Utilities Policy xxx (2017) 1–10

Contents lists available at ScienceDirect

Utilities Policy

journal homepage: www.elsevier.com/locate/jup

Regulation inside government: The challenges of regulating a government-owned utility☆

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ARTICLE INFO

Article history:
Received 16 August 2017
Received in revised form
17 September 2017
Accepted 18 September 2017
Available online xxx

ABSTRACT

This article explores the process of independent regulation of a government-owned utility (GOU) in the water supply and sanitation (WSS) sector drawing on the theory of regulation inside government. Our fieldwork focused on recent efforts by the Rio de Janeiro state WSS utility (CEDAE) to comply with requirements imposed by an independent regulatory agency (IRA). Our findings highlight the challenges of regulating GOUs and identify key political factors that induce state governments, through state-owned companies, to shirk regulation. The multi-level governance structure of Brazilian WSS sector adds to the complexity of "regulating inside the government".

1. Introduction

Most water supply and sanitation (WSS) companies in developing countries are government-owned, with less than 10% of the urban population being served by private operators (Marin, 2009). In Brazil, this holds true. Private operators served only 316 out of the 5570 municipalities in Brazil, or 5,6% of the total (ABCON, 2016). This scenario has not changed in 2017: there are only 320 municipalities attended by private operators, an increase of less than 2% when compared to 2016. The lack of private investments imposes obstacles to WSS growth in a context of restricted public investments (Motta and Moreira, 2006).

Since the 1990s, a decrease in the number of partnerships with private operators has been counter-balanced with alternative reforms toward corporatization, meaning efforts to make government-owned companies "operate as if they were private firms facing a competitive market, or, if monopolies, efficient regulation" (Shirley, 1999: 115). Corporatization may include a broad array of strategies, such as incorporating government-owned utilities (GOUs) under the same commercial laws as private firms; removing barriers to entry, subsidies, and special privileges; forcing GOUs to compete in financial markets on an equal basis with private businesses; or giving more discretionary powers to GOU managers (Bottomley, 1994; Marin, 2009; Shirley, 1999).

Corporatization strategies have been partially adopted in several government-owned WSS utilities in Brazil, accompanied by a growing trend to subject these GOUs to the regulatory scrutiny of Independent Regulatory Agencies (IRAs) with the aim of implementing regulatory models patterned after those used for private utilities (Ehrhardt and Janson, 2010). Given the governmental affiliation of both IRAs and GOUs, we find this relationship to be a typical case of government regulating government, with its specific regulatory challenges, different in many aspects when compared to the regulation of private utilities (Hood et al., 2000; Lodge and Wegrich, 2012; James, 2000).

The literature offers little theoretical leverage and even less empirical evidence on regulation inside government (Konisky and Teodoro, 2015). Previous studies have been particularly critical of the challenges that regulators of private water suppliers face in developing countries (Marin, 2009; Rivera, 1996), despite the dominance of government-owned water utilities. Ehrhardt and Janson (2010) demonstrated that conventional regulatory regimes applied to GOUs might be of little use. Barbosa and colleagues showed in different studies that WSS companies regulated by independent agencies that use price-cap and revenue-cap instruments are associated with lower efficiencies than those that can negotiate directly with the municipality (Barbosa and Brusca, 2015; Barbosa et al., 2016). Only utilities subordinated to hybrid

☆ The authors would like to acknowledge the funding received from Brazil's National Council for Scientific and Technological Development, CNPq (Grant Nr. 310976/2014-6).

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https://doi.org/10.1016/j.jup.2017.09.007
0957-1787/

regulatory regimes, i.e., combining two or more instruments, and rate of return are associated with better efficiencies in this sector (Barbosa, 2013). In the same direction, Carvalho and Sampaio (2015) explored the performance of regulatory authorities in fostering efficiency among regulated companies and found that (i) technical efficiency was higher among unregulated companies and (ii) regulatory activity has so far failed in assuring better performance among utilities providers. What those studies suggest is that the presence of an independent agency is not a necessary or sufficient condition for a better performance of WSS service providers.

Within this scenario, our field research explored the recent efforts of the state of Rio de Janeiro WSS utility (CEDAE - Companhia Estadual de Aguas e Esgotos) to comply with the regulatory requirements imposed by a relatively new multi-sector (energy and WSS) state-level IRA (AGENERSA - Agência Reguladora de Energia e Saneamento Básico do Estado do Rio de Janeiro). Our research is based on historical and archival research, participant observation, and direct interviews with GOUs and IRA reformers, executives, representatives, and current and former regulators of the company.

Drawing on the political theory of regulation inside government (Konisky and Teodoro, 2015; Lodge and Wegrich, 2012; James, 2000), this article argues that the tendency of the state government, through its state-owned company, to shirk regulation is related not only to the political costs of losing direct control of the GOU, but also to the potential loss of a traditional instrument of political control in several municipalities. Despite the formal and legal trends to grant municipalities more power in the WSS sector, several mechanisms reinforce the dual dependency of the GOU and IRA on the state government, which, in turn, becomes an obstacle to effective regulatory enforcement.

Further, the singularity of the political configuration of Brazilian WSS both, in relation to its similar in the rest of the word and in relation to other regulated sectors in Brazil (Motta and Moreira, 2006; Pinheiro, 2016), adds to the challenges of regulation inside the government. We argue, particularly, that the multi-level governance structure that characterize Brazilian WSS sector adds complexity in "regulating inside the government" dynamics, and translates in complex procedures, flexible regulatory schedules, and ongoing negotiations to set up and enforce regulatory instruments.

2. Regulating inside government

GOUs present a classic case of regulation inside government, as regulator and regulated are both governmental organizations (Konisky and Teodoro, 2015). On the surface, GOUs might seem to be questionable exemplars, because they avoid strict categorization as public or private entities. In practice, many GOUs are seen as government-affiliated bodies involved in private sector activities, or as representing governmental usage of the corporation, which is usually regarded as a private legal formation (Bottomley, 1994; Prosser, 1986). Despite the fact that most GOUs are separate corporate entities incorporated under the private company law, research has demonstrated that mimicry of private companies generally fails, and that most GOUs behave like government bodies (Ehrhardt and Janson, 2010).

