

Partnerships for Rural Water Supply: The SiSAR and CENTRAL cases

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Partnerships for Rural Water Supply: The SiSAR and Central cases

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Abstract

Rural water supply represents one of the largest challenges for the universalization of water access. Currently, 8 out of 10 people that lack access to basic water supply services are located in rural areas. The challenge to supply water to rural areas is composed of complex factors of different natures, from issues related to scale and density to those related to accountability, community involvement, and legitimacy. To deal with those, management structures have been elaborated, such as government-led, community-led, or privately operated. While those have been able to harvest some results, they have been the target of severe criticism and have failed individually. Partnerships have been seen as a potential way to integrate the strengths of the different management structures while mitigating the risks related to each of them. In this work, two partnership arrangements in Brazil, Central, and SiSAR, were analyzed to check whether the partnership has been able to impact service provision to rural areas. To analyze the partnership implementation, concepts such as organizational fit, risk-sharing, and value-generation were mobilized. The results show how specific partnership arrangements, with different degrees and levels of government involvement have been able to generate different results, in terms of long-term functionality (in the Central Case) and model expansion (in the SiSAR case). Also, it was perceived how the partnership structure has been able to elaborate a structure to execute capital and mitigate risks related to operational and financial aspects while bringing to the table risks related to the relationship between the different actors. Finally, the analysis of partnership arrangements selected, provided important discussion points towards the future development of structures to manage rural water supply and the potential of partnerships to be a solid response to this complex challenge

Key Words: Rural Water supply, Partnerships, Organizational Fit, Tripartite Partnerships, Risk-Sharing, Value-Generation.

Resumo

O abastecimento rural representa um dos maiores desafios para a universalização do acesso à água. Atualmente, 8 em cada 10 pessoas que não têm acesso a serviços básicos de abastecimento de água estão localizadas em áreas rurais. O desafio de fornecer água para as áreas rurais é composto por fatores complexos de diferentes naturezas, desde questões relacionadas à escala e densidade até aquelas relacionadas à prestação de contas, envolvimento da comunidade e legitimidade. Para lidar com isso, foram elaboradas estruturas de gestão, como lideradas pelo governo, lideradas pela comunidade ou operadas pela iniciativa privada. Embora tenham conseguido colher alguns resultados, foram alvo de severas críticas e falharam individualmente. As parcerias são vistas, então, como uma potencial forma de integrar os pontos fortes das diferentes estruturas de gestão, mitigando os riscos relacionados a cada uma delas. Neste trabalho, dois arranjos de parceria no Brasil, Central e SiSAR, foram analisados para verificar se a parceria tem sido capaz de impactar a prestação de serviços ao meio rural. Para analisar a implementação da parceria, foram mobilizados conceitos como Arranjo organizacional, compartilhamento de riscos e geração de valor. Os resultados mostram como arranjos de parceria específicos, com diferentes graus e níveis de envolvimento do governo, têm sido capazes de gerar resultados distintos, em termos de funcionalidade de longo prazo (no caso Central) e expansão do modelo (no caso SiSAR). Além disso, percebeu-se como a parceria tem sido capaz de elaborar uma estrutura para executar capital e mitigar riscos relacionados a aspectos operacionais e financeiros ao mesmo tempo em que traz para a mesa riscos relacionados ao relacionamento entre os diferentes atores. Por fim, a análise dos arranjos de parceria selecionados forneceu importantes pontos de discussão para o futuro desenvolvimento de estruturas de gestão do abastecimento de água rural e o potencial das parcerias para serem uma resposta sólida a este complexo desafio

Palavras-Chave: Abastecimento rural, Parcerias, arranjo organizacional, Parcerias tripartite, compartilhamento de risco, geração de valor.

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Abbreviations

CAGECE – Companhia de Água e Esgoto do Ceará – Ceará’s Company for Water and Sewage

CAR - Companhia de Desenvolvimento e Ação Regional da Bahia – Bahia State Company for Regional Development and Action

CBO – Community-based Organization

CENTRAL- Central das Associações Comunitárias para Manutenção de Sistemas de Abastecimento de Água e Esgotos Sanitários - Central of Community Associations for Maintenance of Water Supply and Sanitation systems

CERB – Companhia de Engenharia Hídrica e de Saneamento da Bahia – Bahia’s Company for Water and Sanitation Engineering

CWSO – Community-based Water and Sanitation Organizations

EMBASA – Empresa Baiana de Águas e Saneamento – Bahia’s Water and Sanitation Company

EMPRABA - Empresa Brasileira de Pesquisa Agropecuária - National Company on Agricultural Research

FUNASA – Fundação Nacional de Saúde – National Health Foundation

GECEN – Gerência de Apoio as Centrais – CERB’s Department to Support Central initiatives

GESAR – Gerência de Saneamento Rural - Rural Sanitation Department of CAGECE

IBGE – Instituto Brasileiro de Geografia e Estatística

IRC – International Resource Centre

NGO – Non-Governmental Organization

PnPP – Public non-profit Partnership

PPP- Public Private Partnership

RWSN – Rural Water Supply Network

SC – Secretaria das Cidades do Governo do Ceará – Ceará’s State Secretary for Cities

SDA– Secretaria de Desenvolvimento Agrário do Ceará – Ceará State Secretary for Agricultural Development

SDG – Sustainable Development Goals

SDR – Secretaria de Desenvolvimento Rural do Governo da Bahia – Bahia’s State Secretary for Rural Development

SHIS - Secretaria de Infraestrutura Hídrica e Saneamento do governo da Bahia – Bahia’s State Secretary for Water and Sanitation Infrastructure

SiSAR – Sistema Integrado de Saneamento Rural (Integrated Rural Sanitation System)

WSP – Water and Sanitation Program

- This chapter establishes the basis of the discussion and paves the way to the elaboration of the problem statement and research questions of the research.
- This chapter aims to address questions such as: Why is rural sanitation complex or challenging? Why analyze partnerships? What is the problem statement and the research questions?
- This chapter will provide a short introduction, followed by a discussion around the arguments used to classify the provision of water to rural communities as something challenging and/or complex. After that, it will explore the rationale of analyzing partnership structures, that will contribute to the elaboration of the problem statement, the unit of analysis, and research questions.

According to the recent monitoring mechanisms for the Sustainable Development Goal (SDG) 6, of the estimated 771 million people that lack access to basic water supply services¹, 80% are located in rural areas (UN-Water, 2021). The provision of water services to rural areas is often referred to as challenging and complex. And, even though the investments in the area are quite considerable, as pointed out by some actors, the challenges go beyond simply infrastructure development.

Together with that, the management structures, such as the government-led, private operators, and community-based systems, have been designed and implemented to address the challenges and ensure service provision. These structures are also the target of considerable criticism but have specific strong points that can be further explored.

In that, partnerships, specifically cross-sectoral – or tripartite – are believed, by partnership scholars and international organizations, to be able to manage complex issues. They would do that by offering potential ways to integrate the strengths of different actors involved, allocating roles effectively while sharing the risks and responsibilities. It is necessary, however, to access how those assumptions and ideas would materialize themselves in face of real experiences.

Partnerships are often described² as

“An ongoing collaborative relationship between or among organizations from different stakeholder types aligning their interests around a common vision, combining their complementary resources and competencies and sharing risk, to maximize value creation [...] and deliver benefit to each of the partners” (Darian Stibbe & Prescott, 2020, p. 23)

¹ Basic water supply services refer to the use of an improved water source reached within a 30 minute round trip for collection time. (UN-Water, 2021)

² The concept presented is not homogenous among the literature but set up a good starting point for the analysis. A more detailed debated around the multiple meanings and applications of partnerships will be presented further

The discussions around what constitutes partnerships can go as far as stating that they are: “processes in which actors restructure and build up new social relationships to create a new management practice”(Glasbergen, 2011, p. 3). Once more, these ideal concepts needed to be problematized and checked against applications in reality.

In terms of geographic scope, although a considerable part of the research regarding partnerships is from the global north (Glasbergen, 2011; Van Tulder & Pfisterer, 2013), analyzing the experiences in the global south, more specifically Brazil, could be a step towards applying and localizing the theoretical debate.

To do so, in this introduction the factors that contribute to the conclusion that rural water supply is challenging and complex are laid out, specifically looking at debates around sustainability and functionality. Over those, specific attention will be given to point the factors that could potentially be addressed by partnerships. After that, the problem statement, research question, and research objectives will be presented focusing on the collaborative advantage of a partnership.

1.1 The Complexity of Rural Water Supply

- What makes rural water supply a challenge?
- Why is rural water supply often referred to as a complex system?

Considerable work has been produced around the provision of water to rural areas, especially regarding its sustainability and functionality. Usually, conclusions are laid out along the lines that rural water supply is challenging and/or complex. But what is the nature of these challenges? Which arguments are used by the different publications to support the complex nature of this service provision?

As a systematic exercise trying to identify challenges to rural water supply, the Rural Water Supply Network (RWSN) presents a considerable list, in their Perspectives Paper number 4, entitled: “Myths of the Rural Water Supply Sector” (RWSN, 2010). Table 1 presents the main challenges listed in the publication.

Table 1: List of Challenges present in RWSN (2010).

<ul style="list-style-type: none"> - External dependency for hardware funding <ul style="list-style-type: none"> o “The [rural water supply] sector has locked itself into a paradigm whereby external agencies continue to subsidize 90 to 100% of hardware costs” (p.3) - Too much focus on infrastructure development, rather than on institutional and management arrangements - Lack of Operation and Maintenance <ul style="list-style-type: none"> o Focus on building infrastructure - Community ownership and Community-management structures are not always functional <ul style="list-style-type: none"> o Lack of (or inadequate) community training for the management of the structures (pre-construction training) - Lack of knowledge around actual demands (estimated to be 20 l/p/d) - Lack of strategy and knowledge around private sector engagement - Lack of accountability of punctual actions (by NGOs, funding agencies, and other actors) and lack of coordination with governments (Local, state-level, national) - “In the donor community, much of rural water supply sector is still seen in the light of providing essential services, on a charitable basis, to desperately poor and powerless people” (p.5) - Lack of transparency in investments from donors to community and governments.

- No easy Solution: “There is no quick fix to substitute for many years of political negotiation, institution building, education, long term investment and innovation” (p.6).

Source: elaborated by the author based on RWSN (2010)

While from one end the complexity of the problem is laid out - “no easy solution”-, the list of challenges also recognizes the possible paths to the solution. That is done by highlighting what is missing in the applications (e.g. “Lack of Operation and Maintenance”). This dialect process can be attributed to the nature of the report, which aims to set the scene for discussion while showcasing the added value of the initiative.

Two main streams can be identified concerning the challenges of rural water supply. First is the group of challenges related to the design and implementation of the service provision infrastructure in rural areas. The second stream is the debate around the management and sustainability of the services named post-construction (Whaley & Cleaver, 2017). These two streams of challenges also intersect each other, since some of the challenges are not punctual but rather exist throughout the whole process.

First, the main challenge is related to the physical scale of the service provision in rural areas. The areas are commonly categorized for the existence of small communities, with low density. This factor poses a constraint to the development of economies of density and scale that make it financially viable to have a water supply network and structures (Hope et al., 2020). There is also debate about what type of technical solutions fit best the different rural contexts, from Handpumps and Point-source supplies to network arrangements (Kleemeier & Lockwood, 2012) (Hope, Thomson, Koehler, & Foster, 2020; Kamruzzaman, Said, & Osman, 2013; Nelson-Nuñez, Walters, & Charpentier, 2019).

The second category of challenges, around the management and sustainability of rural service provision, is equally and even more challenging. Most of the specialized literature around rural water supply points to the fact that the infrastructure that is placed in rural areas is dysfunctional and/or broken and therefore has stopped operating after a short time³. In 2016, the Rural Water Supply Network (RWSN) conducted an update of their 2009 study that analyzed the functionality rate of handpumps. The report points out that at a rate of over 20% of the installed infrastructures are failing and non-functional. (Banks & Furey, 2016)

Apart from the technical challenges relating to the operations and maintenance of that infrastructure, a key factor for its functionality and sustainability⁴ is the existence and performance of proper management and governance structures. Not only the idea of functionality as the “percentage of water points working at any given time” (Lockwood and Smiths, 2011 apud Whaley & Cleaver, 2017, p. 58) but a more integrated discussion regarding the functionality and the sustainability of both hardware, as the physical structures, and the software, governance, and management arrangements, of rural water supply⁵. (Whaley & Cleaver, 2017)

Now that the list of challenges is presented some points about the complexity of those are introduced. To start the number of different challenges occurring at the same time for rural water supply is the first contributor to the complexity. Secondly, the fact that the challenges

³ For a more exhaustive list of examples of publications that point the figures of non-functional infrastructure for rural water supply check Kamruzzaman et al. (2013, p. 27)

⁴ For the purpose of this proposal, and when related to the infrastructure, the term sustainability is related to its stricter meaning of “Capable of being maintained or continued at a certain rate or level.” (Oxford English Dictionary, 2021). Inside the management structure discussions, sustainability will have a broader meaning.

⁵ The relation between functionality and Sustainability is better described in Whaley and Cleaver (2017, p. 58).

occur in different stages of the project, from the design and community mobilization to the post-construction, with some of the challenges being cross-cutting and influencing all the stages. Table 2 tries to summarize the list of challenges at each stage of the project.

Table 2: Summary of challenges per project phase.

Project Stage	Challenges
Design	<ul style="list-style-type: none"> - Shared ownership (the same waterpoint used by all the community) - The ephemeral prospect of universal piped coverage in rural areas - External dependency for hardware funding - Too much focus on infrastructure development, rather than on institutional and management arrangements - Lack of knowledge around actual demands - Lack of strategy and knowledge around private sector engagement
Implementation	<ul style="list-style-type: none"> - Physical Scale - Institutional Scale - Low return rate - Low payments - Limited to no regulatory oversight - Lack of (or inadequate) community training for the management of the structures (pre-construction training) - High cost vs. low revenue: The distribution of people in small towns is generally less dense than in bigger urban areas. This makes it difficult to reap economies of density and economies of scale in infrastructural development.
Operations and Maintenance	<ul style="list-style-type: none"> - Multiple (alternative) sources and demand Fluctuation - Risk allocation and management - Lack of Operation and Maintenance (focus on building infrastructure) - Low functionality rates of water infrastructure
Cross-Cutting	<ul style="list-style-type: none"> - Low Accountability from donors to government and community in terms of investments - Lack of accountability of punctual actions (by NGOs, funding agencies, and other actors) and lack of coordination with governments (Local, national, state-level) - Lack of transparency in investments - Existing vs. required capacity: The technical and financial capacity at the local level is usually limited. - Lack of knowledge around service provision in small towns:

Source: Elaborated by the author based on Hope et al (2020), Tutusaus Luque (2019), and RWSN (2010)

Thirdly, the list has not limited itself to quantifiable challenges. Although it is easy to see the predominance of technical factors, related mainly to the economic and financial dynamics or “hardware”, challenges related to accountability, political coordination, lack of focus on institutional and management arrangements, and other less quantifiable challenges are present and relevant. That is also an indicator of the complexity of the subject as pointed out in Nelson-Nuñez et al. (2019) and Harvey and Reed (2006), among others.

Finally, at the same time that each challenge deserves specific attention for the service provider to operate in that area, the intersections and spill-over effects among the challenges also increase the complexity of the issue and call for a challenge of its own: Coordination. To exemplify, the challenge of physical scale is directly related to the financial challenges faced by the operator and the capacity challenge.

1.2 Why Partnerships?

According to Van Tulder and Pfisterer (2013), when establishing a debate with Glasbergen (2011), the discussion of partnerships for sustainable development issues is, in the authors' words:

“[...] about the debate on public and private responsibilities, profit and non-profit interests, their relationships and how to configure actors and their roles more effectively for stimulating change” (Van Tulder & Pfisterer, 2013, p. 3)

That opens space for debates ranging from the different power structures and actor relations inside the partnership. What can be also seen is a clear synergy with the debates that are posed around water governance. To Zwarteveen et al. (2017) for example, water governance is deeply related to distributions of water, knowledge, expertise, and voice and authority. Being the partnership is the social place where these distributions will happen among a given group of actors aiming at addressing a specific situation. The analysis of partnerships can contribute directly to the debate around water governance and “contested water distributions” (Zwarteveen et al., 2017, p. 3).

The fact that partnerships are usually referred to in their capacity to aggregate the strengths of the different actors involved in it while sharing the risks and costs is one of the objects of the thesis.

But what kind of actors constitute the partnership? Research is usually focused on Public-Private Partnerships (PPPs), where there is a component of the government or public authority and one for the private sector. But, as is shown, in chapter 2, they usually lack the involvement of community-based organizations, something recognized as pivotal for the sustainability of rural water supply schemes. Then the selection of tripartite partnerships, as a modality of cross-sectoral partnerships, is to differentiate these from simple PPPs that have been implemented in the rural sanitation arena.

Tripartite partnerships are the ones that aim at integrating the goals, resources, and attributes of 3 spheres of society: States, markets, and civil society (Van Tulder & Pfisterer, 2013). By looking at the “Partnering space” elaborated on Van Tulder and Pfisterer (2013), in figure 1, the ideal concept of a tripartite partnership is represented. This concept is based on the idea that the actors from the 3 spheres will obtain maximum benefit while protecting their interests, and different roles and tasks will be given to the actors that are more prone to performing them. This last piece, where the partnership is capable of exploring the maximum efficiency of the partners, is what is the collaborative advantage inside a partnership.

However, there is space to check whereas the theoretical foundations elaborated around partnerships are implemented in different contexts. For instance, linking all that debate in the arena of rural water supply is possible. From the list of challenges presented above, governance and coordination issues play a big role. The analysis of partnerships and their collaborative advantage can provide an interesting lens to see how come these challenges have been addressed by the different actors, how the responsibility to address them has been shared, and how the risks have been allocated in practice. For that purpose, the next section will point out the problem statement, that identifies that gap this research tries to address, and the research questions and unity of analysis that will be mobilized to do so

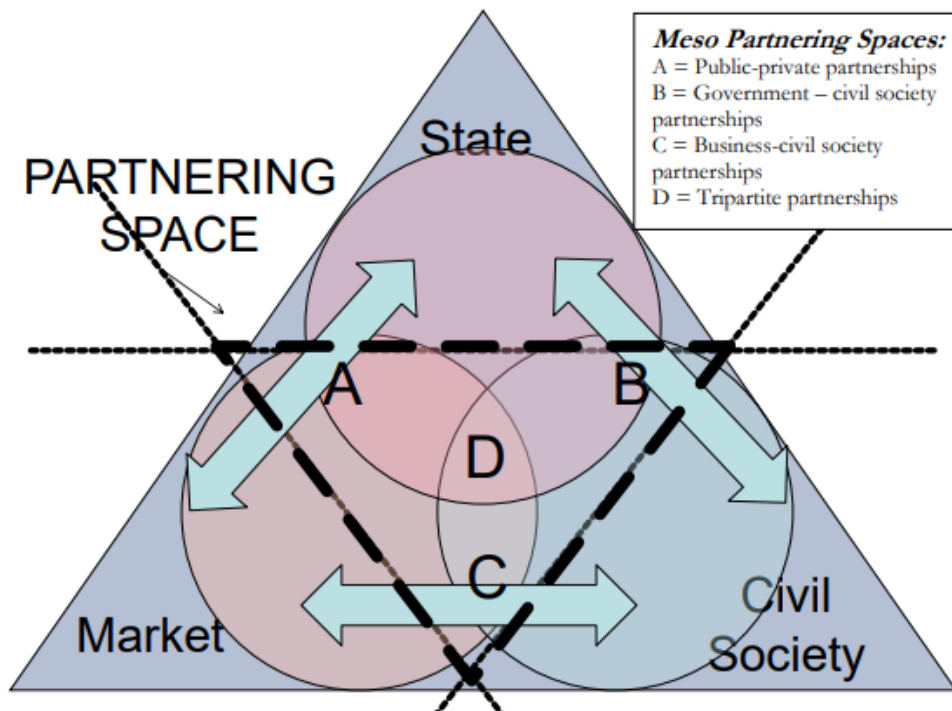


Figure 1: Partnering Space(s). Source: Van Tulder and Pfisterer (2013, p. 7)

1.3 Problem Statement, Unit of Analysis, and Research Question

This thesis aims at engaging in the debate around the implementation of partnership arrangements for the management of rural water supply schemes. The complexity and challenges presented in the literature and the promising path proposed by partnerships lay the foundations for the analysis that is proposed in this work.

The definition of a problem statement, thus, is necessary to position this research inside the broader challenges to water governance, rural water supply, and partnership implementation. It also functions as a way of setting the main goal of the work.

1.3.1 Problem Statement

Under the target of providing universal access to water supply and sanitation on the Sustainable Development Goal 6 (SDG6), rural areas are lagging. The numerous challenges of the service provider of the area call for management structures that can ensure functionality and sustainability under high complexity and various stakeholders. The idea of partnerships, and its collaborative advantage and value generation, as an ideal concept offers a lot of room to address those challenges. But how that ideal portrayal is implemented in reality of complex and challenging situations still lacks analysis in the water sector.

Then the objective of this research would be to analyze the implementation of partnerships to tackle challenges related to the provision of rural water supply. Looking specifically, at the dynamics inside the partnership and the consequences of them for the service provision.

1.3.2 Research Question

Given the problem statement, this research will be mainly guided towards addressing the following research question:

How has the implementation of tripartite partnership arrangements for rural water supply, in terms of organizational fit, risk-sharing, and value generation –, impacted the management of service provision?

To do so, it will also look at specific sub-questions that are directed linked to the concepts mentioned in the main question and that are part of the idea of collaborative advantage: organizational fit and risk-sharing. These sub-questions will support the elaboration of the arguments that will respond to the main research question. They are:

- 1. Organizational Fit** – assuring the roles and responsibilities of the different actors of the partnership
 - Who are the actors involved in the partnership?
 - What is the role of government entities, private sector actors, and community organizations in the partnership?
 - Ideal Roles
 - Implemented Roles
- 2. Value Generation:** Emphasizing what each actor can add to the partnership and gain from it, considering the intrinsic rationality of its institutional sphere and the impact it can generate in the arrangement
 - What are the interests of the different actors?
 - Mission Values and Organizational Values
- 3. Risk Sharing** – Elaborating on the risks present, perceived, and ways to cope with those inside the partnership.
 - Which are the risks perceived by the different actors inside the partnership?
 - How de-risking mechanisms have been implemented by the partnerships to cope with the rural water supply governance challenges?

1.3.3 The Unit of Analysis

The unit of analysis of this thesis will be the management structures that have been established, via partnerships, for rural water supply.

By looking at the management structures, it should be possible to address the social, political, and economic context in which it is placed, as well as the results it has achieved, challenges overcome, and possible ways forward. Those dynamics can contribute to the development of partnerships as a management model.

1.4 Intermediary Conclusion

The introduction and justification chapter laid down the problem background where this thesis is situated. From one side, rural water supply presents itself as one of the major bottlenecks for the universalization of water access. Due to its numerous challenges and a high degree of complexity, rural water supply management calls for a management structure that can operate in the partnering and ensure sustainability and functionality.

In that space, partnerships have been believed to be a way to manage complex societal challenges with their ideal capacity to generate collaborative advantage and engage the strengths of different actors. The analysis of the implementation of those ideas in the context of

a complex societal issue has supported the problem statement and the research goals of this work.

The next chapter look at the theoretical foundations around the management of rural water supply and the analysis of partnerships. Based on that, the following chapter will dive into the methodological structure of the thesis that will guide the data collection and analysis. The last two components, data collection, and data analysis will be presented in separate chapters following the methodology and before the conclusion and points for further analysis.

Chapter 2 Managing Rural Water Supply

- This chapter provides part of the theoretical background that will inform the development of the thesis. It does so by identifying the debate around the management of rural water supply, in the world and in Brazil,
- This chapter aims to address questions such as: What are the models used to manage rural water supply in the world? What are the main advantages and disadvantages of each model?

2.1 Management Structures for Rural Water Supply

As the design and implementation of management models for rural water supply have been identified as a key sustainability factor, the literature around that has expanded significantly. From the literature that looks at the development and implementation of specific models (Harvey & Reed, 2006; Schouten & Moriarty, 2003; Whittington et al., 2008) to exercises that compare and contrast alternatives (Kamruzzaman et al., 2013) this section will look at 3 main models: Government-led management, Community-led, and Private-sector management, from a perspective of which actors are mobilized and/or created in each structure -Organizational set-up; who owns and develops the infrastructure; and the financing and funding structure.

2.1.1 Government-led Management

The management of rural water supply relied, until the 1980s, on what is called the “traditional paradigm”, in other words, a government-owned system that is managed by public institutions through a supply-driven approach. This strategy was heavily informed, in developing countries, by the idea of states extending the access to infrastructure to the population as a responsibility of the central government. (Schouten & Moriarty, 2003). This system often relies upon centralized systems, where the assets are owned by the government, and the finances are usually tied to government budgetary allocations and collection of tariffs.

That management structure, via central government, is often criticized for its poor performance, based on factors such as “inadequacy of government capacity and commitment” (Kamruzzaman et al., 2013, p. 26), “rigid civil service regulations, inflexible bureaucratic requirements, high cost and lack of incentive to ensure efficiency” (Lewis & Miller, 1987, p. 70; Schouten & Moriarty, 2003).

However, the government-led management also could take loans from international donors and mobilize capital for the construction of systems, there is also an expected high level of specialized staff⁶, and capacity to provide scale, once it is taken to higher levels of government. Another fact is that governments are usually the asset owners of the infrastructure developed to supply water and are mandated, under the legal framework, to supply water. Those positive

⁶ This is particularly the case in state-owned utilities. However, that is not always translated in efficient service provision based on the level of commitment to rural areas vis-à-vis the urban ones.

characteristics serve as a counter-point to the criticism. Nevertheless, this model has not been able to sustain itself and has changed a lot, as it is shown in the next section

2.1.2 Community-Led Management

After that, during the 80s, ideas regarding small-scale systems and community engagement started to flourish and impact the development sector. In the rural water supply debate, those ideas offered a powerful alternative, mainly as they acted under ideas related to reducing state involvement. However, Harvey and Reed (2006) point out that the three fundamental reasons for the prevalence of community management are related to the poor performance of government institutions, the idea of project approaches – with limited and defined engagement – from donors and NGOs, and the western idealization of community involvement. (Harvey & Reed, 2006).

Community management structures are often built based on dynamics such as participation, equity, bottom-up development, and so on. And usually are less rigid than the regulatory environment in where the traditional paradigm before it. As Doe and Kan (2004) apud Harvey and Reed (2006) point out:

“Community management is a bottom-up development approach whereby community members have a say in their own development and the community assumes control – managerial, operation, and maintenance responsibility- for the water system” (Doe and Kahn, 2004 apud Harvey & Reed, 2006, p. 368)

Critical to the development of the community management structures is the creation of a water committee that is responsible for the “management, administration, operation, maintenance and repair” of the water supply structure (Whaley & Cleaver, 2017, p. 58). The water committee is the key organization in the community management structure, and depending on the set-up can include only community members or be open to the participation of other stakeholders. In terms of Financing, the community-based management structure usually relies on the initial funding from government agencies, donors, or multilateral organizations. However, in the daily operations, the funding sources are mainly related to contributions by the users, via tariff collection. When the assets are owned by the community, that poses an even greater challenge as most of the communities usually don’t have the capital and planning necessary to replace capital-intensive parts or do more intense repairing.

Although often presented as the leading “paradigm” for rural water supply (Harvey & Reed, 2006; Kamruzzaman et al., 2013; Schouten & Moriarty, 2003; Whaley & Cleaver, 2017; Whittington et al., 2008) the criticism and list of limitations to this management structure are also substantial. One of the main critics is right on the design of the management structure. The idea that the community itself could be responsible for all the system’s features (from implementation to maintenance) allowed the “key development players” to “highlight their concern for sustainability whilst at the same time distancing themselves from much of the responsibility for delivering it” (Whaley & Cleaver, 2017, p. 57). That created what the RWSN has called the myth that “communities are always capable of managing their facilities on their own” (RWSN, 2010, p. 4)

More than that limitation, low functionality rates are also listed as an issue with community management structures. Harvey and Reed (2006) present the following list, table 3, of reasons for the low functionality of systems managed by community management, especially looking at examples in the African continent:

Table 3: Most cited causes of system failure for Community managed systems.

Limitations of Community Management for rural Water Supply: <ol style="list-style-type: none">1. Community Management often relies on voluntary inputs from community members, which people may do for a while, but are reluctant to do in the long term; there are often no long-term incentives for community members;2. Key individuals on the water committee leave the community or die, and there is no mechanism to replace them with trained individuals3. The community organization charged with managing the water supply loses the trust and respect of the general community. This may be related to a lack of transparency and accountability and lack of regulation by a supporting institution.4. Failure by community members to contribute maintenance fees leads to disillusionment among committee members who abandon their roles. This may be due to the lack of legal status and authority of the water committee or lack of community cohesion.5. Communities have no contact with local government (or the implementing agency) and feel that they have abrogated responsibility for service provision; they, therefore, are abandoned and become demotivated.6. Communities are too poor to replace major capital items when they break down.
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Source: Harvey and Reed (2006)

Taking into consideration table 3, and looking at the discussion present in other literature, it is clear that there is a need to take a deeper look at aspects related to the involvement of stakeholders, like the government and private sector. Also, the limitations listed, together with the discussion regarding ownership of the assets present in Harvey and Reed (2006), raise a debate about the institutionalization of these management structures, from a legal and organizational, point of view. Those points will be addressed further in the development part of the research.

Similar to the government-led management, the community-based management has also been able to assimilate some strengths. For example, community-based can support a more demand-driven system for supply since it is closer to the water users, it can also lower the operating costs via the inclusion of volunteers from the community to operate and execute small repairs.

2.1.3 Private-Sector Management

There is a debate concerning the presence of private operators in the area of rural water supply. Mainly informed by the rationale of solving the low functionality rates of the systems managed by government or community-based organizations, and leveraging private capital, the different strategies and initiatives with the predominance of private actors have been implemented in various places. One example of that is presented by Obeta (2019) that links the implementation of various private operations models in Nigeria to the low functionality of government-operated systems.

