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*Full Length Research Paper*

# **Environmental reporting, accountability and governance of local governments: An Italian multiple case study**

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**This article aims to investigate the complex interrelationship existing between reporting, accountability and governance of municipalities. More in detail, the paper attempts to identify the internal and external conditions inducing municipalities to keep environmental reports (Research Question 1) and to assess the impact of environmental reporting on the accountability of the municipalities' governance (Research Question 2). Multiple Case Study Research is conducted by administering semi-structured interviews to bureaucrats belonging to Accounting or Environmental Department of twelve municipality partners originally involved in CLEAR-Life project. The analysis shows the link between environmental reporting, governance and accountability, fostering the identification of some important factors which may induce municipalities to elaborate environmental reporting, the impact of which should improve accountability. The work highlights possible governance settings that should stimulate scholars and practitioners to acquire a more mature awareness about the importance of adopting sustainable practices for the implementation of budgetary policies. The paper summarizes the enabling conditions to leverage governance mechanisms, which may lead political representatives to pursue an environmental accounting-oriented culture and, therefore, environmental awareness and responsibility.**

**Key words:** Environmental reporting (ER), accountability, governance, local government (LG), municipality, multiple case study, semi-structured interview, CLEAR-Life.

## **INTRODUCTION**

Western economies have been successful in creating a higher level of consumption (perhaps even well-being) but it is not in question that the planetary environment is declining seriously and rapidly (Dragomir and Anghellicu, 2011; Gray and Bebbington, 2000). To face this global challenge, the UN World Commission on

Environment and Development published the Brundtland Report (WCED, 1987), a relevant step where the concepts "sustainability" and "development" are used together. It is considered the guiding principle linking environmental and human development concerns (Bebbington and Larringa, 2014; Bebbington et al., 2014).

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In 1992, with the Rio's Earth Summit, the principle of sustainable development was fully approved. The international context has played a fundamental role in shaping European environmental policies, based on co-operation of many political actors: EU institutions, national authorities and interest groups; all with widely differing agendas (Delreux and Happaerts, 2016). In this regard, the international trends for greater accountability and environmental responsiveness from the public sector, with particular regard to the governance of public administrations at local level (Johanson, 2014), further encourage the establishment of new research on the promotion and implementation of sustainable development practices (Crosby and Robbins, 2013). Moreover, Chapter 28 of Agenda 21 declares that many problems linked to sustainability can be solved only at a local level (Meakin, 1992). Thus, the governance of Local Governments (LGs) seems to play a pivotal role in fostering their accountability (Hyndman and McKillop, 2018; Niemann and Hoppe, 2018; Larcker et al., 2007; Marcuccio and Steccolini, 2005), especially with regard to the environmental theme and, more in general, to the sustainable development, having the capacity to relate directly to society, outline the trajectories of development, define and implement policies, make choices, identify and solve community problems (Dragomir and Anghel-Ilcu, 2011; Papaspyropoulos et al., 2010; Ball and Grubic, 2007). This consideration acquires value by virtue of the fact that in many industrialized countries the governance models of the LGs, especially in the environmental sphere, show numerous limitations (Hyndman and McKillop, 2018) with respect to identifying possible solutions to emerging problems and new diversified needs, coming from actors in economic, institutional and civil society contexts.

The environmental crisis tangling the planet in a vicious circle of pollution generates uncertainty toward the future prospects for the governance of many LGs (Ntim et al., 2017), highlighting the need to trace new ways of managing accountability systems and, more generally, defining and implementing environmental policies. In light of this increasing need, the systems for adopting environmental policies are progressively evolving (Li and Song, 2018; Chapple et al., 2018; Richards et al., 2016; Jan van Helden and Vakkuri, 2008), moving from government structures, characterized by rigidity and vertical integration, to governance models, characterized by the promotion of initiatives based on the principle of shared accountability, on effective collaboration between public and private actors at different levels, on alignment of goals, on the synergic integration of resources and on the co-creation of value between local authority and citizen (Baker and Schaltegger, 2015). In this regard, Local Agenda 21 (LA21) summarizes the necessary actions to be taken, the stakeholders to be involved and the tools to be used to orient the governance of LGs toward a full environmental accountability according to a

logic focused on the global sustainable development. One of the measures included in Agenda 21 was meant to integrate sustainable development in governance, policy making, plans and strategies. Coherently, LGs have begun to embrace the new tools of Environmental Accounting (EA) as necessary steps toward understanding and managing change (Ball, 2005).

EA can be identified by the organization effort to legitimate activities; an ethically desirable component of any well-functioning democracy; and one of the few available mechanisms to address sustainability (Gray et al., 2014). By adopting the environmental policies classification of what Giovanelli et al. (2005) defined as "third generation", EA is concerned with the production of 'accounts' concerning organizations' interaction with the natural environment considered as an integral part of all the available resources. As stated by Bebbington and Larrinaga (2014) there is no clear demarcation in literature between EA and sustainable development. Specifically, EA is seen as an essential mechanism, together with sustainability science, in mapping the future direction of organization towards sustainable development. Hence, EA can be considered as a key step to provide insights that will help the advancement of sustainable development. Thus, it may be considered as a response to internal and external users' needs about the ambiguity and complexity of sustainable development measurement. Similarly, EA could be an answer to some of the weaknesses of accounting and related conceptual frames (Unerman and Chapman, 2014). The Environmental Reporting (ER) is the main EA document, through which the LGs governance shows the territorial commitment to the various local stakeholders (Braam et al., 2016), specifying in detail - that is, through both monetary and physical indicators, the effects produced by the policies adopted and the possible effects deriving from future actions not undertaken yet. By drafting and approving the ER, LG, in addition to describing and making public the environmental policies and the related economic-financial aspects, analyzes and documents, through data and statistics, the direct and indirect impacts on the environment of the decisions taken (Buhr, 2002). ER is the process of communicating the environmental effects of organizations' economic actions to stakeholder (Gray et al., 1987). As such, it involves numbers of purposes but discharge of the organization's accountability to its stakeholder must be the dominant of these reasons.

Although there is a considerable international interest in the subject of environmental protection, to date, the number of studies aimed at investigating the link between governance, accountability and ER of LGs is still exiguous (Grubic et al., 2015). In addition, prior research shows that, also in terms of operational practice, environmental accountability seems not to be a synergistically and completely integrated governance processes, activities and actions of LGs even today, if not

with reference to the environmental legislation to be respected (Farneti, 2011). Moreover, academic investigation is needed to help understand where specific environmental-related accounting initiatives lie on the continuum between pure rhetoric and meaningful action. Furthermore, it informs the most aware and effective use of the accounting for sustainable development in a broad range of organizations.

Therefore, considering the high relevance of the topic, the goal of this article is to analyze the results coming from an investigation of complex interrelationship existing between reporting, accountability and governance of municipalities. More in detail, the paper aims to provide an empirical evidence of the factors improving accountability, governance and their relationship with environmental reporting of municipalities. To this end, the work attempts to provide an answer to the following two Research Questions (RQs):

RQ1: Which factors induce the LG to introduce the ER?

RQ2: How does ER impact on the accountability of the municipalities' governance?

## **LGS BETWEEN GOVERNANCE, ENVIRONMENTAL ACCOUNTABILITY AND REPORTING**

### **From governance to environmental accountability**

The importance attributed to the environmental accountability finds a more immediate justification in the public sector. The traditional role played by public bodies at every level fits perfectly with the objective of shielding citizens' health, through the definition and implementation of specific policies of government. These policies promote environmental protection and minimize the impact generated or that may be generated by human actions (Ball et al., 2014).

The strong link that exists between the environmental accountability and the governance of public administrations, although debated for many years, acquires meaningful significance in the early 1990s (Jepson, 2005). Since that moment, there has been a growing interest in articulating a powerful normative regime characterized by practices and policies, aimed at attributing responsibility to any social actor in terms of environmental awareness (Brown and Moore, 2001).

Over time, the increasing attention that LGs have been given to the environment and its protection has produced a real change of perspective in the formulation of government policies (Bartelmus and Seifert, 2018). It progressively became more and more focused on the diffusion of a sense of morality, legality and, more in general, accountability in the civil society (Lodhia and Stone, 2017). As a result, scholars and policy makers started to wonder about the efficacy of policies adopted for and within the public sector, taking the link between

politics, governance, morality, and accountability to the top of the agenda in the environmental sector (Jepson, 2005).

Governance models in the public sector have begun to embrace an accountability-oriented approach (Delreux and Happaerts, 2016), based on an integral and responsible management of public bodies. The key elements are legality and possibly the principle of rationality (Armstrong, 2005). Governance policies, while continuing to recall the legality of actions and the rationality of behavior, necessary for making decisions compatible with the available resources and the set objectives, focus the attention on the moral meaning of accountability, inspired by responsible human conduct and values toward the exclusive interest of the community (Larcker et al., 2007). In this sense, the set of values characterizing the policy makers' choices constitute ethics. It is defined, according to a moral perspective, as a spiritual presupposition of human conduct, in compliance with the rules defined in the broad and strict context of legality (Edwards, 2007). Therefore, the affirmation of accountability in the governance policies of public bodies emerges as a link between the rational interest of those who guide the public body in respect of legality, and the interest of the social community in which it is placed and acts (Laratta, 2011). The deepening of the link between governance and environmental accountability has favored the development and the continuous updating of techniques and practices that delimit the theoretical and normative framework. In this context, the LGs adopt concrete actions for the administration of territory and environment (Lehman and Morton, 2017).

To date, except for some unusual exceptions, all LGs place emphasis on the definition of a connection between territorial governance and environmental accountability (Armstrong et al., 2012). This link is aimed at implementing procedures and tools capable of favoring the improvement of the level of effectiveness and efficiency of the decision-making process (Bakre, 2011). Moreover, the greater the depth of the aforementioned relationship, the more intense is the involvement and the engagement of all the community actors - not only citizens - in the decision-making process of the LG (Grubnic et al., 2015).

The governance of a LG summarizes the set of methods by which policy makers organize and guide political action as a whole in a specific context of the territory (Ai Qin, 2006). The reference is not only to the quantity but also the quality of the interventions, measured in terms of effectiveness, efficiency, timeliness and consistency with respect to the needs of the community.

In the last decade, the models of territorial governance for the accountability of LGs have evolved in line with the changing political, economic, social and environmental conditions (Larcker et al., 2007). This process has

marked the passage from a hierarchical structure to a strategic vision of territory management in the medium and long term, focused on the horizontal and vertical integration of functions (Li and Song, 2018).

The crisis of hierarchical governance models for environmental management was determined by the acquisition of a more mature awareness on the inadequacy of "one-way" policies for the regulation of the system relations. These links are characterized by a growing complexity of social phenomena, as well as political and economic issues that affect the territory (Ntim et al., 2017).

Over the years, LGs understood the need to recognize as a priority the citizens' participation and empowerment towards the definition and implementation of environmental policies (Richards et al., 2016). In other words, having defined the relevance and legitimacy of procedures and methods to elaborate political-environmental decisions, in this sense Foucault (1991) talks about "governmentality", the participatory paradigm must concretely be inspired by the principles of openness, participation, accountability, effectiveness and consistency.

In this sense, the link between governance and environmental accountability is expressed in the set of coordination mechanisms of the territorial actors. They are aimed at sharing sustainable development to promote the elaboration and implementation of coherent territorial initiatives (Crosby and Robbins, 2013). In this sense, LGs need to adopt environmental policies able to guide, train and involve all public and private organizations, civil society and individual citizens in the territory, both in the planning and in the implementation phase (Bebbington and Unerman, 2018), overcoming the limits imposed by the concentration of power in the hands of a single subject. As a result, public and private actors involved in the sustainable development debate could have been more aware of proposals for sustainability policies and practices.

### **From environmental accountability to environmental reporting**

Among the tools used by LGs to strengthen their accountability, with respect to the needs of the territory and the expectations of the community, ER plays a leading role in the process of defining governance policies (Debnath, 2019).

