

Schmidt, Luísa, Saraiva, Tiago, and Pato, João (2011), "In Search of the (hidden) Portuguese urban water conflicts: the Lisbon water story (1856-2006)", in Barraqué, B. *Urban Water Conflicts*, London, Taylor & Francis UNESCO IHP: 69-91.

Chapter 6

In search of (hidden) Portuguese urban water conflicts: The Lisbon water story (1856–2006)

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6.1 A CENTURY OF PORTUGUESE WATER SERVICES: EVOLUTION, ACCOMPLISHMENTS AND FAILURES

The history of urban water services in Portugal can be explored through the permanent tension between central government and municipalities. The creation of the hydraulic services in the last quarter of the nineteenth century¹ set the scene for contemporary water public policies in Portugal: most waters are public, the state bears the responsibility for its administration, and its private use is regulated under two different regimes – license and concession contracts. This policy framework was also valid for water supply, drainage and treatment systems in urban areas: municipalities assumed administrative and management responsibilities, and the central government would provide financial and technical support through the hydraulic services and its regional branches. The former would decide whether to run the systems directly, to create administrative services or public companies, or even to grant concession contracts to private companies. The latter would supervise public works developed by municipalities and the development of water infrastructure. This model was applied in all urban areas with the exception of the city of Lisbon where central government intervened directly and decided itself the concession conditions with a private company.

As is usually the case in long alliances, the relationship was not an easy one. Water indicators, when available,² show that the results were far from satisfactory – moreover, if we assume its main purpose was first to guarantee universal water supply and drainage and later wastewater treatment (see Table 6.1). In the 1980s only half the

¹ The law published on the 6 March 1884 approved the Organization Plan for the Hydraulic Services, an administrative branch of the Ministry of Public Works that lasted until 1987. The revision of the legislation that defined the frontier between public and private waters was launched eight years later (Decree no. 8, 1 December 1892 – Organization of the Hydraulic Services and Respective Staff).

² These numbers were not regularly updated, no distinction was made between rural and urban services, and the evaluation procedures lacked methodological consistency. Even today, distinct governmental bureaus produce different numbers with respect to water services in Portugal. Consequently, these numbers should be seen as indirect indicators, not as exact values.

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Table 6.1 Total population served with water services

Year	(source)	Water Supply	Water drainage	Wastewater treatment
1941	(MOPC, 1941)	26.32%	–	–
1970	(Lencastre, 2003)	37%	17%	–
1980	(DGSB, 1981)	39.4%		
1990	(IRAR, 2004)	80%	61.80%	31%
2000	(MAOT, 2000)	90%	75%	55%
2007	(ERSAR, 2008)	92.00%	80.00%	72.00%

Source: Various sources were used to collect information on water services in Portugal over the period. See the references below.

1941 – MOPC. 1941. *Anuário dos Serviços Hidráulicos*, Lisbon: Imprensa Nacional.

1970 – Lencastre, A. 2003. *Hidráulica urbana e industrial, Memórias Técnicas*, Vol. II. Lisbon: LNEC.

1980 – DGSB. 1981. *Plano director de saneamento básico para o decênio de 1981–1990*. Lisbon: MHOP.

1990 – IRAR. 2004. *Relatório Anual do Sector de Águas e Resíduos em Portugal, Vol. I*, Lisbon: IRAR.

2000 – MAOT. 2000. *Plano Estratégico de Abastecimento de Água e de Saneamento de Águas Residuais 2000–2006*. Lisbon: MAOT.

2007 – ERSAR. 2008. *Relatório Anual do Sector de Águas e Resíduos em Portugal, Vol. I*, Lisbon: ERSAR.

population was served with water supply systems, not to mention sewage systems, with less than a third of Portugal inhabitants having their wastewater treated at the beginning of the 1990s (Table 6.1). Technical supervision and financial support weren't sufficient for an effective state water policy and most solutions tested by municipalities, including the concession of services to private companies, proved inefficient.³

Is it correct to assume an enduring institutional conflict in urban water services between the two levels of government from the end of the nineteenth century till the 1980s? Probably yes, but it never took the formal character of a judicial case. Nevertheless, it is clear that municipalities resented the lack of interest of central government in the well being of their inhabitants as revealed by the small amounts of investment. However, central government wasn't eager to delegate the responsibility for large infrastructure works to local authorities, knowing their limited technical capacities and proverbial mismanagement of public funds. In any case, the population was not in a position to express discontent during the long period of authoritarian government. The most obvious conclusion from urban water services data in Portugal through the twentieth century is their slow progress, lagging behind development compared to other European countries – the recurrent benchmark of Portuguese policy-makers.

This old obsession with Portuguese delay was the main rationale for numerous initiatives. In 1932, the sanitary problems caused by water epidemics (cholera surges and others), typical of a country still stuck in the nineteenth century, constituted a good opportunity for the new dictatorial regime – which had emerged from the 1926 coup

³ See the case of water supply to the city of Porto: a concession to Compagnie Générale des Eaux pour l'Étranger was signed in 1887, but deficiencies in systems operations were sufficient motives for the municipality to cancel the contract and install municipalized services (Cordeiro, 1993: 11–34).

d'état, and started an authoritarian conservative rule that would last until 1974⁴ – to prompt a new relation between central and local power. Local demands to expand water supply and sewage infrastructure were a strong political argument for closer institutional and technical control by central government, and the creation of the Water Sanitary Council (1933) was thought to be enough to accomplish such a purpose.

The Ministry of Public Works, probably the most active branch of government with regard to materializing the visions of the authoritarian New State, adopted an even tighter position by creating the Bureau of Urbanization Services in 1944 (*Direcção Geral dos Serviços Urbanos*). The Bureau surveyed the needs in urban water infrastructure, designed the projects, and forced municipalities to implement them. The state financed 50% of the building costs of water supply and sewer networks, and 75% in the case of distribution through public fountains for small villages (MOP, 1954). The dictator Oliveira Salazar, in his typical vindication of traditionalist values, feared that good old Portuguese habits would disappear if people ceased to gather round water fountains (Freitas do Amaral, 1995). It is also useful to remind ourselves that by 1940 only 20% of the population, out of a total of 8 million people, was living in urban areas. The truth is that a substantial increase in municipal funding had occurred⁵ as well as technical orientation and support, but progress, as already stated, was just too slow. Although the number of interventions subsidized by the central government increased steadily in the 1940s and 1950s (from 200 in 1946 to 800 in 1960), the number of interventions concluded by the municipalities remained almost steady at a much lower level (less than ten in 1946 to around seventy in 1960).⁶ By the end of the 1960s, the government itself recognized that the policy framework was inadequate to cover urban areas with necessary infrastructures, but no substantive change took place before the end of the dictatorship.

The April revolution in 1974 and the two-year period that followed, dominated by radical left-wing politics, were times of sudden and substantial political change in Portugal. This affected not only on social and political values, but also created high expectations for the creation of an effective welfare state that would finally reach the entire population.⁷ Water policies were no exception, and a new model for water services was designed, dividing the country into sanitation regions, geographically corresponding to districts. Public companies, under the control of the central government, would be established in each region promoting scale economies and technical cooperation.⁸

⁴ There is a long discussion among historians regarding the proper classification of the Portuguese New State that came out of the 1926 coup with 'conservative authoritarianism' being the most consensual typology. Nevertheless, it is hard to miss the fascist nature of many of the state institutions, supporting the thesis of Manuel Lucena that there was no other country like Portugal which took the institutionalization of fascism so far, making Oliveira Salazar's New State 'a fascism without fascist movement'. See Manuel Lucena (1976), António Costa Pinto (1992) and Fernando Rosas (1992).

