



Assessment of the failure to implement a much-needed rural water and sanitation project in Brazil

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ABSTRACT

The National Rural Water and Sanitation Project was implemented in Brazil in the 1980s. It did not succeed because it did not become an institutionalized public policy that reached the entire national territory, and it was discontinued a few years later. This article assesses the factors explaining this failure using the 5C Protocol. The results show that the flaws in the implementation impaired the sustainability of the established systems. Political reasons compromised the principles idealized during the conception of the project. Also, technical and institutional limitations constrained the implementation of the recommended innovations, such as social participation, and adaptive technologies.

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Introduction

Implementation is a critical stage in the execution of public policies. During this stage, the policy, which initially consists almost exclusively of theories, discourse and words, is translated into concrete action. Najam (1995) defines implementation as a stage in which the purposes and objectives of a policy are achieved. It is a dynamic stage that involves multiple stakeholders and organizations operating at various levels, and is used not only to translate a given policy into action but also to alter the policy itself. Studying the process of public policy implementation is important because it helps understand, identify and find ways to overcome the limitations of the concerned policy.

Brazil is currently going through a crucial period with regard to its water and sanitation policy, marked by the launch of the Rural Brazil Water and Sanitation Programme (Brazil, 2019a, 2019b). The programme aims to reduce deficits in water supply, sanitation, solid waste management and stormwater management in rural areas of Brazil over the next 20 years. Consequently, knowledge gained from credible analyses is valuable for constituting the programme as a state policy and its effective implementation in the future.

Historically, investments in water supply and sanitation in Brazil have preferentially targeted urban centres (Rezende & Heller, 2008), thereby contributing to an acute inadequacy in the provision of such services in rural areas. According to the latest census (IBGE,

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2010), about 73% of rural households have an internally piped water supply. However, the number of these households that receive sufficient water for their daily needs or whether the supplied water is of potable quality cannot be determined. The sanitation situation is far more precarious, given that 64% of all rural households dispose of their wastewater into rudimentary latrines, and 11% discharge it directly into the environment.

Brazil's first national-level water supply and sanitation plan was instituted in 1971 through the National Water and Sanitation Plan. Although its implementation succeeded in improving the coverage of water supply and, to some extent, sanitation, the plan was inequitably executed and neglected the residents' requirements in informal settlements and rural areas (Britto et al., 2012).

To overcome the challenges in implementing the National Water and Sanitation Plan in rural areas, the National Rural Water and Sanitation Project was run from 1985 to 1989 (IPEA, 1989a). It was coordinated by the Inter-ministerial Committee for Rural Water and Sanitation (Brazil, 1984) comprising representatives of the ministries of Health, of Urban Development and the Environment, with the Economic and Social Planning Institute being designated as the executing agency. National and international consultants from the Pan American Health Organization (PAHO) provided technical assistance to the project. A loan from the International Reconstruction and Development Bank to the Brazilian government funded part of the project.

The National Rural Water and Sanitation Project comprised two components: (1) The first was the national component, which was responsible for: (i) research and development of facilitating strategies, (ii) ensuring the feasibility of specific rural water supply and sanitation actions, and (iii) providing technical assistance to the federal government in preparing a 10-year basic water supply and sanitation plan for rural areas. (2) The second part was the pilot project that started in 1987 with the goals of: (i) providing water supply systems to 200 rural communities with 200–2000 inhabitants, (ii) constructing 10,000 individual septic tanks for sewage disposal, and (iii) building 5000 latrines (World Bank, 1993). The pilot project was implemented in Minas Gerais State by the State Water and Sanitation Company, with the idea of eventually expanding the project's scope to cover the country entirely.

The Minas Gerais State Water and Sanitation Company officially concluded the pilot project in 1994 after having constructed water supply and sanitation systems for 136 rural communities and installing 6500 septic tanks and 2787 latrines (World Bank, 1993). However, the state-owned company estimated that the implemented systems functioned properly only in half of the communities. While the municipal authorities would have to take responsibility for 20% of those cases, the remaining 30% would most likely be abandoned (Dias, 1994). Thus, in the words of Costa (2003), there was 'a great loss of impetus to constitute a policy for rural water supply and sanitation in Brazil' (p. 68).

The National Rural Water and Sanitation Project was an outcome of an assessment that pointed out the lack of a national policy for the provision of water and sanitation services in rural areas at that time. As a result, this need for a policy to cover this issue was included in the national agenda, and the National Rural Sanitation Project was formulated. Despite the fact of the initiative had received the terminology of a project, it contained clear elements of a public policy. However, the National Rural Water and Sanitation Project did not become an institutionalized public policy that reached the entire national territory. Its implementation was restricted to the pilot project in Minas Gerais and project actions were halted a few years later. However, as a result of the studies

carried out by the project's technical team and consultants, the preliminary version of the National Rural Water and Sanitation Program was published in 1987. Studies for the development of the project also resulted in a series of publications, in 1989, composed of nine volumes, the 'Rural Water and Sanitation Series'. These documents shaped the scope of the National Rural Water and Sanitation Project through the provision of conceptual and operational elements for rural water and sanitation actions in Brazil. Issues covered in these formulations include institutional organization, finance and investment planning, community participation, human resources development, and technologies.