Kleemeier (2010) offers a desktop review of 25 initiatives, with 11 of those being financially assisted by the world bank, that could be linked to private sector management, in one or multiple parts, of rural water supply. From that, it is possible to see that the taxonomy, private provision, does not refer to a uniform management structure. Multiple strategies and organizational setups have been implemented to involve private sectors actors, from full ownership of the service delivery, e.g. concession or the creation of Private for-profit water service providers (PPWSPs), to the functioning of the community management committee as a private actor and entrepreneurial mechanisms.

In terms of infrastructure ownership and financial structures, private sector operators also vary and it is highly based on the regulatory mechanisms in place. What is important to differ, in

comparison with the previous modalities, is the existence of for-profit dynamics that can be an important component both when laying down the incentives to participate, like financial feasibility and scale (Kleemeier, 2010), in the service provider or when setting tariffs or other monetary decisions.

The criticisms around this management structure are related to the wider discussion around the privatization of water supply mechanisms, and how that can end up excluding vulnerable people based on affordability. Kleemeier (2010, p. 28) has identified that the “overall sustainability of this model is not yet proven” and that regardless of the specificities of the models, strong government support and regulation are needed, with the government playing, in most of the cases, “a critical role not only at the outset but also in the on-going functions of regulation, training, and professional support” (p.28).

Additionally, Obeta (2019) raises the concern regarding the quality of the water and the services provided, and who is responsible to ensure that proper monitoring and accountability mechanisms are in place.

That raises particular concern. Since the government is so pivotal in the provision of systems by private operators, why would the government create a Public-Private Partnership? The next section will explore the discussion around partnerships and elaborate on this question. However, the incapacity to act alone, proven by the government-led experience, already points toward the answer to that debate.

Nevertheless, as in the other management structures, some advantages are capable of being identified. In the case of private operations, the main advantages are related to the assumption of discipline and efficiency of the management structure, easier investment structures for expansion of service coverage, and stimulation of local economies.(Kamruzzaman et al., 2013; Kleemeier, 2010; Obeta, 2019)

More recently, and mainly motivated by the low functionality of the traditional community-managed systems and the more complex water supply structure, (Kleemeier & Lockwood, 2012) alternative systems have been proposed. Among those, there is the “improved” version of the community management or government-owned systems, for example, the discussion around closing financing gaps for rural sanitation present in Welsien and Lwakabare (2020) and the concept of Community Water *Plus* (Hutchings, Franceys, Mekala, Smits, & James, 2017). However, these are not in the scope of this research.

Given the list of management structures presented, table 4 summarizes the main sources of criticism and the advantages of each model. The degree to which the different advantages and disadvantages impact service provision differ based on the context where it is applied. For example, in an area where the sanitation services are traditionally provided by private operators, the state actors may not have the amount of in-house technical capacity. This summary, however, is relevant once the partnerships are expected to be able to aggregate the main advantage of each model while sharing and mitigating the risks and disadvantages.

Table 4: Summary of Advantages and risks of different management models

Management Model	Advantages	Risks and Disadvantages
Government-Led	Capital Mobilization: Capacity to make grants and loans from international donors Bigger capacity to create service provision scale High level of specialized staff	Inadequacy of government capacity and commitment” “rigid civil service regulations, inflexible bureaucratic requirements, high cost and lack of incentive to ensure efficiency” Supply-driven focus

	Supply assets and infrastructure ownership	A one-size-fits-all approach, when involving higher levels of government
Community Management	Demand-driven approach, Closer to the water users, Participation and bottom-up approach Lower operations and maintenance costs, space for volunteer contributions	Low technical capacity for operation and maintenance of supply systems – Low functionality rates; Lack of financial capacity (funds and execution) to operate the systems
Private Operated	Administrative efficiency For-profit dynamics and capital mobilization for investments and maintenance of systems Stimulation of local economies	Lack of incentives to participate Distance from the community Water privatization debate Concern about legitimacy and implementation of monitoring and accountability mechanisms

Given this wider debate of the challenges regarding rural water supply and the management it presented so far, the next sub-section will focus on localizing that in Brazil. Since the geographical scope of the case studies selected is in Brazil, it is relevant to point to the major dynamics and information of the country and will later influence the case study analysis.

2.2 Managing Rural Water Supply in Brazil

The continental-sized country incorporates different regional contexts in terms of water availability and management of rural water supply structures. To localize the previous discussions, this sub-section presents some of the characteristics of the country that have the potential to amplify the challenges presented. Together with that, it is relevant to present the main management structures used to manage water supply and the legal framework where they are located.

Despite having presented good indicators when talking about service coverage in SDG 6.1, with over 90% of the population having access to improved water sources (ODSBRASIL, 2021) when this debate focuses on the rural areas the situation is different. According to the National Company on Agricultural Research (EMBRAPA) of the universe of around 30 million people living in rural areas, only 22% have access to adequate water supply and sanitation services (EMBRAPA, 2021).

One of the burning issues relies on the definition of what constitutes a rural area. Despite the existence of a solid national census system, the definition of rural areas for the sanitation⁷ discussion has only occurred recently. Where the National Research on Basic Sanitation (Pesquisa Nacional de Saneamento Básico) published in 2017, defined the rural area as: “An area external to urban boundaries” laying the responsibility on the municipalities to define the urban boundaries of the city (IBGE, 2020, p. 106). That resulted in an analysis where you would have urban areas (1, 2, and 3) and rural areas (4 to 8). Table 5 presents the definition of the different codes and figure 2 represents the schematic view of the codes.

Table 5: Census codes for localities in Urban and Rural Situation

Census codes for urban areas

⁷ For the national regulations in Brazil, Sanitation involves 4 services: Water supply, Wastewater collection and treatment, Precipitation runoff and solid waste collection and management. Therefore, when applying to the Brazilian context the debate around water supply is often referred as sanitation.

1	Urbanized area of city or town: “Legally defined urban areas and characterized by buildings, streets and intense human occupation; areas affected by transformations resulting from urban development and those reserved for urban expansion”
2	Non-urbanized area of town or village: “Areas legally defined as urban, but characterized by predominantly rural occupation”.
3	Isolated urban area: “Areas defined by municipal law as urban and separated from the municipal or district headquarters by rural area or other legal boundaries”.
Census codes that represent localities in a rural situation	
4	Rural agglomeration of urban extension: “Locality that has the defining characteristics of a Rural Agglomerate and is located less than 1 km away from the urban area of a City or Village. It is a simple extension of the legally defined urban area”
5	Isolated rural agglomeration -Village: “Locality that has the defining characteristic of an isolated rural agglomeration and has at least 1 (one) commercial establishment of frequent consumption goods and 2 (two) of the following services or equipment: 1 (one) 1st-grade education establishment in regular operation, 1 (one) health center on regular service and 1 (one) religious temple of any creed. It corresponds to an agglomeration without a private or business character or which is not linked to a single owner, whose residents carry out economic activities, whether primary, tertiary or even secondary, in the locality itself or outside it”.
6	Isolated rural agglomeration – nucleus: “Locality that has the defining characteristic of an isolated rural agglomeration and has a private or business character, being linked to a single land owner (agricultural companies, industries, etc.)”.
7	Isolated rural agglomeration - other clusters: “These are the agglomerates that do not have, in whole or in part, the services or equipment that define the villages and that are not linked to a single owner (agricultural company, industry, mill, etc.)”.
8	Rural area, excluding rural agglomeration: “These are rural areas not classified as clusters”.

Source: National Rural Sanitation Program (F. N. d. S. FUNASA, 2019)

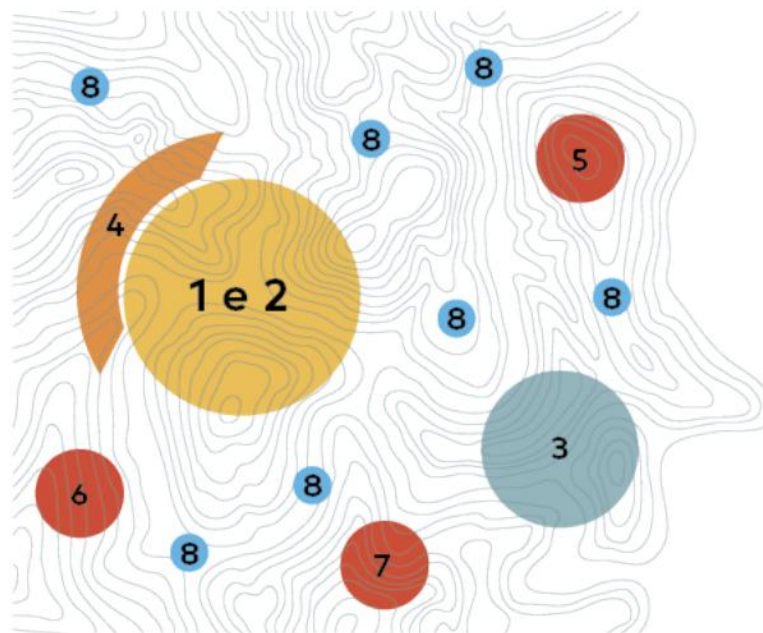


Figure 2: Schematic representation of census codes Source: FUNASA (2019)

Aiming at a more representative approach to the rural areas, and that would allow a better understanding and design of sanitation solutions, The National Plan for Rural Sanitation (*Programa Saneamento Brasil Rural*) has defined rural areas according to expanded the traditional census codes. This means the inclusion of the census codes 2 and 3 in the focus for rural areas, and accessing on code 1 the following: Areas with a population density under 605 inhabitants per square km, and neighboring an area of a rural code. In practical terms, that

expanded the number of people from the original 29,59 Million appointed in the national census, to 39,79 million. (FUNASA, 2019)

In terms of service provision, the later definition also provides a different picture of the status in the country. The National plan for rural sanitation divides the status into 3 areas: Adequate service provision, precarious service provision, and no service provision. The defining factors of each category can be found in table 6. As of the latest data, 40.5% of the rural population (16.096mi) receive adequate service, with 33.5% (13.295mi) in the precarious category and 26% (10.335mi) with no record of service being provided. In other words, over 50% of the rural population still lacks access to safe water supply in the country. (FUNASA, 2019)

Table 6: Definition of service delivery categories for rural water supply

Category	Definition
Adequate service provision	Represents the population that: In all cases, do not suffer from prolonged intermittence or water rationing and: <ul style="list-style-type: none"> - Receives potable water from the distribution network, with or without internal plumbing; - Receives potable water from a well or a spring, with internal plumbing; - Has, as a complementary solution to other sources, the water collected from rainwater and stored in a cistern, with internal plumbing.
Precarious service provision	Represents the population that: <ul style="list-style-type: none"> - Receives water from the distribution network, outside the potability standards and/or with long periods of intermittence - Gets water from a well or spring, but does not have internal plumbing; and/or water outside the potability standards and/or subject to prolonged intermittence; - Use water from a rainwater cistern that provides it without the proper sanitary safety and/or in insufficient quantity for the protection of health. - Uses water from a water tank or a water point that is supplied via a water truck
No Service provision	The condition where none of the aforementioned service definitions are met and are considered inadequate practices of sanitation.

Source: FUNASA (2019, Translated by the author)

In the political sphere, Carvalho (2019) points at the issue of regulatory fragmentation and regional disparities in terms of contexts and capacity inside the country as also important challenge sources. The author points at the multiple challenge sources presented in the country as contributors to the perception of the sanitation debate as a structural problem.

That challenge is even reflected in the regulatory mechanisms. The debate around basic rural sanitation, and consequently rural water supply, are not mentioned in the latest version of the National Sanitation Act (Brasil, 2020). Despite the debate around the need to mention it, and also the pressure and organized contribution by some actors, for example, EMBRAPA (2020) supported and elaborated the writing of a mention to the issue on the National Law.

That regulatory void, at the national law level, is filled by the initiatives such as the National Plan and Program for Rural Sanitation (FUNASA, 2019; F. N. d. S. FUNASA, 2019) by the National Foundation for Health. That actor has historically supported small cities' development of sanitation infrastructure and is still involved in some of the initiatives studied in this thesis. A national regulating mechanism, however, is still lacking at the moment this thesis is written.

A consequence of that lack of a dedicated regulating mechanism is that the management structure has to follow the standards designed for urban areas and urban service providers. For example, on the potability standards that are designed by the Minister of Health⁸. According to the interviewees in this thesis, the procedures that are demanded on that, in terms of laboratory

⁸ Ministerial order number 2.914, from December 12, 2011.

analysis, are not functional in rural areas. More on that will be presented in the following sections. (Interview S0, C1)

Based on that, the managing structures to address those challenges don't follow a unified form and are very dependent on the regional and state-level experiences. Water supply, the scope of this thesis, is located, in Brazil, under the discussion of Sanitation, together with Sewage collection and treatment, solid waste management, and rainwater drainage.

Together with the fact that the national constitution delegates the Sanitation service titularity to the municipalities, the current panorama on service provision is still dominated by public companies, usually the state-level companies. In terms of scale, Regional or microregional companies correspond to the vast majority 75,6%, with the municipalities being responsible for supplying 22.1% of the cities⁹, and 2% being by local private companies¹⁰. In terms of ownership, 88,55% of the service providers are state-owned (54.28% being government units and 34.27% being state companies), and 8.35% of completely private companies. (Brasil, 2021b).

Brazil has also had an opportunity with the government-led and also community-led management systems. The experiences that originated the management systems that will be studied in this thesis showed how, especially in Bahia, the management of rural water supply by one actor, or without the efficient organizational fit, has led to failure in service provision.

At the beginning of the 1980s, the German Development Bank – KFW funded, together with the state-level Company for Water and Sanitation Engineer (Companhia de Engenharia Hídrica e de Saneamento da Bahia - CERB) the construction of simple supply systems aimed at the rural supply. The systems were passed to the municipalities and local communities that would have to manage and maintain them. However, a list of failures, presented in table 7, shows were that modality failed in delivering the services expected, according to Sampaio (2013) these factors led to the “ malfunctioning of some systems for long periods and even to total collapse of some systems” (p. 67).

Table 7: Conditions leading to failure of Community-led Rural water supply in Bahia

- | |
|---|
| <ul style="list-style-type: none">• Difficulties, from the community, to manage water losses, aiming at obtaining values compatible with project and source supply capacity,• Difficulty in obtaining replacing pieces for maintenance of infrastructure,• Lack of specialized labor force to execute maintenance and operation of supply systems,• Lack of systematization in the relationship between the municipalities and the communities in terms of funding and technical support.• Political manipulation, by the municipalities, of the funds dedicated to the maintenance and conservation of supply systems. |
|---|

Source: Elaborated by the author based on (Freitas et al., 2015; Orrico, 2003; Sampaio, 2013)

This situation led to the development of a new model, using partnerships, that will be presented in the subsequent sections.

⁹ The supply operated by the municipality can be done by the own structure of the municipality (13.6%) or via a municipally-owned company (8.5%). The sum of this two percentages represent the percentage supplied by municipalities.(Brasil, 2021b)

¹⁰ The remaining 0.3% represents the social organizations, and mixed capital companies that act locally. (Brasil, 2021b)

2.3 Intermediary Conclusion

This chapter presented the main management structures that have been elaborated to deal with water supply in rural areas. The changes in paradigm and the developments, from a government-led to community-level and privately operated, have led to exploring new strengths of the different models but also facing their challenges, risks, and disadvantages. Those models were presented as the traditional ways of addressing the challenge of managing rural water supply structures.

Important to take out of that discussion is that there are particularly important dynamics and learnings from each management model that can be harvested, while it is also important to recognize the main sources of criticism.

Following that discussion, the main aspects of the management of rural water supply in Brazil were presented. From the definition of rural areas and main policy instruments to the regulatory void in the national laws. Those factors and experiences have a significant impact on the development of the partnership arrangements that will be presented in the following sections.

Once the main criticism and strong elements of the principal management structures are presented, the question that follows is why analyze partnerships in that scenario? The next section will aim at elaborating arguments to address that question while presenting core ideas for the research in general, such as the concept of Organizational Fit.

Chapter 3 Space for Partnership and Partnering Space: laying the foundations to analyze partnerships

- This chapter, will explore the rationale of analyzing partnership structures, listing the guiding concepts and definitions that are listed in the academic debate and were used in the case studies.
- Three guiding concepts for the analysis are presented: **Organizational Fit, Risk Sharing and Value Generation**. By using this conceptual framework, the research is expected to be able to analyse the implementation of the partnership arrangements for rural water supply.

The discussion regarding the application of partnerships in the area of the rural water supply has been mainly dominated by the typology of the PPPs. Some organizations, like the IRC and the WSP, and others have tried to explore the potential of Public-Private Partnerships in the sector (Hoang-Gia & Fugelsnes, 2010; Kleemeier & Lockwood, 2012)

Although the discussion regarding the use of PPPs for rural water supply isn't new (Lewis & Miller, 1987) it has been given more attention particularly due to the promises to “harness market incentives to improve service delivery and leverage capital for investment costs” (Kleemeier & Lockwood, 2012, p. 1). However, the solutions designed and implemented under the PPP framework are not homogenous and can vary based on the legal and regulatory environment, the supply structure (piped network, water points, water bowsers), and the financial instruments available. That variance is very much related to the discussion on private provision present in sub-section 2.1.3.

A generic PPP arrangement usually is composed of the government institutions representing the “Public” piece, and having the role of regulator and general oversight. The “Private” piece, is often represented by a private operator that is in charge of delivering the services. Another substantial part of the PPPs is the contractual agreement that celebrates the partnership. The contract relies heavily on the regulatory and political context.

However, when compared with the partnering space, in figure 1, the PPP framework constitutes a bilateral arrangement. For this type of arrangement to work, Van Tulder and Pfisterer (2013) as establishing a necessary condition for the intended outcome of the partnership to be completely independent of the third, excluded, party. However, this goes against what is already recognized as essential for sustainability in rural water schemes (Harvey & Reed, 2006; Hutchings et al., 2017; Nelson-Nuñez et al., 2019).

In order words, it is not sustainable to debate partnerships in the rural water supply sphere without civil society actors. This limitation opens space for tripartite partnerships to be analyzed as a tool to expand the approach and involve society actors in the collaborative arrangement.

The analyses however can take place from different perspectives, for example historical, partnership building, and so on. Since this thesis will focus on the implementation of partnership arrangements for rural water supply, it will look at 3 particular characteristics of partnerships: Organizational fit, Risk sharing, and value generation.

3.1 Collaborative Advantage and Organizational Fit

Another source of debate around the implementation of PPPs is the need for government regulations. From the need for “codification” of those partnerships in the civil law mechanisms (Kleemeier & Lockwood, 2012) and contractual arrangement to the discussion around oversight, accountability, and Planning (Hoang-Gia & Fugelsnes, 2010), the space of involvement of the government depends a lot of the contextual arrangements

More recently, some scholars are dedicating efforts to addressing partnerships involving actors from other sectors. For example, Austin and Seitanidi (2012b) have looked at the value creation for collaborations between Non-profit organizations and Businesses. Although the focus of the article is mainly elaborating on the theoretical and analytical frameworks for that typology of collaboration, it offers insights that can also be useful for comprehending tripartite or cross-sectoral collaborations.

Defined that the different degree of involvement of the partners is a key issue, that points to the first analytical point that is used in this research: Collaborative Advantage.

To conceptualize, the collaborative advantage is presented in Glasbergen (2011) as something that

Encapsulates the synergy argument: to gain real advantage from collaboration, something has to be achieved that could not have been achieved by any one of the partners acting alone but is in their interest. (Glasbergen, 2011, p. 5)

There is a clear link between Collaborative advantage with the benefits a partner gets out of the partnership, as expressed in the final part “in their interest”. But it also has to be linked with the assumption that while there are incentives to participate, risks related to the commitments taken are also present (Glasbergen, 2011).

The operationalization of the collaborative advantage, together to ensure the maximum value creation for the partnership, has motivated the creation of ideas such as organizational fit. Organizational fit describes the internal match or the compatibility between the actors that are part of the partnership (Van Tulder & Pfisterer, 2013). To analyze that the concept takes into consideration the “organizational processes, such as culture, human resources, policies and administrative systems” (Kim, Sung and Lee, 2012:136 apud Van Tulder & Pfisterer, 2013).

To summarize, the organizational fit is the operationalization of the collaborative advantage and will look at the accommodation of the different partners inside the partnership. That takes into consideration the primary roles of each partner and the ones they assume once they enter the partnership, or closer to the partnering space (Figure 1) in face of administrative capacities and regulations. Aiming at elaborating on that, the next section will explore the role of organizational fit in tripartite partnerships, looking at the debate around the primary role and interest of each sector in the literature, which will be checked against the cases studied.

3.1.1 Organizational Fit in Tripartite Arrangements

But what are the core roles that are expected to be taken by each partner? Assuming that a given role in the partnership is executed by the partner with the highest capacity to deliver value towards a specific outcome, relies on recognizing the specific advantages of each partner. Table 8, presents simplistically the main drivers and characteristics of each “edge” of the partnership.

Table 8: Coordination mechanisms. Source:(Van Tulder & Van der Zwart, 2006:10 apud Van Tulder & Pfisterer, 2013)

	State	Market	Civil Society
Primacy of...	Politics	Economics	The Social
Goods and values produced	Public	Private	Club/Community
Core Responsibilities	Enforcement of National Standards and norms	Production of goods and services	Mobilization of Society
Powerbase: Financed by	Taxes	Profits	Donations, contributions
Powerbase: Agency	Voters, political parties	Owners, supervisory boards	Society, Members
Parameters	Coercion, codification	Competition	Cooperation, co-optation
Orientation	Public/Non-profit	Private/for-profit	Private/non-profit
Coordination and control	Hierarchy-based	Market-based	Network-based

Although some of the dynamics may look conflicting in principle, e.g. the orientation and the coordination mechanisms, literature has tried to establish ideal roles and responsibilities, and interests for each actor.

Governmental Actors

To start the role of the actors from the governmental “edge” would start in the sphere of “mandating” establishing the underlying norms and regulations to guide action. That can be seen in the laws and norms, but also in the allocation of penalties and subsidies when the involvement is more active (Van Tulder & Pfisterer, 2013). On a more punctual basis, Harvey and Reed (2006) place the need for the government to be the provider of institutional support, which in their words would be formed by components such as: “encouragement and motivation, monitoring and evaluation, participatory planning, capacity building, and specialist technical assistance” (p.373).

The interest of government actors is often related to service provision and the application of legal mechanisms. Having most of the action strongly linked to a regulatory instrument, thus highly rigid, the main goals are directed linked to those legal commitments. For example, in countries where the mandate to provide water belongs to the municipality, the goal will be related to the expansion of system coverage, not so much profit or other dynamics.

Another goal of the government actors, main individuals, is the one related to elections and political power. In this area, the value could be generated for a partner if it helps to achieve political support.

For this thesis, the government actor category included the actors that are working under the state structure. That encompasses the Federal, state-level, and municipal governments, ministries, secretaries, and state companies (e.g. state-owned utilities).

Civil Society Actors

Inside the non-profit-oriented, and non-governmental actors of the civil society “edge” the main goal is related to creating a club or community goods, and social capital (Van Tulder & Pfisterer, 2013). While there is a lot of space for different roles there, actions guided towards advocacy, participation, and ownership are the most present. There is also debate in the literature where these actors, which are ideally a water committee or user associations, where further roles are taken such as the one of broker and partnership management.

The interest of the Community, or civil-society actors, are ideally foreseen as the ones related to participation and advocacy. With the goal of mobilization and creation of inclusive and just structures. Thus, the value will be generated in assuring these structures while being able to vocalize the needs of a specific community and holding the other partners accountable to those.

This thesis will focus on the actors that work directly with the community in this area here. For example, the community associations, the water users, and the volunteers that work on the water service provision. This greater focus on the community actors here is aiming at making the water users more visible in the partnering arrangement. That is closely linked with the purpose of community empowerment that is pursued in both of the case studies.

Private Sector Actors

Lastly, the involvement of private sector actors, from one side the roles are related to the assumed benefits of management efficiency and capital allocation, most of the time under a pro-profit and market-oriented rationale.

Once again, the boundaries are not clear, especially considering the involvement of multilateral and development banks on one side and Corporate foundations. The last one challenges the traditional way private actors involve themselves, taking out the traditional profit idea (generated from service or good) and adding more importance to dynamics like marketing and branding. Westhues & Einwiller (2006) apud Van Tulder and Pfisterer (2013) also add that these organizations most of the time have a certain degree of independence from the bigger organization, that according to the authors, can also be a source of conflict.

The interests of private sector agents can be widely classified in the group related to profit. This profit can come in the form of revenue streams from the provision of goods and services, but also perspectives related to marketing and branding. These last are more related to the cases where foundations are involved.

The definition of what constitutes a private actor is particularly challenging for this work. Since the profit-based approach offers a good starting point it is not the only characteristic that is considered to name the actors in the private sector category. For example, foundations and institutes are created by private organizations to execute the social corporate responsibility piece. While they do not represent a for-profit enterprise, the origin of their resources is in the profit of the private company.

Another challenge is the classification of international development banks. In the context of this study, for example, the World Bank and the German Development Bank (KfW) are particularly relevant. Although they are owned by a government, in the KfW, or governments, like World Bank, they operate as private entities, via loans and grants. So, the guiding variable here is not so much ownership and funding sources, but rather the operations.

To summarize the private sector actors, encompass the organizations that meet one of the following criteria: are not owned by a specific government, that act towards profit, or have their funding sources coming from the profit of private organizations, organizations regulated under private law.

The description above acts as a guiding point or the very end of the triangle corner representing that sector. However, some actors have to change their working culture to engage in a partnership, placing them closer to the partnership center or between the traditional edge and another one. This positioning changes under contextual factors and will be better demonstrated and analyzed in the partnership analysis and results section

Hybrid Organizations

It is also common to come across hybrid organizations in partnerships. Hybrid organizations are the ones that stand outside the traditional categorizations presented before by mixing some of their dynamics, process, and interests of them (Brandsen & Karré, 2011). Common examples of hybrid organizations are state-owned enterprises or civil society organizations that are incorporated into the state structure, and so on. The partnership analysis proposed in this work, they are important to be considered because they add new dynamics to the debate around interests, what type of roles and responsibilities can be assumed, and complex accounting issues.

The debate around hybrid organizations and hybrid governance has gained space inside water governance. For example, in Pahl-Wostl (2019) hybrid forms of governance have been suggested as a possible approach that combines the strengths of different ways and allows to combine of complementary strengths of different actors through a mixture of policy instruments (regulation), economic incentives, and voluntary and participatory approaches. The idea of a partnership pursued in this thesis is very similar to a hybrid governance mode. This thesis, however, will focus on the role of hybrid organizations in the implementation of partnership arrangements.

3.2 Risk Sharing in Partnerships

Directed linked to that is the distribution of risks inside the partnership. Since the partnership is often composed of actors that have distinct mandates and premises, the distribution of risks and elaboration of de-risking mechanisms is crucial. The process can help to build trust and make sure that the rationale to participate is presented not only from the part of the gain – collaborative advantage – but also from the risk's perspective. That is also an important discussion to place the partnerships in face of the challenges and complexity of rural water supply. The risks can be financial, brand-related, political, technical, and so on.

The discussion around risks and risk management has received contributions from a variety of academic backgrounds. From the traditional financial perspective, to incorporate discussions on public management and institutional analysis. That expansion has led to an understanding of risks as an effect that can deviate from the subject of reaching a specific goal. As presented by Wang (2018 apud Rybnicek, Plakolm, and Baumgartner (2020, p. 1176) risks are: *uncertain (expected or unexpected) possibilities, opportunities, or threats that might happen*". Given the context of this thesis, the risks are the ones that can affect the water supply and also the composition, and operation of the partnership.

That traditional idea around risk analysis is usually present when developing the financial or infrastructural-related discussion. One example of that risk framework is the one presented in Croce, Paula, and Laboul (2015), Table 9, which breaks the risks of infrastructure development based on the different project phases (development, construction, operation, and termination) and 3 risk categories: Political and regulatory; macroeconomic and business; and technical. This analysis usually takes the point of view of the project and serves as the basis for the discussion around which actor would get each risk

Table 9: Infrastructure Development Risks from Croce et al. (2015)

Risk Categories	Development Phase	Construction Phase	Operation Phase	Termination Phase
Political and regulatory	Environmental review	Cancellation of permits	Change in tariff regulation	Contract duration
	Rise in pre-construction costs (longer permitting process)	Contract renegotiation		Decommission
				Asset transfer
	Currency convertibility			
	Change in taxation			
	Social acceptance			
	Change in regulatory or legal environment			
Macroeconomic and business	Prefunding		Default of counterparty	
	Financing availability		Refinancing risk	
			Liquidity	
			Volatility of demand/market risk	
	Inflation			
	Real interest rates			
	Exchange rate fluctuation			
Technical	Governance and management of the project			Termination value different from expected
	Environmental			
	Project feasibility	Construction delays and cost overruns	Qualitative deficit of the physical structure/ service	
	Archaeological			
	Technology and obsolescence			
	Force majeure			

At the same time, the analysis of risks inside partnership arrangements has evolved significantly. However, since the discussion around risks is more present in the private sphere, and gives higher prominence to PPPs in that field, the literature on risks in PPPs is often more elaborated. For example, Rybnicek et al. (2020) have published a literature review and raised the main risk factors, impacts, and mitigation strategies inside the PPP literature. The authors have also elaborated a conceptual model highlighting the different interactions between the risk factors.

