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D12: WaterTime case study – Berlin, Germany

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One of 29 WaterTime case studies on decision-making on water systems

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1 Introduction

1.1 General Considerations

The Watertime project is based on the exploration of 29 case studies. These case studies are expected to provide information on the interaction between a range of political, economic, social, technological and environmental factors, at various levels, on the parties and processes involved in decision-making, including the constraints on decisions and objectives of decision-makers, so that models can be developed of these interactions to guide future decision-makers.

The selection of the case studies was made not by sampling on the basis of indicators at a given point in time, but rather on the basis of known examples of decision-making processes where a variety of factors, constraints and objectives could be observed. The analytical narrative approach goes beyond detailing the case to elaborate more general conditions for decision-making processes. This means there must be criteria for selection of cases other than their intellectual appeal.

The cities are thus not selected as a representative sample from which statistically significant generalizations and predictions can be made – most cities in Europe have probably undergone relatively few system changes and have continued in a ‘steady state’, which may be the prevailing condition– although the criteria for analytical narratives also include features that make the cases amenable to modelling, providing an opportunity to get at an important process or mechanism not easily accessible through other means.

Most of the case studies, however, are cities where the steady state has been affected by some initiative or contingency – e.g. a proposal for new sewage treatment plants, or for a form of private sector operation, the switch to a different water resource – which has generated some decision-making process involving a range of factors, actors and processes.

The case studies provide an opportunity to study the elements of the decision-making process in each city. These elements are not pre-determined and not restricted to local levels. They may include local consumer group activities, policies of development banks, regulatory decisions, municipal votes, multinational business strategies, ministerial rulings, supra-national environmental decisions, or many others. The transparency involved and the scope for participation also vary.

The German case studies are on Berlin and Munich, the No.1 and No.3 cities in size in Germany, both developing and changing rapidly. At the level of water supply and sanitation, the effects of the development are felt very differently. A comparison of the two cities should reveal which of the factors observed to be ruling decision-making in the water sector are typical for large German municipalities, and which are a result of political instability, excessive financial constraints, and limitations of the resource base.

1.2 The Case of Berlin

In the past 15 years, the city of Berlin has had to deal with the effects of the re-unification of East Berlin, the former capital of the German Democratic Republic, and West Berlin in 1990. Creating one viable municipality – and a capital – from two structurally, politically and economically vastly different entities has been and continues to be a very challenging exercise, not least for the drinking and wastewater sector.

The aquatic unification of Berlin has taken place under difficult environmental, financial and political conditions. Berlin does not have major rivers, and is relying mainly on groundwater (artificial infiltration, bank infiltrate, natural groundwater) for its supply. Demand is however far exceeding the available natural groundwater quantities. As a result, the water resources available to Berlin have to be regarded as far from



sufficient and safe. Keeping up an adequate supply requires large-scale technological interventions and long-term planning.

In the face of major financial difficulties and a near-bankrupt city, pressure began to increase by the mid-nineties to privatize publicly owned companies – amongst others the water sector. The situation was later aggravated by the fact that the Berlin public water company had unsuccessfully invested in activities outside the water sector and thus threatened to become a burden for the budget.

In 1999, the city of Berlin finally entered a public-private partnership with RWE/Vivendi (now Véolia). A highly complex holding structure was developed to allow the water company to formally remain a public entity although the operations are fully commercial. The price paid by the private companies for their 49.9 per cent share was regarded as high and reflects the extra prestige and value of running the water services in a capital. The process leading to privatization has been a matter of public discussion, yet not public participation, and has been criticized for being undemocratic and secretive.

2 City background

Berlin is both Germany's capital and its largest city with 3,388 million inhabitants (2001). It is located in the North-East of Germany, close to the Polish border. Berlin has ceased to be an important industrial or commercial centre following World War II, and is today dominated by public offices and administration. In 2001, commercial and industrial water consumption was only 23.3 million cubic metres (mcm) compared to 150.3 mcm in domestic consumption (and a further 30.6 mcm for other consumers such as offices, public buildings and fire fighting). Over a mere ten years, the overall water consumption in Berlin has dropped by 22.7 per cent from 270.9 mcm in 1992 to 209.5 mcm in 2001. This translates to a domestic per capita consumption of 124 litres per day, down from 138 litres in 1992.