In the present study we assessed the implementation of the pilot project and attempted to identify the factors responsible for its failure. Research on project implementation is deficient, and this stage acts as a 'missing link' in public policy research in Brazil (Faria, 2012).

Public policies can be rarely implemented in complete alignment with original plans (Siman, 2005). Although during the implementation the course of a public policy is exclusive to particular situations, research suggests that it is possible to identify the critical variables that can influence the course of implementation (Brynard, 2005). Hence, for this study we adopted the 5C Protocol developed by Najam (1995) as an analytical reference.

The 5C Protocol for research and evaluation of policy implementation is based on five variables: content, context, commitment, capacity and clients/coalitions (Najam, 1995). Brynard (2005) states that the variables outlined in the protocol have been widely applied to analyse the implementation of policies in various areas, political systems and countries with different levels of economic development. Zani and Costa (2014) assessed the implementation of the National Program for Strengthening Family Agriculture in Brazil with the aim of providing support to small rural producers. Also in Brazil, Carvalho (2011) assessed the implementation of the public policy to expand access to higher education through the Support Program for Restructuring and Expansion Plans for Federal Universities. In South Africa, Fokane (2013) addressed the implementation of a national film industry policy in the country, while Mnculwane (2008) assessed the implementation of a policy to improve the provision of services in the Department of Arts, Culture and Tourism.

Methods

Empirical data for the present study were obtained through interviews and official government documents and scientific papers. We conducted content analysis (Bardin, 2011) of preliminary studies for the elaboration of the National Rural Water and Sanitation Project (IPEA, 1989a, 1989b) and documents related to the implementation of the pilot project (Cabral, 1988; Copasa, 1990, 1991; Gonçalves et al., 1993; Resende, 1993). We also carried out 14 semi-structured interviews (Flick, 2011), in person, with those who had participated in the National Rural Water and Sanitation Project formulation or pilot project implementation in order to collect new information on the research topic. For the qualitative interview guide, see the supplemental data online.

The sampling strategy was based on the a priori selection of interviewees (according to the participating institutions, such as the Economic and Social Planning Institute, the PAHO, and the Minas Gerais State Water and Sanitation Company), followed by the inclusion of further participants through the snowball technique. Prior approval from the Ethics Committee of the Federal University of Minas Gerais was obtained, in compliance with National Health Council Resolution 196/96.

The data compiled during this study were subjected to a categorical content analysis, which converts the text into categorical units (Bardin, 2011). The compiled documents and interviews were categorized using Atlas Ti software based on the following five variables, as proposed by Najam (1995):

- *Content* includes the proposal for solving the perceived problem. It consists of the choice of means, definition of goals and actions recommended to achieve them. The three underscored analysis categories were the objectives, embedded theory and methods.
- *Context* refers to the organizational environment where the policy is to be implemented, which may limit the implementation process. It includes social, economic, political and legal aspects of institutions.
- *Commitment* consists of the willingness and capacity of stakeholders to implement a given policy at all levels. The commitment of street-level bureaucrats is very important because of their proximity to the problem.
- *Capacity* is related to the administrative, structural, functional and cultural capabilities of the respective stakeholders in the political arena for the implementation of governmental policies. It is influenced by the availability of and access to resources, such as leadership skills, motivation, financial capacity, technological resources and human resources.
- *Clients/Coalitions* concern non-state stakeholders, especially those towards whom the policy is directed. They, together with various interest groups, can accelerate, delay or determine the direction of policy implementation by adopting collaborative or oppositional attitudes.

Later developments proposed the inclusion of two more Cs to the 5C Protocol: communication and coordination (or coherence). Communication, although reflected in all five original variables, was highlighted by Brynard (2005) because of its relevance to policy implementation. Cloete (2018) argued that coherence is essential to achieving public policy objectives. Despite these developments, this study embodied these two new categories into the original five, as presented in the next section.

Results and discussion

Content

A notable highlight of the National Rural Water and Sanitation Project proposal was its integrated vision of water and sanitation. In addition to the actions focusing on infrastructure for water supply and wastewater disposal, the project adopted a broader concept of water and sanitation associated with promoting health and improving quality of life. In the case of the pilot project implementation, the intention was to adopt that principle and place emphasis on the simultaneous installation of water supply and sanitation systems. Furthermore, efforts have been made in the fields of waste management, vector control and stormwater drainage (Cabral, 1988).