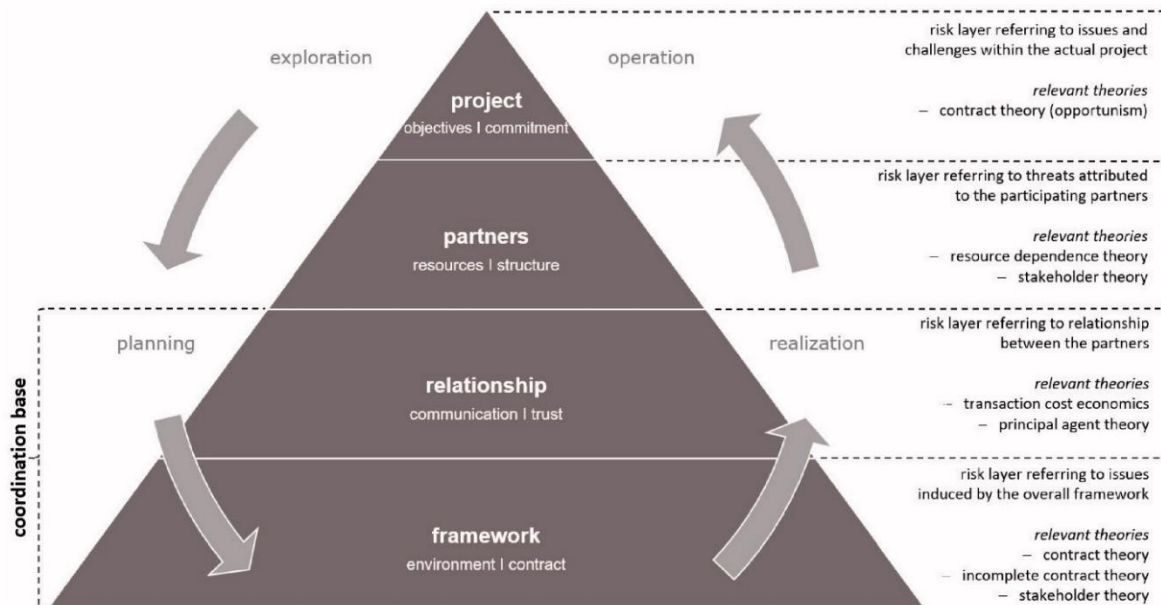


Figure 3: Conceptual Model for Risk assessment in PPPs from Rybnicek et al. (2020)

The tripartite partnership arrangements are particularly challenging because they would have to accumulate the risks related to project and infrastructure development, to the ones involving the different actors and the relationship between them. To exemplify that scope change, in terms of risks, Kolk, van Tulder, and Kostwinder (2008, p. 267) point to the fact that the involvement of civil society actors “*almost automatically broadens the development focus, thus loosening the link to core activities and reducing the problems of direct state support for companies.*” That means that while some risks are added to the partnership, some other issues get balanced in the meantime.

3.2.1 Risk Sharing on Tripartite Partnerships

The challenge is, then, to list the risks that would be added to the tripartite partnership arrangement. To do that, the literature on this kind of partnership would add some constraints related to power imbalances (Bryson, Crosby, & Stone, 2006), low capacity from civil society actors (Pfisterer, 2013), crowding-out from one of the actors (Van Tulder & Pfisterer, 2013). On the other hand, cross-sectoral collaboration can help mitigate risks related to legitimacy and the overbearing of roles by a single actor. That said, the risk discussion is intrinsically linked with the debate on roles and responsibilities in the partnership. Once an actor expands or retracts its scope of action, or assigns specific tasks to another one in the partnership it is also, in some cases, sharing the risks related to that specific activity.

The focus of this research, then, to check what are the perceived risks by the different actors involved in the partnership. This encompasses the second category of the partnership analysis that will be developed on the selected cases.

In sum, the list of risks presented in the risk-specific literature, and the partnership literature offer a comprehensive starting point to check against a specific partnership arrangement. To check that, during the data gathering, the interviewees were asked about risks that were perceived by them as the main ones for that partnership. The results will be presented in the partnership analysis section and discussed in the results chapter.

3.3 Value Generation in Partnerships

By analyzing partnerships, it is possible to check the idea of collaborative advantage and value creation versus the practices and implementation of partnership in different contexts. That presents the third analytical tool that was used to analyze the partnership implementation, the value generated for the different actors, and how that relates to the roles and responsibilities taken and the risks perceived.

Directly attached to the idea of collaborative advantage, is the concept of value creation of the partnership. As the collaborative advantage is a constitutive part of the partnership, laying the roles and responsibilities, the value creation is in the outcome section, associated with the results generated by the partnership. Among the different types of values generated by partnerships, two are particularly important for this research: the one created by the partnership as a unit and the value gained by each partner (DT Stibbe, Reid, & Gilbert, 2018)

That offers a link with the debate around value/outcomes of cross-sectoral collaborations brought by Bryson et al. (2006), which would look at public value and first, second, and third-degree effects. Additionally, it relies on the idea of analyzing the results at a meso-level of collaboration or concerning the organizations directly involved in the partnership (Austin & Seitanidi, 2012b).

The first type of value created is linked to the outputs of a partnership. They can be related to the overall goals of the partnership and the recognition that the collaboration can generate more

value than the individual actors of it. That value can go from connection to complementarity, system transformation, innovation, and so on. In the case of the rural water supply that would be the equivalent of analyzing the performance of the partnership in terms of water provision, for example.

Secondly, the value gained by each actor when participating in the partnership informs its rationale to participate in the collaboration. For that, the recognition of the interests of the actors out of the partnership is key. DT Stibbe et al. (2018) defines 2 types of individual values, with 2 sub-components each, that can be gained via the partnering process, Table 10 presents these.

Table 10: Types of Individual values

1. Mission Values	2. Organizational Values
- Direct Achievement of Strategic Objectives	- Leveraging Resources
- Contribution along the pathway toward strategic objectives	- Intangible/indirect gains that improve the capability for future delivery

Source: (DT Stibbe et al., 2018, p. 14)

In the first category, the value is generated vis-à-vis the achievement of specific goals and interests by the authors. The second group is more related to the objective gains that came out of the collaboration, for example, resources, trained staff, costs saving, and so on. For this research, the initial focus will be given to the mission values, since they relate closer to the idea of organizational fit that guides the analysis.

3.3.1 Value Generation in Tripartite Partnerships

When applying the debate of value generation inside cross-sectoral collaborations, Bryson et al. (2006) point toward the link between the capacity of a partnership to create value and the interests of the different actors involved. In proposition 18 the authors present the idea that is applied throughout the thinking process of this thesis, in their words:

Cross-sector collaborations are most likely to create public value when they build on individuals’ and organizations’ self-interests and each sector’s characteristic strengths while finding ways to minimize, overcome, or compensate for each sector’s characteristic weaknesses. (Bryson et al., 2006, p. 51)

That analysis of the different interests, and how they are compatible with the perceived values generated by the partnership is what was aimed to be analyzed in this piece. For tripartite partnerships, and the cases selected, they can be informed by the list of interests presented before for the different categories of actors (government, private sector, civil society, and hybrid).

However, the interests and values sought in the partnership can have a conflicting nature, even more considering the different actors in cross-sectoral collaboration. That sheds some light, again, on the different partners involved (and excluded) in the partnership and the roles taken by them. Since the focus of this thesis is on the implementation phase, it will look at how the different cases selected have been able to allocate the different interests and continue operating for rural water supply.

3.4 Partnerships as the Solution: The importance of Analysing partnership implementation

Additionally, partnerships arrangements can't be seen as the panacea for rural water supply. The criticism around partnership analyses often points out how that concept is used as a "disguise" to asymmetrical power relations, a tool for dominating actors to exercise their influence even further, in areas that were previously dominated by one actor, and the use of it to crowd out the responsible actors, pulverizing the responsibilities (Van Tulder & Pfisterer, 2013, p. 11). That is why there is a call for a more evidence-based analysis of the partnership's arrangement on the ground and the impact they have been able to generate towards a certain goal.

"The anticipated benefits for the actors involved in cross-sector partnerships have been extensively discussed in the literature, but realized outcomes, benefits, and impacts are much less often discussed even in the older form of public sector partnerships (Provan and Milward 2001; Leach et al. 2002; Arya and Lin 2007) indicating the challenges that exist in monitoring, reporting, and evaluation in practice as well as in applying or developing appropriate methodologies in research."(van Tulder, Seitanidi, Crane, & Brammer, 2016, p. 2)

On a more specific side, Glasbergen (2011) points out that the analyses of collaborative advantage as part of the ongoing process, so not only as an ideal setting, can have an impact on understanding the partnership itself. The changes inside the collaborative advantage can have an impact on the value generated inside the partnership.

With all of those concepts explained, the question is how to build a framework that would allow for their organization in a way that could inform and structure analysis. When trying to set a "framework for understanding cross-sector collaborations" Bryson et al. (2006) organized the steps of the analyses into initial conditions; process; structure and governance; contingencies and constraints; and outcomes and accountabilities, as shown in Figure 4.

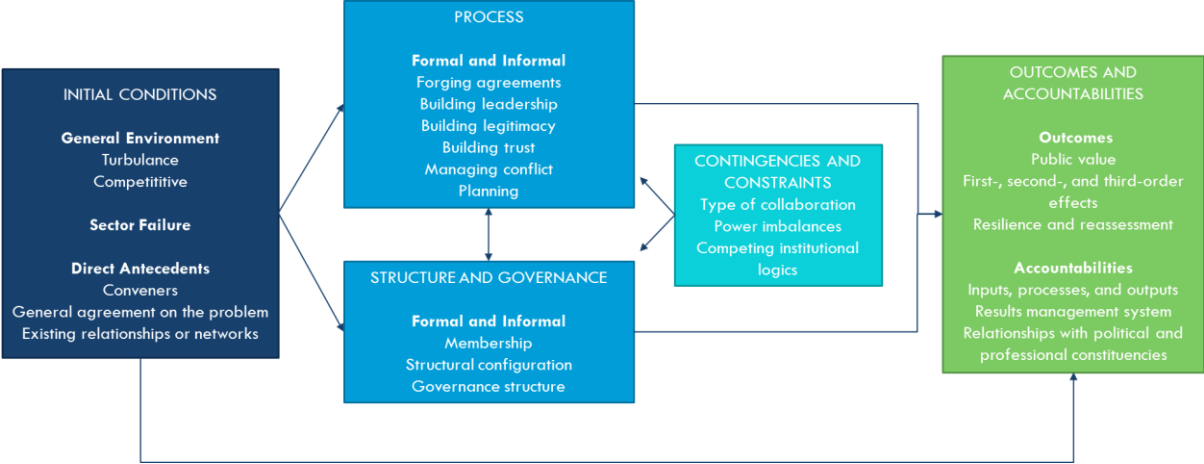


Figure 4: A framework for understanding cross-sectoral collaborations of Bryson et al. (2006)

However, given the limited time scope of this thesis and the greater focus on the partnership implementation, some of the dynamics raised by the authors become less relevant. Apart from that, ideas like the organizational fit and collaborative advantage can incorporate both the process of forming the partnership (which actors are involved) and the structure and governance

(what are the roles and responsibilities taken by different parts). The final framework used in the thesis will be presented in the next section.

But now that the problem statement and the research questions are presented, and are supported by a review in the specialized literature, the following concern is regarding the operationalization of the research. To address that, the next section will present the research design, including the research approach, the research methodology, and research strategies.

3.5 Intermediary Conclusion

This chapter presented the main conceptual framework that was used to inform the data collection on the selected cases for the thesis. Concepts of Organizational fit, Risk Sharing, and Value Generation were presented and trimmed for tripartite arrangements.

The proposed framework can help grasp the different roles and responsibilities taken by the different actors involved (organizational fit) while balancing those in the face of the risks taken by them (risk-sharing) and the values expected and generated (Value-generation).

Finally, the last section raised the concern about analyzing the implementation of the partnerships. When considered in the ideal, or theoretical debate, partnerships can be seen as the panacea capable of harmoniously arranging actors and conflicting goals toward societal value. However, empirical analysis of the partnership implementation in different contexts, and issues like rural water supply, can help pave the way towards enhancing the knowledge of this promising structure.

Chapter 4 Research Design

- This chapter, will explore the methods used to operationalize the research proposed in the previous chapters.
- It will do so by presenting the basic structure of the cases selected to be studied under this thesis as well as the rationale for studying them
- After that the operationalization of the methodology, with the debate around data collection, and treatment will be debated.

Addressing the research questions elaborated in the section before calls for an elaborate research design, that combines qualitative data and information from primary and secondary sources, grey literature analysis, and interviews. This research will essentially be exploratory.

The research design is composed of 3 parts: research approach, research methods, and research strategy. These combined represent the process of translating problematic or complex topics and elaborating compelling conclusions. (Schmitter, 2016, p. 577)

By elaborating a distinction between the approach, methods, and strategy, this research is expected to provide a comprehensive structure that will allow a more efficient data collection. The last point is specifically important considering the broad taxonomy around cross-sectoral partnerships (Van Tulder & Pfisterer, 2013)

4.1 Research approach: Case Studies of Rural water supply management.

Assessing the impact of partnerships is an issue that has received considerable attention from the literature. van Tulder et al. (2016) has pointed out how the analysis of the impact and effectiveness of a partnership is “strongly context-dependent and needs to be considered in its interaction with context” (p.6) and also how the poses multiple methodological challenges. For example, considering the context of rural water supply, and the different actors involved in the partnership can be complex from a methodological point of view due to main the multiple inputs and outputs that can be expected.

The overall approach to answering the research questions will be a case study. By selecting a case study approach the research aims at exploring the implementation of concepts and practices around partnerships for rural water supply in a given context. The context of the application of the partnership is both a source of influence, as it establishes the institutional and legal framework and the actors that will be involved, and also is influenced by the partnership, in the sense of the service provision. Thus, the importance of a case study to address the research question.

The current proposal aims at developing a case study to analyze the partnership build for rural water supply management in two states in the northeast region of Brazil, Ceará, and Bahia, see figure 2. Both states are part of a semi-arid region, marked by low annual rainfall levels and prolonged drought occurrence. That factor adds more challenges to the rural water supply debate.

The two states have developed similar, but yet particular, strategies to deal with the challenge of providing water supply and sanitation to rural areas. The *Sistema Integrado de Saneamento Rural* (Integrated Rural Sanitation System – SISAR), in Ceará, and the *Central das Associações Comunitárias para Manutenção de Sistemas de Abastecimento de Água e Esgotos Sanitários* (the Central of Community Associations for Maintenance of Water Supply and Sanitation systems – CENTRAL) have been listed in some literature (Meleg, 2012; Moraes Carvalho, Ossewaarde, & van Tulder, 2020; Rocha & Salvetti, 2017a) as management models that have been able to deliver results in terms of water supply provision. Hence, they will be analyzed from a closer perspective using the partnership lens to understand what, inside the collaborative advantage and value creation, have contributed in terms of success factors and what are the main challenges.

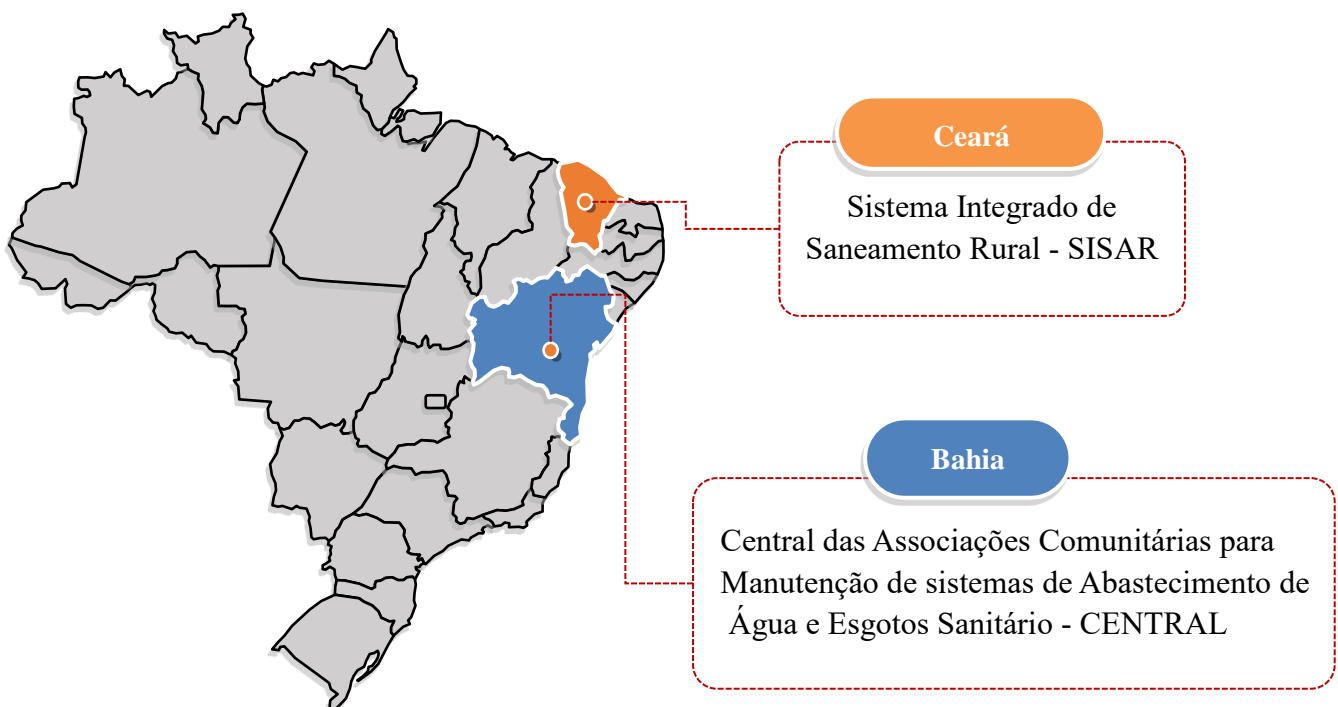


Figure 5: Location of the States of Bahia and Ceará

Both SiSAR and CENTRAL have already been assigned to a wide variety of classifications, each highlighting a specific characteristic of the system. They have been listed as representatives of a multi-community management model (Garrido, Rocha, Gambriil, & Collet, 2016) or were called Sustainability Centers - SCs (Centros de Atenção Integral - CAI in Portuguese) for the Community-Based Water And Sanitation Organizations - CWSOs (Organizações Comunitárias de Serviços de Água e Saneamento – OCSAS in Portuguese) (Avina, 2017), etc.

However, despite the fact that they operate via a community-based approach, the characterization of the initiatives is not similar to the traditional community-led management. The model has been able to incorporate the dynamics of the three traditional management models for rural water supply. Moreover, as pointed out by Carvalho (2019, p. 314) when analyzing SiSAR, even though the “arrangement is not formally recognized as a partnership [...] it is possible to identify the participation of representatives of the three different social

spheres”. That consideration opens an opportunity for analyzing the partnership arrangement and the possible benefits that can arrive from it.

The organizational and decision-making structure, the tariff structure, and the community participation structure are defining factors for this model.

Facing the challenge of designing and implementing delivery and management systems for rural water supply, KfW and the States of Bahia and Ceará, have implemented for the past 20 years Central and SiSAR. The motivation to develop those systems lies closely with the debates that were happening in the international arena regarding the disbelieve in state-owned utilities to provide water to rural areas and the increase in the belief that community engagement would be key to the sustainability of the services.

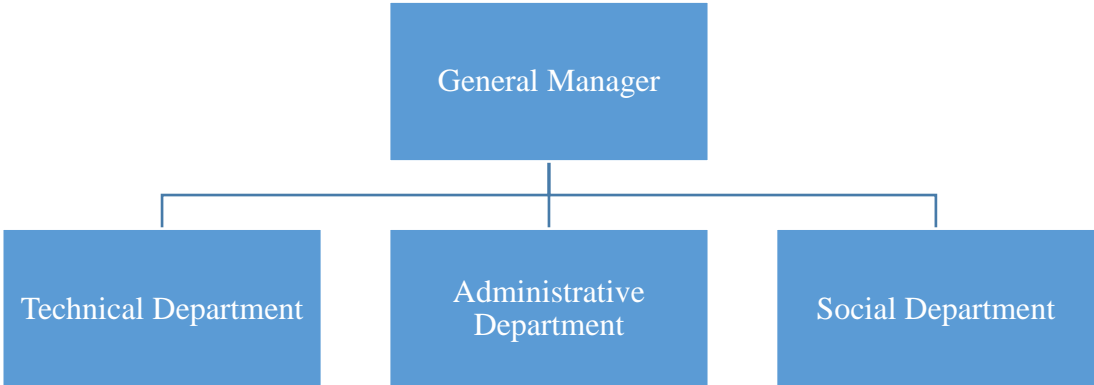
As stated in Freitas et al. (2015), the design of the model that is implemented in SISAR and Central was initiated and funded by the KfW Development Bank. However, that experience was motivated by a previous failure regarding a cooperation project. Between 1986 and 1994, the bank (KfW) financed 172 water supply systems for small communities in Brazil. The water use from those systems was not charged and the communities and municipalities were in charge of managing the systems. An initial performance analysis found that 81 of those systems had the funds being politically manipulated by the municipalities, entitled of executing the funds. That experience called for a funding mechanism that would create a community-led institution that would be responsible for managing the infrastructure. This was the initial seed for CENTRAL in Bahia and later SiSAR in Ceará (Freitas et al., 2015, pp. 36-37; Orrico, 2003).

The idea of an organization that would be financially independent, and therefore not rely on the municipalities, together with community empowerment and simplified systems are among the key dynamics that drive the model. According to one of the interviewees (S1), a SiSAR is expected to be financially sustainable, self-manageable, and contribute to citizen and community empowerment.

4.1.1 The SiSAR and Central Model

The basic structure of the model is composed of an organization, a SiSAR or a Central, that is responsible for managing the water supply systems that are built by the government, state-level, or municipality. This organization is composed of a general manager that oversees a technical department, an administrative/financial department, and a social department. The number of people working in each SiSAR and CENTRAL depends on the size of the area they support and the number of communities and supply systems.

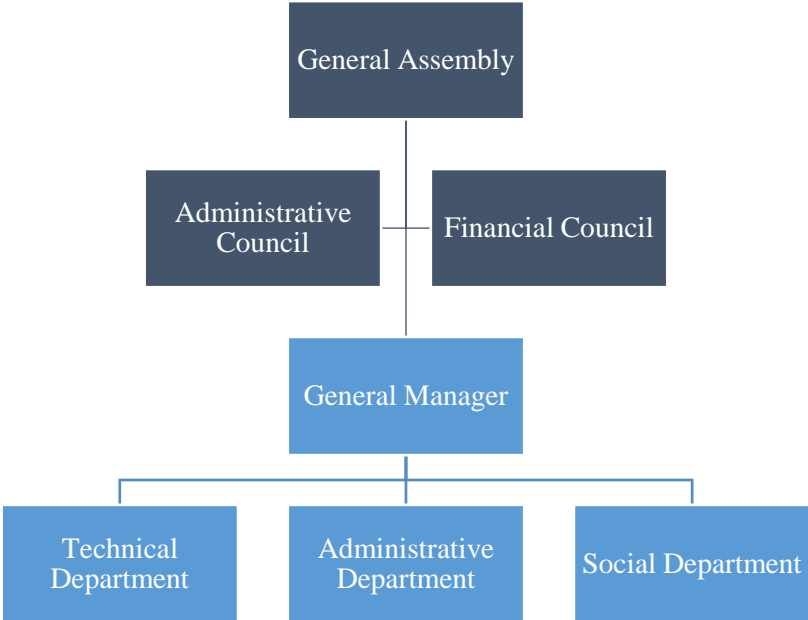
Figure 6: Basic Structure of a SiSAR and CENTRAL



Source: Elaborated by the author based on Carvalho (2019)

This basic structure fits inside a decision-making arrangement that grants ownership to the multiple communities that are supported by the system. The general manager reports back to a general assembly, that is formed by the presidents of the community associations that are supplied. The general assembly is responsible for the major decisions inside the system, including the readjustments in the water tariff.

Figure 7: SiSAR and CENTRAL Decision-making structure



Source: Elaborated by the author based on Carvalho (2019)

The composition of the council usually is a majority of members from the communities appointed by the general assembly. There is often a presence of a president of the general assembly, a vice-president, 2 treasuries, and 2 secretaries. In the case of SiSAR, for example, the administrative council has 11 seats, 6 are taken by the community representatives and the other 5 are divided between the municipality (1), CAGECE (1), and the secretaries of the State Government (3). In that same example, the Financial Council is formed by 6 community representatives, also elected from the general assembly, 3 with permanent seats and 3 substitutive members. (Avina, 2017; Carvalho, 2019; Moraes Carvalho et al., 2020)

This structure would create a certain degree of independence from the government structures, local and state-level while integrating the community actors. However, the pre-conditions for this structure to operate, mainly the construction of the supply systems and the agreement for service provision, still rely on the hands of these actors. This highlights the importance of the partnership approach that is used. This debate is further explored in the section that describes the organizational fit, or how the different roles and responsibilities are allocated inside the partnership.

With the management and decision-making structure presented, it is important to look at the second pillar of the model. Self-Sustainability, as it was referred to by one of the interviewees and is present in some case studies (Rocha & Salvetti, 2017a), is mainly related to the financial sustainability of the management operations. That is important to be distinguished because it will have an impact on the debate regarding the distribution of risks and organizational fit.

With that in mind, the 2 main characteristics related to this dynamic are the tariff structure and the scale of operations.

The tariff structure for the management of SISAR and Central is composed of 2 categories of costs, individual and collective costs. They are paid by all the water users, with special tariffs for individual users and public buildings and businesses¹¹. On the individual costs, there are the water consumption costs and the energy percentage. The collective costs are the administrative fee and the water operator stipend.

The water consumption fee is determined by the metered connections of each user. It is progressive and has a minimum fee that is paid between 0 and 10 m³. Together with that, it is charged a fee for the energy related to the water consumption, which means that the amount a user is paying for the energy is related to the amount of water that is consumed. In practical terms, if for a given month a user does not use water or has a reduced water consumption, although it will not have a significant reduction in the water consumption (due to the first tariff block) it will have a reduction in their share of the energy bill.

For example, in the Central of Jacobina, the progressive block tariff was divided as shown in Table 11. The basic water consumption, from 0 to 10m³ has a fixed price and it is aimed at prioritizing household use, even though there are special tariffs for commercial, public, and even industrial uses. Above 10m³ specific prices are applied per m³.

Table 11: Progressive water tariff example from Jacobina

Blocks	Initial amount (m³)	Final amount (m³)	Residential	Commercial	Public	Industrial
01	0	10	10,80	12,83	30,07	40,00
02	11	15	1,27	1,44	3,70	4,22
03	16	20	1,53	1,89	5,01	5,28
04	21	25	1,98	2,79	6,37	6,61
05	Over 25		2,01	3,23	8,22	8,26

Source: Moreira (2021)

The collective costs comprehend an administrative task that is agreed in the community association and is supposed to cover the expenses of the association and allow for its strengthening.

There is also a possibility of the association not charging this fee. The last piece of the structure is the stipend for the local operator. Each community should appoint a person, from the community, to act as an operator of the water treatment system. This includes executing small repairs and water quality tests, reading the water meters and sharing the consumption data with SiSAR, and handover the water bills. Because the operator is not an employee of SISAR, but rather a representative of the community, he is not entitled to a salary but rather the stipend that is agreed upon by the community as an individual contribution paid by all the members (Albuquerque Neto, 2011; Brown, 2015; Freitas et al., 2015).

There are some exemptions to the tariff structure presented above, like places where the energy bill is not present, due to agreements with the energy company, use of solar energy, or agreements with the municipality. Another example is the value of the administrative fee (where that exists) and the operator fee, these are defined by the community association at their

¹¹ SiSAR and CENTRAL also supply water to small communities where there is the presence of government buildings, like hospitals, schools, administrative points and some small business.

meetings. However, the basic structure of the water bill is the same. To illustrate that figures 08 and 09 present examples of water bills from SiSAR and Central¹².

Figure 8: Example of water bill from SiSAR

Source: Shared by the CAGECE team with the researcher

The last piece of financial sustainability is about the scale of service provision. Considered one of the biggest challenges of rural water supply, the scaling debate is related to the low number of water users supplied by a system and has a major impact on its financial sustainability of it. In qualitative terms, it is related to the relationship between operation costs and the amount of money collected through the tariffs. The creation of an organization, in both SiSAR and Central, that can fit multiple communities inside its operation scope has been a way of creating the necessary scale for something closer to the financial sustainability of the service provision. Studies like Albuquerque Neto (2011) have concluded, a couple of years ago, that by that time 2 of the 8 SiSARs displayed a financial performance that would be considered financially sustainable, which is a relevant step in showing that the model can be a way to address that issue. More detailed examples of the financial indicators of the Central and SiSARs will be shown in the following sections.

¹² For translation purposes, “Água” is related to the water consumption fee, “Operador” is the operator stipend contribution, “Energia” is the energy fee contribution and “Taxa Administrativa” is the administrative fee that goes to the Association

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FOLHA: 1/1

ASSOCIAÇÃO COMUNITÁRIA DE TAQUARI

INSCRIÇÃO	CLS	TAR	RES	COM	IND	PUB	OUT	NF / CONTA	EMIÇÃO	MES/FAT.
0006278.5	PAR	R-1	1	0	0	0	0	210036667	01/07/21	MAI/2021

RUA DO PREDIO TAQUARI,
 TAQUARI
 ITIUBA BAHIA LOCALIZAÇÃO 04.16.05.0000001480

ENDEREÇO DE ENTREGA LOCALIZAÇÃO

ULTIMOS CONSUMOS				SERVIÇOS E TARIFAS			
MES FAT	CONS.	OCO	DC	COD	DESCRIÇÃO	PREST.	VALOR
MAI/21	10	001	030	10	001 TARIFA DE AGUA		10,80
ABR/21	10	001	031	10	008 REPASSE DO OPERADOR		3,00
MAR/21	10	001	028	10	009 REPASSE DE ENERGIA		14,30
FEV/21	10	001	010	10	016 Multa por Atraso - 03/2021		0,58
JAN/21	10	001	036	10	017 Encargos (03/2021) 20 dias		0,19
DEZ/20	11	000	034	11			
MÉDIA: 00010							

HIDROMETRIA

HIDRÔMETRO	INSTALAÇÃO	LEIT. ANT.	DT. LEITURA	LEIT. ATUAL	DT. LEITURA	CONSUMO	DIAS/CONSUMO	OCO	LEITURISTA
AC9R100023	20/12/10	01796	20/04/21	01796	20/05/21	00010	30	001	000

OBSERVAÇÕES

LEITURA NÃO REALIZADA!
 (IAR - S/ ESPECIFICAR)

CONTA FATURADA PELA MÉDIA.