Berlin is located in a relatively dry area of Germany (500 to 600 mm annual precipitation), but can make use of the extensive groundwater aquifers underlying the city (part of the Berlin-Warsaw glacial valley that was formed during the last ice age). This valley stratum consists of sand, gravel, marley, till and clay. The groundwater found here is well suited for drinking water purposes, but is increasingly suffering from pollution. In principle, Berliner Wasserbetriebe (BWB) is relying exclusively on groundwater from Berlin itself, yet for historical reasons, some aquifers are augmented by artificial infiltration with treated surface (lake) water. During the separation of East and West Berlin, the Western part had been severed off its water resources, and had to resort to artificial infiltration to be able to satisfy rising water demand in the city. Artificial infiltration is expected to decrease in the near future since other groundwater resources are available elsewhere in the city (this step has been postponed for economic reasons, see below).

The Berlin regional water law further prescribes that all drinking water has to be taken from local resources in the Berlin underground. This is seen by the administration as an additional incentive to the water supply company to adequately protect and manage groundwater resources while the company regards this provision as a tool to maximise municipal income from groundwater levies (which have to be paid for each cubic metre of groundwater extracted).

Berlin does not have major rivers for fresh water supply or for the dilution and disposal of wastewater. Two smaller rivers (Spree, Havel) flow through Berlin as chains of regulated slow-flowing lakes. The Spree is severely reduced in flow mainly in summer due to extensive open pit lignite mining in its catchment. As a result of wastewater discharges, Spree and Havel rivers (as well as the lakes they form in the city) are prone to severe algal blooms and require artificial aeration. Recently, wastewater treatment has been upgraded to include phosphate removal, and the state of the rivers and lakes has improved. All in all, the natural water situation of Berlin is strained and requires large scale technological interventions and long-term planning in order to keep up an adequate drinking water supply and a good status of the city's lakes and rivers. The issue



of more sophisticated wastewater treatment to reduce nutrient loads and pathogens in Berlin surface waters is a further contentious point between the municipal environment administration and the private management of Berliner Wasserbetriebe (BWB).

3 Water and wastewater undertaking

3.1 Background

Berliner Wasserbetriebe (BWB) supplies drinking water to all of Berlin's inhabitants and to about 83,000 inhabitants in localities in the Land Brandenburg on the city's outskirts. The drinking water activities comprise nine waterworks, 7,802 km of pipelines and 247,910 house connections. The average daily volume supplied in 2002 was 589,000 cubic meters, the highest daily volume 861,000 cubic metres, far from the potential peak capacity of 1.181 million cubic metres per day. The wastewater disposal system includes a sewer network of 9,116 km with 218,927 connections, 181 pumping stations and eight treatment works (all equipped for the removal of phosphates and nitrogen). In 2002, Berliner Wasserbetriebe treated 248.1 million cubic metres of wastewater from the city, including 6.8 million cubic metres from surrounding municipalities (BWB Jahresbericht 2002, Berlin 2003).

3.2 Water and Cross-border Undertaking Profile

In 1999, the city of Berlin decided to enter a public-private partnership with a consortium consisting of Vivendi (now Véolia), the German multi-utility company RWE and the insurance company Allianz. To that avail, Berliner Wasserbetriebe (BWB) became a subsidiary of Berlinwasser Holding Aktiengesellschaft (AG, plc) while legally keeping the status of a public law company (see Ep1). Currently, 50.1 per cent of the shares of the newly formed Berlinwasser Holding (BWH) and Berliner Wasserbetriebe (BWB) are held by the city of Berlin. The Vivendi/RWE/Allianz consortium paid the city DM 3.3 billion (€ 1.69 billion) to acquire 49.9 per cent of both entities and full operational control (the 49.9 per cent shares of the public law BWB are privately held indirectly through 'silent partnerships'). The 5 per cent of the shares originally held by insurance company Allianz were sold to Véolia and RWE in 2002. Berlinwasser Holding AG (BWH) has been devised as a 'strategic management holding company', and comprises not only the water supply and sanitation activities in Berlin, but also Berlinwasser's international water activities (e.g. in Hungary, China, Albania, Namibia) and a services branch with some 20 subsidiaries in various countries. Finally, BerliKomm, a telecommunications company, and Sekundärverwertungszentrum Schwarze Pumpe (SVZ, a subsidiary intended to process sewage sludge, but never functional) were 100 per cent owned by Berlinwasser Holding in 2002 as well as some smaller companies.