In the context of accountability processes, ER allows and facilitates the detection, organization, management and communication of environmental information by means of indices expressed in both physical and monetary units (Bennett and James, 2017).

In the public sector, ER was born as a response to the desire of institutions to develop a broad system of accountability (Baker and Schaltegger, 2015). It consists

of a set of reporting procedures, equipped with not only economic or financial nature but also environmental dimension (Margerison et al., 2019). These processes can quantify the overall impact of policies, actions, interventions and, more generally, activities with repercussions on the territory (Deegan, 2017).

ER proves to be capable of obviating the inadequacy of traditional accounting instruments - mostly of an economic, equity and financial nature - in satisfying the needs of accountability (Margerison et al., 2019; Menicucci and Paolucci, 2018). Moreover, it identifies environmental problems (Schaltegger and Burritt, 2017), and proposes solutions capable of stimulating the overall well-being of the local community (Sendroui and Roman, 2007), pursuing the collective interest (Stanciu et al., 2011) and better goals on environmental quality, life and sustainability of development (Evangelinos et al., 2015).

By adding an EA system to traditional financial statements, LGs are able to meet the information needs to show and "demonstrate" their accountability (Georgakopoulos, 2018). This system allows to appropriately account for environmental costs and benefits coming from current or future actions, also increasing transparency toward the outside and implementing effective and efficient policies (He et al., 2019). Therefore, ER satisfies a dual communication requirement: internal, as a supporting transversal and strategic document in the decision-making process of the entity (Garcia-Torea et al., 2019), and external, as a tool of transparency and democracy to account for all the stakeholders of the territory about environmental policies (Vassillo et al., 2019).

Although it is part of a set of principles shared at an international level for a long time and that many strategic documents support its adoption, ER is a voluntary tool (Lehman and Kuruppu, 2017; Steele and Powell, 2002). Sustainability within the urban context has been widely debated, however, there is still a general lack of integrated solutions and coordinated actions, which are required for addressing such a complex issue (Muserra, 2020; Buhr et al., 2014; Farneti and Siboni, 2011; Mazzara et al., 2010).

Within the sustainability framework, much of the current literature on ER (Greiling et al., 2015; Buhr et al., 2014; Lodhia et al., 2012) focuses on the adoption of the Global Reporting Initiative (GRI).

The GRI has been a widely adopted framework for ER to disclose economic, environmental and social performance in a comparable way and creating a transparent and reliable network of sustainability information (GRI, 2002).

However, GRI's guidelines, that are widely used by companies, have failed to grasp public sector sustainability approach, being too managerial. Indeed, they are based on the assumption that there are no oppositions between the traditional economic criteria and those related to social and environmental aspects.

Therefore, they seem unaware of the notions of ecology and eco-justice - focusing on establishing whether or not organizations act as sustainable members of society (Dumay et al., 2010).

In this context, there is a lack of environmental sustainability in the public sector (Goswami and Lodhia, 2014) and often reports show considerable diversity not recurring to any guidelines (Williams et al., 2011).

In the last decades, despite the voluntary nature and the lack of effective official guidelines, a growing number of LGs has experimented the ER (Williams et al., 2011; Marcuccio and Steccolini, 2005). This situation may lead to inconsistency and uncomparability, which would be avoided in case of a known standard (Lodhia et al., 2012). Moreover, it may raise some concerns about the effectiveness of ER as a tool able to enhance transparency and accountability. For LGs social and environmental responsibility cannot be a mere ethical option. It should also be taken into account that the relationships with stakeholders are here very complex and layered, namely the relationship with citizens/voters/taxpayers who are often also customers (Ricci, 2016). Generally, it seems that ER refers to citizens; however, some authors argued that the favoured audience is often that of internal stakeholders (Farneti and Guthrie, 2009).

In light of what has been described so far, the ER takes shape as a useful tool for reporting and publicizing the accountability of LGs (Cormier and Magnan, 2003): through the use of this instrument, the institution becomes socially responsible for the protection of the environment, due to the policies adopted and the choices made in implementing the commitments and objectives previously set.

The choice of LGs to draw up an ER comes from the increasingly pressing request for transparency on policies and strategies oriented towards sustainability (Debnath, 2019). Within the concept of sustainability in its triple meaning, the conflation with the environmental aspect plays a fundamental role (Bennett and James, 2017). Indeed, it stimulates the administration towards a community approach. Compared to other documents referable to the sustainability reporting framework, an adequate ER drafting and publication process is able to increase the transparency of LG's action. Thus, it would provide a representation of environmental policies. Namely, it allows policy makers to monitor the results obtained following the integration of targeted environmental policies, redirecting the decision-making process of the LG towards greater transparency, stimulating a more considerable stakeholder involvement, and facilitating the implementation of environmental management systems (Gray et al., 2014). The growing attention that public opinion, LGs and, more generally, all stakeholders pay to environmental issues is prompting administrations to tune the communication tools of sustainability (Delreux and Happaerts, 2016). By

examining the various threads that make up ER, it is possible to contribute to the advent of sustainability as a meaningful concept (Buhr et al., 2014). Through the publication of the ER, environmental sustainability is assessed in terms of both efficiency and effectiveness, with regard, for example, to monitoring the energy consumption, verifying the waste management, and controlling the water use and purification. Therefore, the ER satisfies a fundamental need for the sustainable management of LGs: the complete, exhaustive, correct and transparent representation of the administration-environment relationship (Margerison et al., 2019). For LGs the ER represents not only a mere reporting document but also a political-institutional tool (Garcia-Torea et al., 2019). It can benefit from the construction of a base of indicators concerning the environment to identify problems (Wheeler and Elkington, 2001) and define corrective interventions (Marcuccio and Steccolini, 2005). Moreover, it can bring the environment to the center of the political debate (Lodhia et al., 2012) and, consequently, guide future development trajectories to build a path of development devoted to sustainability in its triple form: economic, social and environmental.

## RESEARCH DESIGN

In order to reach the research aims (Woodside and Wilson, 2003), seeking to probe theory description directly applicable to practical problems, reaching both an academic and professional audience, a case study research (Eisenhardt, 1989; Starkey and Maden, 2001; Visconti, 2010) was implemented. The main benefit coming from its use is not to generalize findings to a population (Yin, 1994), but the opportunity to deepen the knowledge (Skinner, 1963), adopt a system thinking (Gummesson, 2003) and provide a phenomenological approach that focuses on the lived experience of individuals as the main empirical evidence (Thompson et al., 1994).

For this work, rather than a Single Case Study, it was decided to adopt a Multiple Case Study (MCS) approach since the latter allows for the analysis of complex phenomena and situations (Lamboglia et al., 2018), like the link between ER, accountability and governance of municipalities.

Furthermore, MCS offered the opportunity to determine possible differences and similarities among the several cases under analysis (Lambert and Sponem, 2012). Therefore, the risk of making considerations based on results affected by uncontrollable factors (e.g. casualty, coincidences, etc.) is reduced, and scientific rigor by ensuring higher reliability to the discussion (Corcoran et al., 2004) is guaranteed. In the accounting literature, many other authors employed that research method, and it is possible to trace several scientific contributions that recommend its use (Becker, 2014; Del Bene and Ceccarelli, 2016).

Although each author sticks up for her/his own idea about how MCS should be defined, such as the research objectives, analysis context, historical period, etc., for this work the application of MCS implied the need to treat separately each case taken into account, that is, as an individual case, in order to ensure the reliability of research, the replication of analysis and the comparability of findings (Del Baldo and Aureli, 2017). Theories, ideas, hypotheses, assumptions, statements, propositions, principles and postulates deriving from the study of other cases represented the reference framework for this research as a whole: the MCS allowed authors to

investigate more deeply the factors inducing the LG to introduce the ER (RQ1) and to understand the ER impact on the accountability of the municipalities' governance (RQ2).

Finally, investigating the link between ER, accountability and governance by means of the separate analysis of all individual sub-units, the municipalities, was necessary to maintain for each of them the same set of basic assumptions, although the progress of the analysis could lead to further considerations, enriching the theoretical and experiential baggage.

### Data preprocessing

The first activity carried out to choose the actors of analysis was aimed at selecting a method used by more than one municipality to draft their ER. In this regard, the attention was paid to CLEAR-Life - Acronym of "City and Local Environmental Accounting and Reporting" - since it was a case-relevant opportunity financed by the EU and led by LGs network participation (CLEAR, 2003).

Indeed, the absence of technical information prompted the European Commission to boost, in 2001, this new method to elaborate ER, which copes with transparency, citizens' awareness and LGs commitment with respect to the policies adopted (Borriello, 2013).

This was set within an inter-institutional working group assisted by public and private key stakeholders to deliver guidelines in ER (collected into a proper manual). It was used for about 16 years (Di Palma et al., 2005) and it appears to be a predominant method for frequency of application in Italy which has introduced a complete and structured methodology (Bartocci and Picciaia, 2013) that involves both technical and political actors, such as the Executive Committee, the Council and even the Mayor.

Most of the CLEAR-Life partners mainly belong to the Emilia-Romagna Region. This accuracy allowed to reach a homogeneity, not only in terms of time perimeter (according to its financial incentives, 2001-2003, and its period of adoption by 2004), but also confining the sample according to space perimeter. In particular, it was introduced thanks to the commitment of a working group made by 18 Partners (municipal and provincial administrations), coordinated by the joint action of the Emilia-Romagna region and the international association Les Eco Maires - which includes about 600 municipalities adopting sustainable policies, as part of a European project co-funded by Life Environment (Dalmazzone and La Notte, 2009).

Information was gathered about the publication of ER by CLEAR-Life municipality partners (12 out of 18), without including provinces. All the twelve LGs CLEAR-Life partners were contacted to ascertain whether they had adopted ER and, if so, to analyze their ER practices by means of interviews with the people involved in the report preparation process and documentary analysis.

### Data collection and analysis

In order to achieve the predetermined research objective and, therefore, to provide empirical evidence of the accountability and governance role within the elaboration of ER in a LG context, it was decided to take care of both fulfilling and defaulting LGs.

Table 1 shows some significant data relating to the LGs - reported in alphabetical order - belonging to the sample under investigation.

As shown in Table 2, the aforementioned procedure returned 4 LGs, out of the 12 partners, that today continue to elaborate ER. In order to achieve the predetermined research objective and, therefore, to provide empirical evidence of the reasons that lead to elaborate the ER, it was decided to contact the whole sample of LGs to achieve a multifaceted vision of the phenomena. Each

interview varies according to the availability and the actual feasibility of the analysis. For this reason, the interviews administered to the bureaucrat of the accounting or environmental offices of municipalities indicated earlier lasted differently from a minimum of 25 min to a maximum of about 60 min.

The interviews were designed by following the four-step interactive guide of designing and conducting interviews, proposed by Arsel (2017). In particular, the analysis was performed by administering semi-structured interviews, designed by taking into account the motives characterizing the choice of continuity made by the four municipalities which, after a long time, are continuing (M1, M4, M8, M9) or have stopped (M2, M3, M5, M6, M7, M10, M11, M12) drawing up the ER. The use of semi-structured interviews, rather than open, is justified by the consideration that, although there is a fixed trace, the development of the interview may vary according to the interviewees' answers (Horton et al., 2004). In fact, administering semi-structured interviews, the interviewer cannot address off-track issues. Moreover, unlike structured interviews, he/she can develop some sub-topics that spontaneously arise and that could be useful for understanding the investigated phenomenon. The interviews were designed by identifying five themes: (a) ER and accountability; (b) benefits for the LG; (c) benefits for stakeholders; (d) strengths of the CLEAR-Life method; and (e) weaknesses of the CLEAR-Life method.

