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A HISTORICAL PERSPECTIVE OF EARLY WATER POLICY AND WATER AND SANITATION POLICY IN BRAZIL¹

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Introduction

At the beginning of the 21st century there are still major deficiencies in Brazil in its sanitation services, especially as far as concerns the collection and treatment of sewage and the disposal of solid waste. Service levels are more precarious in peri-urban or rural areas where the poorest members of the population live. One of the most visible consequences of an inadequate sewage collection and treatment service is the pollution of bodies of water, which results in losses to other uses, like the water supply, and the obvious impact on human health.

The need to make progress in the fields of sanitation and the management of water resources has resulted in recent reforms of the legal framework and a significant increase in funds earmarked for sanitation. In the academic field, this picture inspires the challenge of understanding better the trajectories of these policies and this is precisely what motivated this effort to find out more about the formative historic processes and the structural factors that conditioned them in a systemic way. It responds to provocations, like the one from Castro (2009), according to whom analyses of public policies in the water and sewage area need to incorporate the systemic conditioners that structure their conceptions.

It is intended to deal with the contextual and structural aspects that provided the formation, constrained the action and overdetermined their trajectories in order to come up with an interpretation of the nature of the policies and their historical meaning. An historical perspective was used to track some of the developments in water resources

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and sanitation in the period that extends from the time the Portuguese landed in Brazil until the 1930s.

Theoretical and methodological aspects

The central assumption of the analytical perspective that was adopted is that in the socio-economic and political development of the country in the period analysed there were relationships of dependence and coordination with global power structures that dated from the early days of the colonial enterprise. This is an approach shared by different currents of thinking from the Marxists and neo-Marxists and include historical structuralism and World System Analysis.

An analytical perspective was adopted that emphasizes the dependence of the economic, social and political structures of peripheral countries relative to the hierarchized and unequal world system to which they were linked in a subordinate way (CEPAL, 2014). This analytical approach was consolidated in Latin America in the mid-1950s, based on the work of theoreticians like Raul Prebisch and Celso Furtado who, within the ambit of the Economic Commission for Latin American and the Caribbean (CEPAL), developed the so-called historical-structural method that was applied to the socio-economic field to explain aspects relating to the under-development of Latin American countries.

“Cepaline thinking” rejected the theory of comparative advantage between countries, which had been postulated by neoclassical economics, and constructed the proposition that international trade was not an exchange between peers, but that economic asymmetry favoured central countries that were the producers of high added value goods because of the advanced industrial technologies and processes they possessed.

Economies and societies would be structured for functional integration with the world economic system that was ruled from central countries, which made relations hegemonic with asymmetric forms of power. Asymmetry enabled these countries to negotiate under advantageous conditions with peripheral countries that fundamentally assumed the role of suppliers of raw materials and food in the international division of labour. Overcoming the delay and a reduction in systemic inequality was to come about because of the action of nation states that instituted mechanisms that were to balance the exchange systems over the medium and long-terms by way of rapid industrialization processes based on import substitution (WALLERSTEIN, 2004).

The formulations presented a harsh criticism of the mimetic adoption of economic theories that were foreign to our structural and circumstantial configurations, and more specifically to our ruling elite becoming automatically affiliated to economic liberalism. “With the Brazilian economy dependent on industrial centres, it was difficult to avoid the tendency to ‘interpret’ the country’s economic problems by analogy with what occurred in Europe,” (FURTADO, 2007, p. 229-230).

In addition to its interpretation of the socio-economic dynamic, this paper also sought to include fragments of the analytical efforts of Brazilian thinkers and their interpretations of the formation process of Brazil, like Darcy Ribeiro, Caio Prado Jr, Celso Furtado and Florestan Fernandes. International authors, like Rosen and Foucault, because

of their interpretation of the history of public health, and Eric Hobsbawm, because of his historical interpretation of the period, were also consulted. Contemporary authors of the sectoral literature were referred to in order to reconstitute the period that corresponds particularly to the second half of the 19th and beginning of the 20th centuries. Documentary research was mainly carried out in the files of the Biblioteca Nacional, on government websites that specialize in legislation and using administrative records.

The long-term perspective aimed to present these movements as a continuity of the colonial dynamic that transmuted in accordance with the great movements of international capitalism, but that remains the central structuring axis of the organization of the nation, which is its role in the international arrangement as the exporter of primary products. It also contributed towards characterizing the occupation process of the territory and the urbanization that developed over the period.

The notion that the occupation and economic exploitation of the Americas as from the 16th century was an episode in Europe's trade expansion, was already being indicated in 1867 by Karl Marx (1996) and has been more recently corroborated both in economic literature as well as in other fields of scientific knowledge. Although a diagnosis of backwardness and under-development is common in the economic field to the above-mentioned authors, they differ widely both with regard to their prognoses as well as to their prescription of the means necessary for overcoming this stage. Some advocate modernization centred on state-induced industrialization, others on breaking away from the economic system, while others believe deterministically in the imminent collapse of the capitalist system. For the purposes of this work the study explores the convergence of the diagnosis of the field's authors with regard to the relationships of coordination and dependence that exist in the world economic system.