⁵ At least 50% of the total costs of infrastructure would be supported by the central government and special credit conditions would be made available for the remaining investment.

⁶ Data collected from annual reports of the Bureau of Urbanization Services (1944–1960).

⁷ International comparisons between the structure of the Portuguese budget and other western European countries reveal the low percentage of resources allocated to welfare policies by the Portuguese state prior to the revolution (José da Silva Lopes, 2005: 265–304).

⁸ Council of Ministers Resolution, 23 January 1976.

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Such drastic reductions in the influence of municipalities was clearly against the political spirit of a revolution that promised to promote democratic institutions at the local level. This is probably the most significant cause for the failure of the regional model. Some of the public companies were even created in the years that followed, but commenced operations. Nevertheless, the growing responsibilities of municipalities under the new regime were no solution either for better water supply or for the universality of sewer systems. During the 1980s, local power was facing a double challenge: to construct basic infrastructure for water supply (only 50% of the population was covered at this time) and wastewater treatment, in tune with the new environmental paradigm that had emerged since the 1970s.⁹

Only an exogenous stimulus such as entry into the European Community in 1986 was able to dramatically change the Portuguese water policy model. The abundance of structural funds for environmental intervention, as well as the consideration that innovative environmental policies were necessary for this purpose, demanded profound changes to the water institutional framework and water services model. The first step was undoubtedly taken in 1987 with the extinction of the Hydraulic Services, ending 103 years of explicit hydraulic tradition, and the creation of the *Instituto da Água* (Water Institute) in 1993, which was intended to consolidate the new environmental paradigm in water policies.

In the mid-1990s new laws regulating water services defined new terms for the relationship between municipalities and central government. The division of water services into upper (wholesale) and lower systems (retail), as well as the creation of both a state-owned water company – AdP-Águas de Portugal (Portuguese Waters)¹⁰ and a regulatory agency,¹¹ were the chief innovations. The central government would intervene in water services through this public holding, whose main objective would be to create, manage and finance water companies (upper systems) that would serve multiple municipalities in water supply, drainage and treatment. The majority of these companies' stock would be state-owned with municipalities always in a minority position. The latter would, in turn, be encouraged to create second-level water companies that would serve citizens with water services (lower systems), but could also grant the concession of these services to public or private companies, create municipal services, or even municipally owned companies. European funds would be channeled to water systems through the public holding 'AdP – Águas de Portugal', on the one hand, and through the municipalities on lower-level systems, on the other.

The creation of the public holding 'AdP' was an incentive for scale economies and technical integration. The spirit of the reform was embedded with the need to achieve efficiency, as well as managerial and technical competencies in water services, both in upper and lower systems. Nevertheless, even nowadays, most water services run by municipalities still lack the sufficient know-how. The regulatory agency reveals in its

⁹ On the different water paradigms see Chapter 1 and Chapter 2 in this book.

¹⁰ Created in 1993, the company AdP – Águas de Portugal would only start operating effectively in 1995.

¹¹ In 1995 the Observatory for Multimunicipal Systems was created as a first regulatory body, with no practical results. It would be replaced in 1997 by the IRAR (Instituto Regulador de Águas e Resíduos), that only in 2003 started its operations. In November 2009 a new law renamed the institution as ERSAR (Entidade Reguladora dos Serviços de Águas e Resíduos) and reinforced its power by expanding its regulatory powers to all operators and enhancing its independence concerning political and economical pressures.

annual reports¹² that the inexistence of regular business accounting in some municipal services, which is essential to produce a water service cost structure, has been one of the main causes for the present undervalued price of water. Most municipalities do not charge the real cost of water services, disregarding the principles recommended in the European Water Framework Directive.

The model defined in the 1990s produced significant changes and channeled major investments into the water sector. In 2004 there were nineteen concessions controlled by the central government (Águas de Portugal, SGPS) and municipalities on the upper-level systems, as well as twenty-three concessions (private and public) on the lower systems.¹³ The remaining systems (lower level), which serve the large majority of the population (potentially 8.7 million), are directly run by the municipalities.¹⁴ Although this remains the most representative share of the water services market, no financial information is available from the regulatory agency. Thus, not only do municipalities lack accounting and technical know-how, but they are also unaccountable to the regulatory agency. But there is a clear lack of a multi-level policy specifically dedicated to small units. Moreover, most investment has been channeled to water supply: water drainage and wastewater treatment still have significant deficiencies in quantity and quality terms.¹⁵

The water price can also be considered as a sign that the reform is still far from concluding. Analysing the two systems described (upper and lower systems), a high dispersion of water prices can be noted for the upper-level systems, with a price differential of more than 100%.¹⁶ Moreover, the maximum price paid by Portuguese consumers for water supply is less than half of the mean price paid by their European counterparts. Such values reveal that either the prices do not reflect real costs, or that the necessary investments are not being made. Furthermore, it is widely accepted that it is impossible to increase water prices too fast.

Despite considerable evolution, there is still a long way to go. Water supply and treatment systems have been prioritized over the last thirty years, with over two-thirds of the total funding for environmental sector investment from the first and second European Community Support Frameworks (CSF) (1986–1992; 1993–1999). The irony of the situation is that both the third CSF (2000–2006) and the recently

¹² See RASARP since 2004 (www.ersar.pt).

¹³ The upper-level systems are a natural monopoly with no participation by private companies, and no private sector investment allowed. For the lower systems concessions are distributed as follows. The public company Aquapor-Luságua (owned by the public holding Águas de Portugal) is the most important, having thirteen concessions in the market. The biggest private company is controlled by the Somague Ambiente holding (an international private group), with ten concessions. Indágua (a Portuguese private company) participates in three concessions, and Compagnie Générale des Eaux Portugal represents the interests of this group in four concessions.

¹⁴ Distribution of the services by type: municipal companies (11), municipal services (223) and municipalized services (32) (See RASARP, 2004 for this data).

¹⁵ In March 2001, Margot Wallstrom, the European Environmental Commissioner, considered the condition of Portuguese wastewater services to be unacceptable after the enormous amount of money invested with contributions from EU funds. For example, half of the 115 wastewater treatment plants of the Tagus basin did not respect the minimum standards set for their operation. For data on wastewater treatment, see Ministério do Ambiente (1999).

¹⁶ In 2009 the national medium price is €0.49/m³, but values vary from the highest (€0.58/m³) in Águas do Douro e Paiva to the lowest (€0.32/m³) in Águas do Minho e Lima.

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approved National Strategic Reference Framework (2007) still define the water sector as an investment priority. In fact, the problem doesn't seem to be exclusively of a financial nature. In spite of all the EU funds, the lack of local technical know-how and an inspection structure meant that much of the money was simply thrown away. A report published in 1995 by the National Laboratory of Civil Engineering revealed not only the lack of skills to properly operate the new sewage water treatment plants, but also the obsolete technological solutions adopted (Melo Baptista and Matos, 1995).