Brazil has witnessed an unequal development of water and sanitation sectors as priority was given to water supply, particularly when the National Water and Sanitation Plan was in force in the 1970s (Saiani & Toneto, 2010). Thus, by stressing the simultaneous installation of the water supply, sanitation systems and other domestic sanitation improvements, the National Rural Water and Sanitation Project sought to address the increasing demand and reduce the inequality between water supply and sanitation services. The pilot project implementation attempted to adhere to these guidelines and demonstrated its innovative nature by integrating public welfare actions in a coordinated manner.

The National Rural Water and Sanitation Project content was also innovative in terms of recommending the adoption of technologies adapted to the varied circumstances of rural populations. This was a marked departure from the conventional solutions that were generally scaled-down versions of systems designed for big cities, and ignored the local cultural and environmental conditions (IPEA, 1989b). National Rural Water and Sanitation Project proposed that priority should be given to technical solutions with operational simplicity that could eventually be managed by the communities themselves, costs should be reduced and that separate technological standards appropriate for each of the very diverse regions of the country should be adopted.

Considering Brazil's extensive geographical area, implementing a national water and sanitation policy is a challenging task owing to the pronounced differences in sociocultural, environmental, land-use and settlement conditions, which give rise to region-specific practices concerning water and sanitation. The use of technologies adapted for local conditions is essential to ensure the effectiveness of the solutions and systems implemented for water supply and sanitation. Studying the use of appropriate rural water and sanitation technologies in Brazil, Kligerman (1995) underscored the role of the Special Public Health Services. This institution adapted project parameters, construction methods and operational schemes to suit the predominantly small and poor communities where it was active. However, Kligerman points out that despite adaptation to the local level water and sanitation conditions, the model never had national features. The National Rural Water and Sanitation Project attempted to apply this principle during the implementation period of its pilot project. Adopting appropriate technology, however, is not sufficient to guarantee system effectiveness, as proper management is also required. Upon construction of the water supply and sanitation systems under the pilot project, community associations were responsible for operating them as stipulated by the National Rural Water and Sanitation Project. To enable this, an operation-cum-maintenance manual was conceived as a training resource for local operators. Additionally, training in administrative issues was created for community leaders and municipal personnel and provided to them (Copasa, 1991). The operational districts of Minas Gerais State Water and Sanitation Company were responsible for supporting the communities (Resende, 1993).

The National Rural Water and Sanitation Project adopted innovative approaches towards capacity-building and encouraging participative actions in partnership with the Rural Technical Assistance and Extension Corporation. The National Rural Water and Sanitation Project was also innovative in proposing administrative decentralization and the involvement of state water supply and sanitation companies in service provision in rural areas.

Najam (1995) indicated that the definition of objectives, methods and theories that comprise public policy affects all other variables associated with implementation. The ultimate goal of implementation is to carry out actions to meet the policy objectives. The analysis of other variables showed that the pilot project was not always successful in implementing the objectives envisaged in the National Rural Water and Sanitation Project.

It is worth mentioning that there is a similarity between the principles defined by the National Rural Water and Sanitation Project and those adopted 30 years later by the current Rural Brazil Water and Sanitation Program (Brazil, 2019b). Both policies, at different times and with their particularities, sought to go beyond the predominantly technocentric approaches, addressing aspects such as education and social participation, decentralization, use of appropriate technologies, and recognition of the relationship between water, sanitation and health. However, the current programme evolved to try to overcome the limitations of the preceding project developed in the 1980s.

Context

Najam (1995) claims that implementation cannot be understood without considering the respective institutional context, which, in turn, cannot be understood without a much broader social structure.

In the National Rural Water and Sanitation Project vision, the government would promote measures to guarantee the provision of water and sanitation services to rural localities (IPEA, 1989b). The National Rural Water and Sanitation Project defended the decentralization of the planning, execution and management processes of rural water and sanitation actions. Water and sanitation service provision to rural communities should be the responsibility of local (municipal/community) authorities with support from state governments, and the operation of the water supply and sanitation services should ideally be performed by community organizations (IPEA, 1989b). The proposed organizational structure therefore differed from those previously adopted in the country.

During the military dictatorial regime (1964–84), the state governments and the federal government functioned in close coordination based on financial and administrative centralization. National policies for housing, water supply and sanitation were formulated, funded and assessed by the federal government, and they were implemented by state companies supported by the federal government. This model was also exemplified for water supply and sanitation with the conception of the National Water and Sanitation Plan in the 1970s (Arretche, 1999).

Thus, the National Rural Water and Sanitation Project proposal for decentralization represented a radical change in the policy administration practiced during previous decades. That proposal, however, was in consonance with the 1988 Constitution, which recommended the significant transfer of powers concerning decision-making, functions and financial resources from the federal executive to the state and municipal spheres.