The colonial period

Right from the start of the Portuguese occupation this part of the South American territory and its resources were exploited by the Euro-centred capitalist machinery under the colonial enterprise of Portugal and its associates. Its wealth, soil, water and labour-force were employed for production, initially by way of the "system of *sesmarias*", which was to attribute the possession of land and water and the function of producing to private individuals, with the sugar mills and machinery that could be easily taxed being reserved for the ruling classes (FAORO, 2000, p.141). Colonial exploitation, although managed by the Portuguese administration, was multinational in character, since Portugal was unable to appropriate the conquest for itself exclusively (FERNANDES, 1976, p.24). A substantial part of the capital required for the first great Brazilian economic cycle, the sugar cycle, came from the Netherlands, which took part so intensely at various stages in the activity that it might be considered more a Dutch business than a Portuguese one, although it generated sufficient surpluses for Portugal to maintain its condition of being a colonial power (FURTADO, 2007).

One of the significant consequences of the European geopolitical conflicts and movements of the beginning of the 17th century was the occupation of the northeast

coast by the Dutch, as a result of the Iberian Union. In order to consolidate the restoration of its territory relative to Spain and recover its colonies, Portugal ended up accepting a relationship of economic and political dependence on England, the central power of the time. This alliance had repercussions that extended until the second half of the 19th century, already at the time of the Empire of Brazil, as the inheritance of the colonial period (FURTADO, 2007; PRADO JR. 1999).

Urban initiatives in the 17th century in Dutch Pernambuco and in Rio de Janeiro marked the action of public administrations in the sanitation area. The most prominent action in Rio de Janeiro was the channelling of the water of the Carioca River for supplying the city. This was one of the most important construction projects of Colony Brazil that resulted in the Carioca Aqueduct and drinking fountains. To finance the water supply system taxes were imposed on wine and *cachaça* [a sugar cane distilled spirit], and income from the courts was used. The aqueduct in its final version was inaugurated in 1750 (CASA DO RIO, 2014).

Drinking fountains gained in importance in the 18th and 19th centuries, with the advent of urbanization, since they provided a free community supply of water for the population. Rio de Janeiro, Vila Rica, Salvador, Recife and other colonial cities introduced networks of drinking fountains, taps and springs, to which access was free and from which slaves transported water to the residences, obviously for those who had the economic wherewithal to own them. For such people, the transportation and final disposal of excrement was carried out by slaves, who were contemptuously called 'tigers'. The waste was carried in containers to the sea or placed in trenches and this was a common activity even in Rio de Janeiro in the mid-19th century.

The expulsion of the Dutch resulted in the sugar activity moving to the Caribbean and, with the competition, led to the decline of the sugar enterprise in the northeast by the second half of the 17th century. To make the colonial undertaking move forward, the metropolis invested in a successful search for metals in inland regions. In the early decades of the 18th century in Brazil there was already a thriving structure in place for prospecting for gold, which triggered an impressive migratory flow of slaves from the northeast, settlers from São Paulo and the Portuguese. The Brazilian population, which was approximately 300,000 inhabitants in 1700, grew to an impressive 3.25 million (excluding the Indian population that lived in the forests) by 1800; of these, between 300,000 and 500,000 had come from Europe (RIBEIRO, 1995).

From this mining and commercial venture resulted a formidable surplus of gold that, as a result of the Treaty of Methuen of 1703, an economic complementarity pact between Portugal and England, helped pay for the enormous Brazilian and Portuguese imports from England, making London the European financial centre (FURTADO, 2007).

Until the 19th century the use of water was only regulated to place it at the service of the economic exploitation project, like the privileges granted for using water for building mills in the sugar cycle, or with the establishment of criteria for distributing running water in the mining activity (FONSECA & PRADO FILHO, 2006).

Gold (1701-1780) and diamond mining (1740-1828) altered the rural and disarticulated aspect of the first colonial centres, with the inflow of a new population to inland

areas in the country and the incorporation of the territories of Minas Gerais, Goiás and Mato Grosso to the life and economy of the colony. What was an “archipelago of colonial implants that were isolated from one another” by large distances, became transmuted into an integrated network of urban centres as a consequence of the creation of a commercial interchange network that gave an “economic basis to national unity” (RIBEIRO, 1995, p.156).

The articulations observed linked the two main poles, the gold and sugar economies. Associated with the sugar nucleus was the livestock farming of inland areas in the northeast, while the mineral nucleus was associated with the “southern livestock farming hinterland”, which comprised territorial extensions from São Paulo to Rio Grande do Sul (FURTADO, 2007). The two main dynamic centres of the colonial economy were linked by the São Francisco River because of its strategic position between the northeast and the mid-south (FURTADO, 2007). Rivers also performed the function of being the main access route to the country’s inland areas, especially starting from São Paulo, and in the Amazon, in a process by which the Luso-Spanish colonial frontier was gradually moved in the search for mineral wealth and Indian slaves, (IORIS, 2009).