Regulation, the act of ensuring that things are done properly by public and private organizations, is related to legal rules, indicating that the organizations are somehow held "accountable for their behavior and performance" (Ashworth et al., 2002: 196). According to Hood et al. (2000: 321), regulation inside the government domain relates to "the range of processes by which standards are set, monitored, and/or enforced in some way, by bureaucratic actors." Broadly speaking, regulation inside government refers to the army of inspectors, auditors, grievance-chasers, standard-setters, and other monitoring bodies that oversee contemporary public organizations (Hood et al., 1999). Regulatory activities encompass both third parties that carry out public services on behalf of the government, and public structures developed and maintained to ensure economy, efficiency, effectiveness, quality, and equality in the service delivery process (James, 2000).

Regulators rely on different types of enforcement mechanisms involving, for example, binding standard-setting, monitoring, and imposing sanctions (Koop and Lodge, 2015). Some view regulatory instruments more broadly, as a mix of sticks (legal mandates), carrots (incentives or disincentives), and sermons (communication) (Zehavi, 2011). Inside government, Lodge and Wegrich (2012) indicate four modes of regulation: (i) oversight – monitoring and directing from a point of authority; (ii) competition – the use of private and public providers of public services; (iii) mutuality – when standards are set by consensus and result from participatory processes; and (iv) contrived randomness – when standards and approaches remain uncertain or are acted upon in unpredictable ways.

The role of freestanding regulatory bodies that monitor GOUs and other public organizations (Lodge and Wegrich, 2012) is particularly relevant for our case. Our research focuses on secondary regulators, or the oversight of bureaucracies by other public agencies endowed with some sort of official authority (Hood et al., 2000: 284), what are referred to in this paper as Independent Regulatory Agencies (IRAs). Secondary regulators generally operate with different institutional procedures and divergent aims, namely "one public bureaucracy in the role of an overseer," with "an organizational separation between the 'regulating' bureaucracy and the 'regulatee'," and "some official 'mandate' for the regulator organization to scrutinize the behavior of the 'regulatee'" (Ibid.). The common feature of these regulatory bodies is that they operate, to some extent, outside of the normal chain of command but within the governmental structure (Lodge and Wegrich, 2012:122).

Though regarded as important, regulation inside government has scarcely been theoretically or empirically explored (Boyne, 2003; Konisky and Teodoro, 2015). Most contributions to the literature focus on the formal presence of regulatory bodies and their influence on the performance of certain sectors, particularly in the case of private operators. In the context of water utilities, research has revealed the imbalance between the limited means and capabilities of public regulators and the capacity of experienced private operators (Rivera, 1996), but such an imbalanced relationship can also result when the regulated company is a GOU.

Strong evidence suggests that public firms are more likely to violate regulators' requirements than private ones (Konisky and Teodoro, 2015). Regulation inside government is more problematic than third-party regulation due to the political nature of government activities, the turf battles between organizations, and the inherent inability of government entities to respect hierarchical authority for compliance, as supposedly occurs in private regulation (Lodge and Wegrich, 2012; Wilson and Rachal, 1977). James (2000) has also pointed out reasons for the failure of regulation inside government, including the risks of being captured by regulated bodies, regulation in the interest of the regulators, and excessive costs of regulation.

Previous empirical research in the water sector supports this view. Ehrhardt and Janson (2010) demonstrated that regulation does not improve the performance of government-controlled water utilities, and, consequently, may be of little use for GOUs. They attribute this evidence to the fact that GOUs are not commercially competitive and face systematic incentives for short-termism in tariff setting, because both regulator and GOU fail in the necessary role-playing that the "corporatization plus regulation" model requires (2010: 36). Berg (2013) also concluded that the mere

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existence of an IRA is not sufficient to improve WSS performance. A broader set of institutions that support regulatory and managerial actions are necessary.

Based on such evidence, Konisky and Teodoro (2015) put forward a political theory of regulation that accounts for the choices of regulator and regulated when both are the government. The ambiguity of regulating an agency's goals and the difficulty of punishing noncompliance render their regulation inexorably political. Konisky and Teodoro posit that what matters most when governments regulate governments are not the carrots and sticks available to regulators, but rather the "regulated agency's political costs of compliance with or appeal against the regulator, and the regulator's political costs of penalizing another government" (Ibid., 1).

This political theory of regulation drives our empirical research. In opening the black box of the regulatory relationship between a state-level independent regulator and a state-level government-owned company, we aim to discover the politics of this relationship, particularly in the context of a robust federalism.

3. Data collection

This research, bidding ethical procedures approved under the Process Nr. 17032016-1712PP from the Brazilian School of Public and Business Administration, Getulio Vargas Foundation (EBAPE/FGV), was conducted in two phases. The first phase was aimed at developing a broad understanding of the WSS sector as a whole in terms of institutional framework and recent legal transformations based on (i) archival research, (ii) in-depth semi-structured interviews and (iii) direct observation. The bibliographic research was conducted prior to the fieldwork and played a very important role in formulating the research plan. Archival research involved an extensive and exhausting search through official reports, websites of all relevant actors (companies, regulatory agencies, Senate and Chamber of Deputies, class associations, Ministries, city hall, state departments et al.), and federal, state, and municipal legislation. The policy proposals that preceded the new regulatory framework for the sector were also analyzed. Fieldwork involved nineteen semi-structured, in-depth interviews with key actors in the sector, conducted between mid 2013 to mid 2014, lasting from 30 min to 2 h. The interviews always started with an open question, and the extremely rich information obtained from these made us frequently review the historical trajectory of the sector. Indeed, data collection and analysis proceeded simultaneously, as normally occurs in qualitative research (Suter, 2012). The interviews were pivotal to understanding the diffusion of Brazilian WSS IRAs. All respondents worked directly or indirectly in the regulatory agencies, and some also had participated in creating them. The interviewees were senior executives in the most important agencies and WSS companies, including regulators from four different regions of Brazil. We also interviewed political actors in order to understand the macro relationship between the most important players in the WSS sector (executives, private and state-owned companies). With data collection and analysis occurring simultaneously, the early interviews influenced the structure of later ones. This fieldwork was also complemented by participant observation, and more than twenty informal conversations were recorded as field notes. We observed various events and industry meetings, such as the Association of the Brazilian Regulatory Agencies (ABAR) Conference, which annually brings together practitioners and scholars of utilities industries in Brazil.