A decentralized model was introduced during the implementation of the pilot project. The pilot project envisaged the involvement of the Minas Gerais State government through its Water and Sanitation Company, the Rural Technical Assistance and Extension Corporation, municipal governments and rural communities. Such joint actions featured in the implementation of the systems and their subsequent administration. The Minas Gerais State Water and Sanitation Company was responsible for

engineering design and coordination of the construction, while the Rural Technical Assistance and Extension Corporation was entrusted with coordinating community participation and education. The community was responsible for constituting a community association, providing the necessary labour, selecting the technological models and charging for services. The municipal government provided the required technical support, equipment, material and personnel.

The responsibility of managing and operating the systems was assigned to the community association. The Minas Gerais State Water and Sanitation Company was in charge of providing technical assistance to the communities. The municipal authorities undertook various tasks, such as paying wages and electricity bills, purchasing chemical products, and maintaining equipment (Gonçalves et al., 1993).

Regarding the political context, the World Bank report notes that the project's progress was hampered due to political interference. The choice of communities, in particular, was strongly influenced by political considerations during the run up to the municipal and state elections in 1988 and 1990 (World Bank, 1993). The implementation of pilot project was affected by changes in the federal government during the project tenure (1988–94), indicating that repeated institutional turnover affected the policy's development (World Bank, 1993). The election of Fernando Collor to the Presidency of the Republic in 1990 was accompanied by a series of ideological and institutional changes. When the institutional reorganization was implemented by the government, the rural water supply and sanitation were brought under the recently created Ministry of Social Action (which was subsequently eliminated in 1992). Another change that directly affected the National Rural Water and Sanitation Project was the discontinuation of the Planning Department of the Office of the President, to which the project was attached through the Economic and Social Planning Institute. The Planning Department, which had been the key on decisions on economic planning in Brazil, was relegated to the status of a national department subordinated to the Ministry of Economy.

In addition to institutional dismantling, interviewees who played an active role in the National Rural Water and Sanitation Project unanimously identified the ideological changes that were made regarding the management of the water supply and sanitation issues in Brazil. In December 1992, the Brazilian government signed a loan agreement with the World Bank to finance a new programme, the Water and Sanitation Sector Modernization Program, which did not encompass rural areas and was strongly biased in favour of privatization (Brazil, 2007).

Political-administrative discontinuity has been identified as an impediment to the development of public policies in Brazil (Machado et al., 2015; Nogueira, 2006). Interruption of projects leads to wasted public resources, loss of institutional knowledge, and reduced morale in the stakeholders. The paralysis of public policies can lead to the abandonment and deterioration of water supply and sanitation systems, thereby incurring irreparable losses, especially in rural areas.

The decentralization of services materialized in the health sector with the development of the unified health system, which significantly changed the organization of public health in Brazil (Paiva & Teixeira, 2014). In the water and sanitation sector, however, the reorganization proposed by the National Rural Water and Sanitation Project to guarantee service provision in rural areas was not implemented. According to Menicucci and D'Albuquerque (2018), the health and sanitation sectors mutually differ in that the former

takes human rights as its referential. Hence, in the health sector, human rights principles predominated during the formulation of national policy, whereas in the water and sanitation sector, a developmentalist framework and corporate logic prevailed, perceiving them as services delivered by state companies and paid for directly by the beneficiary population.

The current Rural Brazil Water and Sanitation Program (Brazil, 2019a, 2019b), like the National Rural Water and Sanitation Project in the 1980s, proposes a structural arrangement based on decentralization. As a way of avoiding interruptions resulting from governmental changes – a major problem experienced during the pilot project implementation – and minimizing the current institutional fragmentation, the programme seeks to transcend the governmental sphere, starting from the institution of forums. These forums are recommended to be constituted by the sensitization and mobilization of governmental and non-governmental stakeholders. Thus, it is expected that the Rural Brazil Water and Sanitation Program' Forums (Brazil, 2019b) have the potential to promote decentralized and democratic decision-making processes and the monitoring of public rural water and sanitation policy in Brazil.

Commitment

The importance of the stakeholders involved in the formulation of public policies is widely acknowledged. Najam (1995) notes that the feasibility of implementing good policies, even when provided with all the necessary resources, still depends on stakeholders. If various stakeholders are unsupportive or incapable of implementing the said policies, the intervention in question will be ineffective.

The National Rural Water and Sanitation Project involved a multiplicity of stakeholders from different spheres of government and civil society. Based on the interviews, we could generally assess the commitment of the stakeholders towards the formulation and implementation of the project. However, stakeholders working on the national component failed to integrate with the actors engaged in the pilot project. Nery-Silva (2016) studied various environmental education policies and emphasized the need for dialogue among the agents involved in different stages of public policy institutionalization as part of an endeavour to achieve integrated administration. This is a crucial point, especially for a national rural water and sanitation project that envisioned decentralized actions and attempted to obtain an inter-sector coordination involving the education sector to promote community development. Interviewees remarked on the lack of contact between the two components of the National Rural Water and Sanitation Project, with very few meetings between their respective heads to discuss project progress.

