMbio, IEMA, Universities and research networks, etc.) in a minority coalition to push for alternatives that would guarantee a minimum of community participation and the recognition of areas in the literal north of Espírito Santo as affected (Portela and Szwako, 2022, Losekann and Milanez, 2021, Carlos and Santos, 2021). On the other hand, the instituted governance system reveals the close alliances between political and economic actors, intertwined in a majority coalition with corporate interests, which curbed the possibility of political changes, leveraged by the disaster, remaining the interests of the mining company, to the detriment of those affected in the reparation, mitigation and compensation process, which produced conflicts and public and social misgovernance (Gurza Lavalle et al, 2022, Silva, 2022).

As we will see in the next section, we observe the opposite, as we shift our focus at the local level. The disputes between different coalitions take place at the state level of the agreements, and what develops in the affected municipalities are two modalities of cooperation: informal institutional cooperation and formal corporate cooperation. Cooperation between different actors at the local level rather than conflict, which occurred at the level regional of the agreements, but ended up with negotiations that were more advantageous to the dominant groups.
4. Modes of governance: Formal corporate coalition and informal institutional coalition

In the territory of Espírito Santo (ES), the municipalities of Colatina and Linhares appear among the first affected by the unexpected disaster dynamics. Seven days after the disaster, the toxic mud traveled more than 650 km along the riverbed of the Rio Doce, reaching Colatina, which was only supplied by this water source, until it reached its mouth, in the Atlantic Ocean, located in the District of Regencia, municipality of Linhares. In Colatina, the population was left without water in the first days of the arrival of the toxic sludge, producing great chaos in the city, since the local supply had always been guaranteed, solely and exclusively, by the capture made in the Doce River, requiring the adoption of emergency instruments until the water supply is restored in the municipality (Souza and Carlos, 2019). In Linhares, the arrival of the tailings at the mouth of the Doce River, located in the district of Regencia, motivated the concern of local governments, who built barriers to try to prevent the contamination of the numerous rivers and streams and the 69 natural lagoons (even before the disaster because the Rio Doce was already polluted), that supply the city, besides generating protests, especially in the local community linked to fishing and sports, and also because it is a natural preservation area, with great tourism potential.

Both municipalities share a close geographical location and a medium population size. However, it is worth highlight some small variations in political, economic and social contexts. Linhares emerges as the main economic and social development pole of the state of ES, with a high Human Development Index (HDI), considered in regional terms: 0.724 in 2010, according to the IBGE, and a diversified economy. It is the city with the largest coffee production in the state and a Brazilian exporter of papaya. Besides producing cocoa, alcohol, oil and natural gas (with 18.7% of the total royalties of ES), it also stands out for its furniture, beverage, engine, commerce, tourism and leisure industries. Compared to Linhares, Colatina has a little higher HDI (0.746 in 2010, IBGE). Its economy is also less diversified and based on trade and services. The municipality, bathed by the Doce River, can be considered a "corridor" city as it plays a strategic role in the region's road and rail transport system, connecting mines, hydroelectric plants, ornamental rocks, eucalyptus plantations and coffee to the ports located in the Metropolitan Region of Greater Vitória (Albani, 2012, p. 18).

During the redemocratization period, the city of Colatina was governed by the PDT and PMDB (a more progressive party and a conservative one), throughout the 1990s, which implemented nine of the current seventeen public policy councils in the municipality. As of 2001, the municipality was governed by four administrations of left-wing parties in the Executive (PSB and PT) that instituted eight more public policy councils.... Shortly after the disaster, the municipal government experienced a shift to the extreme right of the political spectrum with the election of more conservative mayors: the Republican Party, and the current PSC (P Christian Social Party), accompanying a national conservative wave marked by the election of Jair Bolsonaro (PL). In Linhares, although it is a little larger.
municipality, we found the existence of thirteen councils created between the early 1990s and the late 2010s by conservative and progressive parties that alternated in the municipal executive power (PDT, PTB and PMDB over time.