To sum up, although a new policy framework is gradually taking effect, its results do not yet validate its choice as the most adequate solution. The relationship between central government and municipalities is increasingly centralized, and the tendency to create large regional water services is underlined by the recent technical integration of systems. In fact, such a framework converts what was an exception – the case of Lisbon – into the general pattern of water policy across the country. Indeed, both the regional scale and the direct role of the state differentiated the Lisbon case from other urban centres. But this is not just a matter of formal similarities; the relation goes much deeper, for the creation of the public holding *Águas de Portugal* – AdP allowed the transference of the existing technical and management expertise of the state-owned Lisbon Company, EPAL, to the new local companies. The dissemination of many 'EPALs' throughout the territory (at least on the upper-level system) was taken as the best solution to properly managing the boom in water infrastructure, which resulted from European funds. It thus makes sense to examine the Lisbon water story in detail. The Lisbon area now has some 2.5 million inhabitants, and constitutes the only real metropolis in the country where the urban dimension of water conflicts is a relevant issue. What could be seen as a legitimate methodological option of describing the best documented case, a typical 'case study' methodology, then becomes an inquiry into the main laboratory of water policies for the entire country.

6.2 THE LISBON WATER STORY

6.2.1 Liberal waters (1858–1926)

The monumental character of the *Águas Livres* aqueduct, built in the eighteenth century, might suggest that the problem of water supply to Lisbon was solved many years ago.¹⁷ But the truth is that the cyclical outbreaks of epidemics in the nineteenth century reveal the poor sanitary conditions of a capital, repeatedly facing water scarcity and sewage troubles. Foreign engineers visiting the city denounced the uselessness of the impressive masonry of the aqueduct, 'a landmark of ignominy to the Portuguese people', which delivered 'no more than 4 litres per head' in the 1850s (Valle, 1856: 133–36, 145–47).¹⁸ It was quite obvious that the large majority of the population didn't use the aqueduct waters, instead resorting to the numerous wells and sources, many of them private, within the city perimeter.¹⁹ The cholera and yellow fever epidemics of

¹⁷ On the history of the eighteenth-century aqueduct see Moita (1990); Caseiro, Pena and Vital (1999); Gentil Berger (1994) and Oliveira Caetano (1990: 293–312).

¹⁸ The waters from the *Águas Livres* aqueduct came from Belas 15-km northwest from Lisbon.

¹⁹ For a detailed description of the water sources inside the city perimeter in the middle of the nineteenth century, see Veloso de Andrade (1851).

the years 1856 and 1857, with a death toll of some 9,000 Lisbon inhabitants out of a total population of 160,000, were the direct cause of central government involvement in a subject that was previously exclusively municipal.²⁰

In 1858, the state signed a concession contract with Empresa de Águas de Lisboa (EAL), the first Lisbon water company, formed with the capital of sixty-four Portuguese shareholders, that promised to deliver 93.75 litres per day for every Lisbon inhabitant. The company hired the French engineer Charles Louis Mary, *ponts et chaussées* inspector of the Seine department, who designed a project comprising several new lateral aqueducts to be connected to the existing eighteenth-century aqueduct. Just as important as finding new water sources was the design of a distribution network, which relied on four new reservoirs to conduct water to every Lisbon building. This network was a significant innovation when compared to all previous municipal projects, which only offered public fountains distributed along city streets and squares. For the first time the entire city was subsumed to an engineer's rationale, with the aim of transforming it into an efficient organism.

Pushing to make every Lisbon inhabitant its client, EAL transformed water into a commodity. In the following years the municipality would become its first opponent. The local administration never accepted the loss of control over water supply issues and its members denounced several times the dangers of a private monopoly as a menace to the public interest. Despite all criticisms, the granting of concessions was the solution the 'regenerationist' government found to expand infrastructure over the territory. This government took power in 1851 with a policy of material improvements that would bring to an end the tumultuous first decades of the liberal regime.²¹ But it is also true that the municipality had its reasons, for Lisbon's first water company was never able to deliver enough water and never demonstrated enough financial capacity to supply the lacking infrastructure.

In 1863, under the pressure of municipality disapproval and public protests during a drier than usual summer, the government formed a commission of inquiry which revealed that the company only supplied 8% of the agreed water.²² However, local power did not recover control of Lisbon's waters; instead the Ministry of Public Works took charge in the name of the capital's hygiene. The former argued that water supply and sewerage (which was already a local responsibility) should be taken as a single service, thus claiming control of both. But central government maintained that the new infrastructure designed by ministry engineers was just too expensive and complex to be managed at local level. Searching for new sources abundant enough, state engineers had presented a project for a new aqueduct bringing water from more than 100 km away from Lisbon. This long Alviela Canal put an end to the municipality's demands, and in 1867 the state signed a new contract with a private company, the

²⁰ On the tight relation between water infrastructure and epidemics in the nineteenth century, see Saraiva (2005) and Ferreira da Silva (2006). On epidemics and the evolution of Lisbon population see Rodrigues (1995).

²¹ Regenerationism promised to end civil disputes by building roads, railways and ports, replacing politics by technology, in an ideology that resonates with Saint Simon utopia. It is no coincidence that many of its leaders, namely Fontes Pereira de Melo, were engineers. On regenerationism, see de Fátima Bonifácio (1999).

²² On this polemic, see Saraiva (2005) op cit: 124–34.

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Companhia das Águas de Lisboa (CAL) which hired the engineers of the Ministry of Public Works to lead its technical section.

The building of the canal suffered long delays as is often the case with big public works. To expropriate the estates crossed by the lengthy canal line was a difficult task. However, reaching an agreement between the company, the state, the municipality and Lisbon proprietors regarding canalization regulation proved even more difficult. The first agreement insisted upon implementation of the approved regulation such that every proprietor was obliged to build a connection to the company's distribution network (Alves, 1940: 5–23; Leite Pinto, 1989). Only after approval of the regulation did the company guarantee its financial viability to cover the infrastructure building expenses. In 1880 the Alviela canal was finally inaugurated.

The arrival of the Alviela water in 1880 was celebrated in a mass event staged to welcome the new age of Lisbon sanitation. Together with the railway lines connecting the capital to all the country's provinces, the works of the big port and the new large avenue that 'Haussmanized' Lisbon, the water works were presented as proof of the ability of the liberal state to put Portugal on the path of progress. Lisbon was hailed as the capital of a modern country, with engineers designing networks that controlled the fluxes of people, goods and water.²³ The new daily 30,000 m³ were taken by the press as a kind of magic solution that converted Lisbon from a dry North African city into a green European Capital, freed from the epidemics so much feared by urbanites.

But to eradicate epidemics it is not merely sufficient to have abundant potable water. Sewerage plays an equally fundamental role. As we saw, the claim by local authorities to take control of supply was justified with a hygienist rhetoric tightly connecting distribution and sewerage. However, it was engineers of the central government that first envisaged in 1874 a waste carriage system using water as a draining and cleansing agent of the sewage pipes. Conversely, the municipality favoured cesspools and privy vaults with pipes admitting exclusively rain runoff and water used in sinks and bathtubs. It was quite a paradox that a typical argument for municipalization of water supply all over Europe – the need of copious quantities of water for the proper work of the water-carried sewer system – was thus absent from the Lisbon debate on control of urban waters. Only in 1880, the year when Alviela water arrived, did a municipal commission involving government engineers start to design a sewer system relying on the water-carriage model that would be approved four years later (Ferreira da Silva, 2006).