Occupation of the national territory was dictated by economic expansion and defence of the territory, which were linked subordinately in this period to the demands for primary products, like sugar, gold and diamonds. The orientation for the introduction of urban centres in Brazil came from the lower operating cost of the colony, in contrast with the urban arrangements then current in Spanish colonies by way of the *Leis das Índias*, which governed the foundation of cities in Spanish America and which expressed the affirmation of the military and political power of the metropolis (BUARQUE DE HOLANDA, 1995, p.107). Activities were “directed at supplying the international trade of some tropical products with a high market value, metals and precious stones. The rest was secondary, an accessory” (PRADO JR, 1980, p. 103).

In the international field, European agitation arising from the French Revolution and the Industrial Revolution resulted in an historic opportunity for breaking off colonial relations on the American continent. It also provided new opportunities for the English economy, which benefited from the breaking of the Ibero-American colonial pacts (HOBSBAWM, 2013). The most immediate repercussion in Brazil was the transfer of the metropolitan government to the country and the opening up of the ports by 1808, and then political emancipation in 1822. In the perception of Prado Jr. (1999), the French Revolution was used by England to complete the absorption policy of the Lusitanian Kingdom.

The reforms of the mid-19th century

The transfer of the Portuguese courts to Brazil and the “opening up of the ports” were followed by the treaties of 1810 and 1827, which recognised England as having the condition of a privileged power with extremely low import tariffs. In the first half of the 19th century these treaties constituted a serious limitation to the autonomy of the Brazilian government in the economic field (FURTADO, 2007, p.143). The country was still suffering from the depressed sugar and cotton activities of the first third of the century.

It is in this context that coffee comes onto the scene as a new source of wealth for the country, and by the 1830s it had become the main item on the export agenda, constituting a production activity around which a centre of resistance was established in the southeast region against the forces of territorial disaggregation that were acting in the north and south of the country (Op.cit., p.147). The coffee activity was also responsible for the organization of the most important social class of the time and for the formation of a formidable financial asset for the country for the next 100 years. Although it was the main economic activity of the empire until the 1930s, coffee was also very susceptible to the action of international capital. From financing production, transportation, industrialization and sale, foreign capital, especially English (GRAHAM, 1972), also retained a significant part of the business (PRADO Jr., 1980, p.272).

The need for administrative structuring and maintenance in the post-emancipation period required a significant financial injection, which contrasted with the virtual non-existence of a fiscal apparatus in the country, especially for collecting the vital customs duties. The financial difficulties of the administration lasted until the government was able to increase the collection of customs duties with the end of the agreement with England in 1842 (FURTADO, 2007, p.147). Expansion of the coffee activity and a broadening of economic relations with the United States, which became the main importer from Brazil by the first half of the 19th century, strengthened the position of the country, which resisted the pressure of the English to extend the customs agreement of 1827. The country raised its import tariffs in 1844, and with them and the revenue coming from coffee, it increased the financial power of central government, which had doubled its revenue by the following decade and consolidated its authority.

Another relevant aspect in this context is the end of the slave trade, largely resulting from English pressure with the Aberdeen Bill of 1845, which declared it was legal to seize any ship employed in the African trade and subjected the violators to stand trial for piracy. After many incidents between Brazilian and English ships, in 1850 Brazilian repression of slave trafficking became effective and led to a complete collapse of the business in just a few years. The abolition of slave trafficking put an end to the long conflict with England and contributed to a new inflow of initiatives and capital into Brazil (PRADO JR, 1980, p.154).

With tax freedom and approval of the Commercial Code of the Empire in 1850, the state gained muscle to collaborate with private initiative and established regulations for economic activities, thus starting a cycle of private investment in infrastructure activities and urban services. The capital available with the end of the trade in blacks contributed as much as the foreign capital that flowed into Brazil in large amounts (PRADO JR, 1980).

As Brazilian capital still did not have the knowledge and financial availability required for introducing industry and infrastructure, like railways, port installations and urban building works, foreign capital undertook such initiatives supported by the state, which contracted loans and supplied guarantees abroad (PRADO JR, 1980). It was in this context of the modernization of economic relations that the capital of the Empire experienced the technological progress that had been developed in great European centres, like sanitation, gas lighting, trams, electrification initiatives, rail transport, telegraphs and

others that were evidence both of the strength of the coffee economy and the links the country had with those at the forefront of European capitalism.

Urbanization and health modernization

The dominant health intervention in Europe and the United States as from the mid-19th century favoured the centralization of piped water supply systems to residences and the collection of sewage, also by way of networks (BRAADBAART, 2013). The standard soon reached Brazil, although curiously enough, in the case of Rio de Janeiro sewage collection was established even before the supply of water to residences. In the 1850s, the government of Pedro II decided to hireⁱ the service of “cleaning the houses of the city of Rio de Janeiro and removing sewage from river water”, by way of a concession that was signed in 1863 with English engineer, Edward Gotto, who drew up the projects and organized The Rio de Janeiro City Improvements Company Limited (MEADE, 2005, p.75) with financing coming from British bank, Glenn and Mills Co.

The conditions established by Decree 1929 of April 1857 determined the construction of a system similar to that of Leicester, technological updates equivalent to the ones adopted in London, the constitution of financial capital outside the country, a concession period of 90 years, and exemption for 33 years from the charges and taxes relating to the import of all machinery, construction materials and inputs for operating the systems, including even animals and coal. Remuneration for the services would be paid every six months by the administration for each building served, with funds coming from the *Décima Urbana* [Urban Tax], which was duly adjusted to reflect this.