## FINDINGS AND DISCUSSION

The results that emerged from the survey show that all the respondents have identified the importance of the LGs' accountability and its link with ER, corroborating the Ntim et al.'s study (2017), according to which the local institutions cannot ignore the need to trace sustainable trajectories in the adoption and implementation of their policies:

*"ER emerges as a worth accountability means of linking administration and citizens, ... capable of favoring their mutual rapprochement ... as well as the enhancement of territory ... and its resources, not only under an environmental profile" [Quoted from M9];*

*"the ER, while not guaranteeing the identification of consistently feasible solutions, implies the need to constructively discuss environmental issues, preventing the less positive aspects from being covered up" [Quoted from M6].*

In compliance with Hyndman and McKillop's point of view (2018), LGs play a leading role in promoting the sustainable development of society and in stimulating the spread of accountability:

The stakeholders with which LGs come into contact can benefit from obtaining valuable information about the exploitation of the territory. In fact, the publication of the ERs allows all the players belonging to the social context in which LG takes part to develop the necessary awareness about the residual availability of environmental resources [M6 and M9].

However, the decision to or not to elaborate the ER depends on different governance settings defined by

**Table 1.** The municipalities investigated.

LG code	Local government	Location	Region	Population <sup>a</sup> (31 Jan., 2019)
M1	Municipality of Bergeggi (SA)	North-West	Liguria	1,090
M2	Municipality of Castelnovo ne' Monti (RE)	North-East	Emilia-Romagna	10,506
M3	Municipality of Cavriago (RE)	North-East	Emilia-Romagna	9,898
M4	Municipality of Ferrara (FE)	North-East	Emilia-Romagna	132,052
M5	Municipality of Grosseto (GR)	Centre	Tuscany	82,353
M6	Municipality of Modena (MO)	North-East	Emilia-Romagna	186,307
M7	Municipality of Pavia (PA)	North-West	Lombardia	73,086
M8	Municipality of Ravenna (RA)	North-East	Emilia-Romagna	157,663
M9	Municipality of Reggio Emilia (RE)	North-East	Emilia-Romagna	171,999
M10	Municipality of Rovigo (RO)	North-East	Veneto	51,104
M11	Municipality of Salsomaggiore (PR)	North-East	Emilia-Romagna	196,518
M12	Municipality of Varese Ligure (SP)	North-West	Liguria	1,903

<sup>a</sup>ISTAT, <http://demo.istat.it/pop1/start.html>.

**Table 2.** The municipalities investigated: features and respondents.

LG code	CLEAR- life adoption	Respondents	Interview duration (minutes)
M1	Fulfilling	Bureucrat-Accounting Department	55
M2	Defective	Bureucrat-Accounting Department	25
M3	Defective	Bureaucrat-Environmental Department	35
M4	Fulfilling	Bureucrat-Accounting Department	60
M5	Defective	Bureucrat-Environmental Department	35
M6	Defective	Bureucrat-Environmental Department	30
M7	Defective	Bureucrat-Accounting Department	25
M8	Fulfilling	Bureucrat-Environmental Department	30
M9	Fulfilling	Bureaucrat-Environmental Department	60
M10	Defective	Bureaucrat-Environmental Department	25
M11	Defective	Bureaucrat-Environmental Department	25
M12	Defective	Bureaucrat-Accounting Department	60

conditions that are not always controllable:

*“while acknowledging the ER as the main tool for disseminating the culture of accountability and the transparency of environmental policies adopted by LGs, it is neither obvious nor easy to provide for its drafting” [Quoted from M5].*

Despite the consciousness about the role of the ER in accountability, some of them claimed that without an economic support and the scarcity of human resources, it is difficult to elaborate the ER:

*“ER is one of the most important accountability tools that involves citizens and elected officials on one side, elected officials and public managers on the other... it permits to be accountable for the use of public resources and for the results achieved... however the staff is scarce... we have many emergencies and few economic resources...*

*allocating a person specifically to work on the elaboration of ER is not always sustainable” [Quoted from M2];*

*“...all these fulfilling LGs have the possibility to rely on rooted personnel that convey the same spirit of the initial phases” [Quoted from M8].*

This was confirmed by the interviews carried out to defective municipalities:

*“when the project was activated I was not here and I have not been informed about ER...” [Quoted from M11].*

*“The person in charge when the project was activated is now retired” [Quoted from M7]. “Even if I were there, I have never managed ER” [Quoted from M12].*

Coherently, just less than the two million euros, which covered 50% of the start-up and development costs

through funds allocated to implement the Life-Environment program:

*"To initiate the ER elaboration, the co-financing received from the European Commission was the most concrete driver" [Quoted from M9].*

Besides the interruption of the financial incentives and problems connected to human resources, the absence of a binding regulation regarding ER for municipalities also emerged as a motive of defection. In fact, as Lehman and Kuruppu (2017) point out, although in the last decade a growing number of LGs is experimenting the ER, it keeps on being a voluntary disclosure document, often ignored while being recommended and shared internationally.

*Even if "CLEAR-ER application does not involve uncertainties or concerns regarding the analysis of environmental issues" [Quoted from M8],*

*"its application was not compulsory...if you could not meet the financial statement deadlines you had to focus attention on that... so the decision was made to remove non-regulatory instruments including ER. Furthermore, in case of difficulties in meeting the financial statement deadlines, the application of CLEAR is postponed or avoided, giving precedence to the drafting of the documents required by law" [Quoted from M10];*

*"Nowadays municipalities cope with mandatory budget instruments... the guideline on the ER was just recommendation even if significant, we preferred to engage on what is required to avoid any problems" [Quoted from M3].*

This decision to keep on applying CLEAR or any other ER method depends mainly on the background of the politician in charge:

*"Not everyone is capable of managing sustainability issued. Thanks to CLEAR, it is possible to develop an accountability and transparency culture" [Quoted from M1].*

However, the ER can be seen as the viaticum for the continuity of the administrative action:

*"year after year, through final report and preventive programmatic lines, the governance process is enriched with elements compatible with the ultimate aim of catalyzing the policies, strategies and actions of the LG towards a concept of wide-ranging and three-dimensional sustainability, ... including aspects related to environment, economy and society. The drafting of the ER, in the sense of satellite report of the financial statements, pursues the political foresight of LGs" [Quoted from M9].*

Although over the years the guiding principles of ER have been characterized by a growing level of effectiveness and efficiency, according to M5:

*"... the drafting of the ER requires, in any case, a long time span - for reporting, identification of problems, the proposal of solutions in the preventive report for the following year, the adoption of improvements or corrective actions, the evaluation of the results generated by the actions carried out, and so forth - which are all incompatible with the 5-year term of legislature".*

Besides the incompatibility with the legislature time-span, another decisive deterrent to the adoption of the ER seems to be, as M5 adds:

*"... the lack of a direct connection with the civil budget, ... which prevents the creation of a useful connection with the final data and with the future planning of the local authority, ... inhibiting the thematic coverage of all the skills and areas of activity" [Quoted from M5].*

The report-oriented culture was pursued by four LGs (M1, M4, M8, M9), where ER is perceived as a "unique accountability tool", with a 360° vision on both positive and negative aspects, capable of pursuing political foresight. In this perspective:

*"..ER provides a historical series of data with the objective to investigate environmental issues related to positive aspects and negative circumstances... This document provides significant information to council members by offering the opportunity to understand the resources to be exploited and the corrective actions to be undertaken to solve not only environmental but also economic and social problems" [Quoted from M1].*

*"...ER summarizes and systematizes the environmental policies adopted or to be adopted in a single document... CLEAR methodology has developed accounting and reporting standards that support environmental, societal and economic policies to increase the citizens' satisfaction" [Quoted from M4].*

*"ER information significantly affect technical and political job actions by providing reliable data to make political decisions understandable, assessable and sustainable in terms of efficiency and effectiveness" [Quoted from M8].*

In this sense, ER constitutes a document for LGs, which are required to adapt to the continuous change of society (Ball, 2005) to address sustainability (Gray et al., 2014). Likewise, several authors (Margerison et al., 2019; Bennett and James, 2017; Baker and Schaltegger, 2015) underline the importance of the work performed by the ER in enabling the identification, organization, management and communication of information on the



environment through specific physical and monetary indices.

*“The ER offers a 360° vision, ... allowing to overcome the limits of other very common reporting tools, such as, for example, the social balance sheet, drawn up occasionally, without a uniform approach and, above all, traditionally characterized by the attempt to emphasize only the positive aspects, leaving shortages and problems of various kinds” [Quoted from M9].*

In this regard, ER takes shape as a solution (Menicucci and Paolucci, 2018) capable of promoting sustainability (Evangelinos et al., 2015) and promoting the well-being of the local community (Sendroui and Roman, 2007).

Moreover, the M8 experience explains that the ER has contributed also indirectly by increasing the municipal engagement in the environment:

“the information elaborated through ER was useful to exploit other European Project opportunities... it was decided to participate in EMAS which allows a codified external evaluation tool... even if it does not refer to the entire process of sustainability as the ER does”.

Indeed, EMAS is an environmental management system based on the “Plan-Do-Check-Act” process (Giovanelli et al., 2005) and, as stated by M8:

“it does not provide the analytical information required to obtain a full internal and external accountability situation... so EMAS is not an integrated tool and it cannot replace the ER... however, the EMAS verification and registration processes have highlighted the need to modify and integrate the ER structure that was initially adopted with the CLEAR-Life project”.

Thus, this statement also highlights the importance of possible external network connections, confirmed by M9:

“Once the ER process was supported by topic related meetings developed by the LA21 that are not held anymore...which also entailed a strategic plan for sustainable development in the XXI century through participation discussing all the environmental issues...”.

Moreover, this case study was the only one to achieve a benefit in terms of European projects, indeed:

*“with the new European projects there is a lack of practicality...the last trend is to structure projects like toolkits which is an ineffective method for municipalities” [Quoted M9].*

Therefore, while adopting and implementing sustainability policies, accountability is likely fostered by a bottom-up method, such as CLEAR, that is elaborated by the people

who work for the municipalities to create feasible and coordinated policies in favor of citizens. Consistently, Li and Song (2018) and Chapple et al. (2018) argue that environmental policies are progressively evolving towards governance models increasingly oriented towards the promotion of initiatives based on the principle of widespread accountability, promoting the co-creation of value between LGs and citizens.

For an easier understanding of the results, Table 3 summarizes the information resulting from the analysis of the five themes investigated through the administration of the interviews:

### Work implications

In the attempt to investigate the conditions stimulating LGs to keep - or not to keep - ER and its impact on the accountability of the municipalities' governance, the article offers its contribution under a twofold profile, theoretical and practical, providing potentially interesting and useful insights for both scholars and practitioners.

From the point of view of the theoretical implications, the work builds on existing areas of research into accounting for sustainability and suggests some broad avenues for sustainability-related accounting research. Specifically, it contributes to the literature enrichment about the connections to be created between governance, ER and accountability. Through an analysis of the possible drivers of governance settings, it stimulates a more mature awareness about the relevance of adopting sustainable practices for the implementation of budgetary policies (Niemann and Hoppe, 2018; Marcuccio and Steccolini 2005). In line with the most recent contributions on ER (Margerison et al., 2019; Vassillo et al., 2019), LGs need to pay attention to the concept of sustainability (Lehman and Kuruppu, 2017). The study explores the main governance factors pointing out that elected officials and public managers are responsible for the use of public resources and for the results achieved. Drawing up the ER is configured as a very useful tool (Muserra et al., 2020): it defines to whom the department is accountable and what for, providing valuable information. ER structure is not limited to the gathering of merely numerical data (physical and/or monetary), but it also provides findings produced by environmental policies implemented (final data) or to be implemented (prospective data) by LGs. For example, they are linked to the amount of waste produced, water consumed, green spaces preserved, pollution caused, and energy generated.

The information derived from the analysis show some important factors that stimulate LGs to introduce ER (RQ1) and define how ER impacts on the accountability of the municipalities' governance (RQ2).

Addressing the RQ1, pivotal factors are represented by practical reporting process; bottom-up approach, need for

**Table 3.** Information resulting from the analysis of the five themes investigated through the administration of the interviews.

