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*ORGANIZATIONAL STRATEGY FOR DEALING WITH THE IMPACTS OF
CLIMATE CHANGE: ANALYSIS OF A LARGE PRIVATE SANITATION
COMPANY¹*

**ESTRATÉGIA ORGANIZACIONAL PARA LIDAR COM OS IMPACTOS DAS
MUDANÇAS CLIMÁTICAS: ANÁLISE DE UMA EMPRESA PRIVADA DE
SANEAMENTO DE GRANDE PORTE**

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ABSTRACT

The entire world is facing extreme weather and climate changes caused by humans, companies, and society. These climate-related disasters generate negative impacts on the productive sector and ecosystems. Rio Grande do Sul (RS) had never seen floods like the one in May 2024, with some cities almost completely submerged. The people of Rio Grande do Sul stopped their lives, and some lost theirs. Safe areas became emergency shelters. The objective of the study was to analyze the strategic positioning of a large sanitation company operating in the state of Rio Grande do Sul, to face events resulting from climate change. In addition to highlighting the impact caused by the historic floods in the state on the company's operations, as well as the action plan implemented, the main result is the perception that strategic business actions must be put into practice together with society, institutions, and the government.

Keywords: climate change, floods, public policies, strategic management.

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RELISE

70

RESUMO

O mundo todo está enfrentando extremos climáticos e meteorológicos devido às mudanças climáticas causadas pelo homem, pelas empresas e pela sociedade. Esses desastres relacionados ao clima geram impactos negativos para o setor produtivo e os ecossistemas. O Rio Grande do Sul (RS) ainda não havia presenciado enchentes como as do mês de maio de 2024, com algumas cidades submersas quase em sua totalidade. Os gaúchos interromperam suas atividades diárias, e alguns perderam suas vidas. As áreas seguras se tornaram abrigos emergenciais. O objetivo do estudo foi analisar o posicionamento estratégico de uma empresa de saneamento de grande porte, com operação no estado do Rio Grande do Sul, para o enfrentamento dos eventos decorrentes das mudanças climáticas. Além de evidenciar o impacto causado pelas enchentes históricas no estado, sobre as operações da empresa, bem como o plano de ação implementado, destaca-se, como resultado principal, a percepção de que as ações estratégicas empresariais devem ser colocadas em prática em conjunto com a sociedade, instituições e governo.

Palavras-chaves: mudanças climáticas, enchentes, políticas públicas, gestão estratégica.



RELISE

71

INTRODUCTION

Studies on climate impacts demonstrate that many regions of the world are severely affected by extreme climate change (BRASIL, 2024). The most significant impacts stem from organizations, which exert considerable influence on the formulation of public policies, including socio-environmental policies (VIEIRA; GHIZONI, 2020). In this context, the importance of effective socio-environmental public policies is highlighted to ensure the continuity of organizational activities and life as a whole. There is a demand for integration across all socio-environmental and regulatory public agencies responsible for urban stormwater drainage and management systems to achieve efficient risk management against flooding, for example (MACHADO et al., 2022).

The state of Rio Grande do Sul (RS), in May 2024, experienced the largest flood in its history, affecting 478 of its 497 municipalities and resulting in 183 deaths and 27 missing persons (RIO GRANDE DO SUL/DEFESA CIVIL, 2024; SOLDERA, 2024). The financial losses led some companies into debt and, in some cases, even forced them to cease operations because the damages were irrecoverable (SOLDERA, 2024). Therefore, the May 2024 flood in Rio Grande do Sul was a major climate tragedy that should be regarded as a lesson, with its causes carefully identified (BURZSZTYN et al., 2024).

To address the adversities arising from the external environment, organizations, whether private or public, need to develop appropriate strategies to identify the variables responsible for changes in context and subsequently plan actions that may result in strategic reconfiguration. It is worth noting that, as early as the twentieth century, strategic thinking already considered both internal and external factors that could affect organizational performance (GONÇALVES, 1998). Currently, scientific research on organizational strategies corroborates the relevance of internal and external factors, offering multiple perspectives and



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alternative approaches that organizations may adopt both in the formulation and revision of organizational strategies.

In the case of public organizations, particularly in Brazil, the government support provided to these organizations as part of the strategic positioning process, with the aim of achieving financial balance, is especially noteworthy. These government subsidies already provide them with a strategic competitive advantage (PORTER, 2004). Furthermore, it is necessary to communicate the defined strategic positioning to all stakeholders and establish partnerships to test its effectiveness while continuously measuring and updating vulnerabilities (TRIDELLO et al., 2023).

Accordingly, this research seeks to answer the following question: What organizational strategic positioning is being adopted to address the impacts of climate change by a large sanitation company? Therefore, the general objective is to analyze the strategic positioning of a large sanitation company in addressing climate change-related events in a sanitation company operating in the state of Rio Grande do Sul. This study is justified by the need for the immediate adaptation and implementation of organizational strategies to cope with the impacts of climate change, which result, for example, in flooding. Regarding the method, the research adopted a qualitative approach in a company located in the state of Rio Grande do Sul that is part of a sanitation corporation with headquarters throughout the national territory, through the consultation of documents, secondary data, and an open-ended questionnaire.