In the Europe of the 1800s a combination of health, economic and political arguments placed sanitation activities right at the centre of government discussions and resulted in important public involvement in this field, since they were scientifically recognised as being effective measures for controlling epidemics, thanks to the work of John Snow, Robert Koch, Louis Pasteur and others. The construction of sewage collection networks became the stock response to cholera epidemics and the treatment of mains water by filtration was also to receive empirical confirmation of its effectiveness.

One of the consequences of the sanitarian approach to urban management was that the limits of *laissez-faire* were questioned, since some degree of public regulation of private property and of collective behaviour was demanded to stem the epidemics and to protect the health of the people and economic interest (ROSEN, 1993). Subsequent interventions in Brazil denoted the way in which the country became involved in the process of spreading the European technical model of infrastructure, with the import of technicians, technology, capital, machinery and materials. The centre for spreading this model was Great Britain and it would be reproduced in continental Europe and then the Americas. It would also be founded on the provision of public services by private companies, based on the argument that they were superior to public companies for such work (BRITTO, 2012).

The provision of services like water supply by private companies was already common practice with provincial administrations, as can be seen from the cases of Pernambuco

(1838), Alagoasⁱⁱ (1846), Maranhão (1855), Porto Alegre (with two companies as from 1861 and 1866), Salvador (1852) and others that proliferated in this period.

In 1873 the Recife Drainage Company Limited set up in the capital of Pernambuco, where it operated until 1908. Belém was served by the Companhia das Águas do Grão-Pará as from 1881, as was Fortaleza, which in 1867 was served by the drinking fountains introduced by the Ceará Water Works Company Limited, all organized with British capital (REZENDE & HELLER, 2008).

In 1870, English businessmen with investments in railways set up a company to supply Santos with water and gas. Ten years later this company was acquired by the City of Santos Improvements Company Limited (GRAHAM, 1972, p.116-117). The water supply in Rio de Janeiro was still publicly operated, even though it was being assailed by private groups, like the one that controlled City and the group headed up by Viscount Mauá (MARQUES, 1995, p.60). This profusion of English investments in sanitation was certainly not the result of an isolated sector initiative, since this capital was also being invested in other areas of urban infrastructure.

The company's fundamental objective was to obtain dividends on the capital it had invested and so a service structure was only introduced in regions occupied by consumers who had an adequate capacity for paying, which led to a large part of the population not being included in the services. Even if it was state-run, as in Rio de Janeiro, or directly paid by the consumer with government subsidies going to the company, as in Salvador, it is clear that only those with an adequate capacity to pay benefited directly from sanitation systems. The social separation of access to such services could not sound strange in a country that insisted on maintaining the slave way of production despite its self-proclaimed liberal convictions.

In the second half of the century, there was a transition from collective and free distribution by way of drinking fountains and taps to a way based on water distribution networks to residences. The experience of São Paulo is an example of this transition. The government of the province was responsible for introducing a water supply and administered it until 1875, when English engineers, administrators and capital (GRAHAM, 1972) were mobilized to set up the Companhia Cantareira de Águas e Esgotos, which was subsequently transformed into a mixed economy company for supplying the city by way of a household network system. As the supply network cover expanded, the municipality deactivated and demolished the public drinking fountains (ROLNIK, 1998). This was a commodification process of water by way of a public supply service, and the appropriation and sale of a good that until then had been treated as something to which there was unrestricted access.

In the same way that the wave of sanitation service concessions flowed to private companies in Brazil, which coincided with the European and United States modality and *modus operandi* in the mid-19th century, at the end of the century and beginning of the 20th century, also in line with movements in central countries, the wave flowed back again. Responsibility for the services was directly assumed by government, which, if it does not show a link, *a priori*, between these movements, is at least a strong indication that one existed (BRAADBAART, 2013).

One of the virtuous effects of this agitated second half of the 19th century, in which technicians, technologies and materials were imported for structuring urban services, was the incorporation of knowledge and experiences by the flourishing national engineering sector and the emergence of bodies of engineers who substituted the foreigners in introducing sanitation services and exercised a strong influence on public administration.

In short, the model that was introduced and established itself here was based on the technological knowledge of advanced English engineering (BRAADBAART, 2013) and represented, on the one hand, urban modernization and, on the other, yet another integration movement of the international circle of financial imperialism. The latter overcame the merely market approach and consolidated a globalization phase of industrial capitalism. Making public services open to direct exploitation by foreign capital denoted the business character of these initiatives and their fundamental characteristic of restricting access exclusively to that part of society that was able to provide a good return on the capital that had been invested. It also represented a step towards the “consolidation of the domination of international finance in the economic life of the country” (PRADO JR., 1980, p.224).