Theme investigated	Information obtained
ER and accountability	ER as a worth accountability means of linking administration and citizens, summarizing and systematizing in a single document the environmental policies adopted or to be adopted.
	ER is one of the most important accountability tools that involves citizens, elected officials, and public managers.  ER is perceived as a “unique accountability tool”, with a 360° vision on both positive and negative aspects, capable of pursuing political foresight.
Benefits for LGs	ER ensures the mutual rapprochement among LGs, territory and its resources.  ER permits to be accountable for the use of public resources and for the results achieved.
	ER offers the opportunity to understand the resources to be exploited and the corrective actions to be undertaken to solve not only environmental but also economic and social problems.
Benefits for stakeholders	Stakeholders obtain valuable information about the exploitation of the territory.  The publication of the ERs allows all the players to develop the necessary awareness about the residual availability of environmental resources. ER provides reliable data to make political decisions understandable, assessable and sustainable in terms of efficiency and effectiveness.
	The application of CLEAR does not involve uncertainties or concerns regarding the analysis of environmental issues.  Thanks to CLEAR, it is possible to develop an accountability and transparency culture.  -Accountability is likely fostered by a bottom-up method, such as CLEAR, that is elaborated by the people who work for the municipalities to create feasible and coordinated policies.
Weaknesses of the CLEAR-Life method	In case of difficulties in meeting the financial statement deadlines, the application of CLEAR is postponed or avoided, giving precedence to the drafting of the documents required by law.  This decision to keep on applying CLEAR or any other ER method depends mainly on the background of the politician in charge.

a regulatory policy, and the background of the politician in charge.

In this scenario, the work offers the relationship between ER, governance and accountability, identifying some of the most relevant factors, which may represent the conditions that induce municipalities to elaborate ER, the impact of which should be to improve different types of accountability (e.g. political, legal and moral).

Indeed, turning the attention to RQ2, this analysis suggests that the adoption of ER can be seen as a tool for making claims, demanding a response and sanctioning non-responsiveness. Then, accountability can be seen as a means of the governance to achieve a wider set of political actions including aspects related to environment, economy and society, but also

appropriateness of policy-making processes. Traditionally, exercising accountability involves elements of monitoring and oversight, whereas this paper also highlights the necessity to include the rule of reason, as well as the rule of law. Inter-institutional collaboration is meant to raise the logic of public reasoning, including not only legal, but also moral accountability.

Potential sites for theoretical innovation deal also with challenging definitions of entity boundaries, indeed, this paper discusses the drivers and intervention between municipalities and other entities. Therefore, albeit not always explicitly, it creates the space within which we might understand what entities, but also what inter-institutional relationships, are relevant for accounting on sustainable development scholarship. This paper refers

to the role of LG to enhance an ER and, more broadly, non-financial disclosure-oriented culture, highlighting the necessity to act homogeneously. Indeed, the LG engagement towards sustainability practices should be the result of a concerted action. Moreover, it identifies how the accountability depends on some of the most important governance factors inducing municipalities to draw up ER. Thus, it analyzes a new conceptual framework (Unerman and Chapman, 2014) re-examining the conceptual basis of ER. With a view of accountability, these governance factors are identified as drivers of a reporting-oriented culture on the environment, which incorporates environmental issues into policy-making processes and provides accountability incentives. This is considered of high importance for researchers as well as for practitioners, considering that these latter have been quick to deeply comprehend the potential of sustainable development (Bebington and Unerman, 2018). In this context, both bureaucrats and politicians can develop an important role for themselves as part of the intervening process. They can help translate and adapt the government-level commitments within sustainability, into organizational-level actions and achievements.

## Conclusions

Based on the results arising from the analysis of the responses to the interviews administered, it is possible to summarize the enabling conditions to leverage governance mechanisms, which may lead political representatives to pursue an ER-oriented culture and, therefore, environmental awareness and responsibility.

As highlighted by previous researches (Farneti and Siboni, 2011; Mazzara et al., 2010), the presence of binding regulations could be an effective instrument to improve urban environmental sustainability. However, until now, it has been argued that the lack of specific content, a definitive method of reporting, and a valid enforcement system have marginally influenced the provision of non-financial information (Williams et al., 2011; Buhr et al., 2014). As already suggested by social and environmental accounting scholars (Dumay et al., 2010), this paper claims the necessity of a regulation capable to foster a more extensive and better-quality reporting in the interest of the wider society. To this end, a strong impetus could derive from the introduction of regulatory policies that oblige LGs to draw up ER, possibly creating links with financial statements. In this regard, it may be useful to have the municipal administrations draw up ER in compliance with time constraints and the process for the statutory financial statements.

In this way, it would emerge a legal accountability, monitoring the observance of legal rules and prompting all the LGs adopting sustainability-related reporting.

Moreover, other factors that could positively influence

the adoption of ER are, for example, practical reporting processes, continuity of administrative actions and bureaucratic stability. On the other hand, the management of fewer and fewer economic resources represents an important deterrent in ER preparation. In fact, as an information tool, prepared on a voluntary basis, the possibility of allocating a part of the economic resources available is an essential prerequisite to carry out activities such as identification, accounting and reporting. This consideration is corroborated by the results of the analyses, which show that the co-financing received from the European Commission was crucial for the launching of the initiative. In order to take care of environmental accounting and draw up the related ER, environmental-oriented governance is an indispensable prerequisite (Talieno et al., 2019).

In fact, even where economic resources have been allocated, without the right awareness of the considerable advantages deriving from the adoption of sustainability-oriented policies, LGs could hardly be encouraged to invest in the ER process. It has been highlighted the pivotal role of ER-related governance mechanisms in assessing the appropriateness of both substantive and policy-making processes, and in making judgements on the personal qualities of political actors. Political acts may be evaluated on the basis of prevailing normative standards, independent from formal rules and regulations (Schedler, 1999).

In the attempt to stimulate scholars and practitioners towards the acquisition of a complete awareness of the benefits deriving from the implementation of policies oriented to sustainability in its triple form, the interaction between governance factors should be further analyzed.

Moreover, it would be interesting to investigate the relationship between ER and accountability in the context of 'metagovernance' (Meuleman and Niestroy, 2015). An area that explores how to combine different governance styles, established on different scales (global, national and local, for example), into successful governance frameworks. This could imply also a comparison between different countries, since governance settings are continuously faced with challenges (e.g. unstable economic conditions and cultural diversity) that LGs and organizations in general, need to tackle. This further analysis could also require to understand how to institute the appropriate leadership, organizational structure and processes. For example, it might critically examine Information and Communication Technology (Hejase et al., 2016a) and emerging technologies (Agostino and Sidorova, 2017; Bellucci and Manetti, 2017) considering sustainable development issues. Thus, it would imply board members encouraging companies to point towards the potential of human capabilities approach also in terms of ethical education (Hejase and Tabch, 2012; Hejase et al., 2016b). These human-nature relationships issues would provide a site from which a route to raise consciousness would be initiated also in the recent

trend of accounting for sustainable development (Bebbington and Larrinaga, 2014).

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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*Full Length Research Paper*

# **Social and environmental practices in the carboniferous industry: An analysis of the perceptions of agents impacted from the perspective of social capital**

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**In the Brazilian contemporaneous context, there is evidence of society's demands for companies to carry out their activities in a responsible manner in the social and environmental spheres. In the coal mining industry, the debate is even more eminent because of the significant environmental impacts generated by the mining activity. The present study aims to analyze the determinants of socio-environmental practices of coal companies in the South of Santa Catarina (SC) and Rio Grande do Sul (RS) in the perceptions of company managers and institutions by these actions, under the perspective of social capital. The research is empirical and is supported by a descriptive qualitative approach, using documentary analysis and interview as a data collection technique. From the point of view of the research strategy, it consists of a multicase study. Managers from two national and private capital companies were interviewed, with importance on their economic area in SC and RS, respectively: Copelmi Mineração Ltda and Carbonífera Catarinense Ltda. Managers of two institutions benefited by the actions of the respective companies, which characterize social-environmental responsibility related to theories of social capital. The results demonstrated empirical evidence of social capital constituted in the existence of networks of relationship between the companies and the institutions impacted with focus on the reciprocity. It was detected that the synergy among those involved, as a motivation for social and environmental actions, produces improvement in the search for quality of life and in the training of the impacted.**

**Key words:** Social responsibility, social and environmental actions, social and environmental determinants, share capital, social actions.

## **INTRODUCTION**

Contemporary society has experienced local, national and international movements of concern with socio-environmental problems. Caused mostly by human intervention, by the finding of possibility of ecological

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imbalance and the planet's life, the problematic has gained ample space in the academic environment (Silva et al., 2011). This movement is noticeable in several fields of activity, in the field of education, service provision and production of consumer goods, among others. Corporate Social Responsibility (CSR) and Social and Environmental Responsibility (SER), at the present time, appear as important managerial instruments in the realignment of organizational strategies, aiming at a more participative economy and engaged in socio-environmental problems.

SER is linked to actions that promote the preservation of the environment with a focus on sustainability and development with quality of life. The complexity of the theme is challenging and overcoming it implies in the alignment of initiatives, integration and socialization of policies and practices, together with the strategic positioning of organizations that continuously seek economic efficiency in the face of the uncertainties of the globalized market.

Of course, strategies adopted by companies implicitly characterize the quest to legitimize themselves before society, within the scope of social and environmental responsibility, and infer in maintaining or expanding their reputation in the socially and ecologically correct business market. For Barbieri (2012) and Tinoco (2000), environmental responsibility in management is a system of organizational nature, characterized by guidelines, administrative and operational activities that promote control over the environmental impact of productive activity. Thus, it aims to achieve positive effects on the environment, either by avoiding, reducing or eliminating the impacts caused by man's actions on the living environment, aiming at the promotion of an ecologically balanced environment. Therefore, environmental responsibility is a set of individuals, collective or entrepreneurial attitudes that aim at the sustainable development of the environment. For Tachizawa and Pozo (2017), environmental management is an important managerial tool for training and creating conditions of competitiveness for organizations, regardless of their economic activity.

In this context, the social capital of institutions and communities conceptualized by Bourdieu and Miceli (1974) as the set of real or potential resources, linked to a network of inter-knowledge and recognition relationships, which can be perceived by peers, indicate gains in collective efficiency and cohesion. groups. It contributes to promoting economic development, strengthening community solidarity, through expectations of reciprocity and application of social norms. As Putnam (1995) states, from the studies carried out, the differences between institutional performance and development of the regions analyzed were related to a greater presence of social capital.

The triad - networks, norms and trust - are the features of social life that constitute social capital, defined by

Putnam (1995). They are resources that are part of social relations and facilitate the promotion of actions in pursuit of common goals for the subjects involved. Observed in reciprocity, trust, norms, association and cooperation relations, between communities, associations, cooperatives, clubs, business sectors, among others, that promote actions based on altruism in the short term and long-term objectives, enabling the obtaining of profits economic, political and social. However, historically, different manifestations of social capital have enabled the reflection that "we cannot assume that this capital has to be something good always and everywhere" (Putnam, 2003: 15).

Coal is the most widely available fossil fuel in the world. The proved reserves in 2008, was around 847.5 billion tons, enough to meet the current world demand for approximately 130 years. Proved coal reserves in the world are in 75 countries. From the existing reserves, 75% are in only five countries, the United States, Russia, China, Australia and India. The world coal supply in 2013 did not show significant growth compared to the previous year (Araújo, 2018). In Brazil, the main coal reserves (99.66%) are (10.41%) and RS (89.25%), with only 0.02% in São Paulo and 0.32% in Paraná (ANEEL, 2008). In 2002, national coal reserves were around 12 billion tons, which corresponds to more than 50% of the South American reserves and 1.2% of the world reserves. In 2003, the ore accounted for 6.6% of the Brazilian energy matrix and, in 2007, approximately 1.5% of the Brazilian electric power matrix. Among the restrictions are the high levels of ash and sulfur, the main factors for the low rate of utilization of coal in Brazil. In 2007, when 435.68 TWh was produced in the country, coal was responsible for the generation of 7.9 TWh, from the operation of thermoelectric plants that are in the southern region, in the vicinity of the mining areas (ANEEL, 2008).