This article is structured as follows: the theoretical framework, divided into three subsections - climate change, organizational strategy, and socio-environmental management - followed by the methodology chapter, the results analysis chapter, and the final considerations. Finally, the references used in the study are presented.



RELISE

73

CLIMATE CHANGE

Climate change has led to a significant increase in extreme weather events in several regions of the world. In Brazil, these phenomena have caused serious consequences, particularly in terms of floods and landslides. Recent studies, such as those by Debortoli et al. (2017), highlight the increase in heavy rainfall and the country's growing vulnerability to these natural disasters. Based on observational hydrometeorological studies, the authors report an increase in heavy rainfall worldwide. In Brazil, 74% of deaths related to natural disasters between 1991 and 2010 resulted from floods and landslides caused by extreme rainfall. The researchers explain that the findings indicate a strong tendency toward increased vulnerability in Brazil to landslides and flash floods in the context of climate change (DEBORTOLI et al., 2017).

Robert et al. (2024) present the Climpect indices, which can be grouped together or combined with other climate event data, ranging from the simplest to the most extreme events. These indices can be used by decision-makers in the health, agriculture, and water sectors, as well as in other sectors, to develop mitigation measures, including those intended for organizational managers. The use of these indices enables a more accurate and detailed analysis of climate patterns, facilitating the implementation of effective strategies to minimize the negative impacts of extreme weather events.

Rocha (2021) presents information from the Forced Migration Observatory of the Igarapé Institute, based on data collected up to 2019, regarding the period between 2003 and 2012 in Campos dos Goytacazes. The study reports the reasons and the number of people who were displaced as a result of climate-related disasters, such as floods, storms, flash floods, and urban flooding. Table 1 presents these data in detail:



RELISE

74

Table 1 - People Displaced by Disaster-Related Events – Campos dos Goytacazes, 2003–2012

Events	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Flash Floods	60			2650		450	120			
Storms		83				350		154		
Flooding		34	225			22662	420	195	3209	769
Urban Flooding						216				
Total	60	117	225	2650	-	23678	540	349	3209	769

* Local/Convective Storm – Windstorm

Source: Observatório de Migrações Forçadas (Instituto Igarapé, 2024).

When rural-to-urban migration occurred, people sought better living conditions, education, healthcare, and opportunities in general. However, in some cases, these individuals became marginalized after being settled in risk-prone areas, and, consequently, their safety was compromised (ROCHA, 2021). Table 1 illustrates this situation by presenting the significant figures recorded in Campos dos Goytacazes.

The National Center for Monitoring and Early Warning of Natural Disasters (Cemaden), a research unit of the Ministry of Science and Technology (MCTI), through a Technical Note based on scientific and technical research, clarifies that the states of Santa Catarina and Rio Grande do Sul, in southern Brazil, have shown greater vulnerability since the earliest analysis published in 2016, with a high risk of flooding and landslides (BRASIL, 2024). The Technical Note states:

The analyses clearly showed that Porto Alegre [...] was already considered one of the most critical locations in Brazil regarding flood risk [...], and that it also stands out for significant increases resulting from climate change, especially under global warming scenarios above 2.0°C [...] (BRASIL, 2024, p. 6).

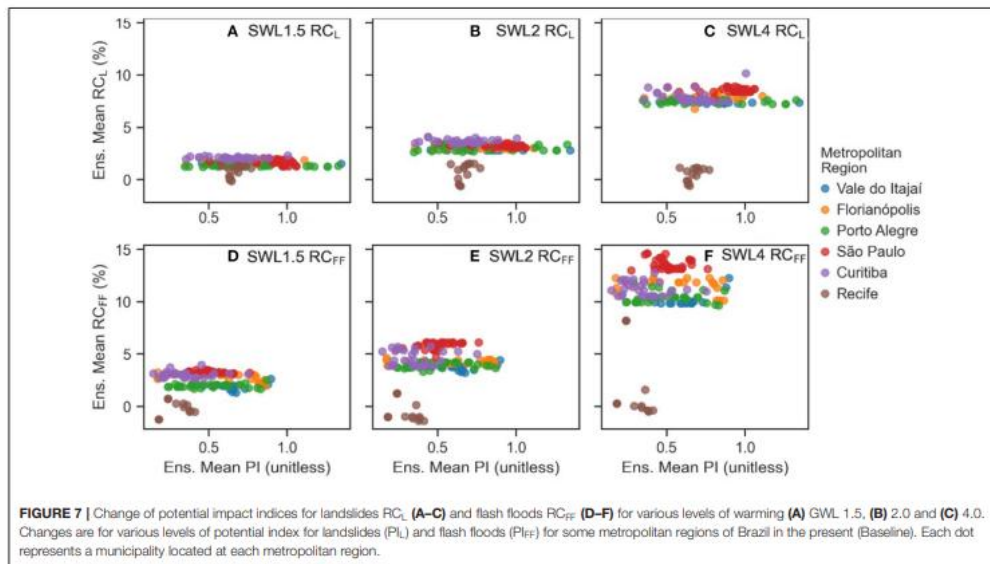
Figure 1 presents the graphs showing the results of the studies conducted by Marengo et al. (2021) for some Brazilian metropolitan regions with the greatest likelihood of being affected by potential flooding, highlighting the city of Porto Alegre. These projections were confirmed in May 2024 (BRASIL, 2024).