PARAMETROS DA AGUA DISTRIBUIDA

Reservatório: Portaria 2914 de 12/12/2011 - Valores máximos permitidos

Parâmetros	Cor	pH	Cloro	Turbidez	Fúor	Coli. Totais
Padrão	até 15UH	6,0 a 9,5	até 5,0 mg/l	até 5 UT	até 1,5 mg/l	Ausente
Obtidos						
Obtidos						
Obtidos						

MENSAGENS

2º Via da Conta Mensal

MULTA	2%	0,58	ENCARGOS DIÁRIOS	0,033%	0,01	MESES EM DÉBITO	EXISTE(M) 001 FATURA(S), TOTALIZANDO EM R\$ 12,35
VENCIMENTO	20/06/2021		VALOR R\$	28,87			

CONSUMIDOR

CENTRAL ASSOC COM P MANUT DOS SIST SANEAMENTO

NOME	LOCALIZAÇÃO			
END: RUA DO PREDIO TAQUARI, - TAQUARI	04.16.05.0000001480			
INSCRIÇÃO	MES FAT.	NF / CONTA	VENCIMENTO	VALOR
0006278.5	MAI/2021	210036667	20/06/2021	28,87
0006278.05.21.210036667				
82660000000.2 28871419000.7 62780521210.7 03666700002.4				

CENTRAL NAO RASURE AUTENTICAÇÃO NO VERSO




Figure 9: Water Bill example from Central

Source: Shared by the Central team with the researcher

When enrolling with a community, both SiSAR and Central establish some basic rules for engagement. For example, the engagement of the community is related to the existence of a community association that possesses an institutional arrangement and legal recognition. The association has to hold meetings, where meeting minutes will be produced and recorded by the association. Those minutes are the main recognition instrument and serve the purpose, for example, of recognizing the acceptance of the community to the service provision by SiSAR and Central.

Another time of engagement of the community association is the appointment of a president that will represent the community in the decision-making structure of SiSAR and Central. For one of the interviews (C11) the model was designed in a way that the communities and the associations are the shareholders/owners of the Centrals.

The community also is responsible for selecting an operator for the system and agreeing on the fee that will be charged for its stipend. That creates a condition where some of the money stays inside the community. The community also receives training and support from SiSAR to make sure it becomes a more prepared partner and active part in its role in the service provision. A more detailed discussion about this last piece will be presented on the organizational fit part.

With the general points of the model presented, the next 2 sections will illustrate how its application of it in the two contexts, Bahia and Ceará has been able to produce particular results and specific adaptations and the reasons why they have been selected as case studies for this research.

4.1.2 Case Studies Selection

Having existed for over 20 years in their states, the initiatives have been able to harvest different results. While SiSAR has been able to create 08 units in different water basins, involving 152 towns around the state, and reaching over 700 thousand beneficiaries (SiSAR, 2021); Central has been able to reach over 73 thousand people in 27 towns in the State of Bahia (Bahia, 2020). Operating in the same amount of time, and under the same model, two questions arise from that, what explains the different degrees of results achieved, and how they have maintained themselves for such a long period? The partnership analysis can offer an interesting way of analyzing these questions.

The rationale behind the selection of these cases is informed, mainly, by 5 factors, that are directly linked with the research questions and the 3 areas of the partnership composition: Collaborative Advantage, organizational fit, and risk-sharing. The factors are:

1. Both partnerships have reached a degree of institutionalization¹³ where the actors representing the 3 areas of a tripartite partnership (Government, Market, Civil Society) can be identified and have their roles, responsibilities, and interests clearer than in a situation where that is not present.
2. Contextual factors and scale: both partnerships operate in a similar semi-arid context, where water availability plays a key role.
3. Different levels of government involvement: Although similar in context and idea, both partnerships have had a different distribution of government, and government institutions, involvement. From the creation of a specific department on the state utility, like in the case of SISAR, to just general broker support, and secretary-level involvement, from the government of Bahia. That plays a role in organizational fit and risk-sharing
4. Involvement of international donors and private sector: Both initiatives have had support from international donors, most specifically the German Bank KfW and the World Bank. More recently, there has been the involvement of other types of private actors, such as foundations, that opens an avenue to access resources but also brings other types of management constraints, related to branding and accountability. Those factors make both cases worth exploring from an organizational fit, value generation, and risk-sharing point of view.
5. Results achieved: Both initiatives have been able to actively supply rural areas for over 20 years and harvest a considerable result in terms of service coverage and service provision¹⁴. However, the degree in the results achieved, in terms of the number of people supplied, is considerably different.

¹³ The concept of institutionalized partnership used at this point is linked to the idea presented by Seitanidi and Crane (2009), apud Austin and Seitanidi (2012a), where it is related to the time when the structures, processes, and programs of the partnership are accepted and embedded in the strategy, values, structures and administrative systems of the different actors involved.

¹⁴ An analysis of other aspects related to functionality of service provision, would require a deeper technical analysis of the infrastructure that it is not inside the scope of this research. However, we build on the idea presented in Whaley and Cleaver (2017) that the functionality of the technical structures is directed linked with the functionality of the management structures, like the water commissions, responsible for managing them. Therefore, the effectiveness of the management structures can also be of support to the functionality and sustainability of service provision structures.

Since there are two cases to be studied, the methodology looks at a comparative case study approach. This approach allows for the lessons learned and the challenges addressed in each case to be cross-checked respecting the specificities of each context. To do that, it is important to operationalize the concepts and layout the data sources that will be used. The next section aims to do it.

4.2 Research Methods: Concept Operationalization and Data collection

To operationalize the steps of data collection and create the backbone to guide the case study proposed, the framework below was used. The framework aims to link the main concepts mobilized so far, organizational fit, risk-sharing, and value creation. This link would allow the research to organize an answer to the main research question of How has the implementation of tripartite partnership arrangements for rural water supply, in terms of organizational fit, risk-sharing, and value generation –, has impacted service provision?

It is important to break down the research question into its constitutive elements: implementation, collaborative advantage, and value generation. The first step, implementation, relates to the fact that the ideal models presented before, will not be assumed to exist, but rather will inform an analysis of practices on the ground.

The ideas of collaborative advantage and value generation will be analyzed based on the components that were presented before, mainly the ideas of organizational fit, risk-sharing, and values generated by the partners.

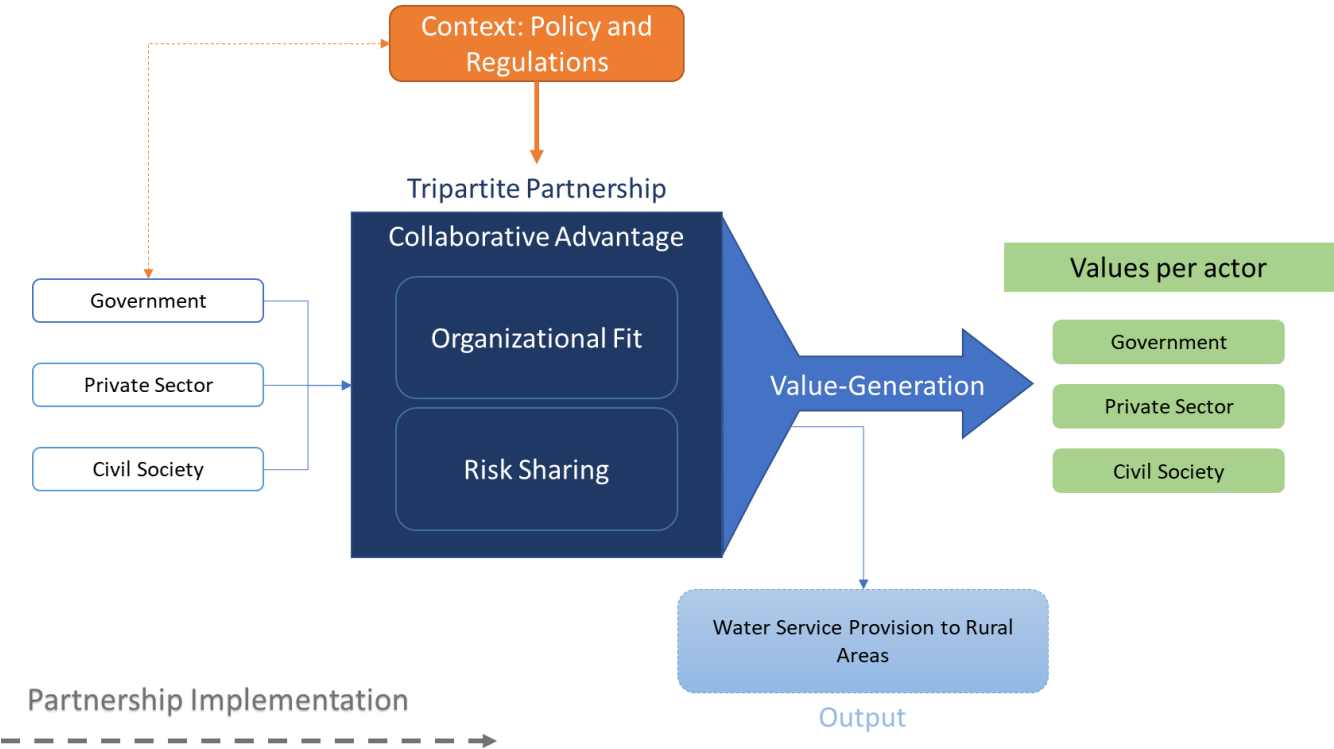


Figure 10: Argumentative Structure and organization of concepts

Since this research is mainly exploratory of the application of partnerships as management structures for rural water supply, it relied heavily on a qualitative analysis of both primary and secondary data.

The primary data was collected using semi-structured interviews with key actors of the partnerships. Special focus was given to interviewing people that are involved in one of the 3 spheres of the partnership: Government, the Private sector, and civil society. The structure of the interview was composed of general guiding questions, mainly related to the aspects of risk-sharing, and questions that were tailored based on the background of the interviewee to assess the aspects of comparative advantage and organizational fit. Additionally, collective interviews were set up with the beneficiaries of the service provider to capture the perception about the service provider and analyze it from a user perspective.

During the fieldwork in the states and the period dedicated to data collection, 19 interview moments were created for the SiSAR initiative and 13 were under the Central arrangement.

To support the use of that data in the analysis, secondary data was used. The secondary data can be divided into 3 categories: grey literature, reports, and academic research. Grey literature is related to the government regulations and acts that impact the implementation of the partnership. The reports are the ones produced by organizations that have a part in the partnership, like the ones produced by the world bank and the ones provided by the interviewees. Lastly, the academic literature was used as a source of information about specific details on the partnership and also as a way of integrating this research into the broader academic debate around the issue. The literature was researched in Portuguese, English, and Spanish. Figure 11 summarizes the data gathering mechanisms described.

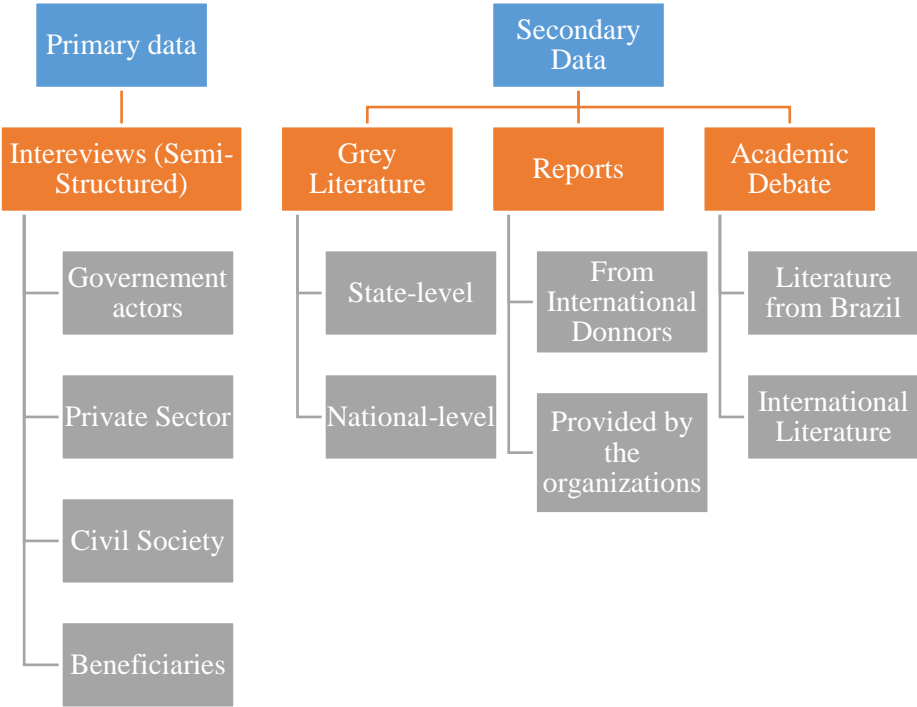


Figure 11: Description of Data Sources elaborated by the Author

To exemplify the collection of secondary literature around a specific case, Table 12 presents short research done around the materials published about SiSAR. That analysis of literature was also done focusing on the 3 constitutive topics – organizational fit, risk-sharing, and value generation. Special attention will be given to the different positionalities and backgrounds of the authors and initiatives responsible for the publication.

Table 12: List of publications about SiSAR.

Types of Publication	List
Case Studies and Publications	<ul style="list-style-type: none"> Moraes Carvalho et al. (2020). SiSAR Model for Brazil Rural Water Supply. Available at: http://www.SiSAR.org.br/wp-content/uploads/BibliotecaSiSAR/Artigos/SiSAR-Case-DeniseCarvalhoRotterdam.pdf Rocha and Salvetti (2017b). Case Study – SiSAR Ceará, Brazil. Available at: http://www.SiSAR.org.br/wp-content/uploads/BibliotecaSiSAR/Artigos/119890-WP-PUBLIC-6p-P159188-21-9-2017-10-39-35-W.pdf Rocha and Salvetti (2017a) https://publications.iadb.org/publications/portuguese/document/Estudo-de-caso-do-sistema-integrado-de-saneamento-rural-(SiSAR)-no-Brasil.pdf Garrido et al. (2016) https://documents.worldbank.org/en/publication/documents-reports/documentdetail/378901479099282672/parte-i <ul style="list-style-type: none"> Meleg (2012) SiSAR: a sustainable management model for small rural decentralized water and wastewater management systems in developing countries dos Santos and de Santana (2020) http://repositorio.ipea.gov.br/bitstream/11058/10287/1/td_2601.pdf
Thesis (masters and Ph.D.)	<ul style="list-style-type: none"> Albuquerque Neto (2011) http://repositorio.ufc.br/bitstream/riufc/5770/1/2011_dissert_vs AlbuquerqueNeto.pdf Denise Carvalho (2019) (https://repositorio.cruzeirodosul.edu.br/bitstream/123456789/2040/1/DENISE%20MORAES%20CARVALHO.pdf)
Journal Articles	<ul style="list-style-type: none"> BLICA and GUEZDESANMIGUEL (2015) http://acacia.org.mx/busqueda/pdf/EXPERIENCIAS_DE_GESTION_COMUNITARIA_DEL_AGUA_EN_AMERICA_LATINA_Y_EL_CARRIBERETOS_Y_OPORTUNIDADES.pdf Meleg (2012) https://iwaponline.com/washdev/article/2/4/291/29811/SiSAR-a-sustainable-management-model-for-small Salles and de Lima http://revistadae.com.br/artigos/artigo_edicao_208_n_1686.pdf (de Macêdo, de Araújo, & Soares) (2018) https://tratamentodeagua.com.br/wp-content/uploads/2019/04/9561.pdf

Finally, and as the last piece of the research methods, table 13 relates the data gathering and the concepts with the research question and sub-questions. That can be also a way of connecting both with the core goals of the research.

Table 13: Matrix of Research Methods

Research Question	Methodology	Actors involved	Variables
Who are the actors involved in the partnership?	Interviews and Analysis of literature	All	Organizational fit, the relationship between actors,
What is the role of government entities, private sector actors, and	Interviews and Analysis of literature	Government Private Sector Community Organization	Technical Support Provided List of roles taken in the partnership (Asset ownership, service provision,

community organizations in the partnership? <ul style="list-style-type: none"> • Ideal Roles • Implemented Roles 			maintenance, monitoring, and evaluation) Administrative systems are allocated for the partnership.
What are the interests of the different actors? <ul style="list-style-type: none"> • Mission Values • Organizational Values 	Interviews and literature Review	Government Private Sector Community Organization	Results shared on official communications channels, List of interests pointed out in the interview
How de-risking mechanisms have been implemented by the partnerships to cope with the rural water supply governance challenges?	Literature Review		Financial de-risking mechanisms Operational and maintenance de-risking mechanisms
Which are the risks perceived by the different actors inside the partnership?	Interviews	Government Community Organization Private sector	List of risks perceived to involvement in the partnership

4.3 Intermediary Conclusion

This chapter presented the operationalization aspect of the research. This is the space where all the problems and theoretical debates presented in the initial chapters find their representation in a real case that will be investigated.

The cases selected, SiSAR and Central, follow a basic model presented in this chapter. That model is the starting point for both experiences and aims at creating a self-sustainable and managed structure for rural water supply. It does so by focusing on community engagement, a participatory decision-making process, and an organizational structure that would accommodate the management of the challenges related to the rural water supply. However, despite sharing the same model, both cases have harvested different degrees of results, as will be shown in the next chapter.

Finally, the debate around methodological aspects of data collection and treatment allowed for the recognition of the instruments needed to answer the proposed research questions. Concerns around primary and secondary data and triangulation of sources were seen as key to providing a solid basis for the analysis that will follow in the next chapters.

Chapter 5 The CENTRAL and SISAR Experiences

- This chapter, will present how the model presented in the chapter before has been applied in the different contexts of Bahia and Ceará.
- This will allow to explore more on the history of the partnership arrangements, the growth of the models and main performance figures in terms of communities supplied, municipalities involved, number of water systems. This will be the first step in comparing the implementation of the partnership arrangement in both cases

5.1 The Central Experience

As stated before, the creation of the Central in Bahia is the first experience of the model in the country. Based on the failure to ensure the proper management of the supply systems built by the government and donors. Those systems were transferred to local communities and municipalities without the proper design of roles and responsibilities. Some years later, the systems were found with very low functionality and even not functioning. To respond to that the model was designed.

In Bahia, 3 different Centrals were created. The first and second ones at the beginning of the 1990s with the headquarters in the cities of Seabra (1995) and Jacobina (1998). More recently, in 2020, a Central in the municipality of Caetité was constructed to take over some of the systems of the one from Seabra and expand the model. The first and second Centrals were built under the scope of a cooperation project between the Government of the State of Bahia, via the State Company for Water Engineering and Sanitation (CERB), and the KFW. (Machado, 2019; Orrico, 2003)

As stated in the interviews, the allocation of the specific headquarters of the Centrals was based on the previous existence of regional branches of CERB. However, due to political pressure and other factors, like previous experience with the KFW, they were allocated to the cities of Jacobina, Seabra, and Caetite. This is important because it configures a major difference when compared to the SISARs distribution, which is organized based on the water basins inside the state of Ceará.

The spatial distribution of the municipalities that have the support of Central in their rural areas, and which Central is shown in figure 12 with presence in 44 municipalities in the state of Bahia¹⁵.

The 3 Centrals are completely independent of each other, as individual non-governmental non-profit organizations, and in 2018 a department was created in CERB to support their functioning of them. According to one of the interviewees (C7), the GECEN (Gerência de Apoio as Centrais – Department of Central Support) was created in 2018 to support the implementation of the Central model around the state, mainly with the development of the built infrastructure and bigger maintenance tasks. Some exchange of knowledge does happen between the management structures of the 3 Centrals, but no place institutionally agglomerates all initiatives.

Recently, a program approved by the World Bank by the Secretary for Rural Development (SDR) and the State Company for Regional Development and Action (CAR), has supported the

¹⁵ The municipality of Tanque Novo has the action of 2 Centrals (Seabra and Caetité) inside its area.

expansion and strengthening of the Centrals via a project called “Bahia Produtiva”. Component 2 – Water supply systems and household sanitation – explicitly quote the existence of an institution, like a CENTRAL, as a condition for the implementation, expansion, or recovery of a supply system. The budget for that component is US\$ 63.9 million, with US\$51.2 million being funded by the World Bank, via the International Bank for Reconstruction and Development -IBRD (Bahia, 2021)

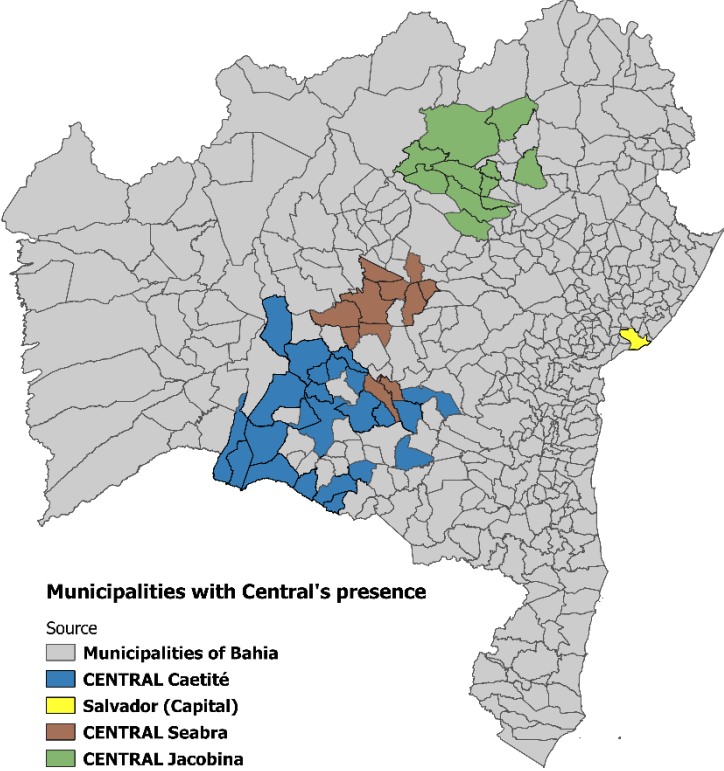


Figure 12: Distribution of Central Associations across the State of Bahia. Source: Elaborated by the author

The main operational indicators, the number of people supplied, of Central can be found in Table 14. This figure is related to the numbers before the full implementation of the Central in Caetité, which was ongoing during the data collection for this thesis, that’s why the number of municipalities differs from the listed above.

Table 14: Key figures of Central in Bahia

Municipalities	27
Number of community associations	147
Number of communities supplied	220
Number of water supply systems	92
Number of water connections	22.027
Approx. number of people supplied¹⁶	70.000

Source: (Moreira, 2021)

Finally, with regards to the experience in general, studies have been done to highlight how the inclusion of the communities in the Central management model has had a successful impact on the water consumption rate, lower money used in water purchasing, and other health and

¹⁶ The number of people supplied is an approximation based on the average number of inhabitants per household for the area from the national census published by the Statistics department of the Federal Government.

productivity impacts like a lower incidence of diarrhea and time needed to fetch water. Another set of results observed is the increase in the management and planning capacity, once the connections are metered and the data around water consumption can be observed closely. (Machado, 2019; Orrico, 2003).

5.2 The SiSAR Experience

Although it was implemented in a different state, the inception of SiSAR is similar to the one of Central. The process was initiated by the creation of the first SiSAR in the state, founded in 1996, and was also a loan from KFW together with the state of Ceará. The difference, however, relies on the expansion of the model all over the state.

In the early 2000s, after the implementation of the first SiSAR, in the Basin of the rivers Acaraú and Coreaú (SISAR – BAC) with the headquarters in the city of Sobral, the state of Ceará, more specifically the state water utility CAGECE, support the creation of 7 other SISARs. The units are divided based on the different water basins of the state, and that is the same division applied by the water utility in its services. That expansion is referred to in the literature (Albuquerque Neto, 2011; Carvalho, 2019; Freitas et al., 2015; Rocha & Salvetti, 2017a) as a sign of the state's belief in the management model. Figure 13 presents the 8 SiSAR units in the state of Ceará with their foundation years.

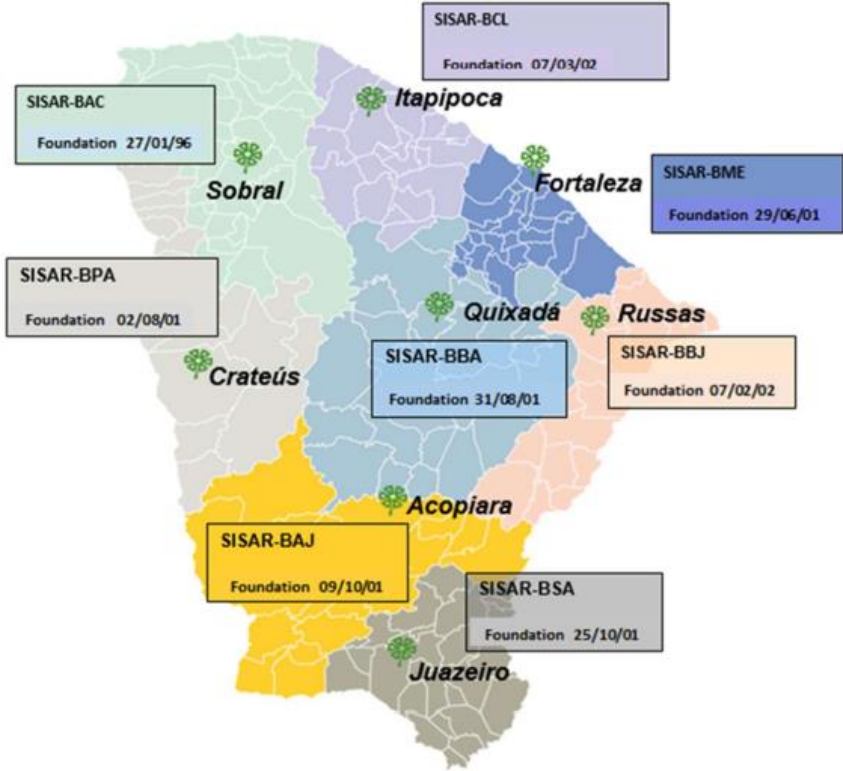


Figure 13: SiSAR units and year of Foundation

Source: Carvalho (2019)

Similar to the “Bahia Produtiva” project in Bahia, the São José project in Ceará is also funded by the World Bank with the State secretary of Rural Development (Secretaria de Desenvolvimento Agrário - SDA). The São José project is in its 4th phase, and previous versions (I – 2000, II- 2008, and III - 2012) were pivotal for the expansion and construction of supply systems that were later operated by SiSAR. (SiSAR, 2021)

On the São Jose IV, component 2.1 refers directly to the expansion of rural water supply systems. With a budget of US\$ 49.13mi (US\$32.72 from the World Bank), the component also lists the SiSAR as the preferred management system for the infrastructure. However, this project goes a step further than the one in Bahia. It points out that the project will support a specific number of communities prioritized by SiSAR. This not only supports the model but gives it an important role in the budget allocation decision. (G. d. C. Ceará, 2020)

Although the 8 SiSARs are independent non-for-profit non-governmental organizations of their own, they do come together under 2 structures. First inside the water utility of the State, and the second on a particular Institute created by the SiSARs. In 1999, was created the Department for Rural Sanitation (Gerência de Saneamento Rural – GESAR), which has the role to support the operations in the rural areas, or more specifically, supporting the different SiSARs. It is a space that the SiSARs to talk to inside the water utility and can provide them with the necessary technical support in terms of operations. One example of this engagement is the Monthly Result Meetings that are held by CAGECE every month and all the SiSARs participate in a discussion around social, operational, and other key indicators. (Freitas et al., 2015)

Another important arena that congregates all the SiSARs is the SiSAR Institute. This was created in YEAR by all the 8 SiSARs and is an institution that supports specific actions for all the 8 units in terms of technical, administrative, and social sustainability, acting to support the strengthening of the model and its national and international reach. Each SiSAR contributes 1% of the funds raised with the water bills. In practical terms, as informed by one interviewee, it can negotiate agreements with private organizations willing to support the organization (like the Avina Foundation, or the Coca-cola Institute). (Cortez, 2021)

In operational terms, SiSAR has been able to harvest considerable results through over 20 years of existence. The comparison brought in tables 15 and 16 shows how the system has been able to expand its reach to approximately 40% of the rural population of the state of Ceará being supplied with metered and treated water.

Table 15: SiSAR Results in 2001

SISAR	Municipalities	Communities	Water Connections	Population served
Sobral	22	30	7.895	35.843
Acopiara	2	4	342	1.553
Quixadá	3	8	358	1.625
Russas	1	2	168	763
Itapipoca	1	1	127	577
Fortaleza	3	7	475	2.157
Crateús	2	6	466	2.116
Juazeiro	1	2	150	681
Total	35	60	9.981	45.314

Source: (Cortez, 2021)

Table 16: SiSAR Results in 2021

SISAR	Municipality	Water Systems	Communities	Total Connections	Population Served	Basic Tariff (up to 10m ³)	Percentage of rural population Supplied
Sobral	33	177	212	41592	157218	R\$ 12,50	42%

Acopiara	18	152	306	23436	88588	R\$ 13,50	30%
Quixadá	23	183	337	31445	118862	R\$ 13,53	32%
Russas	17	72	226	20219	76428	R\$ 12,30	40%
Itapipoca	20	127	302	25597	96757	R\$ 12,50	36%
Fortaleza	17	77	111	12704	48021	R\$ 14,80	26%
Crateús	16	261	261	38586	145855	R\$ 12,10	62%
Juazeiro	26	192	255	31852	120401	R\$ 14,50	42%
Total and Average	170	1241	2010	225431	852129	R\$ 13,22	40%

Source: (Cortez, 2021)

In financial terms, and related to the debate around self-sustainability, the 8 SiSARs have presented a considerable financial performance in the last years, something that has been investigated before Albuquerque Neto (2011). As shown in table 17, all the unities have been able to charge for and collect an amount higher than the expenditures. That has a lot to do with the debate around organizational fit and collaborative advantage. For example, in the year 2020 as a consequence of the economic crisis caused by the pandemic context, the state of Ceará, via the Secretary for Cities, supported the payment of all the bills for the families that used up to 10m³. A more detailed discussion will be presented in the organizational fit section. (G. d. Ceará, 2020)

Table 17: Financial Figures of SiSAR

SISAR	Amount Billed (R\$) 2020	Amount Raised (R\$) 2020	Expenditures (R\$) 2020
Sobral	R\$ 7.794.679,32	R\$ 7.236.423,41	R\$ 6.393.126,16
Acopiara	R\$ 3.835.645,20	R\$ 3.513.328,02	R\$ 2.230.781,56
Quixadá	R\$ 5.423.202,52	R\$ 5.128.287,68	R\$ 3.711.502,58
Russas	R\$ 4.153.336,80	R\$ 3.631.238,20	R\$ 2.999.002,26
Itapipoca	R\$ 4.254.494,75	R\$ 3.995.830,37	R\$ 3.317.966,49
Fortaleza	R\$ 2.415.501,82	R\$ 2.036.295,30	R\$ 2.011.860,39
Crateús	R\$ 6.767.984,67	R\$ 6.254.165,62	R\$ 4.372.602,24
Juazeiro	R\$ 6.400.988,72	R\$ 6.282.730,40	R\$ 5.686.875,83
TOTAL	R\$ 41.045.833,80	R\$ 38.078.299,00	R\$ 30.723.717,51

Source: (Cortez, 2021)

A wealth of case studies has been published around the functionality and impacts of SiSAR, mainly in Portuguese, but also with some examples in Spanish and English. And the results obtained by the organization in terms of impacts on the community's life are similar to the one highlighted for Central, although on a different scale.