In addition to the deficient integration of the various bodies responsible for the project in the federal, state and municipal spheres, the technical staff of the International Reconstruction and Development Bank failed to accompany the project, especially in the case of the pilot project in Minas Gerais, where the task of accompaniment was delegated to federal funding bodies:

Bank supervision of the pilot component was, however, notably weak, partly because it had anticipated a higher level of supervision from federal institutions, i.e., the BNH/CEF,¹ had been expected. In the absence of an interlocutor at the federal level, supervision was seriously deficient. (World Bank, 1993, p. 9)

Organized civil society played an outstanding role in the National Rural Water and Sanitation Project, which maintained social participation as a core principle. However, technical staff active in the social areas of the pilot project stressed that, in some cases, mobilizing service users was difficult. That failure of users to get involved is not restricted to rural areas. Bringham and Günther (2011) identified a lack of interest and inertia of users as a factor that made public participation in selective waste collection difficult to achieve.

In addition to technical staff and users, political actors also strongly influence public policies. In the case of the National Rural Water and Sanitation Project, a lack of commitment by local political actors, especially in the municipal government, hindered the sustainability of the implemented systems. Political interference at the local level is also described by José Maurício Resende, former director of the Minas Gerais State Water and Sanitation Company Rural Water and Sanitation Division, in an interview for Dias (1994): ‘several municipal authorities, because they were political adversaries of the [community] associations’ leaders, refused to contribute’ (p. 10).

The involvement of political actors in the federal sphere, even indirectly, created difficulties for the National Rural Water and Sanitation Project. The project suffered from institutional alterations and changes in the technical bodies due to elections. ‘An unfortunate outcome of these transformations in policy and organization was that the technical team was completely dismantled, dismantling with it the institutional memory of the project’ (World Bank, 1993, pp. 14–15).

Thus, while the stakeholders responsible for the conception, formulation and implementation of the National Rural Water and Sanitation Project were committed, a lack of political commitment towards implementation affected its development. The elaboration of public policy is only one stage of its cycle. Once its constitution has been defined, the policy follows its internal path in the search for consolidation and the competition for limited government resources. After the first few years since the formulation of the National Rural Water and Sanitation Project, there was no institutional environment that could encourage its formalization and implementation throughout the country. The normative institutionalization of public policies – by means of laws, decrees, ordinances and resolutions – is a fundamental step towards the creation of concrete legal obligations to public authorities, enabling collection by control bodies and society as a whole. The current Rural Brazil Water and Sanitation Program (Brazil, 2019b) takes the lead in this regard. Officially published through the Ordinance of the Ministry of Health (Brazil, 2019a), the programme is under the responsibility of the National Health Foundation (FUNASA), an institution with long experience in actions of water supply and sanitation in rural areas.

Capacity

Among the 5C Protocol variables, capacity was the object of most unanimity in studies on public policy implementation with regard to its critical importance for implementation (Najam, 1995).

The World Bank evaluation report highly praises the performance of the National Rural Water and Sanitation Project coordinating institution team, from the Economic and Social Planning Institute, which worked in a scenario of repeated administrative changes and budget restrictions caused by the economic crisis in the mid-1980s:

Under the circumstances, the Economic and Social Planning Institute's performance was admirable not only with technical assistance but also with administrative support to the states. The Economic and Social Planning Institute's activities in the project were seriously hampered by the Government inaction, the sluggish performance and eventual dismantling of BNH, the sequence of various ministerial changes and the resigning of responsibility for rural water supply and sanitation to the states and municipalities. (World Bank, 1993, p. 9)

However, public policy formulation capacity must be analysed in accordance with the capacity for policy implementation. Siman (2005) stated that when the institutional mechanisms that orientate an implementation process are defined without considering the implementer's operational capacity, there is practically no possibility of a given policy being efficacious.

The National Rural Water and Sanitation Project aimed to ensure participation of the state authority in the execution of water supply and sanitation actions in rural areas, especially through the role of the state water and sanitation companies already established in Brazil. The rationale for the creation of these corporations was based on the principle of their economic sustainability (Rezende & Heller, 2008). Thus, given that providing services for municipalities with small populations and in rural areas was financially unfeasible, the task has historically fallen on other institutions, such as special public health services. Therefore, state companies generally lack the expertise needed to undertake activities in rural areas.