The environmental governance instruments were implemented by the interfederative dynamics that regulate these policies. We found that the first environmental laws in both municipalities were instituted during the redemocratization period (which began after the 1988 Constitution and lasted until the mid-1990s). In the case of Colatina, before the disaster, the environmental policy was linked to the basic sanitation policy. Sanear, the agency responsible for both policies, received supplementary credits, formulated environmental policies and was responsible for environmental education programs. After the disaster (post-2016), there was a reorganization of the municipal environmental system in Colatina, that is, the separation between environmental policy and sanitation policy, already recommended by state and federal regulatory bodies, which culminated in the creation of the fund and specific public councils for this purpose. Thus, the council that was previously linked to Sanear lost its attributions related to environmental issues (basically licensing, inspection and activities related to environmental education) and another council was created. Currently, the Secretariat for the Environment and Sustainable Development has the Master Plan Council (more active, with monthly meetings) and the Environmental Council (with bimonthly meetings). In the case of Linhares, the reformulation of the environmental policy had already been carried out, even before the disaster, starting in 2014, establishing at least 20 instruments to support the process of municipalization of environmental licensing (Souza et al, 2022). In this way, after the disaster, we found the creation of five programs for the preservation of natural areas, the implementation of the environmental licensing that transferred the power of the environmental police to the municipality and the allocation of 0.5% of the oil royalties to the municipal environmental fund, and the last two measures were previously scheduled and are not directly related to the disaster.

It is important to emphasize that, in both municipalities, we were unable to verify contentious or cooperative relationships between government actors and social movements and civil society organizations linked to the area of the environment, which occurred, as we saw in the previous session, within the scope of state in contentious disputes over reparation measures between the governance system/Renova Foundation and social movements and organizations. In the case of Colatina, for example, we were able to identify a few organizations in the environmental area, such as the NGO Code, Gamba and Pastoral da Ecologia (linked to the Catholic Church), in addition to reforestation projects financed by private companies (such as shopping fashion brasil, bertoline furniture, etc.), as compensation for environmental licensing; and the « adopt the green » project, in which companies or individuals take care of squares and green areas. In Linhares, likewise, we identified only two civil society organizations regulated and registered in the environmental area: Instituto Biolalo and Associação Amigos da Terra, the latter initially had a seedlings proposal, but act more ins rescuing vulnerable children. This deficit has an impact on the seats on the municipal council for the environment
in the municipality, which ends up being occupied by FAMAL (Federation of the Associations of Residents of Linhares) and becoming vacant. However, we observed that relationships between government actors and economic actors are stronger, as all companies have some type of relationship to the detriment of local environmental licensing and government officials prefer, instead of notifying and charging fines when there is an irregularity, to apply compensation services, as in the case of Leão Alimentos from the Coca-Cola group, which manages a local recycling project.

In Colatina, we observed the creation of more regulatory instruments than in Linhares, due to an emergency situation of interruption in the water supply caused by the disaster. At the state level, there were establishments of the Preliminary Socio-Environmental Commitment Term between the Federal Public Ministry, the state and municipal justice bodies and the company Samarco to regulate emergency actions financed by the company; o Term of technical cooperation between CISABES and the Rio Doce Basin Committee (intermunicipal sanitation consortium and a planning institution with representation of the sectors involved); and the receipt of BID resources to mitigate the impacts of the disaster, especially monitoring water quality and programs for cleaning and restoring permanent areas.

In Linhares, in addition to observing the presence of fewer regulatory instruments, they are linked to the establishment of local regulations that are more linked to the planning and prevention of new disasters, whether they are: the creation of the municipal Civil Defense Fund, and the Spring recovery program (Legislative initiative).

We note that in both municipalities representative instruments were created, reformed or taken over, but with different purposes. In Colatina, for example, the municipal council for the environment was created in juxtaposition to the municipal council for the environment and sanitation as a result of the reorganization of the environmental policy. In addition to the centrality of CONDOESTE in the municipality, which is a sanitation consortium that includes 16 municipalities, while the mayor became the president of this institution and holding of a regional conference, public hearing and one of the agendas was the presentation of the institutions and instruments created at the regional/federal level for repair and mitigation (CIF and TTAC). In Linhares, on the other hand, we saw the creation of three new public policy councils in response to the disaster and closely linked to its impacts, as well as the planning and prevention of future disasters, whether they are: the council of sports and leisure, the tourism council, and the management council of the municipal civil defense fund. Finally, we found that very few inspection instruments were created and they are apparently weak or ineffective, since these decisions are made more at the national and state levels. In this sense, we observe in Colatina, the creation of a special commission to monitor actions related to the impacts of the disaster (Legislative). Already, in Linhares, we found that the Legislature opened a Parliamentary Commission of Inquiry (CPI) to investigate the case.