In SC, the Carboniferous Basin "consists of an approximate range of one hundred kilometers in length and an average width of twenty kilometers, between the Serra Geral to the West and the granitic massif of the Serra do Mar to the East, following the North-South orientation" (Belolli et al., 2002). The most important coal mining centers in Santa Catarina are in the municipalities of Lauro Müller, Urussanga, Siderópolis, Treviso, Criciúma, Forquilha, Içara, Morro da Fumaça and Maracajá. In RS, which holds the most significant national reserve of coal - 89.25%, a total of 28,802 million tons - the coal region is in the area of Baixo Jacuí. The mineral deposit of Candiota (RS) alone owns 38% of all national coal (ABCM, 2018). However, the ore is poor from the energy point of view and does not allow beneficiation or transportation, due to the high content of impurities. This makes it to be done without processing and at the mouth of the mine (ANEEL, 2008).

In the research carried out with managers from two coal miners (CARB1 and CARB2) and the benefited two



community institutions (IMP1 and IMP2), we interviewed six managers. We verified that CARB1 is a closed (private), private and family-owned company. It currently has a mining unit, located in Lauro Muller (SC). We interviewed two managers (A1 and A2) who are responsible for Human Resources (social worker and organizational psychologist). The manager (B1) of the community institution (IMP1) impacted by the social-environmental actions of CARB 1 is its president. IMP1 is in Lauro Muller (SC). It is a non-profit organization, managed by the community where it is inserted and has been active for more than 15 years, since November 14, 2003.

CARB 2 is a national privately held company (limited liability). It is located as the largest coal mining company in Brazil, with six mining units. The research was developed in the unit located in Butiá (RS). The interviewed managers (C1 and C2) work in environmental management and public relations of the company. Manager (D1) of the community institution (IMP2) impacted by the social-environmental actions of CARB 2 is vice-president of the same. It is an association of residents located in the neighborhood where the mining company CARB 2 develops coal mining activities. The managers of the coal companies are employees and, of the impacted ones, they are volunteers.

This context is strengthened in the coal mining industry due to the environmental impacts generated by this mining activity. Relevant in the Brazilian energy matrix, from a strategic, economic and social point of view, the exploitation of this and other natural resources is a condition for the survival of this and future generations and must be reconciled with the right to the quality of the living environment. Thus, in the context of coal mining, the organizational strategies must be related to the reduction of the environmental damage caused by the economic activity, with the promotion of programs and projects for the benefit of the community where companies operate. In these complex economic relations, the social capital constituted by practices mitigating these impacts can generate mutual benefits through the establishment of networks, effects of reciprocity, cooperation, protective standards and trust. Thus, the following questions are proposed as guiding the development of the study:

- (i) What are the determining factors for socioenvironmental practices of the managers of companies in the coal sector in southern Brazil?
- (ii) What are the perceptions of agents directly impacted by these practices?

According to the recommendation of Light and Dana. (2013) this study contributes to analyzing social capital in the socio-environmental context. The objective was to analyze socio-environmental practices of coal companies in SC and RS; the perception of managers and

community institutions, directly impacted by these actions, from the perspective of social capital. Given the scarcity of previous studies, this study contributes to increase evidence in academic production relating to socio-environmental organizational practices and their implications in the social life of affected communities, based on the view of social capital.

## THEORETICAL FRAMEWORK

### Corporate social-environmental responsibility

The definition of CSR dates to a long period, but studies have proliferated since the twentieth century (Carroll, 1999). The 1976 Nobel Prize in Economics, Milton Friedman, according to Ferrell et al. (2000) represents one of the main authors who wrote about CSR. He advocated the idea that socially responsible companies are those that primarily serve the interests of their shareholders, seeking to maximize their profits. For Carroll (1979: 500), the definitions of CSR that infer the responsibility of the companies to generate profits and to comply with laws needed extension of the concept in the scope of the society. "Corporate social responsibility covers the economic, legal, ethical and discretionary expectations society has of organizations at a given point in time". Society has expectations that organizations, in addition to generating profit from their activities, through the production and sale of goods and services that will benefit the individuals of that society must obey the laws, have ethical attitudes towards their duties, their rights, promote voluntary actions and practice philanthropic actions, recognize the economic responsibility (to be profitable) as being fundamental and a foundation for the other.

Ferrell et al. (2000) affirm that CSR, or social responsibility in the business world, consists of a company's obligation to maximize its positive impact on stakeholders and to minimize the negative, both internally and externally. In the north, socio-environmental development is based on the principle of sustainable development. It is characterized by actions or effects related to the process of growth, evolution, related to the social and environmental conditioners - an economically viable, socially just and environmentally sustainable society. It is understood that the economic variables and the degree of local development are not directly related, that is, economic growth does not necessarily produce development. It is an essential element for development; however, it is not enough. According to Araujo (2003), social, cultural and political factors that are not regulated exclusively by the market system promote development.

Thus, social and environmental development is directly related to the SER of individuals, organizations and governments. Social responsibility is seen not only as a concept, but also as a personal and collective value,

which reflects in the actions of a company, both of its managers and of its employees (Ponchirolli, 2007). The contemporary economic scenario presents new and challenging scenarios for organizations. Companies need to worry about profit and bring answers to their shareholders, but at the same time, there is a growing concern with the social and environmental impacts that are consequences of their actions.

According to Tachizawa and Andrade (2008), the behavior of consumers today has created the need for new relationships with organizations worldwide, outlining the contours of a new economic order. This new context is characterized by a rigid clientele, which is concerned with interacting with companies that are ethical, that have a good institutional image in the market and that act socially in a responsible way. The expansion of the collective consciousness, with respect to the environment and the complexity of the social demands that the community passes on to the organizations, induce a new position on the part of businessmen and executives facing such issues. According to Tachizawa and Pozo (2009), population is no longer concerned only with the final product, but also with the entire manufacturing process, from compliance with legislation, respect for the environment and concern with the society in which the company is inserted. Nowadays, more and more companies need to worry about socio-environmental risks, doing their best to minimize them. The transformations and ecological influence in business are increasingly observable and with ever deeper economic effects. For Tachizawa (2005: 6), "organizations that take integrated strategic decisions on the environmental and ecological issues will achieve significant competitive advantages, if not, reduction of costs and increase in profits in the medium and long terms". In this context, at the present time, environmental management and social responsibility are "important management tools for training and creating conditions of competitiveness for organizations, regardless of their economic segment" (Tachizawa, 2005: 6).

According to Tachizawa (2005), environmental management and social responsibility are important management tools for the creation of competitiveness between companies. Investment in environmental management and social responsibility is the natural response of companies to the new customer, the green and ecologically correct consumer. Large companies help their suppliers improve their eco-friendly marketing and management practices, because they consider them as part of their productive chain (Tachizawa and Andrade, 2008). This external pressure that companies suffer for better market quality is represented by legal certificates, such as: ISO 14000 and ISO 14001 (International Organization for Standardization), which deal with the Environmental Management System (EMS).

However, companies have usually practiced social responsibility and environmental responsibility - two of

the dimensions of corporate sustainability - in a disengaged way, according to its area of operation and functionalities (Cohen et al., 2017). According to Barbieri (2012), environmental concerns in the business area, are influenced by three major sets of forces - government, society and the market - interacting with each other. Without social pressures and government measures, we would not observe the increasing involvement of companies in the environmental context. These are influencers of environmental legislation which, in general, result from the perception of the segments of the society on the environmental problems, and with this, they press the public state agents to see them solved. In addition, increasing awareness of the population in general and, above all, of consumers who increasingly seek to use environmentally sound products and services is another source of pressure on businesses.

For Schwartz and Carroll (2008: 149) several complementary frameworks appear to be in competition for pre-eminence in the field of business and society. They cite the prevalence of five frames: (a) corporate social responsibility; (b) business ethics; (c) stakeholder management; (d) sustainability; (e) corporate citizenship. However, they assert that "difficulties remain in understanding what each construct really means, or should mean, and how each can relate to others". The concepts of ethics and social responsibility in business, according to Ferrell et al. (2000: 68), are often used as synonyms, but the two expressions have different meanings: "Business ethics includes principles and standards that guide behavior in the business world".

Two of the five constructs cited by Schwartz and Carroll (2008) in society and business, they claim to be CSR, probably, the most widely used construct as an explicit structure to better understand the relationship between business and society. With its original focus on reducing negative social impacts, it seemed to change over time to the more general notion of "doing good" for society. Although there are questions about these constructs having adequate theoretical or practical legitimacy, they consider that this situation seems to have changed considerably in the present. Thus, the concept of socio-environmental development is related to the integration between the economy, society and the environment, in order to achieve economic growth, with social inclusion and environmental protection.

According to Ponchirolli (2007), the initial dimension of the CSR exercise is associated with philanthropic actions, but it does not end there. In this dimension, the main characteristic is the spontaneous generosity of the entrepreneur, which reflects in donations to charitable and philanthropic entities. The second dimension of the CSR exercise is related to corporate citizenship, direct social actions with the community. In these fields of activity, socially responsible companies place financial resources at the service of the community, products, services and know-how of the organization and its

employees (Ponchirolli, 2007).

However, according to Bruch and Walter (2005), although the strategic relevance of corporate philanthropy is widely accepted, their effectiveness varies substantially. Investments in this area without a cohesive strategy and conducted in a fragmented way often dissipate. Only philanthropic activities that create true value for the beneficiaries and improve the company's business performance are sustainable in the long term. Actions that do not fit these two goals are easily threatened in difficult economic situations. Corporate social actions generate some corporate advantage when social impacts are long lasting, sustainable and with significant economic returns to their philanthropy, but few companies can achieve these goals. In most cases, executives dismiss this ineffectiveness as an inevitable part of their philanthropic engagement, viewed effectively as charitable activity.

Society, in general, and some sectors of it, in particular, has expanded the questioning of the mining sector about its legacy, which according to Dias et al. (2013), constitute: environmental and social impacts, historical liabilities, market fluctuations and externalities of the macroeconomic scenario, logistics, operating costs, human rights issues, chronic labor shortages, risk management and value chain impacts, compensation criteria and social investment. These are some indicators of interest for social actors such as clients, shareholders, investors, government authorities, the labor force, the community, civil society organizations and trade unions.

In this sense, social and environmental factors can interfere in the implementation of the business plans of mining companies operating in Brazil. Thus, in a gradual way, they internalize in their decision-making processes the indicators that, until then, were not part of them. The companies of the sector have expanded the adoption of management practices with articulation of different environmental, economic and social aspects, in view of the scrutiny of interested parties, evolution of the regulatory framework and implementation of corporate commitments (Dias et al., 2013).

### **Social and environmental responsibility and social capital**

Dabul (2017: 61), when investigating motivations (business cases) for adopting these good practices, cites that the majority was related to the improvement of the financial performance, through increase of revenues or reduction of costs placed as instrumental motivations. Expected financial results focus on cost reduction and revenue growth: the motivations for cost reduction are associated with "eco-efficiency, risk reduction, fines costs, boycotts, regulation, fundraising, employee recruitment" and to increase revenues, "product differentiation, employee excellence, competitive

advantage, increased margins". However, in addition to these, there are also motivations not as easily tangible as reputation, legitimacy, image and social license to operate. Thus, it emerges in this scenario, indicators of social capital to be constituted from the relationships established between the various economic, social and political instances, in contemporaneity. The concept of social capital, according to Ferraz et al. (2011), incorporates meanings in various theoretical and methodological orientations. It is used by sociologists, anthropologists, economists, political scientists and theorists of macroeconomic and social development. In contemporary times, the theme has been gaining space in several areas. Brito (2006, p. 36) cites that "[...] the concept ended up being incorporated into the discourse of international organizations that work to promote development, such as the World Bank, the Organization for Economic Co-operation and Development (OECD) or the United Nations Development Program (UNDP)".