The new sewer network would nevertheless grow at a very slow pace. It was impossible to universalize sewage collection when supply itself was covering only about 50% of the city's households in 1890, and some 60% ten years later. There was nothing more dangerous than building an extended network of sewage pipes without enough water to clean them, for they could become the main locus for epidemics, as had been the case in the previous cholera outbreak. The main consumers of the company waters were still by far the municipality and the central state, accounting for 76% of total consumption for the years 1900–09. It is no surprise, then, that the main concern of the company was to obtain an assurance that the government and the municipality would pay their growing water debts, a dispute that had to be solved by the Administrative Court. Water in Lisbon was thus facing a double bottleneck: the

²³ On the mass event and its relation to the renewal of the image's capital, see Saraiva (2005) op cit: 137–42.



Figure 6.1 Thirsty day in Lisbon

Source: Joshua Benoliel (1912).

sewer system could not grow because there was not enough water supply coverage for private households; private consumption did not grow sufficiently because the sewage system (one of the main water consumers) was not complete. This was the price to pay for separating water and wastewater.

What was obvious at the turn of the century was that water infrastructure development was not keeping pace with the city's population growth. In 1900, Lisbon already had some 350,000 inhabitants, a huge upsurge when compared to the 200,000 people living in the city in 1864. In the 1920s, the numbers would climb to almost 600,000. In the first decade of the twentieth century, the water company was already facing a problem of scarcity of available water. For the years 1900–1909 the total daily consumption per capita was down to 74.1 litres, with private consumption limited to 17.7 litres. In 1905, only twenty-five years after the grand-opening of the Alviela Canal, the company started looking for other sources, namely the surface water of the Tagus River (Leite Pinto, 1989; Ferreira da Silva, 2006; Alves, 1940).

Although the new project to bring water from the Tagus was praised as the most complete and detailed engineering project ever produced by Portuguese technicians, the company was never able to launch it in the early decades of the twentieth century when Lisbon's population was exploding. The expensive 80 km Tagus Canal, designed to supply 108,000 m³, was constantly postponed among complaints of the debts of the government and municipality towards the company, or of the low water price paid by private consumers. The resistance against a company that saw its share price rise by four times from 1870 to 1909 was reason enough for bad press among the Lisbon population. The case became even worse in 1913, when it became clear that the Alviela Canal wasn't enough to meet growing demand during the dry season. In July

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the residents of the more elevated areas of the city, where supply was interrupted for several days, broke the fire hydrants (*Ilustração Portuguesa*, 1913). The fighting of fires inside the urban perimeter became itself a critical issue, with the press denouncing how small fires reached catastrophic dimensions due to lack of available water (*Ilustração Portuguesa*, 1917). The constant water shortages during the summers led the company, in accordance with central government and supported by the national guard, to set a plan for water rationing, distributing it through sixty improvised public fountains and by aid of water tankers circulating through the city streets (Leite Pinto, 1989: 269–79). After having converted the majority of the Lisbon population into its clients, the company with police support now controlled public access to water. The newspapers, exhorted by the municipality's complaints, excited public opinion against a company whose headquarters suffered a bombing assault in 1924 (Leite Pinto, 1989: 278). That same year water rationing was discussed in Parliament with members of the government themselves denouncing the rationing measures taken up by the water company.

During the first three decades of the century, scarce water volume was not the only reason for public distrust towards the company. Since the typhus outbreak of 1912 water quality had also become a subject of public concern (*O Século*, 1940). One of the company reservoirs was identified by the hygienist doctors as the source of the epidemics affecting 2,615 people and killing 254. Only after 1918 was water chlorinated. Consumers repeatedly denounced its bad taste, which was reason enough to interrupt the water treatment in 1926, with chlorination returning only in 1931 (Pinho, 1942: 37–45). By then the number of deaths caused by typhoid fever had receded to thirteen cases per 100,000 inhabitants,²⁴ but such figures were still ten times bigger than those of Berlin or London. The main reason for such a gap was of course the need of Lisbon's population to make up for the company's rationing measures during the dry season, through the use of non-reliable private water sources and wells still existing in the city area and its suburbs.²⁵

6.2.2 Authoritarian waters (1926–1974)

The big tensions around water supply in Lisbon were of course unbearable to the dictatorial regime that emerged from the military coup of 1926. The constant quarrels between the company, the municipality, the central government and the population, were taken as paradigmatic of the powerlessness of the Republican regime (1910–1926) to solve social disputes and properly manage public affairs (Alves, 1947: 142–47). In 1932, the very same year he was nominated Ministry of Public Works of the first cabinet

²⁴ Major progress when compared to the thirty-five cases per 100,000 inhabitants for the years 1916–20.

²⁵ In 1945 an inventory by the government engineers counted some 2,512 wells inside the city perimeter, with only ten belonging to the municipality (Pinho, 1945: 37–49).

²⁶ Duarte Pacheco (1900–43) was the Ministry of Public Works of the authoritarian regime led by Oliveira Salazar from 1932 to 1936 and from 1938 to 1943, the year of his death. He was also the Mayor of Lisbon from 1938 till 1943. Duarte Pacheco, an engineer by training, represents the technocratic character of the regime, a soft version of Albert Speer, launching a vast programme of public works to change Portugal's image, and in particular to convert Lisbon into the metropolis of the new empire. He died in 1943 in a car accident that symbolized in a tragic way the modernism of the most dynamic leader of the Portuguese New State.

formed by Oliveira Salazar, Duarte Pacheco²⁶ launched the new basis for Lisbon water supply. The solution couldn't be simpler: the water price was abruptly increased by some 40% with the company obliged to start immediately the construction of the Tagus Canal, planned back in 1908. The company was now also responsible for water quality, having to install chlorination plants at its own expense. If the company didn't accept the conditions set by the government, the state would directly take over Lisbon water supply and the company would be dismantled. Even though the solution was presented without any negotiation, the company learning of the terms of the agreement in the morning newspapers, the new contract was quickly signed (Alves, 1940: op cit).

Once again the main loser was the municipality: despite its ambition of taking over a company that didn't fulfill its duties, it never had sufficient political power or financial capacity to take care of the city's water supply.²⁷ The only dialogue now took place between the company and central government, with the creation within the Ministry of Public Works of a Commission for the Inspection of Lisbon Waters (CFAL). Beyond controlling the company's activities and inspecting every new work, this government agency could also present new projects to be undertaken by the company. The solution of keeping a private monopoly together with a strong interference capacity by the state was an approach typical of Salazar's corporate New State. In the following years such state interventions in the economy would also be applied to hydroelectricity production or steel manufacture. If the first water concession of the nineteenth century was paradigmatic of the way liberal governments extended infrastructure over the territory, Lisbon waters set the tone for the many years to come under the dictatorship. The best proof of such a claim is the ironic comment made by the head of CFAL that the people of the capital didn't protest against the over 40% increase in price imposed by government (Alves, 1947: 143). Public conflicts had now been officially banished, urban water conflicts included, and would remain so for a long time, as further confirmed by media analysis.