Berliner Wasserbetriebe (BWB) turnover in 2002 was € 966 million, of which € 363 million came from water sales and € 587 million from sewerage services. Earnings after interest and taxes were € 65.396 million, which were however more than outweighed by losses of other subsidiaries of Berlinwasser Holding (mainly SVZ and the telecommunications branch BerliKomm). Prices remained stable from privatization in 1999 to the end of 2003, as agreed in the privatization contract. By April 1st, 2004, water and wastewater charges rose by 15.1 per cent. Berliner Wasserbetriebe (BWB) and Berlinwasser Holding (BWH) continue to suffer from several problems: one is the strained city budget of Berlin, another differences between RWE and Véolia over management issues. An attempt to address the latter has been made in 2002 by reducing the number of executives from eight to four who are now jointly responsible for both BWH and BWB. As a result of the complex, lengthy and politically contentious privatization process, a complexity of contracts and legal provisions have to be observed which, according to both company officials and city representatives, has the potential to impair the operations of BWB. The underlying problem is that the contractually guaranteed profits for RWE/Véolia and the expectation of consumers and city government concerning drinking water quality, affordable prices, environmental objectives and investment in infrastructure are difficult to reconcile.

3.3 System profile

DATA	CONCEPT
Berliner Wasserbetriebe AdöR	Name
Geographical scope <ul style="list-style-type: none">• Nation• State• Region• Local	Scope of activity of the organisation as a whole. One single choice can be replied as “yes”
Type of activity Water supply and <ul style="list-style-type: none"><input type="checkbox"/> No other activity<input type="checkbox"/> Wastewater<input type="checkbox"/> Storm water and drainage<input type="checkbox"/> Electricity<input type="checkbox"/> Gas<input type="checkbox"/> District heating<input type="checkbox"/> Other (specify)Public transport.....	Scope of activity of the organisation as a whole, beyond the water supply (multiple choices are valid)
Type of assets ownership <ul style="list-style-type: none">▪ Public▪ Private▪ Mixed	Ownership of the undertaking infrastructure. One single choice can be replied as “yes”
Type of operations <ul style="list-style-type: none">▪ Public▪ Private▪ Mixed	Type of operational management of the undertaking. One single choice can be replied as “yes”.
Total personnel (no) 5,391 (31.12.2002), 5,283 (31.12.2003)	Total number of undertaking employees dealing with services production
Outsourcing (per cent) n.a.	Estimated cost percentage of all the functions that are outsourced
Annual costs (EUR/a) € 727.2 million (2002)	Annual costs including capital, operations, maintenance (including external manpower costs) and internal manpower costs
Annual sales revenue (EUR/a) € 1114.4 million	Operating revenues + interest income
Average annual investment (EUR/a) € 318.7 (2002)	Cost of the investments over the last three years /
Tariffs (EUR/m) Fixed household tariff: € 1.764	Average water charge

3.4 Detailed data on Berliner Wasserbetriebe AdöR (BWB)

Please refer to Annex A.

4 Actors in water and wastewater services provision

4.1 Overview of relevant actors in the Berlin case study

A fairly large number of key actors can be identified particularly in Episode1, the partial privatization of Berlin's public water and wastewater company (see below). However, the total number of people informed about the details of the internal processes leading to this important decision at the time is remarkably small, possibly no more than 20 or 30. Some key actors effectively tried to influence a process which from their point of view was a black box. The key actors can be attributed to five groups:

- a) Senate and single opposition politicians
- b) Public services union ÖTV, and BWB employees,
- c) BWB management,
- d) Private utility companies, and
- e) Legal and economic consultancies.