However, the expression social capital gained a projection from the end of the 20th century, in the 1990s, with the studies by Bourdieu (1998), Coleman (1988; 1990), Putnam (1993; 1995; 2003) and Fukuyama (1996; 2000). The main results of the studies indicate gains in collective efficiency and cohesion of the groups, inferring better performance of communities and institutions, and contributing to the promotion of economic development (Santos, 2003). In these works, they highlight the existence, in each territorial space, of social characteristics associated with productive purposes, such as: generalized trust in the other; acting in associations; the ability to coordinate complex social networks; among others. The notion of social capital popularized the argument of the social dimension as central factor for the explanation of economic development. This was based "on the consequences of the social economy, that is, the side effects derived from the interaction of social networks and not from actions of individuals seeking self-interest" (Ferrarezi, 2003: 7).

Conceptions of social capital emerge in the context of an individual and public good. For Silva (2006), based on the concept of social capital by Bourdieu and Miceli (1974), a set of relationships and social networks that an individual has and all the resources that can be gathered using such relationships constitute their social capital. Thus, the social capital accumulated by a given individual will make it possible to obtain a position of advantage in a given group, relating this process to the questions of power. However, for Macke (2006), social capital is a public good belonging to a group, community or society, found in relationships between persons or groups. Fukuyama (2000) defines it as a set of values or informal norms common to members of a particular group that allows cooperation between them. These standards include reciprocity, honesty and responsibility in fulfilling obligations.

For Christoforou (2011), social capital is effective in

norms and networks of reciprocity, trust and cooperation that facilitate coordinated action for mutual benefit. It states that theoretical and empirical studies have documented the positive contribution of social capital to social well-being and to the development of societies. The studies by Onyx and Bullen (2000) are also based on the analysis of social capital in terms of participation in networks, reciprocity, trust, social norms, common goods and social agency. Thus, according to Fukuyama (1996; 2000) and Christoforou (2011), social capital can influence the aspects related to the well-being of the individuals and the sustainability of a society. For Onyx and Bullen (2000), this influence is also related to the communities in the conversion of collaboration into productive force. Regarding this, Portes (1998) states that the purpose of social capital is to strengthen community solidarity through expectations of reciprocity and application of social norms.

Social capital is a strategic resource of organizations, and can influence performance, the competitive advantages and sustainability of an organization or even a network of organizations, according to Wu (2008). Milani (2004) attributes to social capital the relevance of an active indicator for local development, which is established based on the relations of cooperation and reciprocity between the subjects, interests and projects of the social, political and cultural nature. As reported by Wu (2008), information sharing plays a mediating role in the relations between improving the competitiveness of companies related to social capital.

However, historically, different manifestations of social capital have made it possible to reflect that this may not be "something good always and everywhere" (Putnam, 2003: 15). Thus, social capital may have negative externalities where norms and networks can also reproduce or increase political and economic inequalities, as stated by Ferrarezi (2003). Jordana (2000) also highlights the inconsistency in concluding that high levels of solidarity cause high economic results. Other variables can be inferred in the analyses, such as the ways in which institutions regulate access to credit and markets, or forms of political participation, functioning as an intermediate variable between social capital and income.

Bourdieu and Miceli (1974), Coleman (1998) and Putnam (2003) emphasize that social capital generates development and competitive advantage because it is an aggregator of values, norms, reciprocity and trust, both in the subjects and in the groups and in the networks formed between these groups, which enable them to act together more effectively. The conception of social capital and the ways in which it constitutes the development of the quality of living environments has been the focus of studies in the different areas of human performance. Due to the complexity of verifying the results of their applications, dimensions of analysis are established that aim to measure the effective performance of social capital with the communities, organizations and different

groups involved.

Thus, besides the theories presented by Bourdieu et al. exposed so far, Nahapiet and Ghoshal (1998), in their work on the construct, understand that social capital basically consists of three analytical dimensions: structural dimension, relational dimension and cognitive dimension. They consider the constitution of social capital from the structures present in each environment (structural), relationships between individuals (relational) and in the common interests between them (cognitive). However, the authors emphasize the difficulty of promoting the fractional analysis of the dimensions. The three dimensions are thus closely related, which does not invalidate or even invalidate the classification, because its complementarity and interdependence facilitate the understanding of the construct. That is, they were created only to facilitate the understanding of the constitution of this strategic resource and the analysis of the benefits to the organizations (Jha and Cox, 2015).

For Nahapiet and Ghoshal (1998), the contribution to structural social capital lies in the network connections and configurations and in the adequacy of the organization. For Vallejos et al. (2008), these would be in the bonds between the subjects, in the stability, in the density of the configurations and in the network connectivity. The structural dimension lies in the structures present in each environment. It refers to the connection pattern between the subjects and includes the network connections and configurations that describe the connection pattern in terms of measurement, such as density, connectivity, hierarchy and organizational suitability. Therefore, it is directly associated to the structure of the network, in the identification of the connections and, mainly, in the intentionality of the connections. The main benefit of the configuration of the collaboration network is the combination of information and the exchange of knowledge, because the network configuration is what determines the main channels of information (Nahapiet and Ghoshal, 1998).

The relational dimension, according to Nahapiet and Ghoshal (1998), is observed in the trust, norms, obligations and expectations and social identification. For Vallejos et al. (2008), trust, norms of reciprocity, participation, obligations and tolerance of diversity are associated. It refers to the assets that are created and potentialized through the relationship. The focus is not on the network configuration but on the content and characteristics of the network. They include attributes such as identification, trust, norms, sanctions, obligations and expectations. It therefore encompasses the relationships developed through a history of interactions, also cited as the norms, obligations, expectations and social identification of the group that interfere in this dimension. This dimension rests on the type of relationships that actors or social units develop, referring to each actor's individual relationship with other actors in the network and considering, in addition to the content

transacted among the actors, the roles they can assume, such as friends, informants, confidants, teachers and technicians. For Putnam (2003) and Fukuyama (1996), all these factors are constituted from the historical roots of individuals and the constitution of the communities where they are inserted. In addition, according to Putnam (2003), virtuous citizens are helpful, respectful, and confident in each other, even when they differ on important matters.

The cognitive dimension of social capital, which is expressed by the common interests of individuals, originates from values, shared visions, and culture. For Nahapiet and Ghoshal (1998), the contribution to cognitive social capital arises through the generation of the context, codes and language shared by the community in its narratives. It refers, therefore, to shared visions, interpretations, and systems of meanings, such as language, codes, and narratives. Shared culture, values, codes, languages and narratives are also cited by Vallejos et al. (2008) as providers of cognitive social capital. This dimension is associated with the sharing of goals, experiences, and a set of common values, meanings and vision that facilitate actions. These can benefit the entire organization and encourage the development of trusted relationships, implementation of new practices, facilitating the generation of new knowledge.

## METHODOLOGY

### Research characterization

The research is configured as theoretical-empirical and is supported by a qualitative descriptive approach, using documentary analysis and interview as a technique of data collection. It is, therefore, in the analysis from the interdisciplinary perspective of the practices of socio-environmental, voluntary and obligatory actions implemented by the coal companies in the scope of the qualitative study. It is a qualitative approach, based on the assumption that the world is understood from the perception of the individuals inserted in the studied situations (Creswell, 2007). It enables the researcher to use diverse research strategies through interpretation, flexibilization and expansion of possibilities of action, while it intermediates the transformation of classified reality empirical science.

Figure 1 demonstrates the theoretical fields integrating research, which seeks to analyze the perceptions of impacted agents, through the union of aspects of social and environmental actions to social capital. From the point of view of the research strategy, it consists of a multiple-case study. The data collection was carried out in 2018-2019. Two national and private capital companies were chosen, with emphasis on their economic area in SC and RS, respectively: *Carbonífera Catarinense Ltda* and *Copelmi Mineração Ltda*. Both companies disclose their socio-environmental practices through their websites.

Due to the complexity of the economic activity related to the coal mining industry, the number of coal companies is limited to the deposits existing in the different municipalities. Thus, for the choice of companies operating in the coal mining industry, we opted for those that are linked to the Brazilian Mineral Coal Association (ABCM), located in the states of SC and RS. In SC, the coal companies are also linked to the Union of Coal Extraction Industry

of the State of Santa Catarina (SIECESC). In the selection of the sample of the companies, the criterion related to the industrial area, period of operation in the market, productive potential and prominence in the two Brazilian states in the scope of extraction and commercialization of mineral coal was used. Therefore, the choice also fell on the size of the companies. Thus, taking as a starting point the objective of this research - which is to analyze the determinants of socio-environmental practices of coal companies in the south of Santa Catarina and Rio Grande do Sul and the perceptions of the agents directly impacted by these actions - the methodological aspects were defined. The interdisciplinarity of the study in question is highlighted in the interrelation of the determinants of socioenvironmental practices of carboniferous companies in the south of Santa Catarina and Rio Grande do Sul with perceptions of the agents directly impacted by these actions in the scope of socio-environmental responsibility. Thus, in the research, it is relevant to investigate the motivations, perceptions, interests and needs that support the positioning of organizations in relation to these issues (Table 2).

The interview was based on a semi-structured questionnaire with the managers of the companies and the managers of institutions impacted by the actions promoted. Two managers were interviewed, representatives of *Carbonífera Catarinense Ltda*, appointed in this study by respondents A1 and A2. Interviewee A1 has worked at the company as a social worker for 14 and a half years. Interviewee A2 works in management as an organizational psychologist and has been with the company for 4 years. Two representatives of the *Copelmi Mineração Ltda*. (C1 and C2) were interviewed. Interviewee C1 is an Environmental Engineer, has worked for the company for 6 and a half years. Interviewee C2 who has been in the public relations function, has worked in the same company for 45 years.

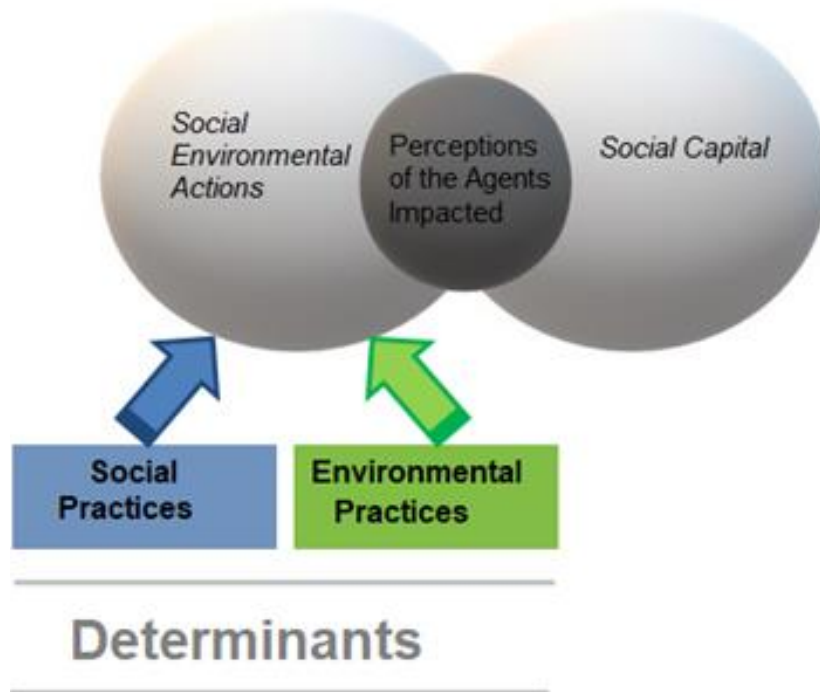
The semi-structured interviews, carried out with the managers of the coal companies and the managers of the institutions impacted by the actions of these companies, were organized in four blocks. In the first block, information was sought on the companies and managers interviewed. The following blocks were categorized based on three dimensions of Social Capital: Structural Dimension (E); Cognitive Dimension (C) and Relational Dimension (R). Likewise, within the scope of those impacted, the categorization was also located in the three dimensions mentioned of social capital (Nahapiet and Ghoshal, 1998).

In the development of the research, it was decided to analyze the discourse of the managers of the companies and those impacted by the actions of the same. It started by analyzing the discourse of the managers of the coal companies located in the State of Santa Catarina and Rio Grande do Sul, named A and C and, later, of the institutions impacted by their actions, named B and D.