What this section shows, is how the model implemented by SiSAR and Central differs from the "traditional" models used for rural water supply. From the type of community engagement to the fact that the water is supplied in individual metered connections, including the tariff structure, the model is successful in integrating the efficient aspects of each paradigm. That is done through a partnership arrangement that ensures organizational fit, risk-sharing, and value generation.

Also, important to highlight, that since Central and SISAR operate under the same model, that cannot be used as an explanation for the difference in the degree of results obtained by the initiatives. Both initiatives have been able to continue to operate for over 20 years is already an important result considering the low functionality challenge shown in rural water supply

studies. However, the analysis of the partnership implementation, proposed in the next sections, can offer important insights to understand the different degrees of results and contribute to the development of the initiatives and the development of rural water supply structures.

5.3 Intermediary Conclusion:

This chapter presented the implementation of the model presented in section 4.1.1 in the states of Bahia and Ceará. Despite the similarity in the initial stage of the model, this section pointed at the difference in the numbers harvested by both experiences over the 20 years they have been applied.

The CENTRAL, in Bahia, was created from the initial low-functionality of the traditional community management systems. Older than the one in Ceará, this partnership has been developed around three units (Seabra, Jacobina, and Caetite) in the state, supplying over 70 thousand people in 27 different municipalities. The independence of the units from the state government, and consequential lack of support, have shaped the partnership in a certain way as will be shown in the next section.

On the other hand, SiSAR, in Ceará, took advantage of the model in its early stages of implementation, after Bahia, and introduced it in the State. Shortly after, and with the great support of the state government, the partnership was expanded to reach over 700 thousand people, in 8 units, covering all of the state areas. The experience even created an Institute to provide support to all the 8 units and act as a representative for them. The next section will also look at the different actors involved in each partnership and their roles and responsibilities.

Chapter 6 Partnership Analysis – Data Collection

- This chapter presents the data collected in terms of Organizational Fit, Risk Sharing and Value Generation in the SiSAR and Central contexts.
- The data presented in this chapter serves as the basis for the partnership analysis that is proposed in this thesis and will be directly linked with the results section that follows.

According to Rethemeyer (2005) apud Bryson et al. (2006): *Part of the intellectual challenge of studying cross-sector collaboration is blending multiple theoretical and research perspectives.* Amid that consideration, this section aims at elaborating on the analysis of the building blocks of the research presented in chapter 3.

The analysis of the organizational fit, risk-sharing and value-generation is aimed at elaborating a framework that would grasp the implementation of the partnership. Each of the 3 components will be given a specific sub-section inside the chapter. Theoretical definitions will be presented and will be compared with the observed in the fieldwork and with the interviews.

6.1 Collaborative Advantage – Organizational fit

Since Organizational fit describes the internal match or the compatibility between the actors that are part of the partnerships (Van Tulder & Pfisterer, 2013) two key questions were analyzed under this category. Firstly, considering a tripartite partnership, who are the actors that compose the partnership? Secondly, what roles and responsibilities rely upon them?

The idea of defining the organizational fit in the terms of these two questions aligns to analyze the implementation of partnerships. For example, when trying to define organizational fit Austin and Seitanidi (2012a) present it as a potential and a spectrum, referring to the “*degree the collaborating organizations can achieve congruence in their respective perceptions, interests, and strategic direction*” and something to be looked for in the design of the partnership (Austin & Seitanidi, 2012a, p. 932). However, how that unfolds in terms of the partnership implementation needs to be expressed.

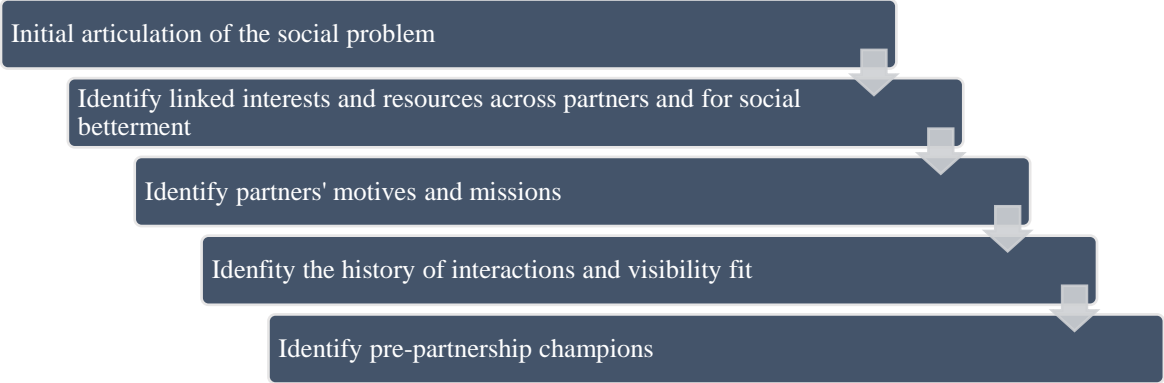


Figure 14: Partnership Fit Potential Source: Austin and Seitanidi (2012a)

Analyzing organizational fit, in terms of the two aforementioned questions, can pave the way to understanding the different degrees of results achieved. Also, can be a source of collaboration with the idea that the partnership is needed in face of the fact that the outcome could not have been reached by one of the actors acting independently.

On the categorization of the actors, since both SiSAR and Central engage a wide variety of actors, some of them fall into the traditional sectors, such as the private sector, government, and civil society. However, some of the organizations are part of the so-called Hybrid organizations, mixing “characteristics of state, market, and civil society”(Brandsen & Karré, 2011).

That last piece, on hybrid organizations, is important to consider given the complexity of the 2 partnership arrangements. For example, the SiSAR and CENTRAL units, are not-for-profit organizations, but still operate as a private organization in terms of purchasing processes (different from the state public buying arrangements), and are registered as corporate legal entities, that operates in a field of public interest¹⁷

6.1.1 Organizational Fit in the Central Context

Based on the model that was presented in chapter 4 and the idea of a tripartite partnership it is important to recognize the actors that compose the partnership in the Central context. The presentation will be distributed by the traditional categories and a category dedicated to hybrid organizations.

From the government, or state-related, actors it is possible to identify the National Government, State government, and the municipalities. From the state government, particular agencies and secretaries have specific engagement in the partnership. Specific focus is given to the State-company for Regional Development and Action (CAR), the State Company for Hydrological Engineering and Sanitation of the State (CERB), inside CERB, a specific branch of the company that is responsible for supporting CENTRAL that is the Department for the Support of the CENTRAL initiatives (GECEN), and the State Sanitation Company (EMBASA).

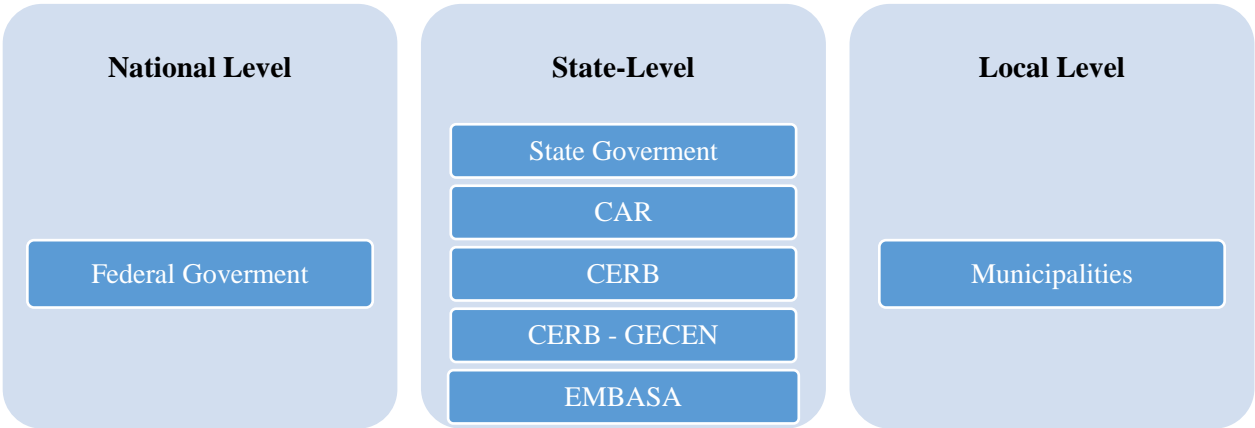


Figure 15: State Actors involved in CENTRAL

From the Civil Society, 4 actors are actively involved in this partnership, as expected this focuses on the sphere of action of the Centrals, a specific community. Given the condition for engaging in CENTRAL to be the existence of a community association, that is the first actor of that realm. Closely to that, the other 3 are the community president, the water operator, and the

¹⁷ For the Brazilian Legislation there is a concept of an OSCIP (Civil society organization of Public Interest) that is legal qualification attributed to private entities that operate in areas that are traditionally dominated by public services and that can receive funding from the State or other non-profit organizations.(SEBRAE, 2019)

water users. That level of breakdown is both informed by the observations on the field, the interviews, and the distribution of roles and responsibilities that will follow.

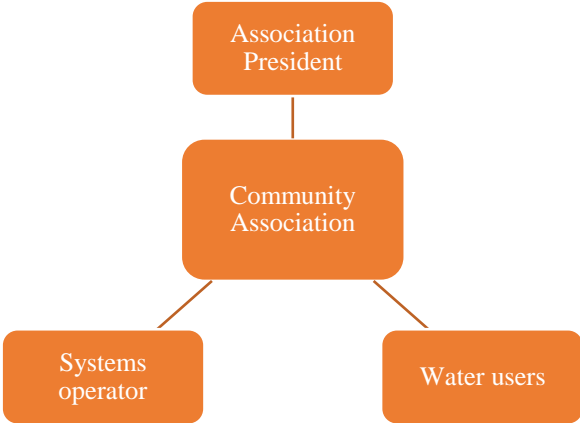


Figure 16: Central Civil Society Actors

The last traditional category is private sector actors. This area was challenging since the definition of a private sector actor is usually based on profit-based actors. However, in this case, financial actors and the institutes and foundations could be included since they are closer to this realm than they are to the other ends of the spectrum. Thus, the list of private sector actors would be populated by the World Bank (WB), the Consultants hired by the different projects of the bank, the Avina Foundation, the Coca-Cola Institute, and AMBEV. The last three are linked since the Avina Foundation acts as a facilitator between the initiatives that bring together the Coca-cola institute (named Agua+Acesso) and AmBEV (AMA initiative).

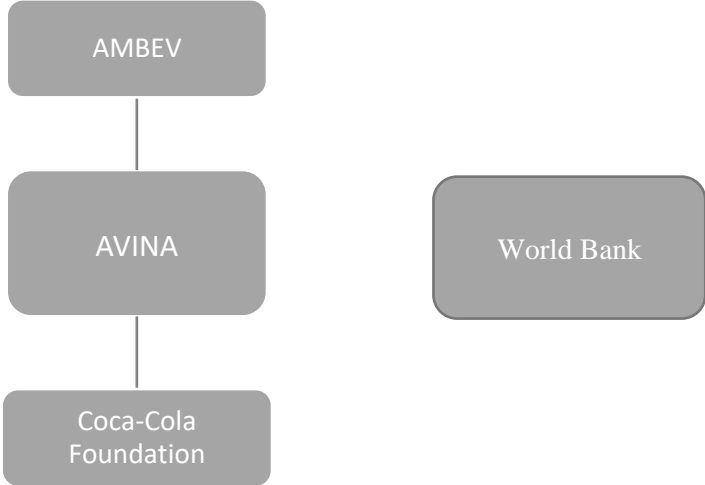


Figure 17: Private Sector actors involved in Central

One of the interviewees specifically raised concern about what private sector actors were considered partners. For that person, some of the private sector actors could not be considered partners because they take no risk, and do not engage deeply in the partnership. In the interviewee’s words: “They can’t be considered partners, because they come, do something and leave [...] there is no ongoing relationship and risks taken” (Interview C7). Nevertheless, since they play a role, that could not be played by any of the other actors as efficiently as they do it, they are still considered in the partnership analysis. A more elaborated discussion on this will follow on the roles and responsibilities piece.

Finally, the last group of actors is the ones related to the Hybrid Organizations. In this category, the main pieces are the Central Units and their General Assembly. They are hybrid organizations since they accumulate dynamics of state (public service provision), private sector (purchasing process, and the fact that can't operate under debt), and strong civil society presence.

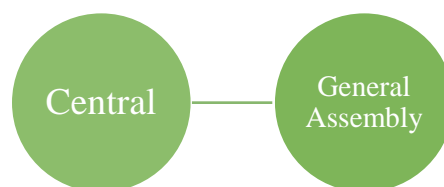


Figure 18: Hybrid Organizations in Central

With the actors that are part of the partnership presented, table 18 sets the main roles and responsibilities of the actors and who are the other actors they work closely with. The information to fill the table was gathered in the interviews and the official documents shared.

Table 18: List of Roles and Responsibilities inside Central

Actor	Category	Roles and Responsibilities	Works closely with
Federal Government	State	Overall regulation of Service Provision	State Government, Municipalities
State Government	State	Ownership of state companies; Allocation of funds for systems building and maintenance (Contribution to the World Bank Projects)	CERB, EMBASA, CAR, Municipalities
CERB	State	Construction of Rural Water Supply Systems (Well drilling, Pipe purchase) Technical support on more elaborate maintenance works.	GECEN, World Bank, CENTRAL, State Government
GECEN	State	Administrative Support for the Central Model; Political Coordination between the state government and the Central	CERB, CAR, State government, Central
Municipalities	State	Grant Service Provision rights to Central; Payment of Operator subsidy and Energy Bills (Of some communities)	Central, Community Associations
EMBASA	State	Water Quality Monitoring (laboratory); Hydrometers calibration	Central
CAR	State	Contracting Consultants for specific demands; Executing World Bank Loans (Bahia Produtiva Project);	World Bank, Central, Consultants
Central	Hybrid	Financial Management of Supply Systems, Capacity-Building for Water Operators, Support for the Communities (in terms of the structure of the association) Building Water network expansions and installing meters in the new connections, Reporting back on the funds allocated by the different projects, Elaborated maintenance on water systems, Issuing water bills, Administrative and financial management of the multiple community systems Provide economy of scale to the unitary systems,	CAR, CERB, GECEN, Municipalities, Embasa, Consultants, General Assembly, World Bank, KFW, Avina Foundation, Community Association, Water users, Water operators,
General Assembly	Hybrid	Setting Water Tariff, Strategic decisions	Community Association President and Central

Water Operator	Civil Society	Operate the Water System of a given community; Read the Meters for issuing the bills; Distribute the water bills; Small maintenance (e.g. small leaks, support new connections) and Water Quality monitoring (Chlorine, Ph).	Central, Community Association, and Water users
Community Association	Civil Society	Accepts, via a meeting decision, the action to join Central, Appoints water operators and Association President Sets association tariff piece of the water bill	Municipalities, Central, Community Association president, Water users, and water operators.
Association President	Civil Society	Represents the Association in the General Assembly, Can be appointed as a member of the Administrative or Fiscal Council	General Assembly and Community Association
Water Users	Civil Society	Pay the Water Connection Tariff, Pay the Water Bill Join the community association	Community Association, Central and Water operator
AVINA Foundation	Private Sector	Builds the Dialogue between private companies and Central; Seek new partners and funding for initiatives;	Central, Ambev, and Coca-cola Institute
Coca-Cola Institute	Private Sector	Finance initiatives to rebuild and modernize supply systems (e.g. solar panels, chlorine factories)	Avina Foundation and Central
Ambev	Private Sector	Finance initiatives to rebuild and modernize supply systems (e.g. solar panels, chlorine factories)	Avina Foundation and Central
World Bank	Private Sector	Funding of Water supply Systems; Hire Consultants for specific support, Evaluate project implementation;	CAR, CERB, Central

Source: Elaborated by the author

What started with an initial collaboration between the KFW, funding the supply structure and allocating it, the CERB building the systems, and the communities operating them, evolved into a complex partnership that involved multiple actors from different societal spheres. However, the creation of the Central acted as a central pivot bringing the different actors closer to the partnering space, figure 2. Although the KFW has no active role in the current structure of the partnership, it is also worth mentioning its importance at the beginning of the structure.

The distribution of roles and responsibilities in the partnership has also allowed the partners to create the necessary economy of scale at a level that would allow it to be useful and contribute to the functionality of the service provision. The contrary, for example, would be to expect the community to have the conditions to pay for large maintenance and systems construction, or even, build the scale at the state level, which would be too distant from the communities and privilege the ones closer to the capital or headquarters.

That analysis contributed to what was proposed in the debate raised by Bryson et al. (2006) on Proposition 2 that the cross-sectoral collaborations are more likely to succeed when the notion of individual failure to address the problem is already known. That can be observed in the previous experience that motivated the creation of the model mentioned (Orrico, 2003). But the materialization of that proposal is the partnership arrangement in place and described in figure 19.

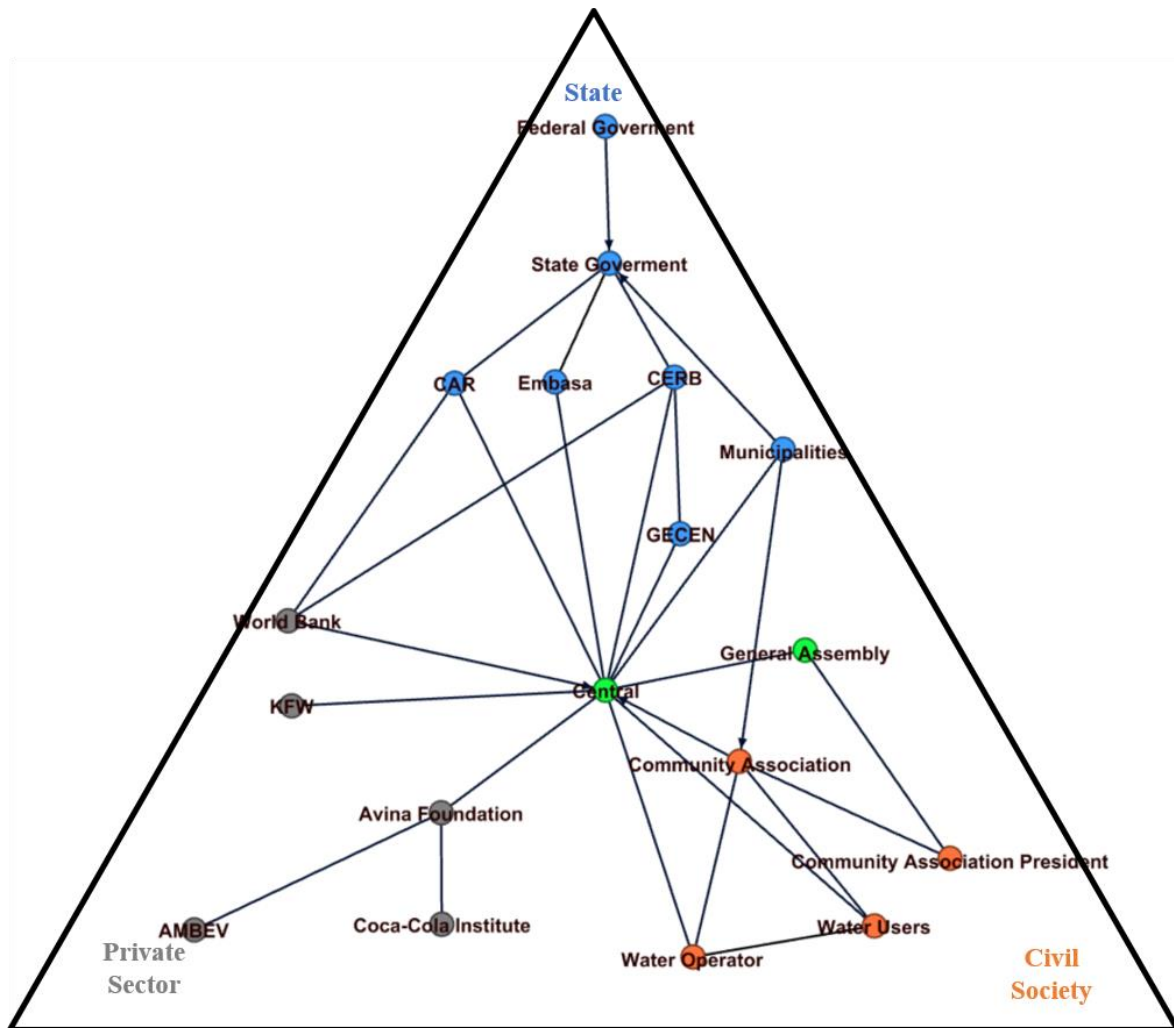


Figure 19: Organizational Fit of the Central Partnership

6.1.2 Organizational fit in the SiSAR context

Since SiSAR and Central follow the same model, one could assume that they would have the same organizational fit. However, the developments in the implementation of the initiative, and the contextual differences, in terms of government involvement, for example, led to a slightly different arrangement.

From the government or state category, the Federal government actor is still present. Here, however, the National Health Foundation (FUNASA) which has representation in all the states of the country, is more present. From the state level, the structure created is more complex and it's composed of the State government, the Secretary for Agricultural Development (SDA), the Secretary for Cities (SC), and the State Sanitation Company (CAGECE). Inside CAGECE it is relevant to mention a department that was created, in 1999, to manage rural sanitation, GESAR, and the two sections that are under it, the Management section and the Works Section. Those are important to mention since they are key players that relate with other government actors, for example, the works section is hosted by the Secretary for cities and is pivotal in the construction of new systems and the execution of the "Águas do Sertão" Program with the KfW.

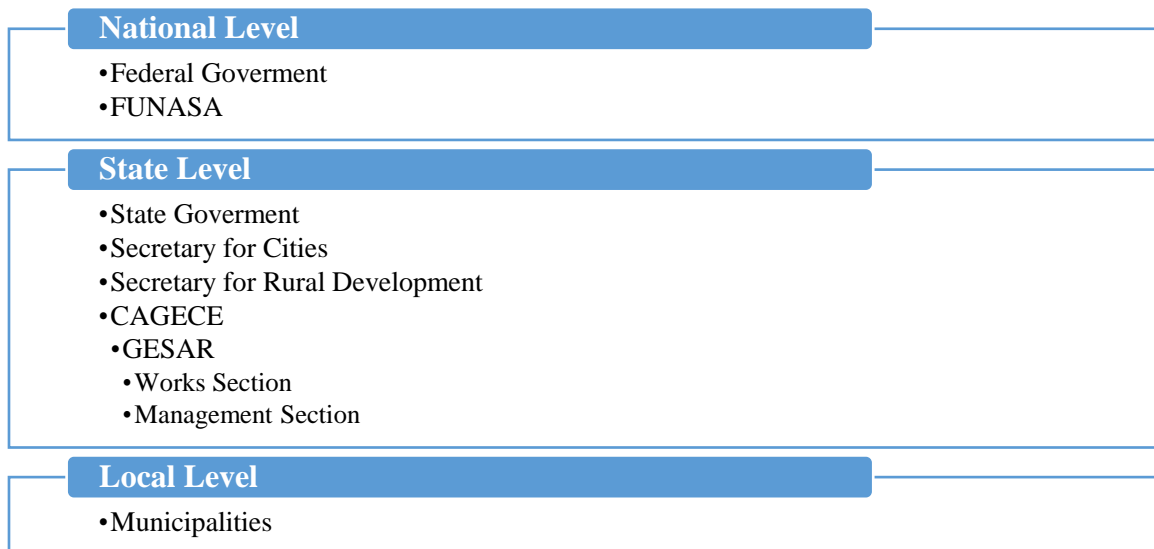


Figure 20: State Actors involved in SiSAR

From the civil society category, the list of actors involved is very similar to the one of Central. As it was explained in the model debate, the structure built in the communities for the management of the systems is based on the partnership. Here it is also composed of a community association, with an association president, the system's operator, and the water users.

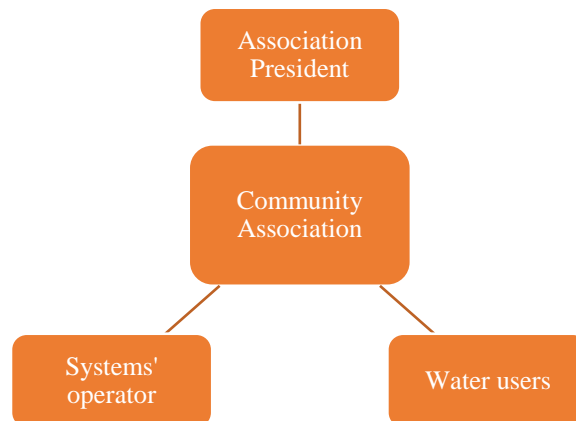


Figure 21: SiSAR Civil Society actors

In the private sector end, the presence of the Coca-cola Institute and Ambev is intermediated by the Avina Foundation as well. However, in the SiSAR context, the KFW has a more active role. Together with the initial funds, via loans, for the inception of the management model in the state (Ceará I, II, and III) the state government has taken a grant to continue the support the expansion of the program (interviewee S18). As mentioned before, the World Bank also compose a group of private sector actors, via the “Sao Jose” project, which funds a component of water supply systems for rural areas in the state. The particularity here is that while in Bahia, Central is recognized as one of the possible management structures that need to be in place to access the funds, in Ceará SiSAR is involved in the definition of the areas that will receive the funds, as in the management procedures of the project. (Bahia, 2021; G. d. C. Ceará, 2020)

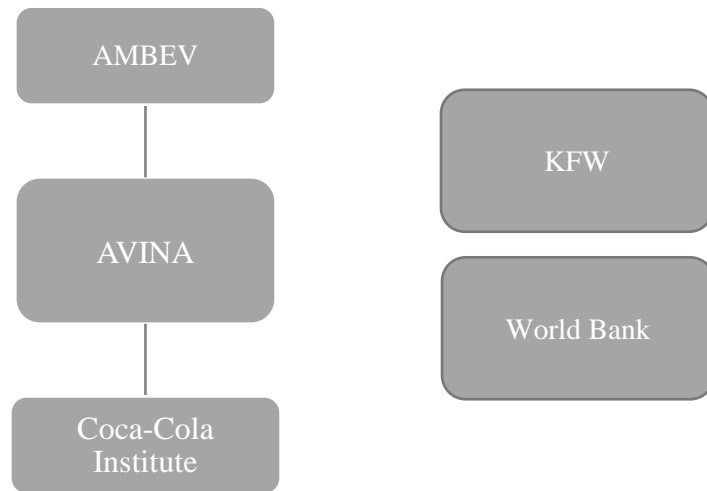


Figure 22: Private Sector Actors in SiSAR

Finally, in the hybrid organizations, innovation and a major difference in the Organizational Fit between SiSAR and Central are found. SiSAR was able to create an Institute that facilitates the relationship between the eight units and suppliers and other private actors. Beyond that, it also facilitates the direct engagement between SiSAR and other government actors, when a stronger legal entity is needed for that end. An example of that is the Technical Cooperation agreement signed between the Institute and the National Health Foundation (FUNASA) for the management of the supply systems built by the foundation. (Brasil, 2021a)

The other hybrid organizations follow the same structure as the one observed in Central. That is the SiSAR unit and the General Assembly that manages it.

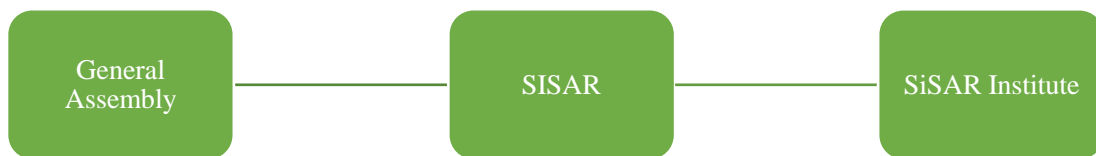


Figure 23: Hybrid Organizations in SiSAR

Given the array of actors described before, the next step would entail defining their roles and responsibilities inside the partnership arrangement. To do that, table 19 presents them in a systematic way

Table 19: Roles and Responsibilities in the SiSAR context

Actor	Sector	Roles and Responsibilities	Works Closely with:
Federal Government	State	Regulate service provision	Funasa, State Government
FUNASA	State	National Government body responsible for rural sanitation, Fund water supply systems	Federal Government, State Government, Municipalities, SiSAR Institute
State Government	State	Ownership of state agencies and companies Elaborate public norms for rural water supply provision; Allocation of funds for systems building and maintenance (Contribution to the World Bank Projects)	Federal Government, Funasa, Secretary for Cities, Secretary for Agriculture Development, CAGECE, municipalities.