RELISE

75

Figure 1. Brazilian metropolitan regions identified as having the highest potential flood impact



Source: Marengo et al. (2021, p. 14).

The graph in Figure 1 presents, on the horizontal axis, the average value of the Potential Impact indicator for the analyzed period, while the vertical axis shows the average percentage increase in the high-rainfall indicator with the potential to result in flooding under each global warming scenario (MARENGO et al., 2021).

The Technical Assistance and Rural Extension Institute (EMATER) (EMATER, 2024), through the Adverse Event Bulletin, presents the Report on the impacts of extreme rainfall and flooding in Rio Grande do Sul in May 2024 on affected family agro-industries, divided into the following contexts: (a) structural damage to buildings and equipment; (b) raw materials used by the agro-industries, whose volumes and values were previously quantified in the respective crop and livestock loss assessments; (c) logistics, such as power outages, road damage, blockages, bridge collapses, landslides, which caused difficulties in receiving raw materials and/or inputs used by these enterprises, as well as in transporting products to customers and consumers, interfering with the volume of business conducted; and (d) marketing channels, such as reduced



RELISE

76

sales due to the severe damage to commerce and consumers, as well as the reduced number of visitors to tourism enterprises. Sales to institutional markets were also affected, especially to the National School Feeding Program (PNAE) due to the suspension of school activities and structural damage to schools. The cancellation of fairs linked to or supported by the PNAE also occurred (RIO GRANDE DO SUL, 2024, p. 24).

Figure 2 shows the impacts of the extreme rainfall and flooding in Rio Grande do Sul in May 2024, illustrating submerged structures, destroyed crops, devastated roads, various livestock affected and lost, as well as the loss of human lives (RIO GRANDE DO SUL, 2024).

Figure 2. Impacts of the extreme rainfall and flooding in Rio Grande do Sul in May 2024



Source: Rio Grande do Sul (2024, p. 1).

The consequences were that virtually all production chains became disrupted, and almost all cities were affected. Research conducted by National Center for Monitoring and Early Warning of Natural Disasters (Cemaden) clarifies that floods, inundations, and other occurrences resulting from climate change had already been anticipated and that it would be the responsibility of public



RELISE

77

management and society as a whole to develop solutions for coping with, mitigating, and preventing such events (BRASIL, 2024).

In the realm of public management decision-making, organizations exert a strong influence (VIEIRA & GHIZONI, 2020). Brito's (2022) study explains that risk perception is one of the most important contingency actions for organizations to adapt to events resulting from climate change, in addition to organizational means and capabilities, stakeholders, and partners involved. As Quarantelli (2015, p. 37) states:

In a certain sense, we can say that the basic paradigm implicit in the field of disasters is acceptable (although not beyond dispute). The current paradigm involves a series of interrelated notions, but two of the most fundamental are the following: (1) disasters are inherently social phenomena, and (2) the origin of disasters lies in the social structure or the social system.

ORGANIZATIONAL STRATEGY

Rocha's (2021) study emphasizes the need to include, in debates on socio-environmental management practices, the perspectives of those who have suffered damage as a result of environmental disasters. Regarding environmental damage, the flooding of May 2024 demonstrated that an entire state can be affected, including both individuals and legal entities.

The greatest contributions to the analysis of industrial sector activities originated in economic theories. Despite the limited importance that economists traditionally attributed to the role of strategy in business management, stemming from the theory of perfect competition, in which entrepreneurs had only the option of producing at low cost to remain in the market, several schools of thought began to explore new theoretical positions. The first addressed monopolies and their characteristics, published as early as 1838 (COURNOT, 1969).

In 1930, a group of economists affiliated with Harvard Business School realized that some companies were able to sustain significant gains over longer periods. This "discovery" made it possible to correlate business performance with



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the dimensions of profitability, efficiency, and innovation. This correlation was confirmed by Joe Bain (1963) through two empirical studies, the results of which were published in 1950 and identified three main barriers to entry: (a) the absolute cost advantage of established firms; (b) a significant degree of product differentiation; and (c) economies of scale. This research gave rise to the industrial organization research stream that continued through the 1970s.

However, the economic theory perspective based on external analysis, leaving the firm's internal organization in the background, was challenged by Andrews (1980), who, through empirical research, demonstrated that the organization's internal factors, idiosyncratic by nature, are fundamental to the success of business strategy. A few years later, Wernerfelt (1984) and Peteraf (1993) described the organization as a set of tangible and intangible resources, highlighting learning, dynamic routines, and the difficulties of imitating competencies developed within organizations. Organizational experience came to be recognized as important, and it was acknowledged that it influences the determination of a firm's strategy.

In 1974 and 1980, based on the findings of industrial organization (IO) research, Michael Porter, PhD from Harvard, published two works focusing on the empirical application of the principles established by IO theory. The five competitive forces model, the subject of the second publication, became a new theoretical paradigm. Later, in the 1980s, several empirical studies demonstrated that the model did not apply to all situations nor explain all the phenomena it was intended to address.