The elements and categories of analysis and the objectives and categorization of Social Capital are organized in Table 1. Considering the analysis categories emerging from the theoretical basis, a script was used to conduct the interviews (Appendix Table 1).

### Research agents

*COPELMI Mineração Ltda*, located in the municipalities of Baixo Jacuí and Candiota, in RS, has been active in coal mining since 1998, but it originated historically from other companies that date from the beginning of mining in RS, in 1883 (Witkowski, 2005). The theme also emerges in the vision of company A, which states: "Extract and always benefit by prioritizing the well-being and safety of employees, in addition to maintaining respect for the environment". Certified by NBR ISO 14.001 since 2005, the company is audited annually, maintaining its commitment to the continuous improvement of the Environmental Management System, "which covers the entire production complex, from coal



**Figure 1.** Research design.  
Source: Authors' own elaboration (2019).

extraction, through processing, to its transportation to the end customer" (CCL, 2018: 1).

The history of Carbonífera Catarinense Ltd begins in 1999 in the city of Lauro Muller, SC, when the opening of two mining units in the municipality began, which were named as *Mina Bonito I* and *Mina Novo Horizonte*. The largest private coal miner in the country, it owns 80% of the industrial market and 18% of the total domestic coal market (CML, 2018). For the manager of company Carbonífera Catarinense Ltd., the environmental issue is also a priority, in terms of the prevention and recovery of mined areas, enabling its future use. Company C's environmental management and occupational health and safety policy also includes, among other objectives, the identification and control of environmental aspects, minimizing the impacts associated with mining activity and the environmental recovery of the mined areas. It is also certified by NBR ISO 14.001, which complies with the company's environmental commitment (CML, 2018).

About impacted community institutions, we have chosen from the information provided on the websites of coal companies, as well as through interviews with managers. We chose the Neighborhood Association of São José (AMSJ), in the Municipality of Butiá, in which *COPELMI Mineração Ltda.* carries out socio-environmental projects, and the Beneficent Association Anjo Mineiros (ABAM), in the city of Lauro Muller, where the *Carbonífera Santa Catarina Ltda* has a partnership. The managers of the two community institutions were interviewed, benefiting from the actions of the respective coal companies, that characterize the RSA, related to theories of social capital.

## RESULTS AND DISCUSSION

Contemporary society has experienced local, national and international movements of concern with

socio-environmental problems. Most of them are caused by man's intervention, by the possibility of ecological imbalance and the life of the planet, the problematic has gained ample space in the academic environment. This movement is noticeable in several fields of action, in the scope of education, service provision and production of consumer goods, mining, among others. At present, many organizations of medium and large size carry out and maintain social and environmental projects. Silva et al. (2011, p. 154) highlight some of the drivers of corporate strategies under SER: the evolution of environmental legislation that regulates business activities in the use of natural resources and environmental services; the greater collection of individuals in the reduction and compensation of the impacts caused by the companies in their economic activity; the pursuit of risk minimization to investors; "and by the market itself, since environmental issues have become important for the competitiveness of organizations".

For this reason, the identification of socio-environmental practices and the reasons why companies carry them out, whether they are mandatory or voluntary, is relevant to understand the motivations of these practices in the perception of impacted agents - coal mining managers and managers of community institutions impacted by these practices, relating to social capital constituted. Philanthropy actions and direct social actions with the community are the initial dimensions that

**Table 1.** Map of the organization of the semi-structured interview.

Structure	Elements of analysis	Categories of analysis	Specific objectives	Categorization of social capital
Block I	Characterization of the Company, Managers and Impacted Agents (For Managers and Impacted Agents)	Socio-economic-educational profile	Identify the profile of the company, managers and impacted agents.	
Block II	Socio-environmental practices: Identification and Characterization. (For Managers)	Social and Environmental Development	Identify the main practices associated with the socio-environmental responsibility of coal companies in the southern states of Brazil.	Structural Dimension (E) It refers to the pattern of connection between the actors of a given network, with whom it has contact and how this contact occurs (Nahapieth and Goshal, 1998).
	Results intended with these socio-environmental actions. (For Managers)	Social and Environmental Development and Share capital	To investigate the motivations of the managers of the social and environmental responsibility actions of the coal companies.	
	Objectives achieved with these actions. (For Managers)	Social and Environmental Development and Share capital	Identify the objectives achieved with these actions and their relationship with the consolidation of economic activity in the region.	
Block III	Direct impacts of coal mining activities in the Community. (For Managers and Impacted Agents)	Share capital	Analyze the perceptions of the actors directly impacted by socio-environmental actions of the coal companies.	Cognitive Dimension (C) It refers to interpretations that are shared, as well as systems of meaning between parts (Nahapieth and Goshal, 1998)
	Positive results for the community due to social and environmental responsibility actions. (For Managers and Impacted Agents)	Share capital	Find out if the results for the community are positive from the actions developed.	
Block IV	Possibilities for changes to enhance these actions. (For Managers and Impacted Agents)	Share capital	Identify the need for changes to enhance actions.	Relational Dimension (R) It refers to the type of relationship that a given actor or social unit develops over time, focusing on the content and characteristics of these relationships (Nahapieth and Goshal, 1998).
	Network relations, cooperation, trust, participation and reciprocity between company and community based on the actions developed. (For Managers and Impacted Agents)	Share capital	Investigate network relationships between companies and those impacted.	

Source: Authors' own elaboration (2019).

characterize CSR, as reported by Ponchirulli (2007) which can promote the development of the social capital of individuals, communities and enterprises (Table 2).

The managers' perception about SER of the companies is directly related to the environmental management and the transparency of the actions for the good relationship

**Table 2.** Main Motivations.

Company	Manager	Company's Motivation
CARB 1	A1	History of social actions and philanthropy of shareholders in the company with motivation related to "helping people"
CARB 1	B1	Philanthropy is the main indicator of the company's motivation, in its perception.
CARB 2	C1	Concern about the good image of the company in the community. The company's concern with the development of the municipality where it operates
CARB 2	D1	Social actions and philanthropy. "It is a company that acts with the heart"

Source: Authors' own elaboration (2019).

with the community. "The environmental issue for us is very strong. This is one of the topics that is within our values". This conception is evidenced in the scope of direct employees of the company: "[...]we have to be aware on this topic and show the same to the community. Mining is reputed to degrade and one of our biggest concerns is the environment issue. Not degrading is a very strong issue for us" (A1, CARB 1). The motivation for these actions is also related to the current demands of the economic market. The NBR ISO certification "is a requirement of our largest customer" (A2, CARB 1). Certified by NBR ISO 14.001 since 2005, the company is audited annually, maintaining the commitment to the continuous improvement of the Environmental Management System, "which covers the whole production complex, from the extraction of coal, through the processing, until its transport to the final customer" (CCL, 2018: 1). The same occurs with CARB 2, located in RS. According to Tachizawa and Andrade (2008), companies undergo external pressure to qualify their product, which is represented by legal certificates such as ISO 14001, which deals with the Environmental Management System (EMS) and is obtained from compliance with a set of standards that determine the environmental management guidelines of the companies.

In the environmental management policy of the two coal companies, it integrates the identification and control of environmental aspects, with minimization of the impacts associated with economic activity and the environmental recovery of the mined areas, health and safety at work, among others. The first environmental impact assessment (EIA) and its environmental impact report (RIMA) for environmental licensing in RS, developed in the company's "Butiá Leste mine" according to manager C1. With the closure of the mine and, consequently, the recovery of the mined areas, the company allows the future use of these areas. "Nowadays, in these places there are farms with soybean plantation, livestock".

When asked about the interaction of the companies with the community to which it is inserted, the managers of the two companies CARB 1 and CARB 2 interact effectively with the community in which they are involved.

The A1 manager, referring to CARB 1, stated that: "It interacts a lot, it is very active". For the C1 manager of CARB 2, the company's interaction occurs with all communities where it is inserted. As cited by Ponchirolli (2007), the interactions of the companies with the communities in which they are inserted are characterized in terms of the visibility of its SER. When asked about the process of interaction of the company with the community occurs, diverse situations emerged related to the promotion of projects and / or social actions in the majority. They may be representative of the constitution of the relational social capital, observed in the obligations and expectations, in social identification, cited by Nahapiet and Ghoshal (1998). In CARB 1, the actions are related to the promotion and maintenance of projects and specific activities of interest to the community: lectures, environmental education, donations, among others. CARB 2, according to the manager C1, "interacts in the form of donations, trainings, lectures, community meetings, explaining mine processes. There is no monthly commitment. When the demand rises, we help". In addition, it contributes with philanthropic punctual actions in schools, blood groups, hospital, blood bank, among others, from demand to orders. It was also noted that the scope of CARB 2 in the scope of donations is very broad.

Seeking to know more about the main actions that the companies perform in the interaction with the community, still in the analysis of the structural dimension of the social capital, we observe that all the actions and projects described in the sequence are considered relevant for the managers of the companies, among them, those impacted in the present study. The managers of CARB1, cited: Beneficent Association *Anjos Mineiros*; Several Community Projects; Youth Children's Choir *Anjos Mineiros*; Home Visits; Free medical consultations; Environmental Education with lectures and campaigns of donation and planting of flowers and trees. CARB 2 invests in social and environmental actions and projects to encourage culture in search of awareness and interaction with the local community: Christmas Project Operation; Smiling for the Future Program/Community; Project Copelmi At School; Fishing Project; Partnership



with the Coal State Museum; Donations and Partnerships; Environmental Education Lectures Program.

During the interviews, significant financial investments were identified by coal producers in the various projects mentioned. Investments related to the recovery of areas degraded by mining are cited as a counterpart to mining activity and are required by national legislation. However, many projects related to corporate philanthropy are subsidized by event promotions, among others, with the direct participation of employees of the companies and communities involved. “[...]we hold a dinner party for 500 people annually, where both volunteers and we work... We always campaign for APAE, we bring “Santa Claus”, and we help with the distribution of market baskets”. (A1, CARB1). “[...] During Christmas, and Children's Day, we campaign among the collaborators for the donation of toys.... We work by helping some neighborhood leaders” (C1, CARB 2). Thus, we verified that the two companies develop actions related to philanthropy and social actions in the different mining units: in donation in the form of food (market baskets); milk boxes; campaigns to raise financial resources; or donation of resources in the form of work, material or financial, own, taking into account the demand of the community institutions. Bruch and Walter (2005) cite that one of the specific approaches to corporate charities relates to peripheral philanthropy. In this, charitable initiatives are usually unrelated to their main activities and are motivated mainly by external demands and stakeholder expectations.

Exemplifying one of the actions (Children's Choir Anjos Mineiros), the A1 manager of CARB1, expresses the perception of the company's concern with the individual assistance to the project participants, “[...] If there is any child that is a component of the choir and that presents some type of problem, health or psychological, we try to give a more focused assistance to this child”. The project seeks to involve the children of the residents of the community in which most of their employees reside. They participate in rehearsals, dance festivals in the city, masses on the first Sunday of the month, etc. “[...] In these rehearsals we do recreational activities, we have meetings with snacks, we take them to day trips... We took them to Criciúma to watch a movie”.

The managers of the impacted Community institutions corroborate the perceptions of managers of coal companies; the actions and projects related to socio-environmental practices developed by the two companies are strongly related to philanthropic actions, which Ponchirolli (2007) cites as the first dimension of CSR. The main characteristic of philanthropy is the spontaneous generosity of the entrepreneur in donations to charitable and philanthropic entities. However, there are also elements of the second dimension that is related to direct social actions with the community.

Referring to CARB1, the IMP1 manager mentions that the company “[...] assists in everything we need. For example, if an outlet is defective, we turn to them. They

send an electrician to take a look. Our driveway was built by them, they donated a gate”. It emphasizes the importance of these one-off actions as positive because “[...] their employees see the importance of the association and end up giving the manpower to perform these services”. Similar perception is observed in the IMP 2 manager, who claims that CARB2 is “a partner in all aspects”; citing as an example, the construction of the headquarters of the association of residents, with investment of BRL 50,000.00 from the company to assist in the construction. “The company ends up helping with its heart, because here is a very needy, very poor neighborhood... So the company is a good partner in this respect” (D1, IMP2).