The second phase of the fieldwork, conducted between August 2015 to September 2016, was exclusively focused on analyzing the relationship between CEDAE and AGENERSA. We decided to focus on the case of Rio de Janeiro because it was the most unusual or extreme (Gerring, 2009), and, accordingly, could help us to better understand the process of regulating inside the government.

CEDAE is a mixed economy company that works as government-owned utility, as the state government is its main shareholder, with 99.9996% of the shares. CEDAE is the main WSS utility of the Rio de Janeiro state and was founded in 1975. CEDAE faced severe financial and economic constraints in the early 2000s, but managed to (partially) overcome this scenario and became profitable as of 2010. Today is the third-largest Brazilian WSS company in terms of net revenue, and the second in terms of net profit and EBITDA.[1] CEDAE was partially privatized in the late 1990s and the state government has received the authorization from the Legislative Assembly to fully privatize the company. CEDAE is responsible for WSS in 64 of the 92 municipalities in Rio de Janeiro state.

AGENERSA is a new state regulatory agency of Rio de Janeiro and was founded in 2005. Since 2012, AGENERSA assumed regulatory responsibilities over CEDAE. The legal decree N.° 43.982/2012 that established this new regulatory relationship specified a transition period of three years based on the "previous commitments already in play among the State of Rio de Janeiro and CEDAE and several contracts and accords with municipalities" (Rio de Janeiro, 2012). Yet, it was only in 2016, eleven years after the agency was created, that AGENERSA participated in the process of tariff revision of CEDAE. A long process of tariff revision is taking place, since then, with several revision, from both parties. Additionally, it is important to highlight that AGENERSA regulates two private WSS companies in the municipalities of *Região dos Lagos* (AGENERSA, 2016a).

We also relied on documentary research, as well as participant observation and 9 additional interviews with public agents involved in the transition process when AGENERSA began regulating CEDAE. Our interviewees included both previous regulators, (the Secretary of Environment, State Institute of Environment), current regulators (AGENERSA), and current executives and representatives of CEDAE, as well as consultants of the corporatization strategy that preceded the AGENERSA-CEDAE regulatory relationship.

4. Data analysis

The goal of the research was to understand the process of regulation of a state-owned company that was unregulated, or self-regulated, for nearly forty years. However, the research began by examining the process of diffusion of regulatory agencies in the aftermath of the approval of the new regulatory framework. During this first phase of the research, the data collection and analysis occurred almost simultaneously. In the first phase of the fieldwork we clarified the political singularities of a complex multi-governance WSS sector (Motta and Moreira, 2006; Pinheiro, 2016). We argue that these singularities, related to a complex and unique multi-level governance structure, add to the challenges of regulating inside the government.

The second phase of the research focused on one specific case of IRA regulating a WSS GOU, which proved to be one of the most unusual during the first phase. Because of the inductive nature of the research question, the data analysis consisted in a close reading of the interviews and the field notes, followed by an open coding process. The open categories were grouped in a way to facilitate the data interpretation and data confrontation.

As a result, we developed a qualitative understanding of the process of independent regulation of a GOU in such a complex multi-level institutional context as Brazil. The three main challenges involved in the regulation inside the government – (i) the resistance by the GOU, (ii) its political misuse, and (iii) the

[1] Data from Valor Economico. Available at: http://www.valor.com.br/valor1000/2015/ranking1000maiores/Água_e_Saneamento.

Please cite this article in press as: Peci, A., et al., Regulation inside government: The challenges of regulating a government-owned utility, Utilities Policy (2017), https://doi.org/10.1016/j.jup.2017.09.007

weaknesses of the regulatory body – are intrinsically related to the federative tensions identified in the first phase of the research. Our main topics of analysis and subsequent findings are anticipated in Table 1.

The current scenario of WSS regulation in Rio de Janeiro is one where the regulatory agency adopts formalistic rituals, rather than effective practices of tariff-revision and enforcement. Indeed, tariff setting is amongst the most important challenges that the state agency faces today. In the following sections, we will discuss how this scenario took place, exploring how the main difficulties of both the state regulatory agency and the GOU are the result of a singular and complex multi-level governance structure for the WSS sector.

5. Research results and discussion

5.1. The multi-level governance structure for WSS sector in Brazil

The singularity of the Brazilian WSS multi-level governance structure has deep historical roots (Motta and Moreira, 2006; Pinheiro, 2016). Brazil has a robust federalism and this characteristic of its political system has been associated with an increased dispersion of power among levels of government. Accordingly, the provision of WSS services has been a struggle between states and municipalities, as reflected in the diverse makeup of WSS companies: more than 4500 WSS companies of different types (public municipal company, public state company, private regional company, and private municipal company), and scope (water service, sewage service, water and sewage service), according to the data of the National Information System on WSS (2010).

Three key legal moments lie the heart of this struggle: (i) the National WSS Plan (PLANASA, 1971–1990), (ii) the Federal Constitution of 1988, and (iii) Federal Law n. 11.445/2007 (known as the new regulatory framework of WSS).

While the provision of WSS services is legally the task of the municipalities, the National WSS Plan (PLANASA) changed this responsibility in practice, creating significant sticking points in federative relations. Established by the military regime, the Plan was the main impetus for creating most of the state WSS companies. During the twenty years of the Plan, twenty-seven state companies were created in Brazil. According to PLANASA, these companies were responsible for the execution of the state's program, as well as its formulation and implementation (after authorization by the Ministry) of tariff readjustment. PLANASA was also responsible for integrating water supply and sewerage services within the WSS sector.