Urban modernization and hygienism

At the beginning of the 19th century, the so-called “miasma theory” dominated the explanatory models of the health-disease process. This theory considered that diseases originated from atmospheric impurities produced by the decomposition of organic substances and this led to urban administrations taking action with regard to flooded areas, marshes and mangrove swamps, which were identified as being the source of disease. At this time and during the whole of the century, the country was beset by recurrent epidemics, especially cholera, yellow fever (COSTA, 1994), smallpox and typhus. The improvements put forward in urban plans invariably included reference to rainwater and sewage drainage, the infilling of mangrove swamps, earthworks, the relocation and the construction of abattoirs and cemeteries, tree-planting and improvements in public cleanliness.

Underlying almost all the actions proposed is the idea of combatting “miasmas”. After all, the idea of cleansing the urban environment under the allegation of promoting public health was close to the French conception of “public hygiene”, of “medicine of the environment and the means”, and of caring for the environment and urban health. It was said to be the “control and modification technique of the material elements of the environment that are susceptible to favouring or, on the contrary, harming health” (FOUCAULT, 2012), a very similar concept to the concept of sanitation adopted nowadays by the World Health Organization.

More specifically in Rio de Janeiro, the nation’s capital, its main port and an imperial window on European modernity, the influence of the hygienist approach are very well characterized, both by the so-called Beaurepaire Rohan Reportⁱⁱⁱ of 1843, and by the reports of the Improvements Commission of the City of Rio de Janeiro, which was set up in 1873. They guided the urban reforms of the country’s capital in the first decade of

the 20th century and inspired other major cities in the country, like São Paulo (ABREU, 1997; MARQUES, 1995).

The miasma theory, already scientifically refuted at the end of the 19th century, continued being politically anchored by liberals and the bourgeoisie and was to guide the hygiene and environmental health conception of urban reforms in Brazil. Despite progress in the scientific world and epidemiological evidence that undermined the bases of the miasma theory, the 21 governments represented in the 4th International Sanitary Conference in 1874 proclaimed that “the ambient air is the principal vehicle of the generative agent of cholera” (HOWARD-JONES, 1984).

The appropriation and use of an allegedly scientific discourse, based on fear of such fluid things as water and air (FOUCAULT, 2012), would lead to a justification for spending large amounts of public money to rearrange the physical urban environment in accordance with the interests of the economic elite and policies of the time and to mould the cities better to fit the standards of the great European cities (GRAHAM, 1972 p.123-124), which were models of modernity and civility.

John Snow in his classic work “On the Mode of Communication of Cholera” already alluded to this discourse, which he was trying to deconstruct: “... what is so dismal as the idea of some invisible agent pervading the atmosphere and spreading over the whole world?” (SNOW, 1849). The economic repercussions of the adoption of the contagion theory were notable, since it implied quarantine, an active action of the state and restrictions to individual and trade freedom, which might partially explain the resistance the theory faced until at least the beginning of the 20th century.

Urban reforms in various Brazilian cities between the end of the 19th century and the early years of the 20th century launched the bases of modern Brazilian urban planning, in which road works, basic sanitation and landscaping were introduced in conjunction with the legal bases for a property market in capitalist terms. The population excluded from this process was driven out to the hills and fringe districts of the cities. Manaus, Belém, Porto Alegre, Curitiba, Santos, Recife, São Paulo and especially Rio de Janeiro are cities that in this period underwent changes that combined environmental sanitation, beautifying and territorial segregation (MARICATO, 2000).

Hygienism became consolidated as the mark of urban improvement in Brazil's metropolises and with it the urban space became structured in such a way as to establish the centrality of the social elite. Slums are prohibited and so the raised, ventilated and sunny central areas of the centre are reserved for the elite, while the “far off, damp and marshy low-lying land” (ROLNIK, 1998) is destined for the poor. Yet again the peripheral areas of the world mimic the centre. In the area of urban reforms, the example of urban repositioning of the poor, which started with the cholera epidemic of 1832 in Paris, was conducted as a means by which the rich classes reduced the health and political risks inherent to the proletarian population. The city had migrated from cohabitation to segregation by way of the “organization of poor and rich neighbourhoods, and rich and poor housing” (FOUCAULT, 2012, p.165-166).

The process was left incomplete as far as concerns the well-being of the poorest classes, as Rezende and Heller (2008, p.44) point out, who indicate that while in developed

countries industrialization led to the expansion of social policies, in dependent countries, because of the predominant economic interest and demographic factors, sanitary reforms never reached the essential problems, especially those related to the “neediest population, which was relegated to a secondary plan”.

Conflicts and the regulation of water use

The need to establish extensive regulations regarding water use emerged strongly at the beginning of the 20th century, based on the convergence of factors like rapid urbanization and impressive population growth, as well as the start of the use of hydroelectric power and the growth in industrial activity. The emergence of these factors was to lead to large conflicts of an economic and political nature, would expose the regulatory deficiencies of the country and would require the intervention of central government in the 1930s to organize the management of water by way of regulatory procedures and administrative reorganization.

Among the most significant conflicts, were: (i) those between federative bodies for the authority to regulate the use of hydroelectric power; (ii) the economic conflict between great international trusts and Brazilian capital for having the privilege to use hydroelectricity and correlated urban services (LAMARÃO, 2002); (iii) between the electricity sector, its associates from the property development area and industry on one side and the public water supply sector on the other (SANTOS, 2006, p. 247-248); and (iv) between energy producers and industrialists, because of high tariffs.