Secretary for Cities	State	Manages the Grant from KFW, Supports system building and public purchasing	KFW, Municipalities, Works Section, State Government, CAGECE
Secretary for Agrarian Development	State	Manages the World Bank Projects (and funds), Support the creation of associations and cooperatives	CAGECE, GESAR, SiSAR, World Bank, State Government
CAGECE	State	State utility brings the technical and operations standards to SiSAR; Supports the purchasing systems	State Government, Secretary for Cities, Secretary for Agrarian Development, GESAR, KFW, World Bank, SiSAR
GESAR	State	Supports the Management of SiSAR Units, Oversees systems Building, Facilitates political dialogues; Develop the guidelines and monitor the implementation of rural sanitation policies in the State; Provide technical standards for construction and operation of supply systems	CAGECE, Secretary for Agrarian Development, Works Section, Management Section, SiSAR, General Assembly, Community Association
Works Section	State	Manage the construction of supply systems, Execute the loans from the World Bank and the KFW in terms of system building; Channel state-based resources for rural systems	Secretary for Cities, GESAR, KFW, SiSAR
Management Section	State	Support the communities to participate in the management structure, Capacity building and organizational strengthening of SiSAR and the communities; The social aspect of the management	GESAR, SiSAR, World Bank, General Assembly, Community Association
Community Association	Community	Join SiSAR Elect a President and select the system operator Sets association tariff piece of the water bill	GESAR, Management Section, SiSAR, President, Water users, System Operator
Water System Operator	Community	Operate the Water System of a given community; Read the Meters for issuing the bills; Distribute the water bills; Small maintenance (e.g. small leaks, support new connections) and Water Quality monitoring (Chlorine, Ph).	SiSAR, Community Association, Water Users
Water Users	Community	Pay the Water Connection Tariff, Pay the Water Bill Join the community association	SiSAR, Community Association, System Operator
Community Association President	Community	Represents the Association in the General Assembly, Can be appointed as a member of the Administrative or Fiscal Council	Community Association, General Assembly
Ambev	Private Sector	Finance initiatives, funds, to rebuild and modernize supply systems (e.g. solar panels, chlorine factories)	Avina Foundation, SiSAR Institute
Avina Foundation	Private Sector	Builds the Dialogue between private companies and Central; Seek new partners and funding for initiatives	SiSAR Institute, Coca-cola Institute, Ambev, SiSAR

Coca-Cola Institute	Private Sector	Finance initiatives, funds, to rebuild and modernize supply systems (e.g. solar panels, chlorine factories)	Avina, SiSAR Institute
KFW	Private Sector	Hire Project managers to execute the loans and grants Coordinate loan terms with the fund providers,	Secretary for Cities, Works Section, SiSAR, CAGECE
World Bank	Private Sector	Finance system expansion and construction of new systems	CAGECE, Secretary for Agrarian Development, Management Section, SiSAR
General Assembly	Hybrid	Setting Water Tariff, Strategic decisions and investments, Oversees financial and administrative numbers of SiSAR unit	SiSAR, President, GESAR, Management Section
SiSAR Unit	Hybrid	Financial Management of Supply Systems, Capacity-Building for Water Operators, Support for the Communities (in terms of the structure of the association) Building Water network expansions and installing meters in the new connections, Reporting back on the funds allocated by the different projects, Training for water operators, Elaborated maintenance on water systems, Issuing water bills, Administrative and financial management of the multiple community systems Provide economy of scale to the unitary systems	CAGECE, GESAR, Works Section, Management Section, Secretary for Agrarian Development, Municipalities, KFW, World Bank, SiSAR Institute, Avina Foundation, Community Association, System Operator, Water Users, General Assembly
SiSAR Institute	Hybrid	Facilitate Discussions with private companies, Facilitate political coordination, at all levels. Give more administrative and financial scale to all SiSAR units, via a coordination unit. Strengthening of the SISAR Brand,	SiSAR, FUNASA, Avina Foundation, Coca-Cola Institute, Ambev, Private Companies

Similar to the Central context, the organizational fit brings an extensive list of actors involved with different roles and responsibilities around the partnership. To place them, and the different relationships and connections inside the organizational fit idea would result in figure 24.

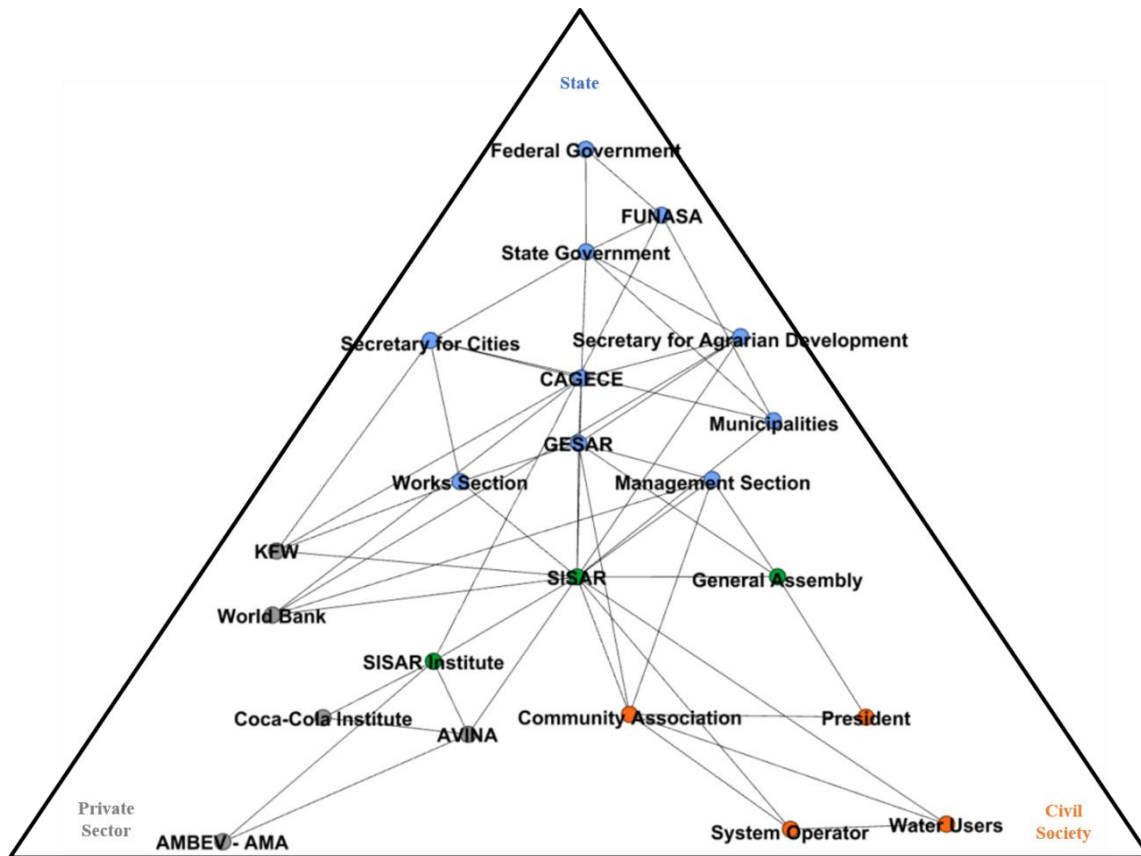


Figure 24: Organizational Fit in the SiSAR context

It is possible to realize how in the organizational fit of SiSAR there are more connection points between the traditional actors. For example, the SiSAR Institute builds a bridge between the private sector actors and the SiSAR units, where all the units can be represented by one body, which is not a government-supporting agency.

On the other side, the higher presence of government actors can be seen in two ways. The first one is that it allows SiSAR to facilitate the political coordination among the different levels and build trust among the community, as observed in (Moraes Carvalho et al., 2020). But it can also lead to a perception of instrumentalization of the initiative by the government. A more detailed discussion on what the data gathered on the organization fit means, and how that dialogues with challenges presented before will follow in the next chapter.

6.2 Risk Sharing

The analysis of risks is a fundamental part of partnership arrangements. Combined with the roles and responsibilities discussion, the section before it complements offers a comprehensive understanding of the partnership implementation. It also serves as a bridge to link the partnership analysis with the water governance debate proposed in Zwarteveen et al. (2017) expands the debate from water allocation to include distributions of power and risk.

The risk-sharing component has 2 building blocks: the theoretical risks of partnerships presented in the previous chapter and the risk perception collected from the interviewed actors presented. Since this section focus on showing the results of the data collection, it will focus on presenting the second block. The next chapter, dedicated to the analysis of the data will focus on creating the bridge between the two blocks and elaborating on what they mean for the partnership and the contexts.

6.2.1 Risks perceived in the partnership arrangement

During the data collection phase, the interviewees were asked to describe which ones were the main risks associated with their engagement in the partnership. The question allowed them to list the risks they perceived without mentioning any specific categories or options to be selected. The question was also elaborated in a way that would fit both risks coming from a technical and infrastructural side and the ones related to the partnership itself. Once the participants asked for a clarification on the meaning of risks the conceptual description above was mentioned and some generic examples (e.g. technical risk, financial risk) were mentioned.

A wide variety of risks were mentioned by the different actors interviewed. Mostly they can be aggregated into 4 risk categories. The first group is related to the operational risks. These are related to the operations and maintenance of the systems and are closely linked with the technical risks listed before.

The second category is related to Political risks. While table 9 looks at some examples of political and regulatory risks, the *Encyclopedia Britannica* list them as the ones related to political decisions, events, or conditions (Mathee, 2017). While that definition can be particularly useful from a private actor's point of view, it has to be expanded once the government actors and civil society agents are included in the process. One example of that expansion is the inclusion of the electoral risks inside political risks. The electoral risks are related to the consequences and actions needed to get votes inside a specific democratic process. A more detailed description of the risks that belong to this category can be found in the mentions in the table.

The third category is Financial risks. These are related to the funds and other financial instruments that are mobilized or executed inside the partnership, for example, loans and grants. They have a clear intersection point with the two aforementioned risks since they are crucial to the different operational phases of the project and can be used as a political tool.

Finally, there is the category of partnership-related risks. This category is complementary to the ones that are most related to the project or the supply system. The social risks here are closely related to the ones presented in Figure 3 but expanded to include the dynamics of tripartite partnerships and risks directly related to the context and legal/institutional environment where the partnerships take place.

With those categories in mind, Table 20 shows the list of different risks as well as the actors that mentioned it and the ones mostly affected by the consequences of those. Together with the risk category, the table adds a short description of the risk and some of the impacts it may have.

It also adds a mitigation strategy, which was mentioned by the different interviewees that mentioned that risk. This description is the result of the data collection and does not influence the researcher

Table 20: List of risks mentioned in the interview. Elaborated by the author

Type of Risk	SiSAR or Central	Risk Description	Risk to what actors?	Mitigation Strategy
Financial Risk	SISAR	Financial risk is related to the change of funds from donations to loans from the KFW.	Government Actors, SiSAR Units	Co-design of the loans with the Lender, in terms of government support.
Financial Risk: Tariff Collection	SiSAR	Ensure that the tariff represents a fair cost while the unit is also capable of collecting the money and sending it back to the community	SiSAR Unit and Community	Establish a professional (commercial) tariff collection mechanism via water bills
Operation Risk	SiSAR and Central	Lack of reliable water sources for supply of the communities	Water users	
Operational Risk	Central	Since Central operated alone for so long, it may have created vices or habits that will drag it away from the partnership	Central Units, Funders	Strengthening of Central's operational capacity as part of the project
Operational Risk	Central	Municipalities with too much power over the service provision and acting to fulfill their electoral interests	Government Actors	More decision-making power to the communities and the creation of the Central
Operational Risk	Central	Lack of administrative and financial efficiency in the Central.	Central and funders (Private sector and government)	Consultancy related to that paid in the project (involvement of external consultants)
Operational Risk	SiSAR	Operation and continuous functionality of funded supply systems	Water users, SiSAR Units, Government Actors	Monthly results meetings
Operational Risk and Partnership risk	Central	- Poor Allocation of roles and responsibilities: o "Sometimes you have the CERB telling them that it is Central's responsibilities and the other way around"	All actors	
Operational Risk: Energy Bill	SISAR	Energy Bill: The cost of the energy bill becomes too high for the water users	Water users	
Operational Risk: Inception	SISAR	Related to the creation and initial application of the model (Vote of confidence)	CAGECE	
Operational Risk: Legal	SISAR	Legal safeguards on the service provided by the SiSAR unit together with the municipalities	SiSAR Unit and CAGECE	Creation of cooperation agreements that have to be celebrated between the unit and the municipality
Operational Risk: Urbanization	SISAR	The urbanization process of some of the rural areas that are supplied by SISAR ("with water, people started to come back and live here")	SiSAR Unit	

Operational Risks: Infrastructure Sustainability	SISAR	Related to the low degree of sustainability of infrastructure designed for rural water supply	Investment actors + Cagece	CAGECE allows rural water supply infrastructure to have its design and construction closely linked to the management structures that will be responsible for that infrastructure once it is done. "Construction and management are thought together"
Partnership Risk	Central	The risk that the partnership or engagement will not continue once the project (and the funds related to it) end	Central, government actors, and World Bank	
Partnership Risk	Central	Lack of a manual, or guiding document, that regulates the partnership and establishes the division of roles and responsibilities	Government Actors, Private sector actors	
Partnership Risk	SISAR	Loss of political priority and engagement of government actors in the partnership (e.g. CAGECE leaving SiSAR).	Government Actors and SiSAR units	
Political Risk	SISAR	SiSAR is being used as a political discourse of a given government/candidate	SiSAR Units and CAGECE	SiSAR units as independent organizations with the decision-making space populated by the community associations
Political Risk	SISAR	Water services were used as a political bargain resource, with communities and rural areas that supported a particular candidate being "awarded" supply systems	Community	SiSAR and CAGECE are responsible for the development of the infrastructure.
Political Risk: Electoral Risk	Central	Working with the municipalities can be challenging due to the amount of change that happens in every electoral cycle (every 4 years)	Central and Community	Association with the chamber of representatives from the municipalities and the different city-level secretaries
Political Risks	SiSAR	All the funds are allocated to one management model for rural water supply (That is not "owned" by the government)	Government Actors	
Political Risks	SiSAR	The conflict between the state government and the municipalities (that are the titular of service provision) in terms of different priorities and perception of SiSAR as a threat to their power	Government Actors	
Political Risks	SiSAR	Discourse Risk: If SiSAR becomes a service provider, <i>stricto sensu</i> , the government loses its discourse of community engagement and local	State-level government actors	

		empowerment. However, the strict focus on local empowerment and community engagement does not give the scale that is crucial for financial sustainability.		
Political Risks	SiSAR	Institutional Risk: given the unclear legal framework of the partnership it can lead to legitimacy questioning.	Government actors and SiSAR units	
Partnership Risk	SISAR	Community association Fragility: losing its sense of a unitary actor and becoming just a group of costumers (link with the consumer-beneficiary-user dilemma)	SiSAR Unit and Community	
Partnership Risk	SiSAR	How to mitigate and solve the different conflicts of interest between the different actors in the partnership (e.g. SiSAR Unit and community with regards to the price of the water tariff)	SiSAR Unit and Community	
Partnership Risk	Central	Community Association president thinking he or she owns the system	Central Units, community associations, and the municipalities	
Partnership Risk	Central and SiSAR	Image/Branding Risk: Risk perceived by a private company to be involved in an initiative.	Private companies	
Partnership Risk	SiSAR	Working with multiple people, Accountability between the association and the community members Engage younger members of the community	Water Operator, community association, and water users	Strengthening the community association
Partnership Risk	SiSAR	Coordination inside the Partnership at the action level: ensure that are no duplication or considerable overlapping in the roles and responsibilities	All actors	Monthly Results and planning meetings held by CAGECE
Partnership Risk	SiSAR	Articulation between the different goals and interests inside the partnership	All partners	Regular meetings between the partners
Partnership Risk	SiSAR and Central	Ensure the proper legal framework to support the existence and the action of the partnership	All partners	Create space for the consolidation of the partnership actions and document it as possible.
Partnership Risk	Central	Management of the systems is not done by the actor that funds them (State).	State Actors	
Political Risk	Central	Possibility of the state to change its support for the model, in terms of policies to regulate it and/or fund allocation.	Central Units, Communities	Social and Stakeholder engagement in the planning process.

The collection of the different risks is distributed throughout the different stages of the project and the partnership implementation. That creates a resonance with one of the complex factors for rural water supply named in the introduction and also opens a space for linking the distribution of roles and responsibilities and the sharing of the different risks. By diving into the risks in the different stages of the project development one can link those with the actors

that would bear that risk. The analysis of the sharing of risks will be done in the results and discussion section.

6.3 Value Generation

The last piece of data collection aimed at asking the actors involved in the partnership about the goals and results generated out of the partnership. That information would allow for a more critical analysis of the partnership implementation as well as elucidating why and how the actors continued collaborating in that specific environment.

As mentioned before, in the methodology section, the idea of value here is complementary to the output of the partnership. The output would be the water being supplied, but that are specific factors and aspects of those that are more or less important for specific partners. Those factors are the values that they get out of the partnership.

The debate around value generation on partnerships has gained attention from academia. The debate has evolved from the idea of partnerships' capacity to solve problems to one that encompasses the recognition of co-creating value among the different actors involved. That aimed at maximizing the gains and the outputs of the process.

On practical terms, Austin and Seitanidi (2012b, p. 728) defined the value generated out of a partnership process as the: *“Transitory and enduring benefits relative to the costs that are generated due to the interaction of the collaborators and that accrue to organizations, individuals, and society”*. That means while is important to look at the results generated, it is important to link that discussion with the risks, or costs, taken by the authors involved.

The types of values that can be expected from the collaboration between the actors have instigated discussions from academia as well. For example, while Austin and Seitanidi (2012b) point to 4 categories of value (Associational Value, Transferred resource value, Interactional value, and Synergistic Value) DT Stibbe et al. (2018) points to organizational and mission values. The latter description is the basis of the value analysis of the research as it can be used for all sectors involved in the partnership. Table 21, expands the list provided in table 10 and provides a more elaborated description of the values based on the reference.

Table 21: Values gained per partner as expressed in DT Stibbe et al. (2018)

Typology	Mission Values		Organizational Values	
Value	Direct Achievement of strategic Objectives	Contribute along the pathway towards strategic objectives	Leveraging resources	Intangible/Indirect gains that improve the capability for future delivery
Description	Organizational strategic mission being directly delivered by the partnership	Systems transformation; adoption of standards/behaviors; increased capacity/knowledge, etc.	Funding to the organization, cost savings, in-kind contributions, etc.	Increased reputation, social or political capital, knowledge, capacity-built, etc.

Examples of the values mentioned above were mentioned during the interviews and align with the interests made explicit on the table before. For example, it was mentioned that the interest of the government structure at the federal level is to make sure that funds allocated for system construction are executed and that the systems can operate for as long as they were planned (functionality) (Interview S13). That has a link with the mission values of the government.

However, that is different from an actor in Central that was looking at the capacity of the government body to execute projects funded by international donors for rural development (Interview C8 and C9), which has a more direct link with organizational values.

The identification of the results generated for the different actors involved in the partnership relies deeply on understanding the different interests and goals of the actors. Austin and Seitanidi (2012b, p. 730) when elaborating on the relationship between business and non-profits, point to how the “*more collaborators perceive their self-interests as linked to the value they create for each other and the larger social good, and the greater the perceived fairness in the sharing of that value, the greater the potential for co-creating value.*” When considering a tripartite partnership, thus with government actors, the interest is closely linked with the mandate of the different institutions.

Aiming to understand that, the research requested the participants involved in the data collection about the main interests or goals their organizations aim for when engaging in the partnership. Following the risk question, this open-ended question was left free for the interviewees to elaborate on the different interests they see, not defining possible answers. There was a follow-up question to this that would ask them to elaborate on how they would monitor the development towards reaching that goal and/or pursuing that interest. The results of the interests and goals listed from the different actors interviewed are presented in Table 22.

Table 22: List of Interests listed from the Interviews

Actor Category	Interests and goals mentioned	Type of Value	Monitoring Mechanism
State Government	Mandate to Supply Water for the State Population	Mission	Number of people supplied
State Government	Strengthen the expertise related to service provision	Organizational	Operational data around the systems (Monthly reporting and monitoring meetings)
State Government	Create trust with the municipalities to keep concession for service provision in the urban areas	Organizational and Mission	Number of municipalities served by the utility
State Government	Execute the project established with the Loan/Grant and Increase the capacity to leverage funds from international funders.	Organizational and Mission	Project monitoring and Evaluation
State Government	Visibility and Closer Contact with the Population	Organizational	The number of municipalities and communities supplied. Service coverage ratio
State Government	Build Rural water supply systems	Mission	Number of systems Build
Municipal Government	Provide Water to communities	Mission	Numbers of supply systems build
Federal Government	Sustainability of investments in rural water supply structure	Organizational	Monitoring of Money execution and public purchasing laws
Hybrid Actors	Universal water supply coverage	Mission	Number of People supplied
Hybrid Actors	Financial closure and administrative efficiency	Mission	Financial and administrative reporting
Hybrid Actors	Generate funds for rural water supply	Organizational	Number of connections and systems managed
Community Actors	Stronger Community Association (Construction of a Headquarters)	Mission	Existence of an association headquarters

	Environmental (water sources) conservation		
Community Actors	Low water bill Price	Organizational	Payment rate by community
Community Actors	Expansion of the service provision to community members	Mission	Number of water connections and people supplied
Private Sector	Branding: Have the brand associated with a positive change initiative	Organizational	Close monitoring of performance indicators from the initiatives.
Private Sector	Funding Sustainability and repayment of loans	Mission	Reporting of money allocation and government involvement as payer
Private Sector	Create the bridges between companies willing to support development initiatives and successful initiatives that have a positive impact	Organizational	Number of projects created
Private Sector	Take the fund and try to maximize the application of the resource, try not to wait for the government to do this	Organizational	

Similar to the risk and roles and responsibilities discussion, the next chapter will dive into analyzing what the data collected means in terms of the partnership implementation. That analysis will be based on the analytical framework presented in the sections before and the literature around partnerships and rural water supply.

6.4 Intermediary Conclusion:

This chapter presented the data collected in the fieldwork and the interviews. The information on organizational fit, risks, and value in the partnership has provided the background for the analysis that will be developed in the next chapter.

The mapping of the different partners and their roles allowed the graphic representation of the different relationships that form the partnership. In the organizational fit debate, both the Central and SiSAR cases showed the involvement of government actors, civil society, private sectors, and hybrid organizations. However, the degree to which they are involved in the cases differed and impacted the results achieved, as shown in the following section.

On the risks, this chapter presented the results in terms of risks perceived by the actors. Those were categorized in the more traditional categories (operational, financial, and political) together with one category dedicated to risks related to the aspects of the partnership implementation. The next section will try to look at each of those categories and their impact on the implementation of water supply to rural areas in both cases.

Regarding the value generation analysis, the section presented the list of the different goals and interests that would be pursued by the actors inside the partnership. Those will inform the analysis in the next section, mainly looking at the mission and organizational values, and the alignment of interests inside the partnership.

Chapter 7 Results and Discussion

- Based on the data collected and presented before, this chapter will use the conceptual framework on partnerships and rural water supply to analyse the two contexts.
- Main differences, similarities and service provision consequences for both cases will be presented in the face of their organizational fit, risk sharing and value generation structures.

Based on the data presented in the previous chapter and the conceptual framework on the challenges of rural water supply and the partnerships this section will try to elaborate on combining the 2 and elaborating an analysis. The analysis will be based on the 3 major concepts mobilized to understand partnership implementation – Organizational Fit, Risk sharing, and value generation.

That will be done by bringing the challenges and complexity raised in the initial chapters and the partnership concepts and seeing how they happen and differ in the cases selected. By doing that, the research aims on elaborating on the research questions that guided the data collection and contribute to the debate on both rural water supply and partnerships for sustainable development.

At the end of the chapter, the summary of both experiences in the framework of this research will be presented together with some points for further research.

7.1 Organizational Fit

Regarding the discussion around the distribution of roles and responsibilities and the structure of the partnership vis-à-vis the context where it is located, some points are relevant for the 2 cases analyzed in the rural water supply debate.

7.1.1 Who is involved in the Partnership: Defining partnership boundaries and levels

The first point of debate that arose from the data collection on the roles and responsibilities is the definition of the boundaries of the partnership. As a consequence, also how to categorize an actor in a given category (state, private sector, or civil society) so a partnership can be considered a tripartite partnership.

When analyzing partnerships under the idea of looking at “collaborative relationships” a wide array of actors can be added to the list. If the time variable is added, turning the discussion into the “continuous collaborative relationship” then the definition of time span is key. For both case studies approached in this thesis the boundaries were not pre-determined and intentionally left open so more actors, and their roles, could be mentioned. That is, once a given actor has had a specific role towards the goal of supplying water in the rural areas, and established relations with the other actors in the initiative, it was considered a partner.

The final result of the partnership arrangement, as presented in tables 17 and 18 and figures 19 and 24, encompasses a lot of actors and has to be checked against the literature. For example, Van Tulder and Pfisterer (2013) when debating the complementary roles of the different societal actors presents the following list of primary, secondary, and tertiary roles when engaging in partnerships. Figure 25 presents that.

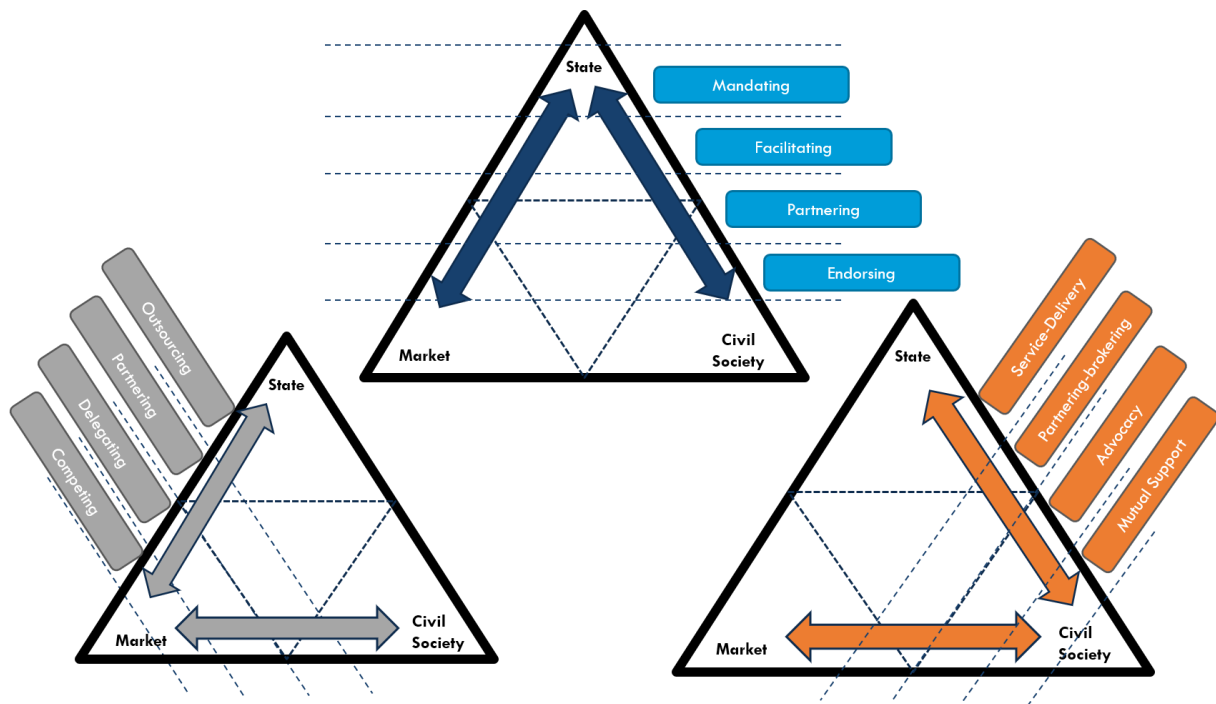


Figure 25: Ideal complementary roles in tripartite partnerships presented in Van Tulder and Pfisterer (2013)

If that idea is analyzed in the 2 partnership arrangements considered in the case studies, SiSAR and Central, the results help visualize the different levels of the partnership. Those levels are indicated by the actors that are directly involved in the partnership, therefore populating the partnering space, and the ones that are supporting the initiative but don't populate the core. The more relationships an actor has, with organizations from other categories, the closer it is to the center of the partnering space.

In both cases, the creation of an organization, the SiSAR/Central unit, is a relevant factor to populate the center of the partnering space and build the connections that help bring the actors towards it. As showed in the model described in section 4.1.1, the structure built in each unit has allowed it to communicate with the interests and demands of actors in different societal sectors, being able to act as the executor of the partnership and the "meeting point" for other actors.

Also, interesting to note the capacity to create organizations and departments that would have the complementary roles expressed before. While the case of traditional private-sector corporations creating foundations or institutes to execute social-corporate responsibility actions is already noted before (e.g. Van Tulder and Pfisterer (2013) point at the creation of the foundations to execute the delegating exercise), the state category has also encompassed different government levels and departments to execute each of the complementary roles. For example, while the state utility of Cear  - CAGECE, populates the facilitating role as a whole, the department created for the Rural Sanitation management (GESAR), including its coordination for management and works, acts as a direct partner in the partnering function.

The later description helps to understand the general conclusion that is usually achieved by reports addressing the performance of SiSAR, that the state support provided by CAGECE is a critical "success factor" for the results achieved. That support, in terms of the partnership, is directed linked with the capacity of that actor to provide organizations that would populate the partnering space with the capacity to take on roles, management support, and technical support for infrastructure development, at a state-level. More on that will be provided in the place where

the two cases will be compared, where the analysis of that vis-à-vis the case in Bahia will make the point clearer.

Going back to the partnership boundaries, the lack of a clear mechanism for defining the partnership boundaries in both cases, for example, a contract or an MoU, would be seen in the literature as a risk or a major challenge. That is the case in the risks listed by the actors (Table 20) where the lack of a major regulatory framework for that partnership was seen as a risk for the definition and clarity of roles and responsibilities. On another hand, the lack of that solid framework has allowed the partnership to grow organically and include a wide variety of partners.

During the interviews, that fact was mentioned as both a positive and negative characteristic. From the SiSAR context, that allowed, according to the interviewee, the addition of all forces, whoever wanted to contribute could do so. In the other context, Central, another interviewee mentioned that this fact allowed different organizations to join the effort without taking risks, and just harvesting results. (Interview C7, S19)

In sum, defining the boundaries of a partnership in both cases was a challenging task. The idea of a partnering space, populated by the authors with more collaborative relations inside the arrangement, and a series of other actors involved in the partnership with a lower degree of involvement was used to understand it. That was only possible due to the data collection and systematic treatment using the Social Network Analysis tool. The comparative and fine differences in the two models will be presented before and will inform the debate around the roles, risks, and values that will follow.