The municipalities had no alternative but to delegate power to the state companies if they needed financial assistance from the National Bank of Habitation (BNH), the financial institution that funded the Plan. Only financially independent municipalities could remain autonomous (Vargas and Lima, 2004) and locally provide WSS services. The military regime in general, and PLANASA in particular, favored centralization, and drastically reduced the role of the municipalities as economic and political actors within the sector.

By the end of the military regime and the promulgation of the Federal Constitution in 1988, federative tensions were highly aggravated. The new Constitution attributed more power to municipalities and established the development of infrastructure and the improvement of WSS programs as a shared responsibility of the union, the states, and the municipalities. Although the provision of WSS services remained legally under the municipalities, the states can operate in metropolitan areas. This legal ambiguity created institutional barriers to the development of the sector, and, even today, remains a key point of tension between states and municipalities, particularly in the metropolitan zones.

Sub-national governments became interested in the potential electoral benefits that came with decentralization. Research has already identified that privatization is a political strategy, aiming to mitigate the discretion of the future incumbent (Saiani, 2012). In fact, privatization is more likely in municipalities where mayors do not belong to the coalition parties of their states' governors (Saiani and De Azevedo, 2012).

However, the privatization process initiated in the mid-1990s did not advanced in WSS as it did in other utilities, such as energy and telecommunications. As a result, today, we have three main providers of WSS services: public state companies, public municipal companies, and private companies operating at the municipal level. The state-level public companies continue to be important economic players: They are responsible for supplying safe drinking water to 75% of the Brazilian population (Saiani and De Azevedo, 2012), and are thus political actors with strong lobbying power in the Brazilian Congress. Research demonstrated that private companies are marginally more efficient than public ones, and state-level GOUs have the lowest firm-specific cost,

Table 1
Regulating a GOU in a complex multi-level governance structure.

Topics	Main findings
Singularities of a multi-level governance structure of Brazilian WSS sector	Add complexity in "regulating inside the government" dynamics, and translates in complex procedures, and ongoing negotiations to enforce regulatory instruments. Delegitimize the potential role of the regulator for the WSS sector
Types of regulatory instruments adopted by IRA	Standard setting, monitoring and sanctioning procedures with no evidence of enforcement capacity. Difficulties in tariff-setting processes.
Structure of IRA versus GOU	Both IRA and GOU are subordinated to the state government. Both IRA and GOU have limited autonomy: - IRA lacks substantial financial and human resources; - Historical political interventions in tariff setting, investment or subsidized costs.
The expertise locus	GOU concentrates more technical expertise than IRA, however, both entities share deficiencies in economic and financial expertise.
The political costs of regulatory enforcement	Loss of direct political control of the company. Loss of the state government's political influence toward municipalities.
Regulatory failures	IRA fails in its "role-playing" as an expertise-based autonomous regulator. GOU fails in its "role-playing" as a transparent private company, facing managerial and technical obstacles to accepting regulation. Result: Formalistic rituals of regulatory processes
Regulatory challenge	Improving the current system of contractual arrangements among the state government, the municipalities, the GOU, and the IRA.

Source: Elaborated by the authors.

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because of economies of scale (Faria et al., 2005), but lowest productivity performance among operators (Motta and Moreira, 2006).

The new regulatory framework for the WSS sector, enacted in 2007, materialized these multi-level governance tensions. Federal Law n. 11.445 was established after several legal failures due to divergent priorities among several veto players interested in maintaining the status quo. Governors and mayors actively tried to block any institutional change using their power over deputies and senators. The new federal act did not resolve ambiguities in terms of legal responsibility, despite recognizing municipalities as responsible for WSS services. However, the municipalities can still delegate regulatory and oversight tasks to state-level companies, and they often do in practice, as in the case of CEDAE. The new regulatory framework establishes an important role for IRAs, which, perhaps surprisingly, can be attributed to the powerful lobby of the WSS companies and the private sector. WSS companies understood that the adoption of an IRA would increase their credibility as private companies and facilitate their interaction with the private sector. The new law was responsible for boosting the creation of IRAs; since 2007, more than 26 IRAs were created in the WSS sector (ABAR, 2012), however there are private companies with no formal regulation at all (see 5.2).

The complexity of these multi-level institutional arrangements influences the process of regulation, through IRAs, of state-level government-owned utilities such as CEDAE.

5.2. Singularities of WSS multi-level governance structure and the fragility of the independent regulator

The IRA model dominated the Brazilian institutional and political agenda in the late 1990s. Initially, IRAs were adopted at the federal level, typically in the energy and telecommunication sectors; but they soon proliferated in other areas and at the state and municipal levels as well (Peci, 2007; Martins, 2004). More than 50 IRAs have been created since 1996 and this number continues to grow, thanks to the new WSS law (Holperin, 2012).

Aside from their different regulatory purposes, Brazilian IRAs are characterized by a high degree of organizational isomorphism: the executive bodies, dependent on their respective ministries or state/municipal secretaries, are responsible for developing regulatory policies. IRA autonomy is preserved in a flexible organizational model, which includes the following features: (i) they are created as "special autarchies" – a traditional legal form of indirect public administration; (ii) board members have non-coincident and fixed mandates; (iii) they are independently funded; and (iv) they have less formal mechanisms of control.

In this context, Rio de Janeiro created ASEP, the first multi-sector regulatory agency, which preceded AGENERSA. The agency was created in 1997, after the state started its Privatization Plan. The first WSS concessions occurred in the Lakes Region and resulted from an agreement between the CEDAE (state WSS company) and the municipality governments (legislative and executive). Though legally responsible for WSS services, the municipalities had delegated this power to the state company. Concessions in this region were possible because both the state and the municipalities had a strong interest in their promotion.