The formation of great trusts^{iv} for exploiting public services, like the generation and distribution of electricity, street lighting, urban transport and telephone services, especially in Rio de Janeiro and São Paulo, would result in notable repercussions in the political field also. A classic case of federal conflict occurred with the establishment of a monopoly for the supply of electricity to the Federal District by multinational company, Rio de Janeiro Tramway Light and Power. The municipal government confronted the federal government and confirmed its privileged position to provide the service, even though it was strongly contested by Brazilian group, Guinle & Cia. This clash would also express its ideological dimension, which opposed international finance on the one hand, supported by economic liberalism, and the nationalist field on the other, in its search for state protectionism (LAMARÃO, 2002).

Another notorious conflict for the use of water occurred in the municipality of São Paulo, between the Improvements Commission of the Tietê River, commanded by engineer Saturnino de Brito, and the São Paulo Tramway Light and Power, a co-sister of Rio Light. The Commission's conception for using water from the Tietê River touched on aspects like flood control, public health promotion, water supply and navigation, but disagreed with Light's business strategy and was outdone by the corporate interests of companies in electricity production, transport and property development (SANTOS, 2006, p.250-261). The head waters of the Tietê were appropriated by Light to make it feasible for them to produce energy in the Cubatão Power Station (now Henry Borden), along with water they also took from reversing the Pinheiros River. The urbanization of

the Pinheiros area was also conducted in accordance with Light's own interests, which extended fairly aggressively into the property sector.

Questions related to the management of water resources, which were historically relegated to a second plan in the nation's life, shifted in the first third of the 20th century to the centre of national life. They permeated the organization of the urban space and the intricate network of economic and political interests attached to the provision of public services, like water and sanitation and electricity generation.

Externally, as from the end of the 1920s the Great Depression would disorganize the bases of the international economy and, with the scant regulation governing economic practices and the free passage of goods and capital, would provide an opportunity for diagnosing the origin of the systemic imbalances that led to a drastic reduction in trade and caused unemployment and hunger, even in central countries (HOBSBAWM, 1995).

In this context, political change in Brazil was represented by the revolutionary movement of 1930 that, in the agrarian-exporting structure and the regulatory gap in the public service sector that was highly denationalized, perceived structural weaknesses that should be corrected. The hegemonic political and economic project advocated state-induced industrialization and in order to do so the control and use of the country's natural resources became essential, especially taking advantage of its water resources. The prerogative to regulate public tariffs, especially of electricity, as a means of controlling an important factor of industrial production, was established with the passing of the Water Code in 1934, the first major legislative framework for the management of water in the country, which was established within a context of administrative centralization, a strengthening of central government and nationalism.

The Water Code, whose original bases were proposed in 1907 by lawyer Alfredo Valladão, was largely motivated by the emergence of the use hydroelectric power.

"From the economic point of view the water regime is today the proper regime for electricity. And this is multiplied all the time in its prodigious applications. So, water rights have to be a correlated movement." (VALLADÃO, 1907, p.58).

In the midst of references to foreign legislation in the project the author cites standards from Italy, Austria, France, Switzerland, Spain, Chile, Argentina, Germany, Belgium and Portugal. He also used bad Austrian and Swiss experiences in their federative articulations as references to suggest the centralization in Brazil of responsibilities for water resources. It would be a formula for enabling the "full use" of the resources and avoiding conflicts for water use between the states (VALLADÃO, 1907, p.42-43). This led to a clear dissent with the hegemonic oligarchic classes in the state administrations, and with the republican Constitution of 1891:

"As I said elsewhere, it does not seem to me that the rights of the states over the matter should be so extensive. But they are in the Constitution." (VALLADÃO, 1907, p.58).

The project also expressed an unequivocal utilitarian character with regard to water availability, considering it to be “an injustice against the holy providence and a crime against society, to let just one drop of water run into the sea without having used it for the benefit of agriculture or industry” (VALLADÃO, 1907, p.49). The project remained under discussion and negotiation for 27 years and was only to find the political conditions needed for making it effective with the Revolution of 1930, thus constituting a central framework for the regulation of water use for more than 60 years.

Discussion and final comments

The historical perspective adopted in this paper tries to throw light on the connections between urban structuring movements and the policies here analysed, as well as their links with the economic structures of central countries. It points to signs and evidence that the sanitation policy developed in line with European initiatives and interests in the sector and, in a different sense, that water resource policies emerged from the need to regulate water use, especially to favour the generation of electricity as a factor of industrial production. The sanitation policy^{iv} emerges at a time when the country had links with foreign private investment in the mid-19th century, and with the water resources’ policy in the context of international crisis, nationalism, and the emergence of the state as the protagonist of regulation and the operation of public services.

In this final part we highlight some of the paper’s main lines of argument:

– The dynamic of the links with central countries and of the organization of urban areas, based on economic and class interests, remained as an important colonial heritage even after political emancipation and the proclamation of the Republic.

– The French prescription of *public hygiene*, based on the already contested *mi-asma theory*, guided urban improvements in the large cities, at the same time in which it modernized road and sanitary structures, and established social and spatial segregation as a central component.