In 1933–34 under the pressure from CFAL, the company had already doubled its supply capacity. During the following years, CFAL engineers replaced the project to supply Lisbon with surface water by the much cheaper solution of extracting groundwater from the Tagus alluviums in an area closer to Lisbon, shortening by some 20 km the huge Tagus canal with a daily capacity of 257,500 m³. In 1940, the CFAL could already be proud of a daily 137,000 m³ summer supply (for a maximum consumption of 80,000 m³), with the previous infrastructure guaranteeing only 37,000 m³. CFAL engineers could not accept that such a grand improvement would remain unwitnessed by the city's inhabitants, much of the works lying beneath their feet or far from the urban centre; the Ministry of Public Works thus commanded a monumental fountain to celebrate the end of water scarcity in Lisbon.²⁸

²⁷ During the authoritarian regime of the New State, the municipal powers were directly nominated by the central government. It is sometimes hard to distinguish what is local and what is central, especially in the case of Lisbon, where the ministry of Public Works, Duarte Pacheco, was nominated Mayor of Lisbon in 1938.

²⁸ The monument was placed facing the impressive new buildings of the Superior Technical Institute, the institution breeding the technocrats of the authoritarian New State, CFAL engineers included. The fountain and the Engineering School were built following the architectural canons of the regime, established by the Ministry of Public Works, both standing as urban landmarks of the new fascist capital. On the evolution of Lisbon under the authoritarian New State, see Matias Ferreira (1986) and Acciaiuoli (1998).

But the capital city of the *Estado Novo* (New State) dreamt by Duarte Pacheco was much bigger than the old city limits. It included the planning of a prestigious tourist area to the west connected to the city centre by a scenic highway offering quick access to its sandy beaches. A copious water supply was of course needed to sustain such expansion and a new large conduit was built feeding the Sun Coast (as it was named) with Lisbon water (Alves Costa (1941: 15–21). In this case, the company limited itself to supplying the water, with the local municipalities along the coast being responsible for its distribution. This was also the case of the conduit connecting the city centre to Sintra, another favorite tourist attraction and currently listed as a UNESCO World Heritage site. The curious thing is that even if the primary reason for guaranteeing supply to such places over 20 km away from Lisbon was satisfying growing tourism activity, the conduits followed more or less existing railway lines, thus providing the infrastructure for future migration from the countryside to the city.

Actually, those two axes – along the coast to Cascais to the west and to Sintra to the north-west – were to become two of the main axes of development in the Lisbon metropolitan area during the second half of the century. Further expansion followed the water conduits to the east, from where the water was entering Lisbon. In all these areas served by the company's water, the local authorities were responsible for its distribution. It is thus hard, not to say impossible, to understand the spatial patterns of the expansion of the Lisbon metropolitan area without taking into account the layout of the waterpipes.²⁹ The extension of water supply infrastructure by the company to the Sun Coast, to Sintra and along the canals that brought water into the city from the east, was the first manifestation of what would become the Lisbon metropolitan area. In fact, the company and CFAL were the only entities that operated at the scale of the metropolis in the 1940s and for many years to come. For the first time it seemed that water was leading urban expansion and not the other way round.

The dramatic increase of population served by the company's water meant an upsurge of the total consumption of 50% between 1942 and 1947, with private consumption now accounting for the main share (57% of the total). And so, in 1949, Lisbon was facing shortages again, with water being rationed by the company during summer nights.³⁰ This time the newspapers were not used as a tribune for discussion of the infrastructure problems of the capital; instead they were used to publicize restrictions on consumption, with the population, according to the company's account, willing to aid namely by promptly reporting any leak.³¹ As previously stated,

²⁹ It may be argued that we thus leave aside all the southern urban expansion across the river where company pipes never arrived, but one of the main features responsible for the very dispersed southern settlement pattern is exactly the lack of infrastructure (see Portas, Domingues and Cabral, 2004) namely water supply, with the population relying till the 1980s mainly on private wells (River Basin Plan). The lack of an extended sewage system made things worse with the aquifers used by the population being polluted by the increasing population.

³⁰ See 'Nota referente às restrições de abastecimento de água em Lisboa, no Verão de 1949', *Boletim da Comissão de Fiscalização das Águas de Lisboa*, 30: 81–84.

³¹ Also, and in spite of the extension of the distribution network inside the city limits, 33% of Lisbon households were still not connected by 1943. The numbers gathered by CFAL's initiative also revealed, as expected, that the main proportion of people unconnected comprised the poorer social segments.

all urban water conflicts had been banished;³² this remained the case even now that water was once more scarce and summer rationing had been reinstated. News related to water supply had a distinguished positive tone when compared with the repeated criticisms prior to the establishment of authoritarian rule (Schmidt, 2003).

In the following years investments in distribution and the introduction of new surface water for the Tejo Canal (1963) would progressively improve records. Following the unreliable official figures used by authorities for the big development plans of the next decades (Comissão de Planeamento da Região de Lisboa, 1973), the proportion of the population supplied in Lisbon finally reached 100% at the beginning of the 1970s. What such numbers were hiding was that much of the demographical expansion of the Lisbon area during the 1960s, fed by a massive rural exodus, was being absorbed by the uncontrolled proliferation of unplanned suburbs and even slums where the water pipes of the company didn't reach. Between 1960 and 1970 the population of the metropolitan area would grow roughly from 1.5 million to 1.8 million inhabitants. In 1981 the total population for the area was already close to 2.5 million (Ferrão, 1996). In twenty years 1 million people settled but the urban core remained almost unchanged with little more than 800,000 inhabitants, while the poorly served peripheries boomed.

Under the new leadership of Marcello Caetano (1968–74), the dictatorial regime began demonstrating a wider awareness of the social problems of development;³³ meanwhile, the newspapers began publishing stories about the drama of Lisbon's peripheral neighbourhoods. In 1969, a ten-storey building collapsed in the clandestine neighbourhood of Brandoa, home to some 18,000 to 20,000 people, in what would become a symbol of the chaotic expansion of the Lisbon metropolis. In their descriptions of the many Brandoas around Lisbon, journalists talked about barefoot children inhabiting the unplanned areas of former farms that surrounded Lisbon, where lack of piped water was denounced as the central problem (*O Século Ilustrado*, 1970). The problem, once again, was not just the incapacity of the distribution network to follow the frenzied rhythm of metropolitan territorial expansion, but also the shortage of total water at the disposal of the water company to supply the unforeseen growth in population. In fact, water service interruptions were scarce at the urban core where distribution was guaranteed by the company. But in the suburbs underfinanced municipalities like Sintra or Cascais, which also received water from the company, weren't able to cope with the demography boom with their limited infrastructure of reservoirs and old narrow pipes.

6.2.3 Democratic waters (1974–2006)

The magnitude of the problem would become clear with the return of cholera to Lisbon in 1971. Epidemics broke out in the slums, which sheltered some 150,000

³² The only exceptions were the conflicts between the company and the landowners of estates where new sources for city supply were being established. Complaints also reached the National Assembly on the excessive zeal placed on isolating water conduits and sources from their surroundings, as denounced by farmers and shepherds.