7.1.2 Organizational Fit in SiSAR and Central: Main differences and consequences

Government Actors

The final representation of the organizational fit in both cases, with the categories for the complementary roles, is presented below. To start, from the government perspective, figure 26 presents side-by-side the Central and SiSAR cases.

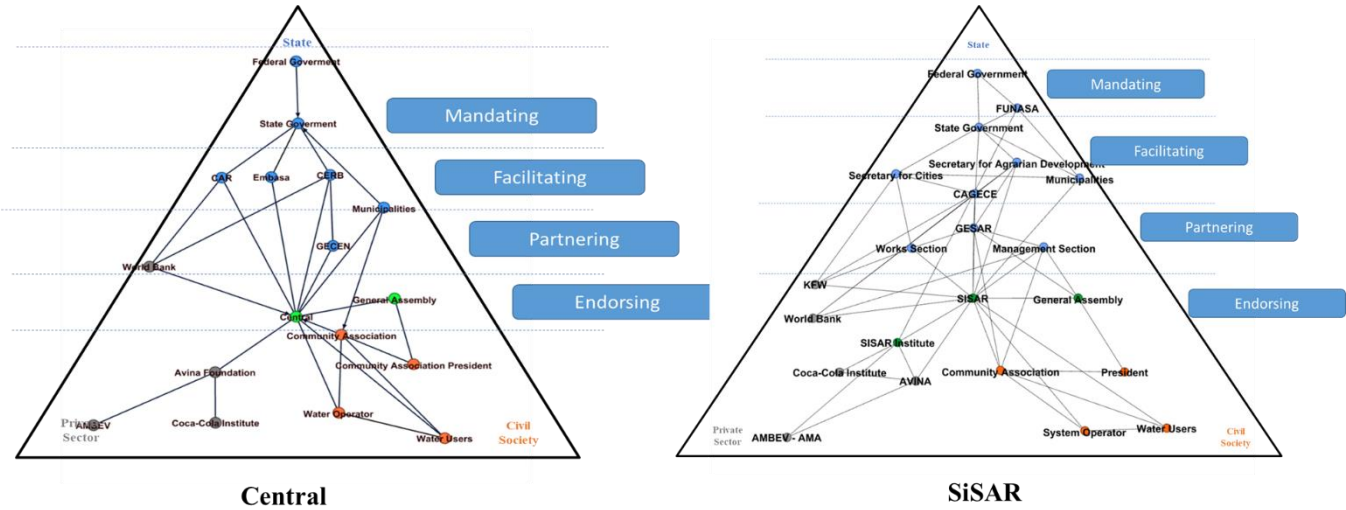


Figure 26: Organizational fit and Complementary roles in Central and SiSAR

There are 3 relevant differences in the composition and distribution of roles, from the government perspective, that are important in the partnership arrangement. Firstly, is the

presence of different departments of the government structure in the partnering space of the SiSAR case. The structures created by the governmental actors to support, and therefore partner, in that context, allowed the state government to be more present in the initiative and expand its role from the traditional regulator and infrastructure developer, to support the management practices and bring technical standards. That is particularly the case considering the presence of the state utility. To exemplify, the role taken by GESAR, inside the Ceará context, would be similar to the recently created GECEN in Central. However, the hosting institution of those entities and accumulated experience (GESAR was created at the beginning of the 2000s and GECEN in 2018) have contributed to the type of actions that can be performed by this partner.

The second aspect is the involvement, and the role, of the state utility in the partnership arrangement. In Central, the division between the CERB as the one specialized in the rural areas and the state utility EMBASA responsible for the urban areas may be seen as something that would allow for the creation of rural area standards, and a more specialized approach. In reality, that ended up reinforcing the dualism (urban-rural) and the stronger focus on infrastructure development rather than strengthening the management structures and or the technical sanitation operational standards for that area.

In 2019, the State government of Bahia, represented by the Secretary of Water Infrastructure and Sanitation (SHIS), together with the Central unit in Jacobina, the CERB, and the State Utility (EMBASA), celebrated a technical cooperation agreement. This relatively new instrument was shared during one of the interviews and presented as a way to show changes in the partnership toward the greater involvement of the utility. The type of technical support that is foreseen in this agreement includes, for example, the use of the laboratory for water quality analysis, calibration of water meters, and training for the water operators. (Bahia, 2019)

In the SiSAR arrangement, those activities are performed by CAGECE, that via the GESAR, has a much more present role in the arrangement. As a consequence, and with a direct link with the values generated, one interviewee presented that the support given to the initiative, or the roles taken in the partnership, allowed the company to enhance their knowledge on service provision (Interview S0) creation of rural standards inside the company (S3), savings when compared to the money needed to fully manage and operate the systems (S1), greater visibility and proximity with the population (S0), and so on.

The third aspect is related to the local government, namely the municipalities, involvement in both initiatives. From the graphics and the tables of roles and responsibilities, it is possible to differentiate the change in the facilitating mode, in the SiSAR context, to the partnering mode, in Central. That difference, in reality, has to do with the type of support that is given by this specific actor.

In both cases, the municipality is involved as an important partner, since it is the owner of service provision concession rights. There is pressure in both cases to ensure that the concession for service provision to the communities is celebrated by the municipality. Since both SiSAR and Central are not service providers, in the traditional terms, and are complementary to the urban supplier with a focus on rural areas, that concession is usually celebrated via a cooperation agreement with the municipality with the recognition in the local chamber of representatives.

However, in the Central case, the state government did not participate actively in the partnership for a while. According to the interviewees, Central was left alone for a considerable time. That “vacuum of power” in the government arena was filled with closer support from the municipalities, that in given cases contributed by allocating the supply systems for Central, paying the energy bills and subsidy for the water operator, sometimes even appointing an

operator from their staff, for selected communities. While that was an important contributor to the fact that the initiative continues to exist, it ended up hindering the objective of expanding the actuation area. That has a link with the values generated out of the partnership and how the interest of the municipality is more limited to its mandate.

Lastly, the federal government has taken still the mandating and regulatory role in both scenarios. That is an actor that is still challenging to include, due to the more local nature of the problem (with the municipality as the titular for service provision), and the utilities being state-level agencies. However, the more active inclusion of that actor could support the establishment of regulatory pieces for the partnerships, and therefore easier funding allocation and political support. While the new sanitation act provides no mention of rural sanitation, programs at a more ministerial level have established national plans for rural water supply and sanitation that look more on the understanding of the current scenario than the design of management solutions. By the time this thesis was written, there is no indication of a change in that engagement.

Civil Society Actors

In the arena dedicated to civil society actors, the organizational fit elaborated for both cases is quite similar. Both arrangements are built around structuring community members and water users to match the capacity needed to perform the roles expected from them in the partnership. Figure 27 presents the comparison of the two arrangements where the similarity can be seen.

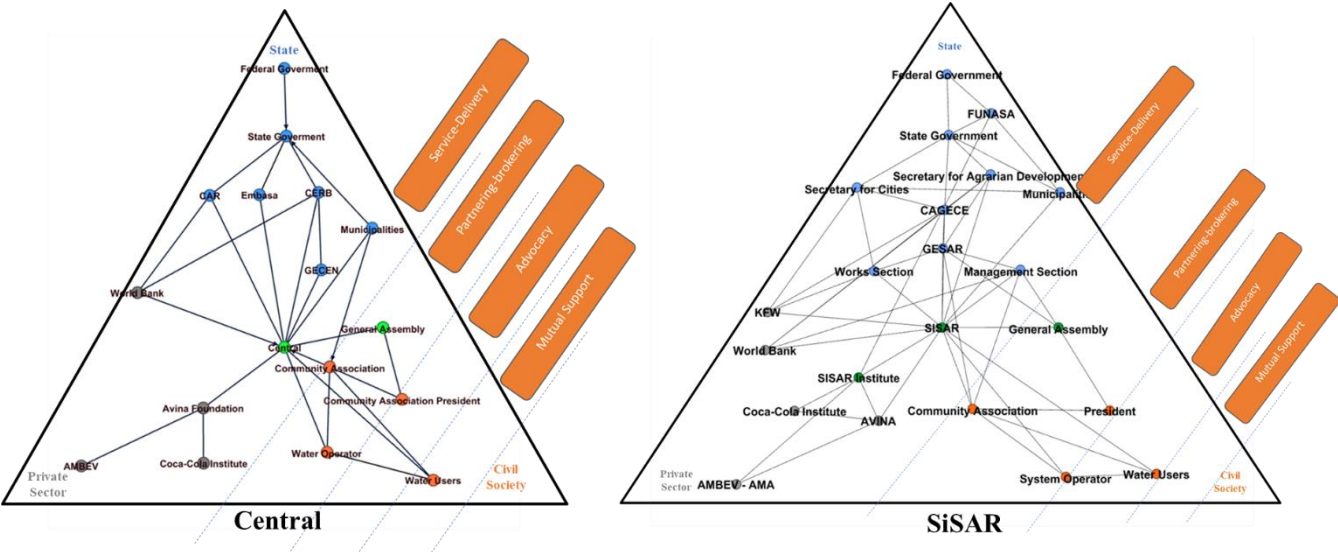


Figure 27: Organizational fit and complimentary roles for civil society actors in Central and SiSAR

The similarity of the scenarios is mainly due to the model that was created to manage rural water supply in the regions. The existence of a community association with a president and the appointment of a water operator are conditions for the participation of a given community in the partnership. That structure also gives power to the community and the water users in setting some parts of the water tariff (like the administrative fee to the organization and the subsidy for the water operator) and the possibility to engage in the general assembly of the SiSAR/Central unit, the highest decision-making instance.

Here the traditional advocacy and legitimacy kind of activities, usually expected with the involvement of civil society actors, get complimented with a more active engagement. That happens both from a service provision point of view, with the water operators being responsible for operations and some maintenance, to the community association doing some of the

administrative efforts, like keeping a list of the water connections and receiving claims for new connections.

There is also a concern that the capacity of the community actors meets the expectations for the roles assigned to them. Trying to ensure that, the SiSAR and Central units have social departments that relate directly with the actors in the community and provide, together with other actors in the partnership, adequate training, and capacity-building.

Private Sector Actors

In the last traditional sector, the ones dedicated to private sector actors, there is also space for debate based on the theoretical background and the data collected. Firstly, it is important to point out that while the partnership has managed to include some actors from the private sector, like the KFW and private foundations, they do not represent the traditional profit-driven private actor. That is relevant, in this case, because it breaks the assumption of administrative efficiency and efficacy that is expected to be one result of the involvement of private sector actors.

There is constant pressure for performance on the funding mechanisms given by the financial institutions involved, with close follow-up on the project deliverables and key performance indicators (Interviews S17, S18, C1, C12, C13). That has led to a concern about being able to monitor those indicators and produce results in administrative and performance enhancements as an indirect goal of the partnership. However, that is not only brought by the involvement of the private actors, but also by governmental actors.

When the debate is moved, however, to the inclusion of private capital in the partnership, the private sector listed in both initiatives has had a more prominent impact. The institutions and foundations involved, Coca-cola, Ambev, and the Avina Foundation, have been able to engage in the latter part of the project development, acting much more on systems improvement, rather than building the system. While that has an impact on the amount of risk that is taken by these actors, they can support, via their initiatives, a stage that would not be able to be funded by the community and the units (due to lack of funds and difficulties in tariff increase), and not by the government (considering the bureaucratic and slow process for public buying). In exchange, that also brings to light the debate around other mechanisms that are important for private actors of a “Social-corporate responsibility” nature, that are not related directly to profit, for example, branding.

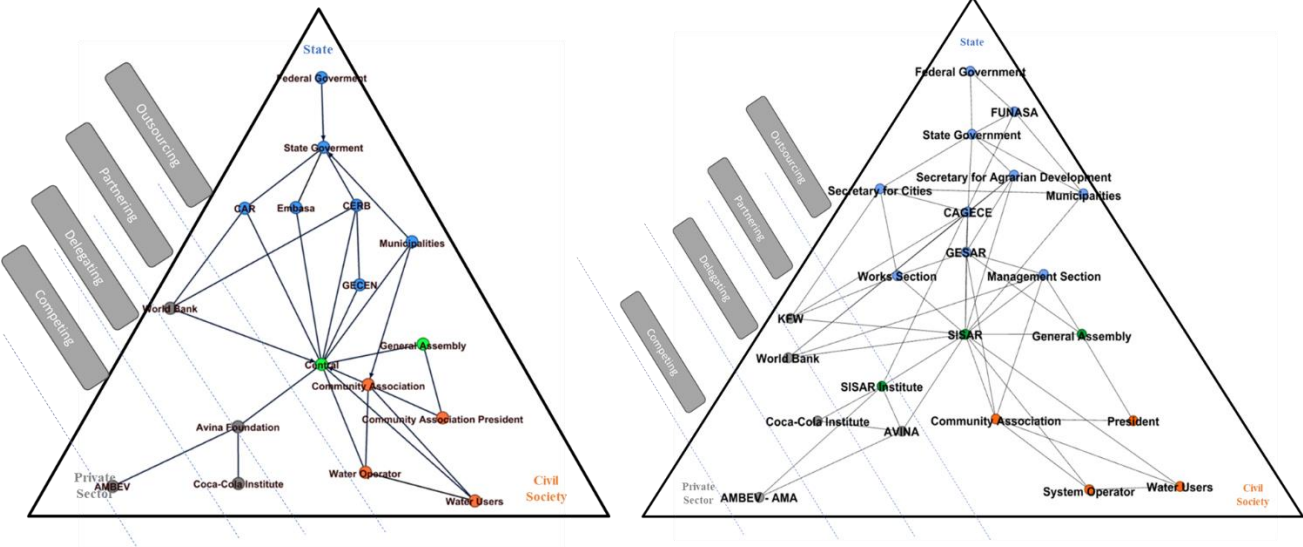


Figure 28: Organizational Fit and Complimentary roles for Private Sector

By adding actors that sit on the boundary between the private sector and civil society, like the Avina Foundation into the partnering space, both initiatives have been able to “create bridges that otherwise would not be imaginable” (Interview C13, S14, S15, S16) between them and the foundations and institutes that have funded dedicated to enhance access to water. That was already noted as important in the literature about SiSAR (e.g. Moraes Carvalho et al. (2020)) and is also the case in the Central context and positioned them in the partnering space in both cases, as shown in figure 28.

The debate around private sector involvement in the 2 partnership arrangements has generated also questions for further research in both partnerships and rural water supply. In the rural water supply, how has this new type of actors that populated the private sector space, like foundations and institutes represent a break in the traditional way of thinking about private sector engagement? To what extent is their involvement sustainable in terms of funding and risk-sharing? In the partnerships space, is there still space for the involvement of traditional, profit-driven, corporations and private sector actors in partnerships for sustainable development? Mainly in scenarios where the business case is not so appealing, like small water systems.

Hybrid organizations

Lastly, it is important to debate the crucial role that hybrid organizations have performed in the organizational fit of the cases studied. In both cases, the hybrid organization created to manage the water supply structures, the SiSAR and Central units, have been able to populate the center of the partnering space, creating links and relationships with actors from all over the partnership. Those links helped the clear communication and understanding of the different priorities and interests inside the organizational structure of a given actor. That is to say, that hybrid organizations, in this context, provide a mix of operational capacity, with political coordination and partnership facilitation.

The difference, however, lies in the scale and the institutional development. While in the Central Case, the unit and the general assembly are responsible for that role. In Ceará, the creation of a SiSAR institute gave more embodiment to the SiSAR units to channel their demands as a unitary actor, fostering the scale and strength of those. For example, that allowed all the units to negotiate agreements with the State and the Federal Governments (via the National Foundation for Health – FUNASA). Also offered another way to engage directly with the initiatives from the private sector and negotiate contracts for service provision and even other administrative tasks.

The freedom provided by that actor poses a challenge to the set-up of the partnership, questioning the degree of government support needed. That debate was already highlighted in (Moraes Carvalho et al., 2020) when stated:

This led to another question: wouldn't it be better if SISAR became independent from the state and were run as a private entity? This could give SISAR more freedom to operate and more financial returns, but it could also take away the legitimacy SISAR now enjoyed. What SISAR had achieved could not have been possible without the state government and the state water company; many local communities trusted SISAR simply because it was backed by the state (p. 18)

The current organizational fit has not pointed in that direction, as currently the positioning of the SiSAR institute is much more guided towards the private sector actors, with connections to some state agents. Adding to that, the roles taken by the state, in system building, technical support, and administrative pressure, cannot yet be taken by the units and the Institute alone.

There is, however, still space for debate as to which degree of freedom does this initiative want to achieve, and what does this entail to the partnership put in place to manage it so far?

7.1.3 The organizational fit and the Challenges of rural water supply

Looking back at the list of challenges listed in the first chapters of the thesis (Tables 1 and 2) it is possible to see how the debate around organizational fit has been able to address some of them in the context of the cases studied.

Table 23 provides a list of the challenges where the organizational fit has supported the understanding of the solutions, together with how the challenges have been dealt with in the cases and the differences between the 2 contexts, where they exist.

Table 23: List of challenges dealt with the organizational fit in the cases

Challenge	Section (Organizational Fit Risk Sharing and Value Generation)	How that challenge is addressed in the Partnership	Difference between the Cases
Community ownership and Community-management structures are not always functional Lack of (or inadequate) community training for the management of the structures (pre-construction training)	Organizational Fit	Close follow-up and support to the community associations by the social department of each SiSAR and CENTRAL unit Majority of community representatives in decision-making structures (General Assembly)	
Lack of accountability for punctual actions (by NGOs, funding agencies, and other actors)	Organizational Fit	Actions to be executed via the SiSAR/Central Units	In SiSAR, the GESAR is also the executive department for these projects, supporting the buying of materials and other punctual actions.
Lack of coordination with governments (Local, state-level, national)	Organizational Fit	Involvement of the government levels in the partnership with different roles and responsibilities.	In SiSAR the partnership was more populated for the state-level government actors and contributed to the expansion goals for the model (creation of 8 units), local governments were more involved in the concession for service provision. The Central case was marked by a closer relation and dependency with local government actors, that were contributed to the initiative to continue existing but could not support growth, due to limited capacity and action scope.
Lack of transparency in investments from donors to	Organizational Fit	Division of roles and responsibilities inside the partnerships allows for the reporting and accountability	SiSAR operates systems that are usually designed and built by CAGECE only. Central operates systems that had been

community and governments.		relationships to be created between the communities, the units, and the funding actors (either the government or the international organizations)	built by either CERB or the municipalities
No easy Solution: “There is no quick fix to substitute for many years of political negotiation, institution building, education, long term investment and innovation” (p.6).	Organizational Fit	Complex partnership arrangements that can deal with the challenges and also add different partners on an on-need basis.	
Physical Scale	Organizational Fit	Multi-community approach inside a micro-region.	On SiSAR the micro-region is defined by the catchment area. On Central was based on the ratio of the unit headquarters and the previous existence of regional support units of the utility.
Institutional Scale	Organizational Fit	Involvement of different actors in a partnership. Creation of a unit that populates the Centre of the partnering space and can communicate and exchange with partners in different societal sectors. That communication and exchange also inform the definition of roles and responsibilities (for example, the unit does not build the supply systems) and maximized the collaborative advantage.	In the SiSAR case, the institutional scale was more populated with departments and actors in the state-level arena, whereas in the Central case they were not that present and focused more on the local actors (e.g. municipalities).
Limited to no regulatory oversight	Organizational Fit	Still, a challenge is the lack of involvement of the federal agency and the lack of a major regulatory mechanism (Since rural sanitation is not mentioned in the national sanitation act). However, the partnership has been able to negotiate contracts and agreements between the actors inside their possibility (e.g. cooperation agreement between the units and the state utility for technical support; Cooperation agreement with the municipalities for service provision in their rural areas and specific communities)	
Existing vs. required capacity: The technical and financial capacity at the local level is usually limited.	Organizational Fit	Division of roles and responsibilities to ensure that the activities attributed to the community actors match their capacity and that there are capacity-building mechanisms	In the Central case, there is a stronger presence of capacity being allocated by the municipalities to support the communities.

		in place to match the existing and required capacity.	
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7.2 Risk Sharing

On the piece of risk sharing, the analysis of the perceived risks in the partnership was the goal of the thesis. Given the starting point on the project-related risks and the ones related to political and partnership issues the list of risks presented in table 20, the research was able to identify 4 categories of risks that were more often mentioned: Financial, Operational, Political, and Partnership risks. This section will reflect on each category and its link with partnership development and rural water supply.

One important consideration in the risk analysis and perception is that the majority of the actors do not engage in a formal risk assessment exercise. That added a limitation to the responses on the risks perceived. The exemptions were the funding institutions that mentioned risk analysis in the project development phase. However, when explained about risks, they were able to list the main challenges perceived by them and their organizations in the process to deliver water to rural areas

7.2.1 Operational Risks

One important example of a particular risk that was shared in a particular way and changed, in both scenarios, was mentioned several times as an example of risk sharing inside the partnership. The particular risk is related to the collection of the water tariff from the water users. In an initial state, the tariff was collected by the water operator and handed to the community association. With the treasurer of the association, the money would then be divided, between the part that would stay with the association and the part that would return to the SiSAR/Central Unit. Once a month, the treasurer of the association would bring the money back to the unit, together with collecting the bills. Several losses and differences were reported, and the money ended up being used by the association on other issues since it was available there. To mitigate that risk, a commercial collection system was implemented by the units, and as soon as the operator sends the readings of the meters to the units, they can provide the water users with their bills and the payments revert directly to the unit's bank account. The share of the association is then collected by a representative, or sent to their account when there is one.

While that example may sound simple, it sheds light on how the sharing of risks evolves as the partnership gets implemented. Also shows the need to match the distribution of activities with the actors that are more capable of executing them. While in the first scenario there is a risk for the financial closure of the initiative, and the potential to execute improvements, in the second one, a more systematic scenario picture can be perceived, with follow-up on people that are unable to pay for the bills and the collection efficiency. That comes at the cost of taking some of the power of the community association, without, however, appropriating their share of the tariff.

Another more elaborate example of risk sharing relies on the infrastructure development analysis. The theory often regards infrastructure for rural water supply as expansive and with a lack of capacity to design, build, maintain and expand/improve these infrastructures¹⁸. This is where a difference, informed by the organizational fit, between the two cases is perceived as well. The governmental arena is the one that supports the majority of the risks since it is the one responsible for building the systems. It is closely followed by the SiSAR/Central Unit

¹⁸ Chapter 1 and the publications listed there can be used for a more elaborated debate on the challenges regarding infrastructure development in rural areas.

which helped the withdraw a considerable amount of risk from the community, when compared with the traditional community-managed scheme, like the more technical (hydraulic and electric) maintenance of the systems.

In SiSAR the creation of different structures inside the governmental arena, and inside the water utility, provided the capacity to share the risks inside the governmental arena. That comes, of course, with the capacity of that specific actor to provide the technical standards on sanitation aspects and supply system development, something lacking in the Bahia context. The involvement of CAGECE, and its departments and coordination areas, allowed the partnership in Ceará to have the actor responsible for designing and building the systems closely (in the partnering space) with the organization that operates it. That proximity is even seen in the monthly results meeting that is facilitated by CAGECE with all the SiSAR units to go over performance indicators in the areas of technical operation, administration and finance, and social.

In the Central context, the units lay in a position of receiving the systems for their operation, without a lot of saying in their initial building. Some interviewees even mention that sometimes the systems received, and build by either the municipalities and or CERB, have to be rebuilt, reassessed, or adequate for the type of operation Central, and the communities, are used to. The existing relationship with the municipalities has provided them with important expansion (inside the municipal boundaries) in terms of systems to manage and connections, however, that lacks the technical standardization presented before. Table 24 provides a simple description of the actors involved in the different activities and stages of project development.

Table 24: Comparative involvement of different actors in project development

Phase	Activities	SiSAR	CENTRAL
Design	Selection of Water Bodies and Communities	CAGECE-GESAR (government)	Municipality, State Government and CERB
	Technology Selection (filter, Pumping, reservoir, etc.)	CAGECE (Government) and SiSAR	Municipality and CERB
Construction	Material Purchasing	CAGECE (Government) and SiSAR	CERB
	Public Bidding/Building the Systems	GESAR (Works Coordination and the Management Coordination)	CERB and Central
Operation and Maintenance	Daily Operation	Water Operator	Operator
	Small Repairs (e.g. Leaks)	Water Operator	Operator
	Repairs (Electrical and Hydraulics)	SiSAR Unit and CAGECE (if needed)	Central e CERB
	Performance Monitoring	SiSAR Unit and CAGECE	Central
Expansion and Improvements	Registering new connections	Water Operator and Community Association	Operator and Community Association
	Network Expansion	Water Operator and SiSAR Unit	Water Operator, Central, and CERB
	Improvements in the supply system (Solar panel, chlorine factory)	Private Actors (foundations and Institutes) and SiSAR Institute, SiSAR Unit	Central e Private Actors (foundations and Institutes)

When analyzing the table, it is also possible to see that some of the actors of the private sector are engaged in the later parts of the service provision, where the higher amount of perceived risks has already been allocated to other actors. That perception comes in line with the concern

expressed in the interview that private sectors actors, represented by their foundations and institutes, could not be considered part of the partnership due to the low degree of risks taken by them, (interview C7). However, as shown in the organizational fit debate, they do play a role in the general partnership arrangement. That calls for a more detailed analysis of the risk-sharing inside the partnership, which would allow for assessing the degree of risk-sharing, once the risks perceived have already been detailed.

7.2.2 Financial Risks

Together with the risk in tariff collection, which represents an intersection between the financial and operational risks, this section looks at the risks mentioned that were related to funding and financial mechanisms. In this scenario, a difference in scale marks a major difference between the two cases.

Since SiSAR has been able to achieve a greater scale, it can diversify the funding mechanisms mobilized to fund the initiative. One example of that is the continuous involvement of the German Development Bank (KFW). Building on the relationship created since the inception of the initiative, the new instrument builds on the donations already done, but this time with a more repayable focus. Via the “Aguas do Sertao” program, the KFW mobilized 62mi euros (from which 12.5mi are from the counterpart from the state government) and created structures to both mobilize and execute the funds. Since the role of repaying the loan stays with the government of Ceará, the execution of the money and the reporting back, mainly assuring the financial sustainability of the investments, stays with the SiSAR and CAGECE. Here, the capacity to create scale, provided by the SiSAR institute is a powerful tool to ensure that the identification of pivotal points to invest the money, and build the systems, together with the units is done, outside the risk of government to prioritize supporting regions.,

In sum, the SiSAR structure, the partnership, has provided the state government with a solid executing mechanism for investments related to the rural water supply. On one hand being able to both build the systems and make sure that the management structures are presented, following up on the performance of that given system. In operational terms, together with the technical criteria (existence of a water source, number of families, etc), the rural areas have to provide a legal community association and willingness to join the SiSAR management structure. That process would otherwise rely on money being transferred to the municipalities, that would then build the systems, with no proper follow-up.

In Central, although the government structures have been able to raise money to finance the construction and expansion of systems for rural water supply. However, the Central partnership is one of the possible management alternatives, with some of the procedures still being done via the municipalities. There is a movement toward the adoption of the Central partnership at the state level, and the creation of a support structure inside the government area (for example with the GECEN, inside CERB), but that is a recent movement yet to produce more impactful results in terms of financing.

7.2.3 Political Risks

On the political risks listed, there is 3 lens that was highlighted, the first one encompasses risks from the relationships within the state category, mainly the relation between the state-level actors and the municipality. This first one is very context-dependent and relies on the institutional and legal framework of the country. Here, the de-risking mechanisms listed were the legal framework of the country and the state.

The second one looks at the legal framework of the partnership, and the lack of a legal mechanism that supports the existence of the partnerships and/or gives more clarity to the division of roles and responsibilities. As stated in the section on organizational fit, this legal

instrumentalization has served two processes, on the first hand it has allowed the partnership to grow organically and engage a wide variety of actors, on the other one has created space for the overlapping of roles and responsibilities. Many interviewees saw the possibility of a regulatory instrument as means to enhance the political support for the initiatives. On which scale would be true depends on other factors.

Thirdly are the ones related to electoral risks, being the use of water supply as a bargaining mechanism and the political discourse on the changes that happen in every electoral term (in Brazil, every 4 years). That has had a greater mentioned impact in Central, where the relation and the support with the municipalities are more evident. However, in both initiatives, the fact that the units are independent actors with their highest decision-making structures being populated by the community members is the main way to cope with that risk.

The perception of these political risks, and the ones listed, provide an initial point to think about the involvement of some state actors and a way to instrumentalize the need for more “political support” that was mentioned in interviews with hybrid organizations and community members. Recognizing some of the political risks, and how to mitigate and share them, can pave the way to design a better engagement of all types of actors, not only governmental ones.

7.2.4 Social/Partnership Risks

Directly linked with the more traditional or technical risks listed above, the list of risks perceived also included some challenges related to the social or partnerships aspects. While some of these risks fall at the intersection with the political risks (e.g. the legal framework for the partnership), others are related to aspects inside the implementation of the partnership, like coordination, conflict management, trust, and ownership.

This is where the de-risking mechanisms were mentioned the least among the actors interviewed. Where they were mentioned, similar to what happened on the political risks, it recurred to the official process in place, like the monthly meetings and follow-up on project implementation.

A social risk that was particularly interesting to look at is the one related to the capacity and organizational strength of the community actors. In the interview with the communitarian actors in both initiatives (Central and SiSAR), there was the risk of losing the associative feeling that would motivate people to engage in the structures that were built in the model (community association, water operator, and association president) and that people would see both partnerships as only service providers, with their responsibility as only paying the tariffs. A way to overcome this, to those actors, and mitigate that risk was the strengthening of the community association, for example, building a headquarters for the association and engaging in other activities. How to make sure that the structures for strengthening the partnership also focus on the “weaker link”, also offers space for further research and debate. (Interviews S6, S9, S10, C2)

Another one was related to the termination of the partnership once the project funding ends. Since the engagement of some actors in the partnership is dependent on a specific project there is the risk of the partnership losing a considerable partner once that specific project ends. In a partnership that does not have a clear guiding document, or a legal landmark, how to accommodate the contributions brought by those actors, without risking the sustainability of the partnership once they leave, or the project ends, is still an open challenge.