The informal instruments were mapped through the networks of relationships pointed out by the interviews carried out, but we emphasize that these data cannot yet be deepened due to the limited number of interviews carried out. In Colatina, the manager pointed out that at the federal level, the
institution that most collaborates on issues related to the disaster was the Federal Public Prosecutor's Office, related to the issue of preservation, occupation and regulation areas around the Rio Doce. At the state level, the institutions that were most involved at the critical moment were IEMA – State Institute for the Environment, provided many courses, supporting the transition of environmental licensing to municipalities; a AGHER – State Agency for Water Resources and SEAMA and the State Secretariat for the Environment, even with less frequent contacts, usually related to studies (underground wells, dug wells, etc.), equipment donation and administrative issues. At the municipal level, the crisis was managed by Sanear and the Municipal Secretary of Renovations and Public Services. Remembering that until 2016, Sanear was responsible for everything. The separation coincided with the disaster, but, according to the interviewee, it was an internal decision. Sanear must be supervised, there is no way to supervise it. In the case of Linhares, the interviewee pointed to federal agencies linked to the environment as the main interlocutors, such as the Brazilian Institute of the Environment – Ibama, since it was necessary to assess the size of the damage and it is a federal river and the Chico Institute Mendes de Biodiversidade – ICMBio, which has a headquarters in the municipality, as it is a turtle spawning area, and the same is part of the Municipal Environmental Council). Our interviewee also pointed out the Federal Institute of Higher Education – IFES as an important ally. IFES was not aimed at the environmental area, offering courses in the area of administration and industry automation, but that is changed with the disaster and today there is a group that works with environmental education and are quoted to participate in the Environment Council. Thus, in the case of Linhares, we observed, through the interview with the manager, a rapprochement between institutions and actors within the council, which adds expertise for “practical collaboration”, which takes place on both sides, both from Ibama to the Municipal Executive, and vice versa.

"we spent some time getting closer to these teams due to the disaster, then the oil on the beaches came, we got closer to one team, the superintendent who was there is no longer there... but, there was one contact network with Ibama technicians. Hey, in particular, I have contact with some Ibama agents and when we feel tight or need some support, well, we have someone to call, someone to talk to” (Entrevista realizada com o gestor de meio ambiente de Linhares, em Setembro de 2021).

At the state level, the most important institutions appointed by the manager to collaborate at the critical moment were IEMA, IDAF and state environmental police. At the municipal level, the partner bodies are the same ones that sit on the council, on the government side, namely: Secretariat of urban services; SAAE; Secretariat of Education (which collaborates in environmental education actions) and the Secretariat of Social Assistance and municipal guard.

In summary, even though we still need more interviews to deepen the analysis and continue observing the instruments implemented over time, it is possible to notice two different modes of
governance that apparently are in line with the different nature of the main problems faced by municipalities, that is, the interruption of the water supply and the need to implement alternative forms of capture in Colatina and the problem of impacts on the environment with the contamination of the mouth of the river and the Atlantic Ocean, impacting on local tourism, among other multiple impacts. In Colatina, from this perspective, we observe a more corporate and formalized mode of governance, with socio-state relations between the responsible company (Samarco), the Renova Foundation that manages the repair and mitigation actions and the BID, formalized by regulatory instruments (which combine different arenas and federative levels). In Linhares, an informal intra and inter-institutional collaboration, between the Executive and the institutions and bureaucrats at state and federal levels: built from everyday actions and informal relationships of mutual support. In addition to the preponderance of institution of new representative instruments (councils) rather than regulatory instruments, such as in Colatina.

Thus, if we compare the two levels, we observe that, at the local level, the municipalities reacted through more changes in instruments and also by creating new instruments. On the contrary, at the state level, they created a new governance arrangement, but it was not very effective because it was managed by a foundation (RENOVA) with a former employee from the previous management responsible for the disaster: so they used the same people, the old instruments, and are not open to the local knowledge of affected citizens.

4. Final considerations

The impact of the focused event or disaster on the Rio Doce is not very clear, so uncertainty is taking hold. There is a literature on uncertainty about the impact of natural disasters that needs to be investigated. Ignorance of what was happening had two main consequences: first, at the local level, uncertainty produced conditions for more cooperation and collaborative governance, rather than conflictual relationships at the municipal level. The second consequence was a certain delay in reaction, and the main damage was not dealt with immediately, and the damage was magnified. The impact of the event is not very clear, so the uncertainty is taking the lead.

What is the relationship between the regional and local coalition? Impact of coalitions/ideas at sub-national levels will depend on the type of belief and instruments used (responses). We observed the formation of different coalitions depending on the type of problem (cause) and more and less formal responses/instruments of different types and actors. Depending on the level and problem, the municipality considers itself affected (had no support from the company): different belief in each municipality.

The question about change remains unclear, as apparently there is no change in coalitions, in beliefs, only incremental change and political and institutional learning. Need to continue observing
these actors and relationships, including in the context of the leftward turn of the federal government, conservative legislature.

4. References


Jekins-Smith Sabatier 2014


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This research began in 2017 and counted on the collaboration of interlocutors of the ComRioComMar Research Network, formed by more than 20 researchers of the five Brazilian institutions in the area of human sciences, created for the development of numerous projects funded by public notices that aimed to support policies for the reconstruction of affected communities in the Doce River basin, especially, to implement a social technology to amplify the voice of those affected and intervene in public policies. For further information, consult: www.comriocommar.com.br.