³³ Marcello Caetano (1906–80) assumed control of the authoritarian regime in 1968 softening its repressive character in what became known in the historiography as the Marcelist Spring. Nevertheless his strategy of 'keep the course' in the colonial wars in Angola, Mozambique and Guiné Bissau eventually led to his overthrow by the 1974 revolution.

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people. Mass vaccination of slum dwellers and health service campaigns stressing the importance of boiling water taken from non-treated sources, were enough to limit the death toll to ten people among the hundreds of choleric patients. Nevertheless, repeating the gesture of nineteenth-century hygienists, doctors started to survey the sanitary conditions of the new urbanites and denounced the lack of access to company water for the majority of the population outside the city core (*O Médico*, 1971: 605–09). With few exceptions, the newcomers were relying mainly on isolated wells and springs. The bacteriological analysis of such sources revealed that 70% of their water was contaminated and non-potable. The picture concerning sewage wasn't much better, with only one rudimentary plant for sewage treatment in the eastern outskirts designed to receive the wastewater of no more than 50,000 people. Non-treated effluent polluted the beaches of the Sun Coast, but of greater concern was the proliferation of individual cesspits in the new expansion areas, far from central Lisbon. These were contaminating the same water sources people were using. It is important to remember that the large majority of this population comprised first-generation urbanites, who brought with them a rural culture of water. Rather than expect, or even request the company to bring its pipes to their homes, they just improvised their own supply. In April 1974, as the Carnation Revolution brought to an end forty-eight years of dictatorial rule, a new cholera outbreak started to spread in southern Portugal, reaching Lisbon during the summer and killing thirteen out of 600 identified cholera cases (Figueiredo, 1974).

With water shortages and cholera outbreaks occurring in a revolutionary context, the position of the old water company became untenable.³⁴ On 21 June, 1974, company workers occupied the facilities and demanded the firing of the board of directors. Three days later the Government took direct control of Lisbon's water supply with the members of the former CFAL assuming the leading role. In October, the Empresa Pública de Águas de Lisboa (EPAL) was formed: the first nationalized company of the revolutionary period. Once again, Lisbon waters were an indicator of future government intervention in the economy, no longer following the corporative state model of the 1930s.

In the following years the public company was generously funded to put an end to the scandalous lack of water in the Lisbon region.³⁵ Besides doubling the volume of surface water taken from the River Tagus at Valada, a new system was designed to bring water from the large reservoir at the Castelo do Bode dam on the Zêzere river, inaugurated only in 1988. The public company was finally able to deliver enough water to the metropolitan area, although shortages were still common in areas where the peripheral municipalities were responsible for distribution of water supplied by EPAL. It was only in the 1990s and with EU funding, that a new main system was built, following the external Lisbon ring road, which enabled water to bypass the central Lisbon reservoirs and be distributed directly to the different peripheries. Water supply infrastructure was finally losing its centralized character and was keeping pace with the spatial expansion of the Lisbon metropolitan area. Unlike the 1930s, waters were now following the urban sprawl and not the other way round.

³⁴ By coincidence the contract ended the concession that same year in October. See Empresa Pública de Águas de Lisboa (1975).

³⁵ See the annual reports of EPAL (1974–80).

Since the 1970s, this hydraulic approach of offering progressively more and more water to the population had to be complemented with environmental concerns about sewage. The problem of water pollution in Lisbon was magnified by the coastal tourist region, west of the city, with newspapers in the 1980s repeatedly denouncing the polluted water of the beaches. The rapid expansion of the western suburbs, with Sintra becoming over the next decade the foremost urban agglomeration, leaving Lisbon behind,³⁶ meant a massive increase in wastewaters arriving to beaches with no treatment. The construction of a large sewage collector along the coast proved a complicated project, beginning in the 1970s and ending only in the late 1990s. Once again, EU funds provided the financial resources to construct the necessary infrastructure along the beaches of the Sun Coast beaches. Nevertheless, newspapers still reported overflows from the interceptor under heavy rain conditions (combined sewer). This was not the only problem, as many houses were still not connected to the drainage system, and kept throwing sewage directly into the river basins flowing into the sea (Schmidt, 2007). Only with the passing of the Municipal Urban Plans of 1995, which tried to bring some order to the chaotic urban expansion, did the large collector start to receive wastewater from all new households.

If the EU was fundamental to improvements in water quality, it now requires quality levels that according to SANEST, the company responsible for sewage along the Sun Coast, are too high for wastewaters deposited into the sea. Required investment in secondary and tertiary treatments will surely bring about an increase in operational costs. The example of SANEST, which together with SIMTEJO, the company operating Lisbon wastewater, still leaves one-third of Lisbon inhabitants without wastewater treatment,³⁷ confirms the difficulties of the Portuguese context, with problems of lack of infrastructure overlapping environmental problems typical of late modernity (Schmidt, 2009).

The polemics around the water quality of the Castelo do Bode reservoir, from where EPAL takes most of its water to supply 2.6 million people of the Lisbon region, illustrate such difficulties. If water quality is guaranteed by the treatment station of Assesseira, one must still emphasize the negative effects of construction on the reservoir shores, with water indexes strongly deteriorating.³⁸ In spite of the major significance of this water reservoir for the future of the metropolitan area, the public discussion that took place in 2003 on the development plan for the dam area didn't include representatives from the Lisbon area. The inference was that the 100-km distance implied a geographical independence between the two areas: out of sight, out of mind. Having addressed the difficult step of adding the sanitary approach to the hydraulic, water experts now had to start considering territorial approaches, where sustainable environmental practices play a major role. In addition to hydraulic and sanitary engineers, the complexities of urban waters now require that companies engage environmental experts and landscape architects.

The Lisbon water story constitutes an important part of Lisbon's story over the last 150 years. The urban expansion of the nineteenth century; the fascist design of a new

³⁶ For numbers on Lisbon urban growth go to www.ecoline.ics.ul.pt.

³⁷ The works to solve the lasting issue of Lisbon sewage were reinitiated in 2009, and they are scheduled to end by 2011.

³⁸ The water indexes deteriorated from A1 to A3. See Almeida Vieira (2003).

metropolis; the hidden slums of the authoritarian regime; and the difficult 'Europeization' of Lisbon in the last decades of the twentieth century, may only be understood by including water in the narrative. We saw how engineers repeatedly promised to bring an end to water scarcity and epidemics resulting from poor sanitation, and how the built water infrastructure was once and again overstretched by urban dynamics. The best example is perhaps that of the fascist regime's technocratic solution for Lisbon water supply in the beginning of the 1930s, which helped to legitimate the New State, and its subsequent inability to expand infrastructure in the 1960s when all popular protest was suppressed. But it is also significant that the revolutionary solution to the cholera epidemics of 1974 was found once again through government engineers responsible for the inspection of Lisbon waters. The EU funds of the 1980s didn't bring alternatives to this technocratic water culture with Lisbon urbanites relying on the state for cheap and abundant water, caring little about the situation where their water was captured. Water still remains a business for experts, not for politics.