– The structuring of the residential water supply and sewage services represented a step in the commodification of a good that had been freely and unrestrictedly supplied until then by way of public springs and drinking fountains.

– The development of public sanitation services in the mid-19th century fits into a context of modernization of the country’s urban services under the management of foreign capital, and is integrated with a movement for spreading a sanitary model that was conceived in England and spread out from there.

– Unlike the water and sanitation policy implemented in the mid-19th century, the regulation of water use in the first third of the 20th century responded to a context of crisis in foreign trade, the intensification of nationalism and the centralization of government actions in Brazil. The first policy was established as an expression of international liberalism and the second as a response to the liberal crisis, with the strengthening of the role of the state.

– Conflicts that marked the emergence of large cities, the use of hydropower and industrialization contributed to the introduction of the first major legal framework for the management of water resources in the country, the Water Code.

Finally it is worth recommending that research be carried out to track what has happened with sanitation and water resource policies until today, as a way of qualifying the understanding of the historic meaning of these policies and the probable path dependence established between the policies of the period analysed and those of subsequent periods.

Notes

- i Law 719 of 1853, Law 884 of 1856 and Decree 1929 of 1857.
- ii The provincial government offered private initiative (Brazilian or foreign) the right to exploit the concession for 30 or 50 years.
- iii Director of Public Works of Rio de Janeiro. The Report's proposals showed a certain similarity with the French urban intervention methodology, linked to the so-called "Grands Travaux Publics".
- iv The main one was holding company, Brazilian Traction Light and Power Co. Ltd., controlled by Canadian and US capital as from 1912.
- v Here understood as being centrally organized and a model for the whole country, with concessions for foreign private companies.

References

- ABREU, M. de A. **Evolução urbana do Rio de Janeiro**. 3ª Edição, Rio de Janeiro Iplanrio, 1997.
- BRAADBAART, O. A transferência Norte-Sul do paradigma da água canalizada: O papel do setor público nos serviços de água e esgotos. In HELLER, L.; CASTRO, J.E. **Política Pública e gestão de serviços de saneamento**. Belo Horizonte: Editora UFMG, 2013. p. 116-134.
- BRITTO, A. L. A questão sanitária, a técnica e a modernidade: discutindo a origem das infra-estruturas de saneamento no Rio de Janeiro. **Anais: Seminário de História da Cidade e do Urbanismo**, v. 10, n. 3, 2012.
- BUARQUE DE HOLANDA, S. **Raízes do Brasil**. 26a. ed. São Paulo: Companhia das Letras, 1995. p. 220.
- CASA DO RIO DE JANEIRO. **História dos Serviços Públicos Urbanos no Rio de Janeiro**. 2014 Disponível em <<http://www.casadorio.com.br>> Acesso em 02/02/2014.
- CASTRO, J. E. Systemic conditions and public policy in the water and sanitation sector. In: HELLER, Léo (Ed.). **Water and sanitation services: Public policy and management**, p. 19-37, Earthscan, 2009.
- CEPAL. **Prebisch, a CEPAL e o método histórico-estrutural**. Disponível em: <<http://prebisch.cepal.org/pt-pt/prebisch-cepal-e-o-metodo-historico-estrutural>>. Acesso em: 2 fev. 2014.

- COSTA, A. M. **Análise histórica do saneamento no Brasil**. [s.l.] Escola Nacional de Saúde Pública, Fiocruz, 1994.
- FAORO, R. **Os donos do poder**. São Paulo: Publifolha, 2000. v. 1 e 2p. 448
- FERNANDES, F. **A Revolução burguesa no Brasil**. Rio de Janeiro: Zahar Editores, 1976.
- FONSECA, A. de F.C.; PRADO FILHO, J. F. do. Um importante episódio na história da gestão dos recursos hídricos no Brasil: O controle da coroa portuguesa sobre o uso da água nas minas de ouro coloniais. **Revista Brasileira de Recursos Hídricos**, v. 11, n. 3, p. 5-14, 2006.
- FOUCAULT, M. **Microfísica do poder**. 25ª. São Paulo: Graal, 2012.
- FURTADO, C. **Formação econômica do Brasil**. 34ª Edição. São Paulo: Cia. Das Letras, 2007.
- GRAHAM, R. *Britain and the Onset of Modernization in Brazil 1850-1914*. London: Cambridge University Press, 1972.
- HOBSBAWM, E. **A era das revoluções, 1789-1848**. 31ª Edição. São Paulo: Paz e Terra, 2013.
- HOBSBAWM, E. **A era dos extremos: o breve século XX 1914-1991**. 2a. ed. São Paulo: Companhia das Letras, 1995. p. 598
- HOWARD-JONES, N. Robert Koch and the cholera vibrio: a centenary. **British medical journal (Clinical research ed.)**, v. 288, n. 6414, p. 379, 1984.
- IORIS, A. Desenvolvimento nacional e gestão de recursos hídricos no Brasil. **Revista Crítica de Ciências Sociais**, p. 23-41, 2009.
- LAMARÃO, S. T. de N. Capital privado, poder público e espaço urbano: a disputa pela implantação dos serviços de energia elétrica na cidade do Rio de Janeiro (1905-1915). **Revista Estudos Históricos**, v. 1, n. 29, p. 75-96, 2002.
- MARICATO, E. Urbanismo na periferia do mundo globalizado: metrópoles brasileiras. **São Paulo em Perspectiva**, v. 14, p. 21-33, 2000.
- MARQUES, E. C. Da higiene à construção da cidade: o Estado e o saneamento no Rio de Janeiro. **História, Ciências, Saúde-Manguinhos**, v. 2, n. 2, p. 51-67, 1995.
- MARX, K. **O capital: crítica da economia política**, Livro primeiro: o processo de produção de capital. São Paulo(SP): Nova Cultura; 1996. v 1.
- MEADE, T. A. *Civilizing Rio: reform and resistance in a Brazilian city, 1889-1930*. Penn State Press, 2005.
- PRADO JÚNIOR, C. **Evolução política do Brasil: colônia e império**. São Paulo: Brasiliense, 1999.
- PRADO JÚNIOR, C. **História econômica do Brasil**. São Paulo: Brasiliense, 23ª Edição, 1980.
- REZENDE, S. C; HELLER, L. **O saneamento no Brasil: políticas e interfaces**. 2ª Edição. Belo Horizonte: Editora UFMG, 2008.