In Minas Gerais, the State Water and Sanitation Company, along with the state government, was attributed the role of implementing two programmes involving rural water supply and sanitation: the Vale do Jequitinhonha and the MG-II. Therefore, the Minas Gerais State Water and Sanitation Company was chosen to implement the pilot project. Although the state corporation had limited experience with rural activities, the pilot project represented a new level of demand, calling for the creation of a specific division for rural water supply and sanitation within the organizational structure of the corporation.

The Minas Gerais State Water and Sanitation Company was unable to achieve the goals proposed by the National Rural Water and Sanitation Project pilot project, but the good performance and dedication of its technical team are highlighted in the World Bank report, underscoring the financial aspect. The International Reconstruction and Development Bank had estimated a cost of US\$120 per inhabitant to implement a water supply system and US\$300 per inhabitant for sanitary units. The Minas Gerais State Water and Sanitation Company, however, was able to construct a water supply and wastewater disposal system for a per capita cost of US\$160. Thus, in the World Bank (1993) assessment, 'whereas the component [pilot project] fell short of its numerical goal, it [the Minas Gerais State Water and Sanitation Company] more than compensated for this shortfall by upgrading the systems installed' (p. iv).

Ennes (1990) describes changes in the pilot project methodology, compared with that of the Vale do Jequitinhonha and MG-II programmes, designed to accelerate the pace of the works. Engineering projects accelerated, but the project gradually lost its participatory and community-based natures. The PAHO's consultants underscored this perception in an evaluation report of the pilot project:

As expected, pressured by the need to the demands of the established goals and time-frames, the activities of a social nature are being sacrificed, and the Minas Gerais State Water and Sanitation Company is becoming increasingly exclusive in decision-making and the direct execution of the works. On the other hand it has managed to achieve a significant volume of accomplishments in a working period that was effectively less than a year.(PAHO, 1988, cited in Ennes, 1990, p. 54)

Maximization of the number of systems implemented and compliance with established deadlines were prioritized. As a consequence, this sacrifice community participation and contradicted the principles established in the formulation of the National Rural Water and Sanitation Project. This factor may have contributed to the abandonment of a considerable part of the systems as much as a lack of community involvement in water supply and sanitation actions makes sustainability difficult (Narayan, 1995; Sara & Katz, 2005).

Due to the absence of suitably qualified persons among its technical staff, the Minas Gerais State Water and Sanitation Company had to rely on the Rural Technical Assistance and Extension Corporation to create a team responsible for the social area of the pilot project and for community mobilization through educational activities and participatory incentives. After the Rural Technical Assistance and Extension Corporation consultants became involved, the implementation of the social component improved considerably.

Feeling rushed because of the date for loan closure, the Minas Gerais State Water and Sanitation Company initially attempted to address community participation with its own staff. Recognizing their own deficiencies [...] they eventually hired consultants to help with community participation, after which implementation of the component improved markedly.(World Bank, 1993, p. 7)

In addition to the lack of community involvement, abandonment of the installed water supply and sanitation systems may be related to flaws in promoting the technical assistance provided by the project. Kleemeier (2000) notes that community groups are good at making small repairs in water supply systems but not at preventive maintenance and repairs. Thus, if technical assistance is weak, the system will perform poorly. In that regard, Hutchings et al. (2015) state that the need for ongoing support to communities is a basic premise in the development of rural water supply and sanitation actions, especially for large-scale projects.

In the case of the pilot project, the state company did not institutionalize technical assistance, which was only provided upon request from the communities, assuming that the technical staff and materials were available. Thus, prevention and accompaniment actions were effectively suppressed. In an assessment report presented to the World Bank, the Minas Gerais State Water and Sanitation Company acknowledged that the work regarding the administrative organization of the community associations was of

low quality, which had hampered the implementation of community management at that level. According to the company, however, some improvements were eventually incorporated by the municipalities (World Bank, 1993).

Another aspect that was poorly developed during the implementation of the pilot project, which may have been directly related to the ineffectiveness of the constructed systems, was the complete renunciation of the selection of technology appropriated to local realities, thereby failing to comply with the guidelines established during the National Rural Water and Sanitation Project conception. The need to accelerate the work led to the adoption of standardized projects, to the detriment of the use of technologies appropriate to the socio-economic characteristics of the communities (Ennes, 1990). In its report, the PAHO stated:

From what we could observe in the works visited and the engineering projects examined, it could be said that, in general, the technology being used in the pilot project, in terms of its characteristics, is more like the conventional ones, involving concessions. (PAHO, 1988, cited in Ennes, 1990, p. 54)

The use of conventional technology can hamper the possibility of system operation and maintenance undertaken by community associations due to its high complexity. Furthermore, Kleemeier (2000) identified conventional technology as one of the factors jeopardizing the sustainability of solutions in rural areas.

In its economic–financial analysis, the current Rural Brazil Water and Sanitation Program established the need for investments in infrastructure and management measures. The former corresponds to physical interventions in infrastructure and is directly related to technology. The latter provides support to the functioning of services through strategies related to management, education and social participation (Brazil, 2019b). Thus, the programme aims to ensure the availability of resources necessary for the maintenance and sustainability of services.