6.3 URBAN WATER CONFLICTS: FROM THE UNFINISHED WELFARE STATE TO THE NEW REGULATORY STATE

Throughout the twentieth century, results from successive policy frameworks for water services in Portugal were far from satisfactory. An exogenous impulse was necessary in order for a long-due structural change to see the light of day. The Lisbon story is illustrative, as we have seen. The impact of European funds on the water sector, as well as the policy reform operated in the 1990s, clearly resulted in considerable quantitative improvements, but financial and technical problems, as well as infrastructural ones, still prevail. An inquiry conducted in 2004 revealed that 70% of Portuguese mayors still identified water and sanitation as their most urgent environmental problem (52% referred to sewage systems and 18% to water supply), and 33% identified sanitation as the most important problem affecting municipalities, over social or economical problems (Schmidt, Nave and Guerra, 2005). This clearly highlights water as a recurrent issue, and one that accumulates first, second and third-generation environmental problems.

Despite all the problems, conflicts over urban waters today do not assume explicit and direct consequences, as was also the case throughout the twentieth century. In fact, most water conflicts in Portugal were reported in rural areas, and occurred due to competitive uses of water between farmers and landowners, where no state regulation was available or enforced. An exhaustive research conducted on the archives of the Administrative Supreme Court rulings from 1890 to 2005 confirmed a lack of significant judicial cases concerning urban water between the state and private institutions or citizens. The tension could be felt on successive policy changes, as well as on the preambles of most important pieces of legislation regulating urban waters, where several deficiencies and contradictions were referred; but somehow conflicts – at least explicit conflicts – never emerged.

The nature of urban water conflicts, predominantly latent, is also confirmed with extensive analysis of weekly newspapers in Portugal over the same approximate time period (1900–2005): 113 news items reported latent conflicts concerning urban waters, and only eighty-five directly referred to explicit conflicts. The results of this

analysis show that besides some cases concerning water shortages in Lisbon, at the beginning of the century, total civic inertia occurred for most of the period (1926–1974): the dictatorial regime imposed a social and political context where conflicts were diluted, or politically repressed, especially in cases where the state itself was not offering quality services.

At the beginning of the 1970s, and even before the revolution, some news media reported the pollution of Portuguese rivers as one of the most significant environmental problems – experts were given the possibility to express their views on the media – along with water supply and sewage deficiencies that resulted from the exponential growth of Lisbon's suburban areas. Nevertheless, and once again, no conflicts were reported. After the revolution, contrary to what could be expected, conflicts over water sanitation seemed to be totally submerged under more general social and political conflicts, related to a country living a kind of revolutionary euphoria and making its first steps towards a democratic regime. Social policies were finally becoming generalized – healthcare, education, housing – and even though sanitation was part of the political agenda, investments in the sector and effectively implemented practical solutions, were very slow: the state didn't seem to have enough resources to fulfill all social demands (Figure 6.2).

Nevertheless, no organized protests were registered, even for the Lisbon area, where the population had to cope with an incipient water supply service and inexistent water treatment. As we saw, citizens would try in many cases to solve their own problems directly, especially in suburban areas, by managing their own water sources. The low incidence of civic protests in Portugal should not be attributed to the nature of its inhabitants, although the phenomenon is independent of social-economic factors

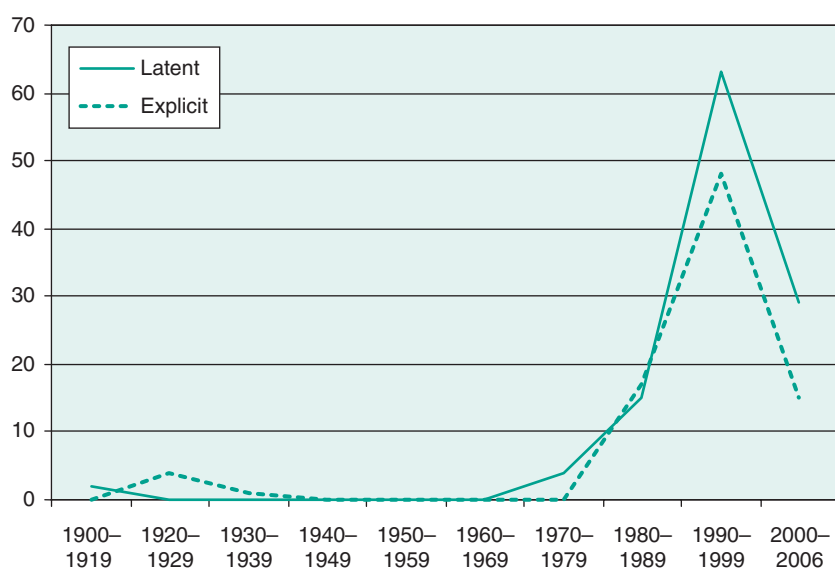


Figure 6.2 Latent and explicit conflicts from 1900 to 2006

Source: The graph is based on an extensive analysis of the main weekly Portuguese newspapers from 1900–2006. The information is available at <http://ecoline.ics.ul.pt>

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Table 6.2 Water conflicts by subject (1900–2006)

	Supply	Scarcity	Pollution of underground waters	Beach pollution	River pollution	Price	Water quality	Sewage	Others
1900–1919	2	0	0	0	0	0	0	0	0
1920–1929	3	0	0	0	0	0	1	0	0
1930–1939	1	0	0	0	0	0	0	0	0
1940–1949	0	0	0	0	0	0	0	0	0
1950–1959	0	0	0	0	0	0	0	0	0
1960–1969	0	0	0	0	0	0	0	0	0
1970–1979	2	0	0	0	3	0	0	0	0
1980–1989	9	0	0	5	17	0	2	2	0
1990–1999	12	27	9	4	35	3	10	14	3
2000–2006	6	7	0	4	11	6	8	5	1

Source: www.ecoline.ics.ul.pt (1900–99) and Jornal Expresso (2000–2006).

pervading the entire society. As Manuel Villaverde Cabral has shown, the persistent larger power distance index perceived by Portuguese citizens when compared to other European countries, as revealed by European Social Surveys (ESS), derives from a long history of restricted literacy policies and the bureaucratic despotism of the modern Portuguese state (Villaverde Cabral, 2003: 31–60). The positive evolution of economic and social development indexes doesn't automatically bring a better distribution of symbolic resources, fundamental for access to social and political power.

This lack of significant protests among the population is reflected in the news. Only since the 1980s have changes been detected with newspapers adopting a new critical tone. This fact was clearly related to beach pollution, when sea tourism became part of common social habits and sewage discharges were felt as a huge nuisance, especially in the above-mentioned Sun Coast and the Algarve (Schmidt 2003). Some latent conflicts were reported in the news related to water shortages in the Lisbon Metropolitan Area, but water conflicts still occurred mostly in rural areas where eucalyptus plantations were blamed for causing water scarcity. Conflicts also assumed the form of election boycotts with populations protesting the lack of sanitation infrastructure, a typical first-generation problem (Table 6.2).