However, such privatization was not replicated in other cities in the state of Rio de Janeiro. The Lakes Region is composed of small- and medium-sized cities without significant economic power, which was a fundamental factor in negotiations between the state and the municipalities. Other cities more economically prominent did their own concession process without the participation of the state. Niteroi, a rich municipality in the metropolitan area, is an example, followed by Petropolis and Campos dos Goytacazes. Niteroi breached the contract with the state company and started the concession process without the state's approval. The relationship between the concessionaire and the municipality takes place via a contractual arrangement, without adopting an IRA. This illustrates the different types of dynamics that may develop depending on the financial condition of the municipality. The richest cities hold more bargain power with the state and the state company, and can breach the contract like the example above. On the other hand, the smallest and poorest cities need to negotiate with the state and the state companies due to cross-subsidization. In most of these localities the WSS companies operate in deficit.

In 2005, ASEP was divided into two regulatory agencies: AGENERSA (Regulatory Agency for Energy and WSS of the State of Rio de Janeiro) which included the WSS and energy sectors, and Agentransp (Regulatory Agency of Granted Public Services for Waterway, Rail and Subway Transportation of the State of Rio de Janeiro), which became responsible for the transportation sector.

The consequences of this complex multi-level governance structure are synthetized in Table 2 and Fig. 1, showing that, from the 84 most important WSS companies in Rio, only three are regulated by Agenersa. As CEDAE, the GOU of Rio de Janeiro, began to be regulated in 2015, only Prolagos and Águas de Juturnaíba were regulated by the previous agency, ASEP, during its first ten years. Because rich municipalities did their own privatization process without the participation of the state government and because CEDAE had the political power to avoid regulation, the main role of the regulatory agency was to regulate the service provider of natural gas and the WSS concessionaires of the Lakes Region. The state only became involved with the regulation of this region because it resulted from a negotiation with another powerful organization at the state level, CEDAE. The other WSS concessionaries displayed in Table 2 are regulated by their own municipal governments. To add complexity to the multi-level governance structure, part of the metropolitan region of Rio de Janeiro is a partial private concession (sewerage) regulated by the municipal government of RJ.

Additionally, existing WSS contracts do not refer to Agenersa. All the powers and functions of Agenersa are based on a RJ State (not legally responsible for the WSS) Executive Decree delegating regulatory powers to the agency. The fact that municipalities, not the RJ State, are legally responsible for the WSS and its regulation, furthers the challenges of regulating inside the government.

AGENERSA is formally subordinated to the state government (like CEDAE is also subordinated). The legal structure of the agency follows the status quo of Brazilian IRAs aiming to grant more autonomy to the regulator. Agenersa is responsible for (i) fixing, readjusting, revising, approving and homologating tariffs' values and structures; (ii) monitoring the concessions contracts; (iii) proposing amendments, additions or the termination of concession's contracts; (iv) correct any problems or failures in the service provision; (v) comment on the preparation of tender protocols; (vi) mediate conflicts between service providers and users. The IRA has no role in allocating investment funds. The simultaneous subordination of both regulator and GOU to the Rio de Janeiro government creates the scenario of "regulating inside government."

The interviews highlighted the regulator's lack of autonomy in such a restrictive institutional and political environment. The current fiscal and budgetary crises of Rio de Janeiro state further restricted agency autonomy in terms of financial or human resources. "*The lack of a human resources policy for the agency makes it extremely difficult to maintain technical expertise within the AGENERSA. Almost all the tenured employees left the agency to work in private companies or in federal regulatory agencies that pay better salaries*" (AGENERSA interview). Current financial constraints hinder alternative sources of expertise that could help improve regulatory instruments. AGENERSA's President argued for more financial autonomy for the agency, proposing to keep a portion of

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Table 2
WSS companies operating in Rio de Janeiro State.

WSS Company	Covered Municipalities	Contract (for private operators)	Independent Regulatory Agency
Águas de Santo Antonio	1	Partial Concession (water only)	No
Fontes da Serra	1	Partial Concession (water only)	No
Odebrecht Ambiental Macaé	1	PPP (sewerage)	No
Odebrecht Ambiental Rio das Ostras	1	PPP (sewerage)	No
Águas do Paraíba	1	Full Concession	No
Águas de Niterói	1	Full Concession	No
Águas de Paraty	1	Full Concession	No
Águas de Nova Friburgo	1	Full Concession	No
Águas de Agulhas Negras	1	Full Concession	No
Águas do Imperador	1	Full Concession	No
Águas de Meriti	1	Partial Concession (sewerage only)	No
AMAE-CM	1	Autarchy	No
Águas de Juturnaíba	3	Full Concession	Previously, ASEP Currently, Agenersa
Prolagos	5	Full Concession	Previously, ASEP Currently, Agenersa
CEDAE	64	Government-Owned	Agenersa
F.AB. Zona Oeste S.A.	1	Partial Concession (sewerage only)	No

Source: Elaborated by the authors.