4.2 Senate and single Opposition Politicians

To the public, politicians were the most visible actors. Berlin was governed at the time by a coalition of the two largest parties, CDU and SPD, led by a CDU mayor, Eberhard Diepgen. The problem of this coalition was that for decades, CDU and SPD had pursued vastly different policy approaches, with SPD being the ruling party most of the time. These differences were also reflected in the privatization process. While both parties saw some kind of privatization of BWB as a necessity, the respective concepts and objectives have often been mutually exclusive. Furthermore, both parties have been far from unanimous internally in their attitudes to BWB privatization. The Social Democrats' (SPD) senators faced fierce opposition from the party base, which is historically close to working class and union positions. The Christian Democrats' (CDU) senators had to accommodate the anti-privatization position of the then BWB executive director (also CDU), a former secretary of state for the environment with the Kohl federal government. Also, the public services union coordinator for utilities at the time, Norbert Öttl, a long-time opponent to BWB privatization, was a CDU member.

Neither of the two ruling parties ever found a unanimous position on BWB privatization. Influential SPD figures – the most important ones being the finance senator and the SPD group leader in parliament – finally endorsed and pushed through a privatization model which ignored the resolutions of the party basis. CDU on its part eventually dropped the BWB executive director. His main opponent, and one of the key actors for CDU in the privatization process, Berlin secretary of state for economics Dieter Ernst, became director of Berlinwasser International, the unit responsible for developing water markets abroad, soon after privatization.

The opposition parties of the period, the Greens and the socialist PDS, have never been part of the internal decision-making circles. At a relatively late stage in 1999, they jointly tried to block BWB privatization by challenging the respective new law (Teilprivatisierungsgesetz, TPrG) and the privatization contract in the Berlin Constitutional Court. The Court assessed the privatization to be generally in tune with Berlin's constitution, yet annulled two important details of the contract. Just a week later, the Berlin parliament, with the votes of the ruling parties SPD and CDU, approved of the privatization contract, which was signed by the finance senator the same day.

4.3 Public Services Union ÖTV, and BWB Employees

Throughout the privatization process, public services union ÖTV made it very clear that they were against any form of privatization. The same is true for BWB employees and their legal representation. An alternative solution was proposed at an early stage to fulfil the senate's expectation to generate DM 2 billion (€ 1.06 billion) in revenues from selling BWB. The union proposal – the so-called “integration model” – was very quickly rejected by the Senate, probably the most visible sign that the Senate's goal had always been BWB privatization in itself, not generation of funds to balance the city budget (the official motivation) The second union demand that in case of privatization, management control had to remain independent of external (non-Berlin) water utilities, could not be defended either. Finally, ÖTV negotiators supported the privatization package against the overwhelming opposition from employees and ÖTV members. Clearly, the employment guarantee of 15 years fixed in the contract (the so-called ‘contract of trust’) allowed ÖTV negotiators to accept the package.

4.4 BWB Management

As mentioned above, the management of the public utility BWB, led by former CDU federal environment secretary of state Bertram Wieczorek, was opposed to privatization under a holding, and preferred conversion into a joint-stock company (*Aktiengesellschaft*, AG) with consecutive sale of shares to non-water utility investors (so-called “conversion model”). The main objective of this strategy was to retain full operative control of BWB. He obviously tried to use his contacts in the party to turn CDU's party line on that issue, finally without success. He made several major concessions, for instance allowing the city to extract DM 1 billion (€ 550 million) from BWB's stock capital in 1997, an action later criticised by the courts (without any consequences however). Bertram Wieczorek was also responsible for a number of acquisitions which later generated major losses.