However, in the early stages of strategic thinking applied more intensively to organizations, particularly during the 1960s and 1970s, decisions were closely tied to budget planning, which had always been regarded as a key mechanism in any company. Nevertheless, this planning presented two main problems: (1) it was too focused on projections rather than on an actual plan; and (2) planning



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and strategy are different concepts. As unsatisfactory results accumulated, it became evident that planning extended beyond projections and should become the foundation for the strategic choices defined by the company. In addition, efforts were made to establish mechanisms for monitoring the environment so that it could provide support for the development of a business environment model for the company (KAY, 1996).

Regnér (2001) argues that the traditional view of strategy has always been linked to the conscious control of its formulation and implementation. There is a clear need for a combination of the traditional/rational perspective with one that considers the complexity of the environment, providing a more holistic view. This perspective emphasizes the development of strategy as an incremental, complex, and intentional process involving multiple rationalities and simultaneous strategies, particularly individual rationalities and the various stages of the strategic process.

Mintzberg (1973) proposes that strategy is developed through three modes: the entrepreneurial mode, in which the leader makes strong and risky decisions for the organization; the planning mode, focused on formal analysis and the explicit and integrated planning of strategies; and the adaptive mode, characterized by incremental adjustments in a complex environment. According to Mintzberg, these modes constitute a realistic and useful description of the strategy-making process and allow combinations or emphases according to function. Thus, the planning mode would predominate in operations, the entrepreneurial mode in marketing, and the adaptive mode in human resource management. He indicates that planning is not synonymous with strategy formulation. Therefore, the mode of strategy should fit the situation, which is more closely related to a contingency perspective.

Lewin and Volberda (1999) present a historical review of organizational and economic theories, focusing on selection and adaptation, which translates



RELISE

into two theoretical streams: (a) Population Ecology - limited impact on adaptation; (b) Institutional Theory - analysis of the similarity of characteristics within the population; (c) Industrial Organization - industry selection and firm positioning for sustainable competitive advantage; (d) Transaction Cost Theory - the optimal level of transaction internalization versus market contracting; (e) Behavioral Theory of the Firm and Evolutionary Theory - organizational know-how and knowledge management; (f) Resource-Based View (RBV) - bundles of tangible and intangible resources and tacit know-how can be identified, selected, and developed to generate superior performance; (g) Core Competence - the influence of the environment on core competence deepens that competence; (h) Contingency Theory - conditions as the direct cause of variation in organizational forms; and (i) the Administrative or Strategic Choice Perspective - organizations are not always passive in relation to the environment but rather influence it and take advantage of opportunities while being capable of shaping the environment.

Rajagolapan and Spreitze (1996) propose an integrative framework encompassing three different perspectives related to strategic change: the content/rational school, the learning school, and the cognitive school. They argue that strategic change differs in form, quality, or timing regarding the organization's alignment with the external environment, the pattern of resource deployment (current and planned), and interactions with the environment that indicate how the organization will achieve its objectives.

Coriat and Weinstein (2002) define organizational patterns as varying according to the modes of activity coordination and information diffusion, thereby conditioning the relative importance of inventions and feedback until innovations reach the market, as well as the importance assigned to research in fostering knowledge creation and strengthening innovation activities. The innovation process within the firm is positioned between two dimensions: cognitive coordination and political coordination. Cognitive coordination concerns



RELISE

81

competencies, learning, and the development of new routines and dynamic capabilities to enable innovation. Political coordination analyzes incentives and outcomes in generating competitive advantages through innovation.

According to Whittington (2002), every strategist should analyze the specific social system in which they operate in order to capture the variety of resources and rules of social conduct available. Strategists may play "different games" according to the plural rules of their societies. Strategy formation should be conceived through the combination of three basic forces: the environment and its changes, bureaucracy, and the influence of leadership among these forces. Thus, strategy may be viewed as a set of consistent behaviors established by the organization over a given period, and strategic changes as responses to environmental changes constrained by bureaucracy and leadership action (MINTZBERG, 1978).

Organizational strategy, formulated based on a comprehensive internal and external analysis of the company, according to Porter (2004), provides the direction for designing actions to be undertaken in strategic planning, with the need for periodic review due to the natural changes in the context in which the strategic plan was developed, keeping pace with market trends and reactions.

Kasper et al. (2024) emphasize that high-quality organizational strategy is only possible through planning and systematic monitoring of the evolution of generated knowledge, as well as the organization's capacity to assimilate and apply such knowledge in its production process.

Jarzabkowski (2015) states that conducting comparative analyses of organizational strategies adopted over time makes it possible to understand which actions have been more or less valuable for the organization, thereby enabling empirical assessment for the adjustment or creation of new strategies.

In this sense, small businesses may implement sustainable strategies more quickly, and evaluating them tends to be simpler due to the proximity among



RELISE

employees and departments, unlike large organizations (FEIL et al., 2017). Conversely, Ferreira (2024) points out that companies need to invest in becoming increasingly sustainable.