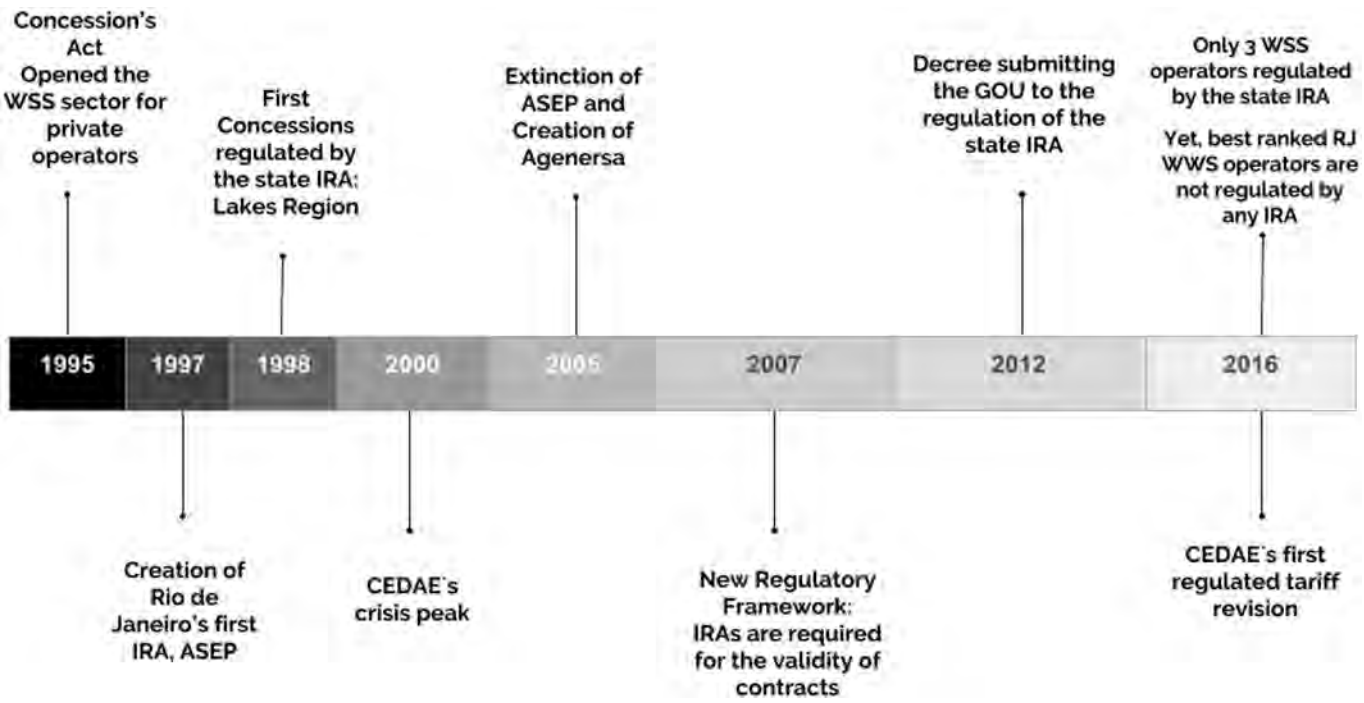

Fig. 1. WSS multi-level governance structure.

the fines the agency collects from private concessionaires (AGENERSA, 2016b).

A transition period of three years was planned to prepare both the regulator and the company for their new regulatory relationship. Despite the fragility of the regulator, in 2016, AGENERSA participated in the first tariff setting process with the GOU.

Fig. 1 highlights the above-mentioned process. The complex multi-governance WSS structure adds complexity to regulation and it is translated in intricate procedures, long schedules, and ongoing negotiations to set up and enforce regulatory instruments (see Table 3). Additionally, the fact that best ranked WSS RJ municipal private companies, as in Niteroi, are not regulated by an IRA (Pinheiro, 2016), delegitimizes the potential role of the regulatory agencies for the sector as a whole.

5.3. CEDAE's financial crisis: the end of self-regulation

CEDAE resulted from the merger of three WSS companies: Empresa de Águas do Estado da Guanabara (Cedag), Empresa de Saneamento da Guanabara (Esag), and Companhia de Saneamento do Estado do Rio de Janeiro (Sanerj). This merger influenced the emergence of a hybrid GOU with strong technical aspects, weak financial assets, and a history of political interference.

The collapse of the PLANASA funding institution, the National Bank for Habitation, triggered a fiscal and institutional crisis in the entire sector, including CEDAE (Vargas and Lima, 2004). The federal- and state-level fiscal constraints of the 1990s left CEDAE with "severe operational and commercial inefficiencies, huge debts, and political interferences in its internal management" (Vargas and

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Table 3
The process of tariff revision.

The ongoing process of tariff revision
Cedae demanded a 18,90% tariff increase for the period August 2016–July 2017
Agenersa deliberated an increase of 9,32%, in August, 29, 2016
Cedae reviewed the previous increase, demanding, in August 2017, a 22,6104% increase

Source: AGENERSA, 2017.

Lima, 2004, p. 84). The financial and economic constraints of CEDAE were so extreme in the early 2000s that the company had its phone and energy services cut, and almost lost one of its main buildings. With a negative cash flow of R$30 million per month, CEDAE's reputation was further tarnished by negative perceptions of the quality of its service delivery and its excessive staff. In this context, the possibility of privatization emerged as a possible strategy (FGV Projetos, 2010).

In July 2007, a set of corporatization strategies was initiated, aiming to strengthen the corporate governance principles of the company. The strategies also included the implementation of new tariff-setting policies and debt restructuration. In 2010, the company was first able to report a profit and gain the formal approval of an independent auditor. According to the consultant company that supported the CEDAE restructuration process, there were several benefits to aligning the strategy of the company with the good practices of corporate governance: "*Initially the priority was economic and financial health, but today the company is not in deficit anymore and distributes dividends.*" Currently, all the financial reports are publicized and the managerial board of the company appointed two independent members. However, attempts to open up the company's finances have not advanced, and the current administration does not show any interest in following the same strategy as SABESP, the GOU of the State of Sao Paulo.

The pressures to open the company to the regulatory scrutiny of an independent regulator came from several sources: (i) the new WSS legal framework (Federal law n. 11.445/2007); (ii) the mimetic pressure of alternative state-level GOUs (specifically, SABESP in the State of Sao Paulo, a benchmark for corporatization strategies and an early adopter of independent regulation); and (iii) the demands of international organizations to allocate specific funds for the WSS sector.

5.4. Regulation inside the government: CEDAE and AGENERSA's "role-playing" strategies

Despite such pressures, CEDAE was able to avoid or postpone the new regulatory relationship for a long time. Officially, the regulation of CEDAE was delegated to a Secretary of the State Government (The Secretary of Civil Works) so the company could claim that it was formally regulated. During our fieldwork, the case of Inter-American Development Bank funding for the WSS sector was mentioned as an indicator of the company's resistance: CEDAE had avoided applying for IAD funding just to postpone independent regulation.

The company's response to the new legal framework demanding regulatory compliance was merely formal, confirming their failure at "role-playing as a private company" (Ehrhardt and Janson, 2010). The company created a division connected to the CEO to take care of the range of legal dealings with municipalities, and this department became responsible for the transition to AGENERSA. Currently, the regulatory compliance team has representation in all CEDAE departments, because AGENERSA stipulated that the company must report any incident within 24 h. As will be further discussed, the company was actually facing managerial and technical difficulties in preparing for regulatory scrutiny due to deep-rooted political interference in the company.