Financial difficulties encountered in the continuity of the project must also be mentioned. During the 1980s, Brazil experienced a severe economic crisis with uncontrolled inflation and massive external debt (Baer, 1987). The execution of the National Rural Water and Sanitation Project was based on the implicit assumption that further loans for project maintenance and continuity would succeed, but this never materialized. When Collor was elected in 1990, the International Reconstruction and Development Bank stopped funding rural water supply and sanitation in Brazil.

This assumption of additional Bank funding is no longer valid, since the Federal Government has indicated, at least for the time being, that it does not expect to continue its plan to borrow from the Bank for rural water supply and sanitation, at the Federal level. (World Bank, 1993, p. 8)

An interesting point in the current National Water and Sanitation Policy (Brazil, 2013) is the elaboration of possible scenarios until 2033. In this way, government planning for the sector can be corrected by adapting its goals and investment capacity to different scenarios based on national development. In addition, the financial resources from different sources, such as government, private, and international agencies, can be combined.

Clients and coalitions

In the interpretations proffered by Najam (1995), ‘clients’ are all non-state actors whose situations are affected by the implementation in consonance with the policy proposal. Coalitions would be outside actors and interest groups whose individual behaviours might remain unaffected but who have sufficient motivation and capacity to actively support or oppose implementation and seek specific results that are in alignment with their interests.

Regarding the formation of coalitions, apart from the actors participating in the project, no stakeholders mobilizing in favour of or against the theme of rural water supply and sanitation were identified. In their analysis of the trajectory of the water supply and sanitation policy in Brazil, Menicucci and D’Albuquerque (2018) identified the absence or fragility of corporate networks engaged in advocacy for that sector during the opening of the policy window in the 1980s during the drafting of the Constitution. Thus, the analysis of this topic focuses on service client (user) participation during pilot project implementation.

One of the primary principles embraced by the National Rural Water and Sanitation Project was the effective participation of community, governmental and non-governmental institutions in joint actions, with an emphasis on the community power of decision in choosing solutions (IPEA, 1989a). This point is pertinent for ensuring the success of implementation because of the importance of community involvement in public policy planning and formulation. Rural water supply and sanitation projects whose idealization fails to contemplate the community sphere are rarely successful or achieve the expected results (Briscoe & DeFerranti, 1988; Kleemeier, 2000).

The pilot project sought to adhere to these principles during the system implementation. The community association, oriented by the technical personnel allocated to the pilot project, became responsible for various choices, such as the type of system to be implemented and the determination of charges for services. In addition to involving the community in technical decision-making, the project performed educational activities and, above all, sought to establish dialogue and debate and aggregate contributions to adopt solutions, as a result of the joint involvement of technical personnel and system users (Cabral, 1988). However, according to interviewee statements, one of the significant challenges facing project execution was user mobilization, considering the lack of interest displayed by the residents.

The methodological proposal of the pilot project recommended integrating educational activities, community participation and the execution of engineering projects. Nevertheless, during pilot project implementation, these activities were not always performed as planned or in the specified stages. Given the varied levels of community organization, capacity-building should have been adjusted for each locality. Because of the need to comply with the International Reconstruction and Development Bank timeframes provided in the funding agreement, meeting the deadlines for completing infrastructure/buildings was prioritized, disconnecting the two sets of activities. The Minas Gerais State Water and Sanitation Company (Copasa, 1990) admitted that ‘the process that was intended to be formative often became merely informative’ (p. 8).

Because of the ongoing economic crisis and the termination of the International Reconstruction and Development Bank funding, the National Rural Water and Sanitation Project progress suffered interruptions. One consequence of the scarcity of financial resources was the non-renewal of the contract between the Minas Gerais State Water and Sanitation Company and the Rural Technical Assistance and Extension Corporation. This jeopardized community mobilization activities, which were no longer performed systematically (Gonçalves et al., 1993).

Another problem regarding community participation was the formation of community associations; 65 of the 136 communities already had associations, and 71 created associations with the advent of the pilot project. According to Gonçalves et al. (1993), in those communities where the leadership legitimated by the community was respected, project implementation met expectations and demands with ample participation. However, communities with no prior form of established organizations were very weak when assuming participatory responsibility.

Madrigal et al. (2011) state that the capacity of the local leaders to motivate the community is an essential factor in creating community involvement incentives. The existence of a well-trained local leader, an active management committee and an organized community had a positive effect on the performance of the water supply systems studied by those authors. The non-spontaneous process of creating community associations to participate in the pilot project may have led to the selection of local leaders that did not have the characteristics needed to achieve the effective involvement of their communities.