SOCIO-ENVIRONMENTAL MANAGEMENT

Organizations have come to understand the importance of carrying out economic activities in association with environmental and social dimensions, forming a strategic and necessary triad for organizations, as affirmed by Lira, Gonçalves, and Cândido (2007), as well as for society as a whole.

Tridello et al. (2023) demonstrate that a region that is a good place to live is also a good place to receive and accommodate tourists because it has a plan containing socio-environmental management actions. Therefore, there is a partnership between the public and private sectors, as well as the involvement of the local community (BRITO, 2022; TRIDELLO et al., 2023).

Bauer and Naime (2013) explain how highlighting socio-environmental actions has become a distinguishing factor that gives prominence to organizations, since genuine engagement - rather than merely using such actions as a marketing tool within organizational strategy - is demanded by consumers, shareholders, governments, and other stakeholders.

Seeking to globally integrate socio-environmental management, there are the United Nations Sustainable Development Goals within the 2030 Agenda (Figure 3), in which Brazil participates, along with many private companies in the country. The initiative is described as “a global call to action to end poverty, protect the environment and the climate, and ensure that people everywhere can enjoy peace and prosperity” (BRASIL, 2024).



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Figure 3. Sustainable development goals



Source: Brasil (2024).

To reinforce the 2030 Agenda, the UN Global Compact was created as a strategy to encourage organizations to respect the Sustainable Development Goals (SDGs) by publicly committing to the scope of the “10 Movements on Environment, Human Rights, Labor, Education, and Anti-Corruption” (GLOBAL COMPACT, 2024). Regarding the environment, for example:

The **+Water Movement**, whose ambassador companies include Aegea, Ambipar, and Coca-Cola, experienced a 119% increase in the number of committed organizations, from 21 in 2022 to 46 in 2023. Of these 46, six companies adhered to all of the Movement's commitments. Among the responding organizations, 33% have already reached the commitment target of providing 99% of the population within their territory with access to drinking water, and 77% of the organizations have projects aimed at the protection and/or reforestation of watersheds under water stress (GLOBAL COMPACT, 2024, author's emphasis).

Pereira et al. (2021) identified several specific socio-environmental management practices in their study conducted with small and medium-sized enterprises, seeking to demonstrate that no prior investment is required and that organizations of all sizes and sectors can engage in such practices, thereby creating benefits for both the organization and society as a whole. Table 1 presents these specifications, according to the authors' research.



RELISE

84

Chart 1- Specification of socio-environmental management practices

Item	Socio-environmental management practices
01	Provision of meal assistance.
02	Provision of educational assistance.
03	Training and professional development.
04	Provision of daycare services or childcare assistance for employees' children.
05	Provision of healthcare assistance.
06	Recruitment program for employees with disabilities (PwDs).
07	Employee bonus program.
08	Workplace exercise program.
09	Social initiatives for the local community.
10	Selective waste collection.
11	Electricity conservation.
12	Water conservation or rainwater harvesting for company cleaning activities.
13	Use of recycled paper.
14	Provision of and encouragement to use reusable mugs for drinking water and coffee.
15	Environmental education courses for employees.
16	Use of rechargeable computer supplies.
17	Reuse of solid waste generated by the company.

Source: Pereira et al. (2021, p. 8).

Chart 2 presents several counterarguments to this assertion, highlighting the fact that business owners/entrepreneurs may not perceive themselves as agents responsible for pollution, which may affect their adoption of socio-environmental management practices.

Chart 2- Importance attributed to the adoption of socio-environmental management practices

Categories of analysis	Assertions	Authors
Importance attributed to the adoption of socio-environmental management practices	It is important for small and medium-sized enterprises to develop socio-environmental management practices.	Barbieri (2007); Andrade et al. (2002)
	Small and medium-sized enterprises are increasingly concerned not only with financial performance (profit), but also with society and the environment.	Passos and Camara (2003); Sanches and Schimidt (2016).
	Entrepreneurs do not recognize themselves as agents that pollute the environment.	Barbosa and Teixeira (2001).
	Social and environmental management, particularly in small and medium-sized enterprises, should consider the relationships among their internal and external stakeholders, reconciling the needs and specific characteristics of each stakeholder group.	Moysés Filho et al. (2011).
	Socio-environmental management is as important for the long-term sustainability of businesses as financial management.	Barbieri (2007); Andrade et al. (2002).

Source: Pereira et al. (2021, p. 8).



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Chart 3 demonstrates that socio-environmental organizational strategies provide companies with a competitive advantage, optimize processes, and reduce costs, while also promoting the well-being and quality of life of employees and the communities involved.

Chart 3 - Economic advantages resulting from the adoption of socio-environmental management practices

Categories of analysis	Assertions	Authors
Economic advantages resulting from the adoption of socio-environmental management practices	It is possible for small businesses to develop socio-environmental management practices without compromising the company's profits.	Aligleri and Prevideli (2001)
	Socio-environmental management practices improve the company's image among its customers, thereby facilitating customer loyalty, attracting new customers, and increasing sales.	Demajorovic and Santiago (2011)
	Socio-environmental management practices generate economic benefits, such as reducing water and energy consumption, among other inputs.	Demajorovic and Santiago (2011)
	Environmentally friendly products are increasingly sought after by consumers.	Andrade et al. (2002)
	Business management without environmental awareness will result in the loss of opportunities in rapidly growing markets.	Tachizawa (2010)

Source: Pereira et al. (2021, p. 8).