4.5 Private Utility Companies

The exact influence of external utility companies on the privatization process is difficult to assess because official records don't exist. There are strong indications however that RWE Entsorgung AG (RWE's waste management daughter who at that time also housed the tiny water division RWE Aqua) may have influenced the decision-making process on privatization in Berlin at an early stage. One consultant (WKc, Franz-Josef Pröpper) hired by RWE in 1997 to assess the chances of BWB privatization and to propose a successful strategy for RWE, also advised SPD and public services union ÖTV on this matter in 1998. On the advice of WKc, RWE's strategy was to keep a low profile and not to be publicly known as a potential investor in BWB. RWE's interests were further represented throughout the privatization process by consultant WIB whose ED Herbert Märtin was hired to lobby public services union and SPD politicians (to support a holding model). It should be noted that at the time, RWE had few water activities of its own, and was interested in developing such activities from Berlin. The acquisition of Thames Water and the shift of RWE water activities to London occurred in 2002.

Vivendi, after having formed a bidders' consortium with RWE in late 1998, decided to hire their own lobbyist to influence the privatization process – Manfred Hölzl, a former Berlin airport manager with excellent contacts to local politicians. Even earlier, Suez-Lyonnaise who actively tried to win a concession to BWB, had hired consultants Brossard (Nikolaus Fuchs) to try and convince the Senate of the merits of the concession model. It is important to understand that the various consultants not merely tried to win support for their customer, but actively influenced the choice and development of the privatization conditions (the model) long before the tendering stage.



4.6 Legal and Business Consultancies

Different key actors on various aspects of the privatization process commissioned a large number of strategic studies. Hardly any of this information has ever become public. Likewise, in order to make the privatization process legally water-proof, several legal consultancies were involved in drafting the respective laws and contracts. After all, the Berlin privatization package combines a public law company (BWB, AdöR) with a private law holding company, a novel (and contentious) approach requiring much legal advice. No less than 13 consultancies and lawyers' offices were involved in the privatization process, including Merrill Lynch, which is a multinational company in its own right. The costs for their services may have exceeded DM 80 million, a large share of which had to be paid by the taxpayer as many were hired by governmental bodies.

A detailed description of the influence of the different consultants and their connections and relationships to other key players could fill volumes. A few examples may illustrate the complexity:

- The partial privatization law was drafted by a lawyers' office with close ties to Vivendi. One of the partners, Klaus Finkelburg, was president of the Berlin Constitutional Court and had to declare himself prejudiced when that same piece of legislation became subject of a court case in 1999.
- A lawyer from a law firm that represented RWE interests developed the holding model.
- A consultancy (WKc) that worked for RWE also advised the SPD group and held seminars with the local union (for details see section d).
- CDU government officials with connections to RWE, e.g. secretary of state Dieter Ernst (see above) supported and promoted the holding model. Another consultancy associated with RWE (WIB) donated more than DM 20,000 to the SPD in the "decision year" 1998.

5 Episodes

5.1 Introduction and Recent History

The fall of the Berlin Wall in 1989 was the most dramatic event in the recent history of Berlin, and involved shouldering the re-unification of East Berlin and West Berlin. In the water sector, re-unification involved the re-integration of two water and wastewater companies in East and West who had been administratively separated since 1949. In September 1990, ten months after the fall of the Wall, the magistrate of East Berlin decided to hand over management responsibility for the East Berlin water and wastewater operator (VEB WAB Wasserversorgung und Abwasserbehandlung Berlin) to the management of Berliner Wasserbetriebe (BWB, West Berlin). Legally, WAB Berlin remained an independent entity. At the same time, the internal organisational structure of the Eastern water company was changed to mirror the Western counterpart. The formal merger (which according to BWB's former technical director is more adequately described as a take-over) occurred in 1992, when the two municipal utilities were integrated to form a single company supplying drinking water and collecting and treating wastewater in the whole of Berlin. The new company with the old name Berliner Wasserbetriebe (BWB) set out as a 100 per cent publicly owned municipal utility (*Eigenbetrieb*). There was no principal disagreement about the decision to merge the two companies; alternatives to the legal status of the merged company have been tabled at the time, but not seriously assessed. In the period following re-unification in 1989, the same processes took place with the public transport, gas, electricity, waste management and other municipal companies – a tremendous and unique task.