The PAHO assessment considered that the deficient participation of the community associations stemmed from the shortage of time needed to perform educational work and create awareness among the residents, which, in turn, hampered the development of an associative spirit.

Given that the time available to arouse awareness of local leaders in regard to the role the future community association will be playing in the local water supply and sanitation effort is very short, those entities are quite often merely constituted pro forma [...] without the development of any kind of associative spirit among their members. Some of them never had another meeting after the constituting session, or participated, by means of their representatives, in any of the work of the pilot project. (PAHO, 1988, cited in Ennes, 1990, p. 54)

Furthermore, the PAHO identifies the choice of communities to participate in the pilot project solely on the basis of political criteria as another factor restricting community involvement.

The primary reason for community alienation regarding the pilot project is the fact that it was not the one who requested the service. In general, selection of the community was based on a political indication; therefore, there was no need for it to exert itself on behalf of the works given that the services would be implemented regardless of the service users. (PAHO, 1988, cited in Ennes, 1990, p. 54)

Madrigal et al. (2011) conducted studies showing that the key to creating a sense of proprietorship that positively affects system performance lies in the community's desire to organize itself to solve the water supply problem and participate in the conception, construction and maintenance of the infrastructure.

Lastly, the National Rural Water and Sanitation Project presented social participation as a guideline that only partially occurred in the implementation of the pilot project in Minas Gerais. No participatory processes were developed for the conception or formulation of the national component of the National Rural Water and Sanitation Project; it was instead a work undertaken by teams based in Brasilia from the Economic and Social Planning Institute, the ministries of Health, and the Urban Development and Environment, and PAHO consultants.

Unlike the National Rural Water and Sanitation Project, the current Rural Brazil Water and Sanitation Program (Brazil, 2019a, 2019b) sought popular involvement since its formulation, with the aim of mobilizing and engaging different actors. A civil society organization representing rural people, particularly those whose lives relate to land, forest or water, was directly involved in the design of the programme; researchers were present in rural communities in the five macro-regions of the country, interviewing the population to learn about their needs; several seminars were held, involving public managers, academics and the population; and the programme was submitted to public consultation before the publication of its final version.

Final remarks

Flaws by the Minas Gerais State Water and Sanitation Company in crucial points of the pilot project implementation jeopardized the sustainability of the constructed systems in the 1980s. Currently, the Rural Brazil Water and Sanitation Program (Brazil, 2019a, 2019b) needs to learn from these mistakes to overcome the discontinuity faced by the rural water and sanitation policy.

The political context led to the perversion of the principles idealized during the conceptualization of the National Rural Water and Sanitation Project. State policies that plan and orientate the medium- and long-term performance of the federal government from imposing government changes is of fundamental importance and has not been achieved by the National Rural Water and Sanitation Project.

Technical and organizational constraints related to the innovations proposed by the National Rural Water and Sanitation Project limited its implementation. The decentralization of actions was hampered by the scarcity of financial resources combined with political interference at the local level. The management of the services, which was intended to be performed by the community with support from government bodies, failed to materialize.

Educational and social participation also faced severe challenges during the pilot project implementation. The termination of investments stemming from the International Reconstruction and Development Bank funding and the haste to comply with the established deadlines resulted in a lack of priority for the fulfilment of the social aspects of the project. Ongoing educational actions are needed with contextualized pedagogical proposals, ensuring that the adopted actions become perennial to avoid completely abandoning water supply and sanitation systems.

The performance of state bureaucracy and the efforts and commitment of the technical staff involved, who dedicated themselves to the development of an innovative and ambitious project, must be acknowledged. However, the absence of strong coalitions sharing the same beliefs, convictions and ideas hampered the achievement of effective changes in the process of policy construction.

The national component of the National Rural Water and Sanitation Project developed an innovative methodology that proposed a wider vision of water supply and sanitation associated with health and quality of life to encourage societal participation in choosing solutions and sharing the management and adoption of technology with public authorities. However, due to problems related to the political context, technical and institutional organizational difficulties, the financial crisis and weak social participation, the pilot project was unable to align with some of the established principles. After a change of government in the federal sphere and the termination of World Bank funding, the National Rural Water and Sanitation Project was discontinued, thereby ending the effort to develop a rural water and sanitation policy in Brazil, an effort that would only be renewed in the country 30 years later.

The seeds that were sown by the National Rural Water and Sanitation Project, through the principles and guidelines defended by the Project, germinated fruits, as can be observed from the propositions currently contemplated by the current Rural Brazil Water and Sanitation Program (Brazil, 2019a, 2019b). It remains to be seen whether the current programme will be able to overcome the barriers faced by the National Rural Water and Sanitation Project and exposed in this article in order to guarantee the right of adequate access to water supply and sanitation services to the populations living in rural areas.

Note

1. National Housing Bank (BNH) and the Federal Savings Bank (CEF).

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