Pereira et al. (2021) identified incentive policies for the adoption of socio-environmental management practices in small and medium-sized enterprises that can be implemented, as shown in Chart 4, with tax incentives standing out as the main highlight.



RELISE

86

Chart 4 - Policies to encourage the adoption of socio-environmental management practices in SMEs**

Categories of analysis	Assertions	Authors
Policies to encourage the adoption of socio-environmental management practices	The federal, state, and municipal governments should develop incentive policies for small businesses that adopt socio-environmental management practices.	Barbosa and Teixeira (2001)
	I perceive that my state and my city have specific legislation encouraging SMEs to implement environmental and social actions.	Law 123/2006
	The General Law for Micro and Small Enterprises (Law No. 123/2006) grants economic and social benefits without requiring companies to develop and implement socio-environmental actions.	Law 123/2006
	Tax reductions or differentiated tax rates are good incentive policies for the adoption of socio-environmental management practices.	Sebrae (2015)
	Tax incentives granted to SMEs enable the development of socio-environmental management practices.	Law 123/2006

Source: Pereira et al. (2021, p. 8).

Socio-environmental management can and should be integrated into the business strategy of all organizations, as all the studies analyzed in this research demonstrated that extreme climate change events will continue to occur at an exponential rate, and not only governments should act to mitigate their impacts (SEWRANSKI & KAZAK, 2020).

METHOD

To achieve the research objective, a qualitative and exploratory approach was implemented (FLICK, 2019; HENNINK et al., 2020), based on the reality of a company located in the state of Rio Grande do Sul (RS), which is part of a national sanitation company with headquarters throughout Brazil and which faced the flood in May 2024.

It is important to emphasize that qualitative exploratory research tends to provide a better understanding of the context of the research problem, enabling an in-depth understanding of intrinsic perceptions, reasons, and motivations (GIBBS, 2018). Thus, a qualitative and exploratory approach is justified as an



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alternative for understanding the nature of the investigated phenomenon, placing it within a universe of meanings, motives, beliefs, values, and perceptions regarding the object of study (FLICK, 2019; HENNINK et al., 2020).

The research was characterized as qualitative, based on the quality of all the material used (FLICK, 2019). Documents were consulted, and documentary analysis was conducted, which, according to Demo (2022), provides data that have not yet been correlated for analysis. Meneses (2003) adds that a document is anything that contains data capable of providing answers to the observer, regardless of its origin. Documents used in the research included the sustainability policy, news reports, corporate history, and corporate profile.

Access to the company's documentation was appropriate because it is a publicly traded company, Category B, since 2014. The Corporate Sustainability Index (ISE) of the B3 Stock Exchange aims to “serve as an indicator of the average performance of the stock prices of companies selected for their recognized commitment to corporate sustainability” (BOLSA DE VALORES, MERCADORA E FUTURO, 2024).

Another source of data was an open-ended questionnaire, which provided the opportunity to obtain more comprehensive responses than a closed questionnaire, which already directs respondents toward affirmative, negative, or neutral answers to the statements (FLICK, 2019).

The respondent was a chemical engineer who has worked at the organization for seven years, serving in several departments and locations, and currently holds the position of Matrix Purchasing Request Leader. The questions were answered via WhatsApp. The respondent was selected because she was directly affected by the May 2024 flood, holds a leadership position within the company, and was conveniently accessible.

The sanitation company in Rio Grande do Sul, which is the focus of this research, was established on March 28, 1966, with the mission of carrying out



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“studies, projects, construction, operation, maintenance, and expansion of public drinking water supply and sanitary sewage services” (COMPANY WEBSITE, 2024).

Today, it serves 317 municipalities and approximately 6.5 million residents of Rio Grande do Sul. On December 20, 2020, it was auctioned and acquired by the national sanitation company, the leading private sanitation provider in Brazil, serving more than 33 million people, which assumed its management on July 7, 2023.

The national company was founded in 2010 and is the leading private sanitation company in Brazil. It operates in 766 municipalities across 15 states. These states are: Amazonas, Ceará, Espírito Santo, Maranhão, Mato Grosso, Mato Grosso do Sul, Pará, Paraná, Piauí, Rio de Janeiro, Rio Grande do Sul, Rondônia, Santa Catarina, Minas Gerais, and São Paulo.

The company manages sanitation assets “through full or partial concessions and public-private partnerships (PPPs), acting as the administrator of public concessions throughout the entire water cycle - water supply, sewage collection, and wastewater treatment” (COMPANY WEBSITE, 2024).