Similarly, the independent regulator, AGENERSA, emulated formal directives in its new regulatory responsibilities, issuing several guides or operating manuals for CEDAE, including: (i) specific legal instructions regarding CEDAE regulation, procedures for applying fines, and detailing other infringements; (ii) an operating manual regarding customer service for CEDAE; (iii) legal responsibilities and procedures for CEDAE to inform AGENERSA about possible lawsuits from municipal, state, or federal level entities related to environmental or public health issues; (iv) an operating manual outlining the communication procedures for incidents in the water and sewerage systems; and, (v) and an operating manual related to the Ombudsman and its relation to CEDAE customers.

The agency elaborated a diverse set of regulatory instruments encompassing standard setting, monitoring, and sanctioning (Hood et al., 2000; Koop and Lodge, 2015), but the formidable challenges to effective regulation came into relief in 2015, when the regulator became involved in the tariff-setting process, and was confronted with the reality of subsidized costs and unplanned investments that marked CEDAE's internal management. Nowadays, all Agenersa's regulatory powers apply to CEDAE, including the definition of quality standards, goals of universalization, tariff revision and readjustment and inspection.

The first attempt at tariff setting with the IRA took place in August 2016 and it is not yet finalized (August 2017), exposing several obstacles of the regulatory process. Both GOU and IRA justified the complex procedures the long schedules and the ongoing negotiations that took place (see Table 3) due to the complexity of the multi-level governance structure of the sector. Contrary to Ehrhardt and Janson's (2010) findings that GOUs lack the autonomy or authority to request raising tariffs, CEDAE used the opportunity to demand an adjustment on 18.9% of tariffs, and continues to increase their demands, despite AGENERSA' formal decisions. According to public documents, the demands were justified by CEDAE due to the uncertainty of rules and procedures that must be adopted to comply with the regulation, exposing the lack of expertise of the regulator in face of the new regulatory tasks. CEDAE's demand to increase tariffs was touted as the first opportunity to ask for a realistic adjustment - one based on technical and financial needs and not on political grounds. It was also probably the first opportunity for CEDAE to adopt a blame-shifting strategy, transferring responsibility for the tariff increases to the independent regulator.

5.5. Political costs of independent regulation: obstacles to tariff-setting and differentiated contract designs

Most of the interviewees identified the issues of state government and CEDAE's long-standing resistance to opening up the company to the scrutiny of a regulatory agency as obstacles to effective regulation. CEDAE and the state-government, however, had their own reasons. While the former was facing managerial and technical difficulties in preparing the company for regulatory scrutiny, the latter was concerned with the political costs of independently regulating the company.

As in previous research into the political uses of GOUs (Ehrhardt

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and Janson, 2010), we also found evidence of entrenched political use of the company, which was particularly visible in the process of tariff setting. According to most interviewees, it was very common for the Governor of the State of Rio de Janeiro and his Secretary-in-Chief to participate in the tariff-setting process. In practice, all of the tariffs were publicized after their approval.

Still, another dimension of the company was politically threatened by the independent regulation. Historically, CEDAE was an important political instrument of the State Governor vis-a-vis the municipalities (64 of 92) that depend on the company for water supply and sewerage. Therefore, the company was a powerful instrument for the political control of municipal mayors. Unplanned investments, a diffused practice of subsidized costs, and the lack of a proper accounting system reflected the hand of state politics in the running of the company.

This relationship of dependency that CEDAE had established with the municipalities through the decades proved to be a powerful constraint on the practical powers of the independent regulator. Indeed, Rio de Janeiro's state WSS policies always privileged the company, centralizing political control in the hands of the state governor, while hindering the participation of municipalities in the decision-making process. Municipality mayors or bureaucrats lacked not only tariff-setting power, but also the influence to make decisions on necessary investments in the sector, including type of investment and which municipality would be affected.

In practice, backstage negotiations between the governor and his municipal-level political allies influenced where and when CEDAE would deliver WSS services or investments. Indeed, most of the municipalities have criticized the contract-making with CEDAE for their inability to directly negotiate and influence the contract elaboration process. One of the interviewees stressed that the contracts are vague and lack clear performance indicators.

This peculiar political use of the company is reflected in CEDAE's internal culture. The company was unfamiliar with the real costs of services or the role of subsidies, and was alien to regulatory scrutiny. Many of the interviewees mentioned these aspects as the main obstacles the company faces in order to comply with the new regulatory demands, particularly with regard to contracts and tariff setting (AGENERSA Director interview/Consultant interview).

From AGENERSA's point of view, according to the company's coordinator for the WSS sector, the main difference between regulating public and private companies resides in the clarity of the contract that specifies the rules for tariff setting. The political use of CEDAE was (and still is) reflected in unplanned investments - investments not previously specified in contracts with municipalities or earmarked in the company's budget. Additionally, one of AGENERSA's regulators mentioned the use of the company for politically sensitive investments, such as in emergency situations.

However, the new regulatory framework required a review of all contracts with municipalities. Aiming to avoid a shift in the locus of political control, the state government long kept the regulators at arm's length, opting to concentrate regulatory power in the Secretary of Works (Seobras), directly controlled by the state. The costs of regulatory compliance, combined with the costs of losing political control, encouraged non-compliance with the new legal requirements.

For one AGENERSA interviewee, the contract design is what differentiates the regulation of a GOU from that of a private concessionaire. Particularly in terms of tariff-setting procedures, the standards for contracts with private companies regulated by AGENERSA are not recognized in the complex and vague contractual arrangements that CEDAE established with multiple municipalities. The company's difficulties in maintaining an updated tally of subsidized costs or a transparent accounting system stem out of this entrenched political relationship.