Soon after the re-integration of the two water and wastewater companies in East and West Berlin into a joint municipal company in 1992, Berliner Wasserbetriebe (BWB) was converted to a public law corporation (*Anstalt öffentlichen Rechts*, AöR) in 1994. A new Berlin regional law was required for this change of legal character introducing public law corporations as a novel option for public law companies. One stated objective of this change was to enable BWB to enter into commercial activities and to access the funds needed for massive infrastructure works mainly in the Eastern districts of the city, another to lower the workforce directly employed by the municipality. At the time, the management of BWB favoured conversion to a plc (*Aktiengesellschaft*, AG) to strengthen further BWB in its independence and operational freedom. The decision to choose the public law corporation (AöR) instead of a plc was mainly due to opposition to the private law plc from the public services union ÖTV. BWB's then technical director still believes that conversion to a plc and continued public ownership would have been more favourable than privatization (see Episode 1, below).

5.2 Selected Episodes

5.2.1 Episode 1 (Ep1, 1996-1999): Partial Privatization of BWB and Shift to Private Management

By far the most important and most consequential decision on the Berlin water sector was taken in 1999. The Berlin government or Senate (from 1990 to 2001, Berlin was ruled by a coalition of the two largest parties, the Christian Democrats, CDU, and the Social Democrats, SPD, with a CDU mayor) opted for privatization of public assets, with BWB being the last large utility to be privatized after the municipal gas and electricity suppliers GASAG and BEWAG. The first preparatory steps occurred as early as 1996, the formal political decision to privatize was taken in 1998, and the contract with a consortium of RWE, Vivendi and Allianz signed in 1999. The consortium acquired 49.9 per cent of a newly constructed holding company (Berlinwasser Holding, BWH), of which BWB is a 100 per cent subsidiary, and fully took over the management of water and wastewater services in Berlin (as silent partners in BWB) as well as BWB's

international water and non-water activities. The price paid to the city of Berlin was DM 2.8 bn (€ 1.43 bn). An additional DM 500 million (€ 256 million) were paid directly to BWB to help save SVZ (Sekundärverwertungszentrum Schwarze Pumpe), an ailing BWB daughter set up to process sewage sludge.

5.2.2 Episode 2 (Ep2, 2000-2002): change of Partial Privatization law

Just before the Berlin parliament approved the privatization by the end of October, 1999, the Berlin Constitutional Court had ruled certain aspects of the partial privatization law (Teilprivatisierungsgesetz, TPrG) unlawful, notably the calculation basis for return on investment. This ruling created a difficult situation for both Senate and investors, as it effectively lowered the return on investment for the investors and hence the value of BWB from the investor's point of view. The investors and the Senate entered into lengthy and complicated negotiations about this point. As a result, the city of Berlin made sure that despite the court ruling, RWE/Véolia would be paid their share of the profit on the basis of the originally agreed return on investment. To that avail, the city waived its claim to at least part of its own 50.1 per cent of the profit so that the private investors could be compensated. Given the budgetary constraints of the city, the Senate decided to amend the partial privatization law to introduce a) a revised calculation basis for return on investment along with b) a new tariff system which would allow it to consistently raise prices – effectively making the consumers pay. The revised law passed in 2003.

5.3 Factors

Two obvious factors have framed the public discussion – firstly, a strong ideological motivation of some politicians to privatise as many public enterprises as possible, and secondly, the overly strained public finances of the city of Berlin. However, there were other important factors involved. One is the pursuit of personal gain, the other direct and indirect influence of potential investors on key political actors. At the other end of the spectrum, there was widespread fear of job cuts, rising water and wastewater fees, and a decrease of investment in infrastructure and environmental protection.

External effects at national or international levels didn't play a strong role in the case of Berlin. Decision-making doesn't seem to have been affected by either national or international legislation. On the other hand, the public discussion prevailing since about 1993 on water sector privatization in Germany had certainly prepared the field for a privatization initiative.

Nonetheless, at least in the public debate, the city's finances did play the key role in BWB privatization. The money expected from privatization of Berliner Wasserbetriebe (DM 2.8 billion, € 1.43 billion) had already been budgeted for the fiscal year preceding the sale (1998). This step taken by the SPD finance senator can be regarded as exerting extra pressure on decision-makers by creating irreversible facts.