RESULTS ANALYSIS AND DISCUSSION

Rocha (2021) explains that all extreme climate changes create numerous challenges for organizations, just as the “ordinary” dynamics of life in society also drive these changes. According to the responding chemical engineer:

The impact of climate change directly affects the company, since the reduction of water resources (drought) makes it impossible to adequately distribute drinking water and also affects water quality by reducing oxygenation and concentrating pollutants. In addition, it increases the consumption of inputs required to maintain water quality. In the case of flooding, water quality also deteriorates, increasing input consumption, while reducing water intake capacity due to the greater amount of solid waste carried by rainfall, which clogs the pipelines. Both floods and droughts affect production costs and quality (EMPLOYEE, 2024).



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One of the company's facilities was affected during the May 2024 flood, a situation that had been forecast for the state, including the capital city, which has been identified by numerous national and international studies, as well as state and federal reports, as the Brazilian capital most likely to experience flooding (BRASIL, 2024; MARENGO et al., 2021; RIO GRANDE DO SUL, 2024).

To promptly address the damage caused by the floods that resulted in service disruptions, the company activated its Contingency Plan, in which its emergency response teams faced the following major challenges:

[...] flooding of operational facilities in lower-lying areas; power outages; the large amount of vegetation and debris in the water intake networks; ruptured water transmission pipelines; and difficulty accessing several locations to carry out essential repairs and install generators (MENDONÇA, 2025).

The number of employees involved in the Contingency Plan actions and processes, both directly and indirectly, was approximately 5,000, working to restore the 67 systems that had been severely affected (AGORA NO VALE, 2024; MENDONÇA, 2025). According to the Director of Operations, the action plan was implemented as planned, and Figures 4 and 5 show teams working to restore the systems (MENDONÇA, 2025).

Figures 4 and 5 - Teams operating to repair the severely damaged systems



Source: Mendonça (2025).

The extraordinary equipment used by the Company on an emergency basis included “floating pumping stations, suspended pipelines, submersible pumps, mobile community reservoirs, as well as approximately one hundred generators and water trucks, among others” (AGORA NO VALE, 2024;



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MENDONÇA, 2025). Figures 4 and 5 provide a visual representation of this empirical account.

Regarding organizational strategy, Kasper et al. (2024) point out that systematically reviewing strategy is itself part of the strategic process. In this regard, the Company seeks consistent and dynamic growth through effective sanitation initiatives, while also implementing unique actions whenever required by the region in which it operates, respecting the environment and optimizing its commitment to quality of life (COMPANY WEBSITE, 2024). Furthermore,

As a company operating in the sanitation sector, the company focuses on implementing wastewater treatment plants, improving water treatment, and reducing drinking water losses, while also encouraging consumers to use resources responsibly. The company has a program called *Environmental Multipliers*, through which employees, on a voluntary basis, deliver environmental awareness lectures and teach about the water cycle (EMPLOYEE, 2024).

The president of the Company's Institute and Director of Sustainability reports that many organizations have measures designed to respond to droughts, but the vast majority do not have action plans for flooding (BIGATTÃO, 2025). At the Company, operations are monitored 24 hours a day through proprietary systems using Integrated Operations Centers, which are already operational and/or are being implemented at virtually all company facilities (BIGATTÃO, 2025).

The Company also has a partnership with Climatempo to receive information on meteorological phenomena; however, meteorologists are still unable to accurately predict the intensity of droughts and extreme rainfall events (BIGATTÃO, 2025). Furthermore, because the Company operates throughout Brazil, it has been seeking expertise across all types of biomes (Figure 6): "Amazon Rainforest, Atlantic Forest, Cerrado, Pantanal, Pampa, and Caatinga" (BIGATTÃO, 2025).



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Figure 6 - Biomes included in the company's operational scope



Source: Bigattão (2025).

Regarding socio-environmental management, the Company has a publicly available Sustainability and ESG Policy with easy access for anyone interested in learning about it, as it seeks to make its strategic goal of sustainable growth evident. The Company is committed to “operations based on a process of economic growth with strong governance, social value creation, and environmental protection” (COMPANY WEBSITE, 2024).

As emphasized by Pereira et al. (2021), a company's engagement in socio-environmental management is beneficial both to the organization itself and to the communities in which it operates. With this same purpose, the company in Rio Grande do Sul, together with the Company as a whole, seeks to “generate shared prosperity in every city where it operates by expanding people's access to basic sanitation services” (COMPANY WEBSITE, 2024).

According to the interviewee, it is impossible to dissociate the Company as a whole from socio-environmental management because the organization's slogan is quality of life, and water is essential to achieving this, in addition to requiring a strategy to ensure its availability to everyone, along with wastewater sanitation and consumer education (EMPLOYEE, 2024). In this regard,

The services provided by the Company are fundamental to people's well-being and environmental protection; therefore, working toward the universalization of these services is what drives the Company. Guided by the Social License to Operate strategy, the Group's Concessionaires [...] create, together with local communities, a cycle of shared



RELISE

92

prosperity, and the positive results of this way of operating by [...] inspire investors, shareholders, stakeholders, and employees to work alongside the Company toward the sustainable growth of municipalities, states, and the country (COMPANY WEBSITE, 2024).

The Company has significant public commitments established in its Policy (Chart 5), with defined deadlines for implementation by the Executive Board and evaluation and monitoring by the Board of Directors. These commitments must be periodically reviewed in accordance with the Company's materiality matrix (COMPANY WEBSITE, 2023).