We observed that, in the perception of managers, community institutions, the justification for the maintenance of these projects corroborates with the concern manifested by the managers of the companies in the execution of actions that aim at the well-being of employees and their families that are characterized in objectives of the actions. Nahapiet and Ghoshal (1998) say that trust is a precursor element for strengthening relations. It is a relevant aspect of observation when evaluating the relational dimension of social capital. An environment of trust contributes to the development of a high degree of trustworthiness and reliability among the subjects by inferring positive values about the behavior of the other; and therefore, is more likely to appropriate knowledge, information and other forms of resources available in their relations. According to Putnan (2003), the higher the level of trust in a community is, the greater the likelihood of cooperation. This makes it possible to boost confidence and, with this, to develop social capital.

The relationship environment and community emerged at various moments of the interviews. In both companies, there is an environmental education project with employees and third parties. Moreover, in all the events that the company CARB1 does, one approach relates to the preservation of the environment, according to the manager A1. The same is mentioned by the CARB 2 manager C1, when he emphasizes the promotion of lectures, guided visits and informative visits on the mine's production processes and their interference in the community's quality of life.

In the analysis of the content of the interviews we observed that the preventive actions related to the mining process in the community also occur during the process or when problems arise in residences that may be related to activity, among others. In this regard, the D1 manager of IMP 2 emphasizes the CARB 2 Company's usefulness regarding the interference of mining activity in the community.”[...] when there problems with the houses, ..., when problems occur, their staff comes and looks, to see if it was mine that caused it. The technicians run the check. They really do help! It is a company that does not deny anything”.

The CSR actions are evidenced in the concern with the

development of the municipality, one of the indicators of the motivation of the actions, where the two companies are inserted. For the A2 manager, CARB 1 “always tries to be present in the events of the municipality, to be making this move and be helping to highlight the municipality itself”. On this, the manager C1 also cites the motivation of CARB 2 related to the development of the municipality where it is inserted, when investing in the hospital, the police station, institutes and the community. As cited by Araujo (2003) factors that are not regulated exclusively by the market system, such as social, cultural and political, promote development.

In this context, there is a growing concern about the continuity of this development when the mining activity is closed. As an activity that ends with the end of the mineral reserve, communities that depend heavily on this economic activity are strongly impacted, in several aspects. According to manager C1, the company CARB2 must remain in the region with the mining activity for a maximum period of 10 years, due to the end of the mineral deposit being explored. It emerges in the manager's speech a concern about the future of the municipality and its economic dependence on the company. In this scenario, can the social capital constituted contribute to the solution or minimization of the problem? The C1 manager of CARB2 expresses the intention of the company to assist the municipality, in the search for solutions in this scope, by promoting actions so that “the municipality has a life of its own. This is because historically the municipality was constituted with the company”.

The perception of the dependence of the community related to the company is also perceptible in the speech of the manager of IMP 2. Asked about what could happen to the residents' association and the neighborhood after the company closes its activities in the municipality, D1 stated that: “It would certainly be a crush, for the city, the neighborhood and the entire community because it is a company, that besides contributing a lot to the city, it is a humanitarian company that cares about the neighbor, with the residents. [...]in our city today, it would be a desert”. Barbieri (2012) emphasizes that environmental responsibility is a set of individuals, collective and entrepreneurial attitudes, which aim at the sustainable development of the environment. Thus, collective strategies and actions should be planned in order to reduce the economic, social and environmental dependence of the communities by the activity carried out by a company. Likewise, social capital constituted in the community may contribute to restructuring the sectors responsible for the continuity of the region's economic and social-environmental development, after the closure of the mining activity.

However, it was evidenced that the actions developed in the community contribute in the consolidation of mining economic activity and in the strengthening and development of the community itself, the perception of

managers of coal miners and community institutions. They cite the positive way in which children and adults are currently related to mining in communities. According to the managers of CARB 1, socio-environmental actions represent a “form of motivation” for employees and indirectly generate benefits for the company. They argue, relating the satisfaction level of the employee contemplated with the actions in the community generates greater productivity “because they are geared towards improving people's lives. This contributed a lot” (A2). In addition, it is evidenced by the managers of the two coal companies that, without the socio-environmental actions, companies would have difficulty developing their activities in the region. That is, economic activity occurs because of the good acceptance of the community and the benefits granted by employees.

The evidence points to the deliberations of the investigated companies in order to develop social actions that encourage entrepreneurship. In other words, through socio-environmental projects they prefer to allocate resources to more lasting practices such as socio-cultural events, solidarity campaigns, artisanal entrepreneurship, diffusion of environmental education, professional training, waste management and incentives to plant. Although Light and Dana (2013) have identified that social capital has ceased to encourage entrepreneurship, in the cases studied there are varied actions, with significant allocations of resources to this practice.

Corporate social responsibility is also associated with regional development with the empowerment of individuals involved in the community for personal, professional and community development. Thus, a socially responsible company cares about its workers (Ponchirolli, 2007). In the two coal miners, there are active medical departments, a partial health plan, continuous training for employees related to safety in the workplace, and some specific skills for the community. There is encouragement in the academic and professional training.

In the analysis of the networks of relationships and their quality, which is one of the dimensions of social capital, the six managers said to be a friendly and sustainable? relationship, resulting from the actions developed, the regular visit to employees, the constant presence of the company in the community and society. The network of relationships built between company and community is noticeable in the many examples of actions shared between peers. The strengthening of this network of relationships is also evidenced in the concern of coal miners' managers – who cited several examples - in keeping the motivation of the volunteers of the impacted in carrying out their activities. There was also evidence of good communication and trust between the community and the company in the managers' discourse. Citing as an example, the A1 manager of CARB1, quoted that, “When there is something different, the community usually remembers the coal company to invite. And, not

only that! Sometimes we are invited to be godfathers of parties from other places". It was observed in the content analysis that the interaction with the community where the company operates is focused on the cooperation process. However, it was not perceived the interactions related to the transfer of materials and/or technologies, training of labor, among others, cited by Ponchirolli (2007), which could impact more significantly on the personal and professional development of the community (Light and Dana, 2013).

In the respondents' response, empirical evidence is noticeable in the construction of interpersonal networks. Companies and impacted companies add the social capital of the individuals who work in it and contribute to the strengthening of their internal and external networks, through the reciprocity between them. They are based on collaboration and cooperation, responsibility for the actions developed. As these relationships are established and expanded, they can mutually generate and expand their own social capital, in new relationship networks, at different levels of performance, contributing and receiving contributions. They cite as motivation for social and environmental actions the improvement in the search for the quality of life of those involved and informal training, among others. For Putnam (1996), this collaboration is seen as an incentive to strengthen social capital, which would deepen democracy, without which it is not possible to achieve social development. It converges with evidence in other contexts, such as the study of conservation incentives can support institutions, attitudes, and social values, while rewarding environmental management (Alix-Garcia et al., 2018).

## Conclusion

We conclude that, in the perception of managers, the main determining factors for the accomplishment of socio-environmental actions by the two coal companies investigated are associated with the good image of the companies and the development of the community where the productive units are inserted. On the other hand, through the interviews with the managers of the two community institutions, directly impacted by the socioenvironmental practices of the coal companies, we observe that, for them, the companies perform the actions like philanthropy, with the intention to help the community in which it is inserted. Therefore, there is evidence of the adherence of managerial managers in the culture of philanthropy or social actions with the community. Therefore, there is evidence of the managers' adherence in the culture of philanthropy or social actions with the community. The actions cited by the managers characterize the company's responsibility to the community and the environment. However, even though social and environmental actions contribute to the search for solutions to socio-environmental problems, they are also punctual and isolated, requiring more

in-depth reflection on effective social changes.

Evidence of Social Capital was verified based on the cooperation and reciprocity relations mentioned by the managers of the coal companies and the managers of the impacted institutions. The movements related to the philanthropy and the qualification of the subjects involved in the community aiming the personal, professional and community development, are interconnected to Corporate Social Responsibility.

In the analysis of the content of the interviews with the managers, we observed that the socio-environmental actions carried out by coal producers are philanthropic in nature and are significantly related to the personal values and beliefs of their managers. However, the present research also revealed that the actions carried out by coal producers also present strategies to improve the company's image vis-à-vis the community, seeking a return on invested capital. In addition, the level of compromising between the coal producers and the community where they are inserted has been limited to the availability of company resources if not the need of the community. Finally, in the managers' responses, we have identified empirical evidence of interpersonal relationship networks with reciprocity between coal companies and impacted communities, focusing on accountability, collaboration and cooperation. We have detected that the synergy among those involved, as motivation for social and environmental actions, produces improvement in the quest for quality of life and in the training of those impacted. This movement is seen as an incentive to strengthen social capital among stakeholders.

As a limitation of the study, we can observe the need to further deepen the qualitative approach, limited by the reduced availability of managers and agents impacted in the research. The second limitation was shortage and theoretical-empirical studies uniting the research constructs and combining socio-environmental practices with the local community. Finally, another aspect considered as limiting was the lack of data on socio-environmental practices carried out by coal producers in company reports.

We recommend expanding the scope of research with the participation of more carboniferous and impacted institutions in the search for validation of the effective evidence of interpersonal relationship networks, related to social and environmental actions and their inference in the development of communities.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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**Appendix Table 1.** Semi-structured interview.

<b>Categorization</b>	<b>Inquiries interview managers</b>	<b>Impacted interview inquiries</b>
<p><b>Social capital</b> Structural Dimension (E)</p> <p>It refers to the pattern of connection between the actors of a given network, with whom it has contact and how this contact occurs (Nahapiet and Ghoshal, 1998).</p>	<p>(1) Does your company interact with the community to which it belongs? In what way?</p> <p>(2) Could you mention any of the socio-environmental actions that are carried out with the community?</p> <p>(3) In your view, do socio-environmental practices contribute to the strengthening / consolidation of economic activities in the region where they occur?</p>	<p>(1) Does your organization have any type of relationship with coal companies? Which are?</p> <p>(2) In your view, is this relationship between companies and your organization positive? In what way?</p>
<p><b>Cognitive Dimension (C)</b></p> <p>It refers to interpretations that are shared, as well as systems of meaning between parts (Nahapiet and Ghoshal, 1998)</p>	<p>(4) In general, what motivates your company to interact with the community?</p> <p>(5) What are the impacts that these socio-environmental actions represent for your company?</p> <p>(6) Are there legal incentives for the company's social and environmental practices?</p> <p>(7) Do these socio-environmental actions carried out generate any type of benefit for the company? Which are?(do these benefits contribute to the growth / improvements for the company?)O que mediu a empresa a realizar ações sócio ambientais que impactam na comunidade?</p>	<p>(1) In your opinion, why do companies carry out these socio-environmental practices?</p> <p>(2) In your opinion, what do companies expect when carrying out these practices?</p> <p>(3) If you were the manager of the coal companies, would you change anything in these actions? Why?</p>
<p><b>Relational Dimension (R)</b></p> <p>It refers to the type of relationship that a given actor or social unit develops over time, focusing on the content and characteristics of these relationships (Nahapiet and Ghoshal, 1998).</p>	<p>(8) How do you observe the results obtained with these actions?</p> <p>(9) Is it possible to improve the relationship with the community? In what way?</p> <p>(10) Does the company have an action plan to expand the relationship with the community where it is located? If so, why?</p> <p>(11) Do these actions have an impact internally? In what way?</p>	<p>(1) How is your organization's relationship with coal companies?</p> <p>(2) How do you evaluate the performance of the coal companies in the location where they are located?</p> <p>(3) How could they improve the relationship with the community?</p> <p>(4) After the implementation of the carboniferous project in the community, has the relationship between the company and the community changed? In what way?</p>

Source: Authors' own elaboration (2019).

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