5.6. What is the proper role of an independent regulator?

This legacy of dependency influences the current ambiguities in the role of the independent regulator. Recently, a new normative decree strengthened the role of AGENERSA in terms of tariff-setting processes by re-centering in the agency control over the municipal delegation process previously allocated to the Secretary of Works, pointing to the singularities of the complex multi-level governance structure of the sector. For two of the interviewees representing the IRA, this state-level legal change, still excluding the executive and legislative branches of the municipal governments from the process, indicates the fragility of the regulatory framework in face of a complex multi-level governance structure:

Both governmental levels (state and municipal) need to establish a management contract, defining the concession of the services, the conditions, the indicators, the deadlines and the tariff setting procedures. Subsequently, the contracts need to be ratified in their respective legislative houses. This would be the correct form to delegate regulatory competencies to AGENERSA.

The lack of municipal capacity is the counterargument justifying a centralized role for the state-level regulator. For a CEDAE interviewee, what is considered to be a fragile regulatory framework is still the most realistic scenario because municipalities lack regulatory capacity, and tend to delegate this role to state-level regulatory agencies. For GOUs, the concentration of activity in state agencies avoids “multi-regulation,” that is, being regulated by different IRAs. Since regulatory activity is a legal responsibility of the municipalities, they may or may not delegate it to a state IRA. Thus, strong municipalities can use this as bargaining power with the state companies while also avoiding the costs of maintaining an IRA.

The existence of the above-mentioned political costs constrains the regulatory reach of AGENERSA. The regulators have a realistic view about the actual limits of compliance, as an AGENERSA regulator, aligned with Konisky and Teodoro's (2015) argument, stated:

The regulator has less incentives or propensity to punish a public company's violations compared to a private company's. It is not possible to regulate a company like CEDAE in the same way as we regulate a private company, created with a very clear objective, exploring a concession contract. CEDAE had to face serious historical problems with excessive staffing or environmental issues that we need to account for. We can't rely on the instruments for regulating a private company to regulate a government-owned company, because there would be a disequilibrium. We have to work each day on a variety of indicators, aiming to approximate a desired level of maturity. This is a process, and will not show results immediately, but the tendency is to improve the quality of service delivery. It is a challenge … it is progressing … probably the transition is a little bit slow, but it is positive.

It is expected, however, that the growing trend toward the corporatization of WSS companies, specifically in terms of their external funding, will limit their political dependence on the state government, thereby strengthening regulatory governance in the sector. However, our case study indicates that several political costs still need to be overcome in order to avoid regulatory shirking.

6. Conclusion

Our main findings are related to the fact that CEDAE - or, more importantly, the state government that historically controlled the company - has significant incentives to shirk regulation in the face of potential losses of municipal control. An obfuscating system of vague contractual arrangements long sustained the dependency of Rio de Janeiro's municipalities on the GOU, which now emerges as

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one of the most important obstacles to compliance with independent regulation. A political theory of regulation inside government needs to account for these costs, namely the shift in state-municipal balance of power relationships, with particular attention to the broader political costs of compliance that distinguish public from private regulated companies.

In the Brazilian case, the challenges of regulating inside the government are increased as a consequence of a complex multi-level institutional structure of WSS sector, marked by blurred legal and organizational responsibilities at the municipal, state, and federal levels of government. The singularity of this governance structure adds complexity to the "regulating inside the government" dynamic, and translates in multifaceted procedures and ongoing negotiations to enforce regulatory instruments. Simultaneously, the fact that best ranked WSS municipal private companies are not regulated by an IRA, delegitimizes the potential role of the regulatory agencies for the sector as a whole. These findings corroborate Berg (2013), indicating that without significant changes in the supporting institutions, the standard tools of regulation will not be effective.

We also found evidence supporting the view that GOU emulation of independent regulation tends to fail. Regulators have a clear perspective on the challenges of regulating inside government, because they recognize the role and the relevance of the political costs when regulating a GOU. The fact that both regulator and regulated are legally affiliated with the state government makes their perspective more realistic.

It is important to mention, however, that we didn't find support for the claim that most GOUs do not seek profits because they are incentivized by their political principals to increase certain types of costs. Despite a historical reliance on subsidies, the corporatization strategies that CEDAE adopted worked partially to increase profitability. Other Brazilian GOUs, such as SABESP, also support such a view. Nevertheless, even a slight turn toward profit-seeking behavior has proved to be politically motivated, and, in this case, helped CEDAE not only to limit the regulatory power and discretion like other GOUs (Mountain, 2014) but also to postpone the outside scrutiny of an independent regulator.

Beside a complex multi-governance structure, the many failures in the regulation and provision of water and sewerage services in the state of Rio de Janeiro can be explained by the political use of the GOU, the lack of economic and financial expertise of both organizations, despite high technical expertise in the GOU; and the lack of managerial autonomy of the state regulator. In fact, one of the main difficulties of regulating inside government is that political and managerial problems directly affect regulator and regulated company alike. In practice, this implies that the change from self-regulation to a regulated government-owned monopoly has very limited benefits. State government quickly adapts to the new scenario and demands by using the regulatory agency as a scapegoat and reinventing its political use of the government-owned utility.

At the same time, to comply with the new legal framework that concedes more power to municipalities is challenging not only because of internal resistance to the potential loss of state government control, but also owing to the limited capacities of municipalities. The fact that strong municipalities count on private local companies without feeling the necessity of a strong IRA decreases IRA's legitimacy. For the most of the municipalities, the historical relationships of dependency between state and local levels left its marks in a vicious circle that continues to hinder progress in the sector, particularly with regard to the innovative potential of the new legal framework. The most immediate challenge of the regulation process is to improve the current system of multiple contractual arrangements that exist within and among the state government, municipalities, GOUs, and IRAs.

One possible solution has already emerged in Brazil: the intermunicipal regulatory agency. Intermunicipal agency is an organizational model where the municipalities – and not the state – have the regulatory power. Currently, this model is restricted to municipalities with a solid and engaging civil society, challenging the power historically concentrate at the state level. These organizations can represent an effective solution to the problem of regulation inside the government, specially the political misuse of both regulatory agencies and GOU. Thus, a de facto decentralization of regulation – one that increase the power of municipalities – could mitigate the harmful effects of regulation inside government.

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