But it was in the 1990s that the degradation of water quality, as well as its implications for water use (for consumption or leisure), became a 'serious' problem. Since then, the number of news reports on this matters have grown significantly, with conflicts becoming more explicit. The media were indeed crucial for the general acknowledgement of water problems and their multiple dimensions: pollution of rivers and beaches directly associated with the inexistence of wastewater treatment facilities; strongly polluted and overexploited groundwater; and inefficient water supply and bad water quality. For the first time, in 1993, an official report on water quality status was publicly discussed, informing public opinion about the bad condition of most water bodies, as well the low quality of water served to urban populations (Schmidt, 2000). These reports would become regularly publicized, and showed that still in 2003 around 200,000 Portuguese inhabitants remained without drinking water in contravention of both European and national requisites, while 350,000 lacked water supply

(mainly in the north-west of the country). Furthermore, it is now clear that water quality analyses are not being undertaken, disregarding this stipulated in the law.

It was also from the 1990s onwards that the Spanish Hydrological Plan became an issue for the Portuguese public: newspapers regularly reported water captures in Spain, reducing water volumes in shared rivers like the Douro or Tagus, but mainly in the Guadiana. This river saw its water flow diminish by 60% from 1970 to 1990, leading to new conflicts directly related with water scarcity (Schmidt, 2000: 121–31). It was Spanish ambitions on Iberian waters and old mistrust of a neighbour's intentions that finally sparked a debate on Portuguese waters. The conflict around the sharing of the Guadiana waters had the positive effect of awakening the Portuguese government to the issue of proper water management. Until then, no river basin management authorities had been established for the country, with legislation regulating water planning programmes only published in 1994. Six years were needed to prepare River Basin Plans and the National Water Plan (2000), which would scandalously reveal that 70% of Portuguese water courses were highly polluted.³⁹

The pollution of rivers thus became one of the most mediatic themes of the 1990s: first, the media reported upon the annihilation of Portuguese rivers, affecting biodiversity and human use (commercial or leisure); then, just as regular scientific data on their condition became available, municipalities and civic groups began demanding protection measures for rivers and water bodies, reaching the mainstream newspapers. Some protests were aimed against existing industrial facilities, or projected ones, while more recently, some have even reached the European courts; however, the results from these are as yet unknown.⁴⁰

Since 2000, the privatization of water services has become a clear issue in the press, mainly through the voice of well-known opinion-makers who underlined the potential risks. Public announcements from successive Ministers of the Environment from 2000 to 2005 – which suggested the possibility of privatization, become a significant political fact, open to speculation. Today, water appears in the pink pages of the 'Economy' section. It is also significant that, for the first time, conflicts associated with water prices (future raises) have been recorded.

6.4 CONCLUDING REMARKS: HIDDEN CONFLICTS OR POTENTIAL CONFLICTS?

Taking together the detailed history of the Lisbon water case, the bird's eye view of sanitary infrastructure evolution in Portugal throughout the twentieth century, and the media analysis on water conflicts, we are now in a privileged position to undertake a prospective exercise on water conflicts. Let us try to present a typology of potential future conflicts: institutions, prices, uses, scarcity and climate change. Of course the types of conflicts are deeply interrelated but we'll isolate them for analytical proposals and for the sake of the argument.

³⁹ In 2009 a new Water National Plan was launched. Following the data from the Water Institute (Instituto da Água), some 40% of the rivers are heavily polluted and 25% of them have a reasonable status.

⁴⁰ Two national surveys conducted in 1997 and 2000, showed that the main problem pointed out by the Portuguese population was river pollution (Schmidt et al 2004).

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The institutional conflict is perhaps the most obvious. If Portugal does not comply with European quantity and quality standards in water services, the European Commission will probably heavily fine detected faults. The EU does have a strict policy for water and the fact that it has been substantially funding Portuguese water services for the last thirteen years gives it a very strong political and moral argument. This issue has already emerged with the EU penalizing SANEST (see above) for discharging wastewater with only primary treatment into the Atlantic Ocean until 2007. Another institutional conflict opposes the different regional branches of the state holding Águas de Portugal AdP and many municipalities. The former is becoming less flexible with the fast-growing debts of the latter, defending the 'political price' of water against the internalization of costs.

This last point leads us directly to the issue of prices. From the above sections we may easily conclude that the water culture in Portugal passed directly from individual self-sufficiency, with people themselves digging wells and improvising cesspits, to a total reliance on state ability to deliver cheap and abundant water as well as free wastewater treatment. The 'deterritorialization' of water issues, with people ignoring the complex and expensive infrastructure that brings water to their taps and takes it to wastewater plants, leads to stronger resistance by consumers against abandoning the present political price of water. However, as the EU requests stricter standards from the Portuguese supply and sanitation infrastructure, prices will have to rise to fund growing operational costs. In fact, since in 2007 the Ministry of the Environment started to announce compulsory increases in water prices. In the Council of Almada, for instance, a populated Lisbon suburb in the south riverbank of the Tagus, the municipality recently denounced the inequalities arising from the new water tariffs, with larger families being more penalized than smaller ones. Moreover, the eventual privatization of water services could bring significant price rises, as happened in other countries, promoting the transition from latent forms of conflicts to explicit ones. Private or not, the times of cheap water are coming to an end, and consumers, supported by municipalities, are starting to show resistance.⁴¹

We previously underlined the emergence of a territorial paradigm with landscape planning assuming a major role. From the news analysis presented, we learned of the growing complaints of populations worried about bad river water quality. Here, we're not only dealing with potable water consumers, but also urbanites that assume the good health of rivers as part of their living quality standards. Water has an aesthetic value that goes beyond its drinkable nature. Urbanites, imposing their leisure values on the rest of the territory, will most likely become more sensitive to the future of Portuguese rivers and thermal waters. The space of previous rural water conflicts may now become the scene of urbanites fighting for their right to use water landscapes.

Lastly, conflicts can emerge where water scarcity and competitive uses occur, especially in areas of the country where the resource is not abundant, or where uses are seasonal. Tremendous tourist pressure in the Algarve (in the south of the country) is an explicit case, where water shortages are constantly reported and the significant growth of high water-consuming infrastructures (golf courses), as well as seasonal consuming

⁴¹ In 2007, a curious inversion of roles occurred with the government forbidding water suppliers, among them many municipalities, from charging consumers for the use of water counters, as is current practice in Portugal.

rhythms, are causing growing tensions between citizens, municipalities and private companies. The predictions of climate change impacts for much of the country, but particularly for its southern regions, support the relevance of scarcity problems in the near future (Schmidt and Prista, 2010). Most reliable climate scenarios for the twenty-first century, presented by the various models developed by the SIAM research project, indicate a 'small increase of annual precipitation for the northern region of Portugal and a decrease for the central and southern regions'. These models 'also estimate an increase of the precipitation seasonal asymmetry, with relevant decreases in summer precipitation', and with a consequent 'progressive reduction in the annual river runoff and aquifer recharge' (Santos and Miranda, 2006: 118). It is important to bear in mind that the Intergovernmental Panel for Climate Change (IPCC) report recently identified Portugal as one of the countries of the Mediterranean basin most vulnerable to climate change effects.⁴²

If the new geographical distribution of water resources is to become the main source of conflict around water in the years to come, the stories in this chapter suggest that the mobilization of engineers and financial funds alone, will not prove adequate to finding a resolution. Although technology and money are central to any possible solution, democratic societies should be equally committed to developing mechanisms for the sustainable governance of water. After all, water is much more than H₂O, it is also a common good, and as such, it challenges our capacity to imagine appropriate politics and policies for its sustainable management.

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⁴² See the IPCC website, <http://www.ipcc.ch/>

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