7.2.5 The risk debate and the challenges to rural water supply

Similar to the discussion on organizational fit, the debate around risks inside the partnership arrangement analyzed can have an impact on the debate around the challenges related to rural water supply. Examples can be found in the debate around the low return and payment rates, by distributing the funding, operating and maintaining risks between the different actors in a partnership, one can aim at the operational cost-recovery for one actor while saving the cost of managing and operating the system to the one funding the construction.

Table 25 provides a link between some of the challenges that can be analyzed under the risk debate for the cases selected.

Table 25: Challenges in rural water supply and Risk sharing

Challenge	Section (Organizational Fit Risk Sharing and Value Generation)	How that challenge is addressed in the Partnership
<i>The ephemeral prospect of universal piped coverage in rural areas</i>	Risk Sharing	Division of costs (building, O&M, and expansion/renovation) between the different partners involved. For example, government actors mobilize funds for the construction of systems (via international banks and or their budget) while the community and the SiSAR/CENTRAL units focus on the operational cost-recovery and small repairs and expansion. Daily maintenance and operation are done on a volunteer basis, where the water operator receives a subsidy previously agreed with the community. Development of a network structure that fits the rural scenario, instead of trying to replicate the urban standards.
<i>Low return rates</i>	Risk Sharing	Division of costs among the actors in the partnership: Systems Building: Government (via loans and budget) Systems Management: SiSAR/Central Units (Via tariff collection) Systems operation and maintenance: <ul style="list-style-type: none"> • Small: Community and Water operator (volunteer/subsidy basis) • Medium and big level: SiSAR/Central System Rehabilitation and improvements: Private sector agents/ ESG initiatives
<i>Low payment rates</i>	Risk Sharing	Ensure a proper tariff collection structure, in the Central/SiSAR structure. Possibility of cross-subsidy among the different communities. Tariff is set by the community representatives, guided by the performance indicators of the unit.
<i>Risk Allocation and management</i>	Risk Sharing	Still taken as a given in both scenarios with the governmental actors and the SiSAR/Central Units cumulating most of the risks.
<i>External dependency for hardware funding</i>	Risk Sharing and Organizational Fit	Division of different funding stages (inception, design, infrastructure development, maintenance, and expansion) and different funding sources being mixed (tariff collection, international donors, state budget)
<i>Lack of Operation and Maintenance</i>	Risk sharing and Organizational Fit	Creation of a management unit (SiSAR and CENTRAL) that supports the operation and maintenance together with the community association and the water operator.

A point for further development is the application of formal de-risking instruments and structures. So far, when questioned about how to cope with the risks perceived in the

partnerships, the actors mainly referred to the legal process (for example the public bidding process for infrastructure development, the project documents) or the communication mechanisms (like the monthly meetings). Wider research focused on the de-risking mechanism, mainly for the social and partnership risks can be beneficial and provide even more ways to develop the engagement of actors and the value generated.

7.3 Value Generation

As pointed out before, in chapter 5, the cases in Ceará and Bahia have harvested considerable results in terms of the long-term functionality of the initiatives, having existed for more than 20 years. However, when analyzing the growth and expansion of the models in the state context, the results differ. But how is that linked with the discussion about values generated per actor?

The response is on the role taken by the municipalities in the organizational fit. While being powerful partners to ensure the continuous functionality of the structures in the Central case, with support from some of the community associations and systems, their mission values and focus on the communities within the administrative scope, did not contribute to the expansion of the partnership. In a contrast, the state government's involvement in SiSAR supported the expansion of the model and the higher degree of coverage results achieved.

That is an example of how the discussion around the value generation for the different actors involved in the partnership can impact its outcome of it. To match the debate raised in chapter 3, section 3.3, and the data collected and presented in chapter 5, this section will be organized in Mission values and organizational values.

7.3.1 Mission Values

In both partnership arrangements, the debate around the mission values is closely linked with the mission of the different actors to contribute toward water supply services provision. That common strategic goal has some differences, however, in the scale, scope, and ambition. That is to say, while the strategic goal of contributing towards increasing and better access to water supply in rural areas is common to the majority of the actors, there is a gap between those aiming at the universalization and the ones looking at the functionality of specific systems.

On the positive side, that is a direct link between that common mission goal and the output generated by the partnerships, being the supply of water to rural areas. On another end that can point to issues regarding the prioritization of specific scopes and or areas of actuation to the detriment of others.

The advantage here is the capacity of the partnership arrangements to organize themselves in a way that the differences in scale are complimentary. For example, the state-level goal of universalization of water access in Ceará is aligned with the goal of the 8 units spread around the state to expand their service provision scope in the rural areas. And that has been followed up with the monthly meetings on the performance of each unit and the initiative as a whole.

There are, however, some loose points in the mission values listed in the partnerships. In the private sector arena, more specifically the finance institutions listed, the interest towards the proper execution and repayment of the loans (and other financing instruments) allocated has to be properly analyzed. Given the fact that the financing institutions are not traditional commercial banks, with a greater focus on development finance, the repayment mechanisms are more flexible and have the state as the main payer. The execution of the projects, in the terms presented in the risk analysis, they have a role in the mission values debate. This was expressed in the interview with the representatives of the World Bank that stated that: “SiSAR

became good partners, and the State of Ceará good clients, in their capacity to deliver and monitor the implementation of the funds” (Interview S17)

Lastly, the difference in scale of the mission value to expand and enhance water access in rural areas, call for diverse monitoring mechanisms. For example, the state governments are more interested in the number of people supplied, while CAGECE pressures the SiSAR unit to present the technical performance indicators. That may be seen as a conflict of interests and it is managed by the capacity of the Central and SiSAR units to monitor the 3 instances of their action. A technical, that looks at the performance of the systems, number of connections, and so on; an administrative and financial one looks at the implementation of the funds, and the financial sustainability of the unit; and a social one looks at strengthening the communitarian actors so their capacity and structure meet the required demands and roles.

In sum, the organization in the center of the partnering space has been able to supply the actors with the main indicators to monitor their mission values. That can be a sign of the capacity of the partnership to generate the different scales of mission values demanded by the different actors involved.

7.3.2 Organizational Values

Complimentary to the discussion around the mission values, where the degree of synergy is higher, there is the debate around organizational values. Here the values and indicators of that value production were more distinct in the partnership arrangements. Additionally, the organizational values were more easily described by the actors closer to the center of the partnering space, and therefore with more relationships and links inside the partnership.

The greater organizational value mentioned was the creation of a “place for the rural” (S0) or a “systematic knowledge for the supply of water in rural areas” (C7). That offers serves as a counterpoint to the perspective that the supply of rural areas will just be a replication of the practices in the urban areas. Given the context lack of legal frameworks for rural water supply, that is listed by the actors as an important milestone for the capacity of the actors.

Together with that, organizational goals related to funds were also listed. From the governmental agencies that raised the value of “being able to mobilize more international projects and increase the knowledge around implementing them” to the SiSAR and Central Units that pointed to accessing the funds generated by other actors to manage, enhance and expand their systems. In the middle of that debate, an interesting point was raised by one of the interviewees, that listed the interest of the actor: “Taking the fund and trying to maximize the application (impact) of the resource, not waiting for the government to do so” (interview C13, S15). From that perspective, there is value in the application of the budget of the initiatives directly with the unit and the communities, without having to rely on the bureaucratic government process. However, that structure for receiving, and allocating, money in the SiSAR and Central contexts relies a lot on the management and administrative follow-up by some government departments. This dualism in the value generation debate offers a stream to debate the expected role of governmental and private sector actors (mainly institutions and foundations).

7.3.3 Value Generation and the Challenges of Rural Water Supply

In sum, the list of values generated by the partnership in both cases provided a clear understanding of the possibility of the arrangement to create the mission and organizational values. Those values, although different by the different actors are a good lens to understand the rationale for partnering and designing a stronger engagement. For example, a further way to explore this would be the proposed in DT Stibbe et al. (2018) where the values are checked

against the costs in partnering for each of the actors, to grasp the “Net individual value” for each partnering stage.

Bringing the discussion back to the challenges in the rural water supply debate, the discussion on value generation in partnership arrangements has contributed in mainly 2 areas. As presented in Table 26 the debate around the values presented in this section brings a way of addressing the lack of knowledge and expertise in the rural areas and so on.

Table 26: Value Generation debate and the challenges of rural water supply

Challenge	Section (Organizational Fit Risk Sharing and Value Generation)	How that challenge is addressed in the Partnership	Differences in the Cases
<i>Lack of knowledge around actual demands</i>	Value Generation	The longevity of the case has had an impact on the “knowledge about the rural areas” by the organizations involved in the partnership. The close monitoring of the performance of the systems by the community and the SiSAR and Central units has also given body to that “knowledge”.	In SiSAR the greater involvement of state-level actors made possible a systematic (across the whole state) knowledge of the rural areas. In Central that had to be focused on the area of actuation of the specific units.
<i>In the donor community, much of rural water supply sector is still seen in the light of providing essential services, on a charitable basis, to desperately poor and powerless people” (p.5)</i>	Value Generation	Involvement of financial institutions (World Bank and KFW) in projects related to rural development. Recognition of water supply structures as important regional development mechanisms via the association of performance indicators	

Chapter 8 Conclusion: Partnerships for Rural Water Supply

Amid the challenge of designing, implementing, and managing rural water supply, all the traditional paradigms (Government-led, community-management, and Private sector) have been able to show strength points and also received some criticism. Ideally, it would be efficient to combine the strengths of each model while mitigating the sources of inefficacy and criticism. However, combining models also means combining the different actors involved in delivering each of the management structures.

In that space, the debate around partnerships offers a promisor way. Especially tripartite partnerships and their expected capacity of creating a collaborative advantage, engaging partners from the government, civil society, and private sector arenas; and ensuring that the roles are allocated to the partner more capable of executing them. The question is how that is materialized in experiences on the ground. On that end, concepts like organizational fit, risk-sharing, and value creation were applied in this thesis as an exercise in that direction.

To do so, the two cases selected provided fertile space to analyze partnerships and establish a debate with the literature around rural water supply and partnership analysis. In both cases, the debate regarding what is expected from the governmental actors, what type of private actors are involved, and how value is generated was presented and has helped understand the different dynamics in the partnership implementation.

The starting point of both partnerships is traced back to two points. In the first one, the failure in Bahia of a community-led management style for rural water supply. That failure, together with the perception of the low coverage and functionality rates experienced in those areas by the traditional government-led systems, supported the idea of the incapacity of a unitary actor to deliver and called for a more partnership-like approach. The second point is the model created for both SiSAR and Central. As shown in chapter 5 that model was capable of creating the initial involvement of some of the actors in the partnership and creating an institution that would be positioned in the center of the partnering space.

Both partnerships were able to harvest considerable results. For one, they have existed and supplied water in rural areas for over 20 years, something particularly interesting considering the low-functionality rates of most rural water supply schemes, as shown in the introduction. Secondly, they have generated systematic knowledge around rural water supply, community engagement, and empowering and professionalization of rural water supply services. Thirdly, they have been able to expand their areas of actuation and connections, although on different scales

From the Central case, in Bahia, the organizational fit with the municipality as an actor more present in the partnership provided the initiative with the support that was lacking due to the exit of actors from the state level, that took the more traditional facilitating role. Despite being considerable support and allowing for a more direct relationship between the central units and the municipalities, that came at the expense of the expansion of the model.

In SiSAR, the involvement of the state actors, and the state utility has allowed the government to exit the traditional mandating and facilitating roles and engage closer in the partnership. That provided the units with closer technical and administrative support, and also with a follow-up in their performance, and expansion to the whole state area.

Still, in the debate around the roles and responsibilities, and the partnership boundaries, both cases showed a particular characteristic regarding the involvement of actors from the private sector. Was evident the trend of companies to create institutions and foundations that would allow them to engage better in partnership arrangements like the ones in Ceará and Bahia. Defining the consequences of this and thinking more specifically about the space from the private sector (including more traditional, profit-driven companies) is a possible research pathway that comes out of that debate.

In terms of risks, both scenarios showed how the development of partnership initiatives, with the engagement of multiple actors and the consequential division of roles and responsibilities impacted the perception of risks. Risks from the more traditional spheres: operational, financial, and political, were listed by the multiple actors together with some that would refer directly to the relationship between the different actors. Some debate around the sharing of those risks still point to the concentration of those in the governmental structures, however that offered, as a counterpart, a structure for the execution of capital, and took off some of the responsibility of the government in terms of being the direct provider of that service.

On value generation, both scenarios were able to contribute to the generation of values for the actors involved in the partnership. Those values came both in the form of mission values, towards specific goals and the mandate of partners, and organizational values, more related to enhancing capacity, funding, and other intangible gains.

Finally, it is possible to say that there is a dialectic movement between the two concerns analyzed in this thesis: Rural water supply, and partnership implementation. To start, partnerships do over a possible pathway for managing rural water supply structures and close the massive gap currently existing. However, that is not a panacea, and the dynamics in the partnership implementation, as seen in the cases studies, can impact the involvement of specific actors and the degree of results obtained. Thus, critically thinking about partnerships, to fit the environments where they will be placed, looking at what actors to involve and which roles they will take (organizational fit) how will the risks be allocated (risk-sharing), and which results and values are expected and can be generated (value generation), can be a strong tool towards designing management solutions to the supply of water to rural areas, and guaranteeing a development that leaves “no one behind”.

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Appendices

Appendix A. - Protocol for Semi Structure Interviews

This script aims at creating the guidelines for the semi-structured interviews that will be performed as part of the data collection in the fieldwork for the Thesis.

The selection of semi-structured interviews was selected to allow the interviewees to elaborate on their perceptions around specific guiding questions without the constraint of limited options to be selected, like in a questionnaire. That, however, brings some limitations to the data collection that have to be considered. The semi-structured interviews need to balance how broad the questions are to initiate a discussion, with how narrow they have to be to collect meaningful information in a limited period.

When there is consent from the interviewees, the interview will be recorded for future reference inside the research, no use outside the research is expected. The identity of the interviewees will be kept anonymous. The interviews are expected to last for 45 minutes, with some time given for follow-up questions to the ones presented in this script.

Actors to be interviewed:

Given the nature of the research, and the need to look at the evidence of the partnership implementation impact on the service provision, the actors will be distributed in 3 areas: The private sector, Government Actors, civil society organizations, and communities. By interviewing these 3 different categories, the research is expected to be able to cross-check information via a triangulation and grasp value generation that goes beyond the service provision, including values per actor. That would also contribute to the understanding of the engagement of the different actors and the perception and distribution of risks.

Given the different nature of the interviewees, 3 interview scripts, below, will be generated to accommodate specific questions for different actors. However, they will be built inside the same building blocks. These are introduction and background information, organizational fit, risk-sharing, and value generation.

8.1 Interview Script

8.1.1 Introduction

This research aims at analyzing the impact of partnership arrangements in the service provision of water supply to rural areas. To do so, it will look closely at the engagement of the different actors, the distribution of roles and responsibilities, risk-sharing, and value generation.

8.1.2 Background Info

Name:

Department/Organization:

Government-Level (National, State-level, Municipal):

Position:

E-mail/contact for further reach out:

8.1.3 Introductory Questions

1. For Background Could you talk a little bit more about your experience and relationship with the Partnership (SISAR or CENTRAL)?
2. Which sector of the partnership do you consider yourself to be in (Government, Private sector, Civil Society)?
3. Rural water supply is generally treated as complex or challenging. For you, what factors would contribute to that assumption in the case of Cear/Bahia? What are the elements that contribute to the complexity of rural supply?
 - a. Based on these, which characteristics of partnerships make them an apt system for managing rural supply? How, from your perspective, do partnerships manage to deal with the complexity of rural supply?

8.1.4 Organizational Fit:

The first group of questions is related to the distribution of roles and responsibilities inside the partnership, how the different actors work together, and how to make sure that interests are met at the same time that the different roles are given to the actors most capable or executing them.

Distribution of Roles and Responsibilities

4. How are you or your department involved in the partnership?
 - a. Could you describe who are the partners you work with within the partnership (SiSAR or CENTRAL), and what are their roles?
 - b. What is your (or department's) role in service delivery? What is your main focus within the partnership? What is the main contribution?
 - c. (*For internal reference*) Is there any difference between legal (formal) attributions and daily practices (informal)?
5. Considering the partnership as an ongoing collaborative relationship between more than one actor, how do you work together with other organizations involved in the partnership?
 - a. Which actors do you work with the most?
 - b. Would it be possible to say that there are weaker and/or stronger partners in the partnership? Why?
 - c. How do you work together? (Some examples might be, communications, joint meetings, project development, joint funding)
 - d. How is a trust created within the partnership? Any examples?
6. What do you consider to be the biggest challenge for the involvement of government/private sector/civil society actors in the partnership?
7. Is there any regulation or legal instrument that regulates the partnership? (e.g. local laws, subsidies, contracts, etc.)
 - a. If yes, how do they impact? (impact mechanics)
 - b. If not, do you think it should exist?
8. In terms of setting priorities, rules of engagement, and planning, who do you consider to be the core partner of the partnership?
9. What do you consider to be the relevant aspects for the maintenance/sustainability of the partnership?
 - a. What do you think is the main challenge for the sustainability of the partnership? What factors can interfere with the quality or functionality of the supply?
 - b. What do you think can be done to increase stakeholder engagement/interaction and the level of collaboration? And how that can be done?
 - c. What are the main challenges in implementing the partnership?

10. Partnerships are generally related to their ability to deliver results that would not be achieved by actors separately. How do you think the case of SiSAR/CENTRAL collaborates (or not) with this idea?
11. Recently, the federal government approved the new legal framework for Sanitation and a new plan for rural sanitation. How do these instruments impact the partnership and your role in the partnership?
 - a. As rural sanitation does not have its regulation and follows that of the urban environment, how is it possible to meet rural specificities in the current regulation?
 - b. Do you think that the lack of adequate regulation for rural sanitation is one of the biggest problems in rural areas, which increases the perception of risk in the sector?

8.1.5 Risk Sharing:

12. What are the (3) main risks that you see out in this partnership? And how they impact the partnership.
 - a. [*For Internal use*] Examples of risks:
 - i. Financial Risks: Related to the finances and funding of the initiative
 - ii. Political risks: related to political support, the influence of the government, lack of leadership
 - iii. Systematic Risks: related to the partnership itself, engagement of actors, trust, etc.
 - iv. Cultural risks?
 - v. Internal and External Risks?
13. Are there any mechanisms in place to cope with those risks? What are those and how do they operate?
14. How are those risks (you mentioned) divided inside the partnership?
 - a. If perceived as Balanced distribution among the actors: what are the factors that contribute, in your perspective, to this distribution?
 - b. If not perceived as balanced (fair): What can be done to make it fairer?
15. Is there an example of risks that are allocated to a specific actor due to its capacity to bear it?

8.1.6 Value Generation


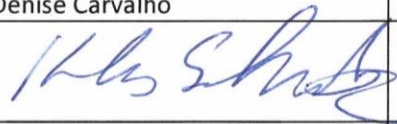

16. What do you consider to be the main interest of your organization's engagement in the partnership?
 - a. How are the different interests in the partnerships identified? How do you see the interests of the different actors involved in the partnership being met and accommodated?
17. What are the main results that you (as an organization) get out of the partnership?
 - a. E.g. In terms of mission values: Planned goals, regulatory targets (service coverage)
 - b. Organizational Values: Funding opportunities, project development expertise, indirect gains, coordination with other agencies?
 - c. Any other type of values: political values?
18. What factors can be considered to contribute to a "successful impact" of the partnership?
19. How do you think the partnership can be organized for the best service provision?
 - a. What do you consider to be the best setup for your engagement in the Partnership?

8.1.7 Follow-up

20. What type of documents are generated by your organization concerning the partnership?
21. Are there any documents and reports that can be shared?

Appendix B. - Research Ethics Declaration Form

8.2 General Information

Date:	22 Oct. 21		
Name of Researcher	Guilherme Almeida Monteiro	E-mail	Gal004@un-ihe.org
Department or MSc. Programme	Water Management and Governance		
Country where research will take place	Brazil		
Project or funding source	WMG Research Funds		
Title of Research proposal	Partnerships for Rural Water Supply		
Summary	The research will aim at exploring the collaborative advantage and value creation of two partnerships created for rural water supply in Brazil. SiSAR, in the State of Ceará, and Central, in the State of Bahia, will be analyzed to understand the processes of allocating the different actors, with their roles, responsibilities, and interests, while generating value as a partnership and to each partner involved.		
Other researchers involved		E-mail	Affiliation
Signature of Researcher		Date:	22 November. 21
Only for Student researchers:			
Student number (f applicable)	1069441		
Name of supervisor	Michelle Kooy	E-mail	m.kooy@un-ihe.org
Name of mentor 1	Klaas Schwartz	E-mail	k.schwartz@un-ihe.org
Name of co-mentor	Denise Carvalho	E-mail	denisemc@rotterdam.net.br
Signature of Mentor		Date:	November 22, 2021
Signature of Supervisor		Date:	November 22, 2021 22 Nov 2021

8.3 Screening checklist

Answer yes or no to the questions that apply to your research.	Yes	No
Collecting personal information		
Will your research involve collecting, processing, and/or reporting personal data obtained from primary or secondary sources?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Will you obtain information from individuals or groups of individuals through questionnaires, interviews, focus groups, or other methods?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
A) Including humans in research		
<i>Debriefing and consent process</i>		
Will you obtain information from individuals or groups through questionnaires, interviews, focus groups, or other methods?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Will your research involve individuals or groups who need to give their voluntary consent to participate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Will the participants include individuals belonging to groups that require special considerations, e.g. people under the legal age of consent, immigrants, refugees, disable people, or other vulnerable groups in the country of the research?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Will your research involve participants for whom voluntary and informed consent may require special attention (e.g. children (under 18s), people with learning disabilities, undocumented migrants, patients, prisoners)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Will your research include observation of individuals or groups of people without their explicit consent or knowledge?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Will your research require withholding information about the project or misleading participants?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Will your research use the cooperation of a person or organization of influence or power (gatekeeper) in a community, organization, or other, to involve individuals or groups in your research?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Will you require the help of a translator to collect, process and/or report information from participants?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Will you use animals in your research?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Benefits and risks to participants and researchers</i>		
Could the participation in the research, or the dissemination of its results cause -directly or indirectly- psychological stress, anxiety, harm or other negative consequences for participants or the researcher?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Could the involvement in the research contribute to any risk for participants or researchers because of the situation in the country or specific locations in which the research will take place?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Will you provide or offer any financial, material or other incentives for people to participate in your research?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Could any aspects of the research, or the communications related to, be perceived as inappropriate in the context of the culture, beliefs or practices of individuals or groups of	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Answer yes or no to the questions that apply to your research.	Yes	No
informants, e.g. ethnic or religious groups, or could interfere with their culture, beliefs or practices?		
Research context		
Will your research also require any research permits or ethical approval from national or local institutions or organizations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Could any factors of the research - including design, funding, dissemination of results, or other - be associated to potential conflict of interest that would put at risk its integrity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B) Including animals in research		
Will animals used in research experiments?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is there a risk that animals may be affected directly or indirectly by the research activities and/or suffer pain or stress that may affect them physically or their wellbeing?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

8.4 Declaration

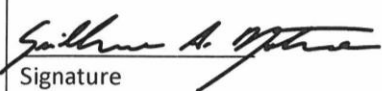


I, Guilherme Almeida Monteiro, have read the Netherlands Code of Conduct for Research Integrity and IHE guidelines for Research Ethics.

My research does not have any ethical implications because of the use of personal data or involvement of humans or animals as research subjects. I understand the Principles of Research Integrity and the Standards of Good Research Practices, and have considered them for my research in the following way:

[Write a short description, minimum 1,000 words, of how you have or will consider in your research the Principles and the Standards mentioned above]

My research involves the collection of personal data and/or the involvement of human or animal subjects. I understand the principles that guide the use of personal data and/or involvement of human subjects or animals and have considered the ethical issues that may arise from my research. I have incorporated measures to prevent harm and/or ethical repercussions for research subjects (humans and/or animals), and the institutions or groups involved in the research. I elaborate on them in the attached form (Part2) that I submit for ethical clearance.

Signatures

Student/Researcher  Signature Name: Guilherme Almeida Monteiro Date: November 22, 2021	Mentor  Signature Name: Klaas Schwartz Date: November 22, 2021
Supervisor  Signature Name: Michelle Kooy Date: November 22, 2021	

8.5 Involving Humans in Research

Name: Guilherme Almeida Monteiro

Research title: Partnerships for Rural Water Supply

Research objectives and research questions:

“How has the implementation of tripartite partnership arrangements for rural water supply, in terms of organizational fit, risk-sharing, and value generation –, impacted management of service provision?”

Research Goals :

- Offer an evidence-based analysis of Partnership implementation for service provision;
- Contribute to the academic discussion around partnerships, mainly collaborative advantage (organizational fit and risk sharing);
- Elaborate on value generation per actor in the partnership, identifying main interests, risks and challenges per actor.

8.5.1 Collecting personal information

The purpose of the research is to analyse the implementation of partnerships for the provision of rural water supply. That being said that information collected from the different people involved in the research will aim at engaging the perceptions and institutional positions regarding the partnership and the service provision. To do so, the research will ask the participants questions regarding the following issues:

- **Organizational Fit:** Distribution of roles and responsibilities inside the partnership. How to ensure that the roles are allocated to the partners most capable of executing them, Participants will be asked about the main challenges of engaging in the partnership, their roles (formal and informal), and the actors they are working closely with;
- **Risk Sharing:** how the different risks are perceived and shared among the actors that are involved in the partnership for service provision;
- **Value Generation:** inside the discussion regarding the results generated by the partnership, both in terms of the output (service provision) and the value per actor (relating to interests, capacity and goals), the participants will be asked about their interests and the results achieved by participating in the partnership;
- **Context and Regulations:** Followed by a literature review and a grey literature analysis, the interviewees will be asked about the application of those mechanisms and how they affect the work of the partnership.

In sum, the interview will be organized in the following building blocks: introduction and background information, organizational fit, risk sharing and value generation.

In terms of methods, the thesis will use semi-structured interviews. This selection was done to allow the interviewees to elaborate on their perceptions around specific guiding questions without the constrain of limited options to be selected, like in a questionnaire. That, however, bring some limitations to the data collection that have to be considered. The semi-structure interviews need to balance between how broad the questions are to initiate a discussion, with how narrow they have to be to collect meaningful information in a limited period of time.

When there is a consent from the interviewees, the interview will be recorded for the purpose of future reference inside the research, no use outside the research is expected. The identity of the interviewees will be kept anonymous. The interviews are expected to last for 45 minutes, with some time given for follow-up questions to the ones presented in this script.

The information collected in interviews, by notes or recording, will be stored in the researcher computer and cloud-based drives. The interview notes will be taken in a structured word document, and the recording will be done using mobile phones and tablet. The main aspects will be summarized in an excel table to allow the discussion and analysis to be done in the thesis.

8.5.2 Debriefing and consent process

Giving the nature of the research, and the need to look at the evidences of the partnership implementation impact on the service provision, the actors will be distributed in 3 areas: Private sector, Government Actors, civil society organization and communities. By interviewing these 3 different categories, the research is expected to be able to cross check information via a triangulation and grasp value generation that goes beyond the service provision, including values per actor. That would also contribute to the understanding the engagement of the different actors and the perception and distribution of risks.

The interviewees will be selected based on online searches and contact with people involved in the partnership. That can be seen as a limitation since the access to the potential interviewees will be conditioned to the link created with the civil society body that manages the partnership, SiSAR, and CENTRAL, the selection may be guided towards success cases. Recognizing this limitation in advance can guide the elaboration of questions to minimize its impact. And allows for critical analysis even in these cases.

The consent to participate on the interview will be oral and via e-mail. Once the interviews will be scheduled in advance, once the informant has accepted the invitation to participate in the research it is understood that he or she has consented. Additionally, in the beginning of the interview, the objectives and building blocks will be explained and an additional request for consent will be asked.

Once that process is done every building block of the interview will be introduced with a short explanation of what it encompasses in terms of questions and how that relate to the research. That is going to be used as a way of informing the participants and also ensuring the information got out the interviews match the goals of the research.

From a communication point of view, no interpreters or translation mechanisms will be needed since the interviews will be conducted in Portuguese, and that is the researcher's first language.

8.5.3 Benefits and risks to participants and researchers

Given the research focus on the implementation of partnership arrangements, and the fact that the arrangements have already been in place for over 20 years, the main benefit for the participants in the interview is to give visibility to their work and experiences. There will be no financial or any other incentives or compensation for the participation on the research.

With regards to the risk discussion, the interview process foresees no particular risk to the participants involved. And, with their identities get anonymous in the research analysis, that is even more secure.

8.5.4 Research context

Rural water supply constitutes one of the most challenging contexts in the water sector. With 8 out of 10 people that don't have access to water located in these areas, there is an urgent call for action (UN-Water, 2021)¹. In Brazil, recent numbers mirror the challenge faced in the global level.

On that end, this research positions itself in the analysis of the management structures responsible for addressing this challenge. What is particularly important is that the cases selected represent partnership arrangements created to coordinate the different actors involved in the service provision, and allocate the roles, responsibilities and risks.

8.6 Decision from the RECO

Date: 2022-04-14
To: Guilherme Almeida Monteiro
MSc Programme: Water Management and Governance
Approval Number: IHE-RECO 2021-303

Subject: Research Ethics approval

Dear Guilherme Almeida Monteiro

Based on your application for Ethical Approval, the Research Ethics Committee (RECO), IHE Delft RECO gives ethical clearance for your research topic Partnerships for Rural Water Supply: The SiSAR and CENTRAL cases.

This approval valid until April 19, 2022. Please notify the RECO if your research protocol is modified in any way. If you do not complete your research by the specified date, contact RECO to request an extension for the ethical clearance.

Please keep this letter for your records and include a copy in the final version of your MSc thesis, together with your personal ethics reflection.

On behalf of the Research Ethics Committee, I wish you success in the completion of your research.

Yours sincerely,



Dr. Angeles Mendoza Sammet
Coordinator, Research Ethics Committee IHE Delft