Chart 5 - Public commitments highlighted in the Company's Policy

(Movement +Water, UN Global Compact)	By 2030, reduce energy consumption by 15%.
	By 2030, ensure that 45% of leadership positions are held by women.
	By 2030, ensure that 27% of leadership positions are held by Black people.
	By 2033, provide access to drinking water for 99% of the population within our service area.
	By 2033, provide access to adequate sanitation services for 90% of the population within our service area.
(Transparency 100% Movement, UN Global Compact)	Achieve 100% transparency in interactions with Public Administration by 2028.
	Ensure 100% integrity in executive compensation by 2027.
	Train 100% of the high-risk value chain in Integrity by 2026.
	Achieve 100% transparency of the Compliance and Governance structure by 2024.
	Achieve 100% transparency regarding whistleblowing channels by 2023.

Source: Site Companhia (2023).

Due to the May 2024 flood, customers who experienced water supply interruptions were exempted from paying the basic tariff for May 2024, and the bills issued for the following two months did not exceed their average consumption, even when actual consumption was higher, including because post-flood treatment was also required, as water quality had been severely affected (RIO GRANDE DO SUL, 2024; COMPANY WEBSITE, 2024). Furthermore, consumers whose homes were flooded and who were classified under the social tariff category received zero-balance bills for six months (COMPANY WEBSITE, 2024). The company's Chief Executive Officer emphasized:



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People were displaced, lost their belongings, and are discouraged. Service is not limited to turning on the tap. The deployment of water trucks, all the assistance provided, the visits to shelters—we stayed very close to the people. We have a relationship of trust, and it is at moments like this that these bonds are strengthened (MENDONÇA, 2025).

During the May 2024 floods, the Company provided support through a team coordinated by the Rio Grande do Sul company, integrating companies from the states of Minas Gerais, São Paulo, and Santa Catarina (MENDONÇA, 2025). A trainee reported: “We loaded the reservoirs onto the trucks and delivered water to people; it was what we could do—we couldn't just stand still” (MENDONÇA, 2025). The Company's Chief Executive Officer emphasized that “The work was relentless, and everyone was committed and motivated to ensure that people could return to their homes with dignity” (MENDONÇA, 2025).

To carry out operational repairs to the systems during the floods, personnel such as “divers and rope-access technicians, as well as resources including boats, helicopters, tractors, cranes, and amphibious vehicles,” were mobilized (MENDONÇA, 2025). This made it possible to carry out repairs in inaccessible locations, manage the logistics of machinery, supplies, and personnel, and assist in rescue operations throughout Rio Grande do Sul (MENDONÇA, 2025).

On November 9 of this year, the company participated for the first time in the “Prospera – A Movement for the Care of Life” program, an event held simultaneously across the 15 states in which the Company operates. The initiative provided assistance to people who remained in shelters after the May floods at the Humanitarian Reception Center located in the city of Canoas (COMPANY WEBSITE, 2024).

An average of 300 people received assistance from a group of 60 volunteer employees (COMPANY WEBSITE, 2024). Prospera has been carried out by the Company for the second consecutive year and is part of its



RELISE

94

Sustainability and ESG initiatives, which, as the project's name itself suggests, aims to prosper together with the communities (COMPANY WEBSITE, 2024, emphasis added).

FINAL CONSIDERATIONS

The objective of this study was to analyze the strategic positioning adopted to address events resulting from climate change in a large sanitation company. The research identified that climate studies already exist that are capable of mapping extreme climate events, thereby making it possible to anticipate their impacts or, at the very least, develop strategic actions to mitigate them.

It was observed that corporate strategic actions should be implemented jointly with society, institutions, and government. This is precisely the approach proposed by the United Nations 2030 Agenda, which, despite its ambitious expectations of bridging the gap between developed and developing countries, seeks to unite the world around a common ideal of quality of life.

The study found that the Company undertakes socio-environmental strategic actions such as seeking knowledge to operate appropriately across Brazil's diverse biomes, continuously monitoring climate conditions in an attempt to anticipate meteorological phenomena that may lead to climate-related disasters, and implementing several programs aimed at improving the quality of life of the community.

It was also verified that the studied company actively seeks strategies that integrate the economic, environmental, and social dimensions, including embedding the Sustainable Development Goals (SDGs) and the UN Global Compact into its corporate policy. The people of Rio Grande do Sul, including employees, customers, and the local community, received some form of support and continue to receive assistance as a result of the May floods.



RELISE

95

One of the greatest limitations of this study was the time available to conduct the analysis and discussion of the results, since the bureaucratic process for obtaining research authorizations is quite lengthy. In addition, employees' daily work demands limited the time available for responding to the research questions. Measuring impacts is also inherently complex, as they vary considerably according to the individuals experiencing them.

It is suggested that this study be expanded to include additional facilities affected by the floods and that comparative analyses be conducted among them. It is also recommended that the research be applied and/or replicated in as many companies as possible, making it feasible to develop well-designed joint actions to prepare for extreme climate change events and to implement coordinated measures to mitigate their impacts.



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