- RIBEIRO, D. (1922-1997). **O povo brasileiro: a formação e o sentido do Brasil**. 1. ed. São Paulo: Companhia das Letras, 1995. p. 476
- ROLNIK, R. Para além da Lei: legislação urbanística e cidadania (São Paulo 1886-1936). **Direito Urbanístico**. Belo Horizonte: Del Rey, p. 169-202, 1998.
- ROSEN, G. **Uma história da saúde pública**. São Paulo: Hucitec, Editora da UNESP, 1993.
- SANTOS, F. A. DOS. Domando as águas : salubridade e ocupação do espaço na cidade de São Paulo, 1875-1930. [s.l.] Instituto de Economia, UNICAMP, 2006.
- SNOW, J. **On the mode of communication of cholera**. 1849. Disponível em < johnsnow.matrix.msu.edu/work.php?id=15-78-28 > Acesso em 02/02/2014
- VALLADÃO, A. **Bases para o Código das Águas da República**. Rio de Janeiro: Imprensa Nacional, 1907. p. 84
- WALLERSTEIN, I. M. **World-systems analysis: An introduction**. Duke University Press, 2004.

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A HISTORICAL PERSPECTIVE OF EARLY WATER POLICY AND WATER AND SANITATION POLICY IN BRAZIL

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Abstract: The article aims to provide a historical overview of the factors that induced or influenced early water and water and sanitation public policy in Brazil. The article starts from the assumption that the socioeconomic and political development of the country resulted not only from endogenous dynamics, but also from global power structures since the beginning of the colonial enterprise. For this purpose, the article follows the theoretical line of classic interpreters of Brazilian history, like Celso Furtado and Caio Prado Junior and their perspectives on the country`s peripheral position in the global economic system. The analytical effort led to the perception that early water and sanitation public policy was developed in accordance with European initiatives and interests in the area. Also, the water resources public policy emerged from the need to regulate the use of water, especially to prioritize the generation of electricity in a context of external crisis and administrative centralization.

Key words: water and sanitation, water resources, public policy, historical perspective

Resumo: O artigo objetiva oferecer uma visão histórica de fatores que induziram ou influenciaram as primeiras políticas públicas de saneamento e de recursos hídricos no Brasil. Um dos pressupostos adotados é o de que o desenvolvimento socioeconômico e político do país resultou não apenas de dinâmicas endógenas, mas também de estruturas globais de poder, desde os primórdios da empresa colonial. Para tanto, usa-se a linha teórica de intérpretes clássicos da história brasileira como Celso Furtado e Caio Prado Júnior e suas perspectivas sobre a posição periférica do país no sistema econômico global. O esforço analítico resultou na percepção de que a política de saneamento desenvolveu-se em consonância com iniciativas e interesses europeus na área e de que, em diferente sentido, as políticas de recursos hídricos emergiram da necessidade de regular o uso da água, especialmente para privilegiar a geração de energia elétrica em um contexto de crise externa e de centralização administrativa.

Palavras Chave: saneamiento, recursos hídricos, política pública, perspectiva histórica.

Resumen: El artículo pretende ofrecer una visión histórica de los factores que indujeron o influyeron en las primeras políticas públicas de saneamiento y de recursos hídricos en Brasil. Una premisa adoptada fue que el desarrollo socio-económico y político del país no resultó sólo de la dinámica endógena, sino también de las estructuras de poder mundial desde los albores de la empresa colonial. Para ello, se parte de la línea teórica de intérpretes clásicos de la historia de Brasil y de sus puntos de vista sobre la posición periférica del país en el sistema económico global. El esfuerzo resultó en la percepción de que la política de saneamiento se desarrolló en consonancia con iniciativas y intereses europeos en el campo y que la política de recursos hídricos surgió de la necesidad de regular el uso del agua, especialmente la generación de electricidad en un contexto de crisis externa y de centralización administrativa.

Palabras Clave: agua y saneamiento, recursos hídricos, políticas públicas, perspectiva histórica.