According to Tarrow (2010), the pairwise comparison strategy is a method of policy analysis that is distinct from case study and multivariate analytics. Despite the small number of cases involved, paired analytics provides a balanced combination of descriptive depth and analytical challenges that progressively decline the more cases are added.

While the estimated population of Colatina for 2021 is almost 124 thousand inhabitants, Linhares has an estimated population of almost 180 thousand inhabitants for the same year (Panorama IBGE, 2021).

The dynamics that regulate the relations between these municipalities and their respective federal entities are amenable to control, as both municipalities are in the same administrative region and the same state government. Although the number of interviews is small and needs to be expanded, throughout the research it was possible to identify “informal relationships”, especially in the case of Linhares, through interviews with municipal managers, participation as a listener in several Public Hearings and meetings of the Interfederative Committee – CIFI (including the 49th Meeting, in which the research network ComRioComMar presented the proposals of ComRioComMar Opinião Popular: a consultation involving 5 municipalities, 3,483 participants identified and 507 proposals prioritized by 23,990 votes) for collaboration in the organization of the Thematic Meeting ComRioComMar Popular Opinion: The Water and the Environment: five years after the disaster (available at: https://youtu.be/VuwDsi5m950) and the collaboration in the preparation of the Technical Bulletin Water and Environment (available at: https://app.box.com/s/lz8xu2ij4putocfdweolo2idvkvyj3) and the consolidated Technical Bulletin, in section 2. Water and Environment (available at: https://app.box.com/s/wbpg8wkm6qrtka1ecpyw37b2d28j5em93).

The data were collected from the Official Gazettes in both municipalities in the year of the disaster (2015) and three years after the event. In addition to including the resolutions from the years 2013 and 2014 (prior to the dam failure), as they were available on the official website of the Municipal Government of Colatina (www.colatina.es.gov.br).

The data were collected and organised in an Excel file, replicating the methodology employed by Gurza Lavalle, Voigt and Serafim (2016), that is, by searching for the following keywords: council, resolution, participatory budget, participatory governance and social participation, plus, for the purpose of this analysis, the following terms: Basins and Rio Doce Committees. The new combination of keywords allowed the broadening of the analytical scope to a broader discussion on the response patterns of the two municipalities analysed in the context of the Rio Doce socio-environmental disaster.

The subsystem is defined as "the group of people and/or organizations interacting regularly for periods of a decade or more to influence the development and implementation of public policy within a particular policy area or domain" (Sabatier, 1998, p. 111).

ACF distinguishes at least two levels in the belief system. Core policy beliefs represent the basic normative goals of a coalition. Secondary beliefs comprise specific and instrumental issues of the policy subsystem, deemed necessary for coalition maintenance (Sabatier, 1998).

According to Jenkins-Smith et al (2017, p. 145), the original version of the ACF offers two hypotheses for policy change, focusing on external disturbances and power shifts. The authors present four patterns of policy change attributed to external factors, internal events, the minor changes (policy-oriented learning) and negotiated agreements in coalitions. However, Weible and Nohrsedt (2012, 2013  apud Jenkins-Smith et al 2017, p. 147) merge these patterns into a single hypothesis that posits all factors as necessary but not a sufficient condition for change at the policy core of a government programme.

Focused events are defined as unexpected situations that may be harmful or reveal the possibility of potential harm, concentrated in a particular locality or community of interest, which are known to both the governing and the general public (Birkland, 1998, p. 54 apud Birkland, 1997; Kingdom, 1995).

The authors define an instrument as a government technology that varies according to its various formats and distinguish five main analysis models. This typology departs from a model developed by Hood, based on the mobilization of resources by public authorities, and advances by incorporating types of political relationships and types of legitimacy that such relationships presuppose (LASCOUMES; LE GALES, 2007, p. 12).

Company controlled by BHP Billington Brasil Ltda. and Vale S/A.

The case of the Doce River was not an isolated event. In 2019, there was the rupture of the Córrego do Feijão dam in Brumadinho (MG), owned by the same company, which killed about... people... another kind of response.
Among other countless differences, such as the size of the state bureaucracy: Linhares has almost 8,500 servers, compared to almost 4,500 that work in Colatina, and of these only eleven are linked to environmental management and in Linhares there are 34 in the same area; and in relation to urban infrastructure, we observe, for example, in Colatina 85.5% of the domiciles have adequate sanitary sewage, while in Linhares there is a much lower coverage of 66.7%.