Clearly many of Berlin municipality's (still prevailing) financial difficulties are not due to external effects, but home-made: In the mid-1990s the municipally owned Berliner Bankgesellschaft went bankrupt, leaving the city budget with huge long-term liabilities. It was the involvement of a number of CDU politicians in the so-called Berlin bank scandal that led to a change of city government in June 2001 after a vote of mistrust in parliament. The election held in October 2001 brought about a thorough change of political majorities, with a comfortable majority for a coalition of SPD and PDS (a successor of former East German unity party SED). While there are many exceptional pressures from the formidable task of re-uniting a city, it is the collapse of Berliner Bankgesellschaft which eroded Berlin's financial situation the most. The financial difficulties will remain the main theme of municipal politics in Berlin for years to come.

Press coverage of the privatization period was generally good, with lots of details and background information on the decision-making process. At least three local newspapers followed the issue closely, and some journalists obviously had access to internal sources. As one direct consequence of press reports, the

investment bank commissioned with organising the tendering and privatization process (Merrill Lynch) issued a warning to all actors, particularly the companies interested taking over BWB, not to make any internal papers available to outsiders or the public. Also, the financial administration advised potential investors not to give any comments to the press about the whole process in order not to “disquiet” the public and BWB staff. This shows quite clearly that the decision-making process was regarded by those driving it as a development to which any kind of public influence could be detrimental.

5.4 Outcomes: The consequences of privatization

5.4.1 Infrastructure

Overall investments dropped from € 1.176 billion in the period from 1997 to 1999 to € 944 m in the period from 2000 to 2002 (- € 232 million). An annual average of € 256 million (= DM 500 million) was fixed in the privatization contract as the minimum volume of investments over the first ten years. This amount was exceeded by € 177 million in the years 2000-2002 which means that less money will be available in the remaining years to 2008. Investments are currently geared mainly at a program imposed by the Berlin environment authorities: a) connecting the remaining unserved households to the sewer system, b) upgrading of wastewater treatment plants, and c) modernising pipes and pumping stations. A number of waterworks, treatment plants and deep wells have been closed down, mainly in the Eastern part of the city. The latter contributes to locally rising water tables leading to structural damage to buildings and a tendency for basements to be flooded. In this context, the BWB management is stating that it is “exclusively the respective authorities which are legally executing groundwater management in Berlin”². If BWB can turn down all responsibility for the regulation of groundwater levels around the abandoned wells and the resulting damage to buildings, remains a contentious issue.

BWB prior to private operations had an investment plan of at least DM 6 billion (€ 3.07 billion) for the next ten years. The agreed minimum investment sum of DM 5 billion (€ 2.56 billion) for ten years is likely to be insufficient to adequately maintain the infrastructure. While a lot of investment had been undertaken prior to privatisation to improve the neglected state of East Berlin’s water infrastructure, the effective limitation of resources available for infrastructure maintenance to this amount will inevitably lead to a gradual deterioration of the Berlin water and wastewater system. Despite the efforts in the 1990s to repair East Berlin’s water pipes and pumping stations which had seen insufficient investment over many decades, leakages and residues there are still considerably higher than in the Western part of the city and require continued attention. Until recently, the BWB management had regarded € 256 million annually as the maximum possible amount. Lately, however, BWB are planning – in agreement with Berlin’s finance and economics authorities – to further reduce the maximum figure to € 200 million no later than 2007. The existing under-investment in water and wastewater infrastructure in Berlin is thus likely to be exacerbated.

All data indicate that the investment emphasis over the past years on the environment authorities’ program – extending connections to the sewer system and upgrading of sewage treatment plants – has been accompanied by a marked under-investment in underground infrastructure, both drinking water pipes and sewers. BWB’s revised infrastructure strategy states: “Since the existing leakages in the water net play no role economically or technically, the approach for renewal and repair is based on rupture statistics.”³. This means that investment in the water distribution system is limited to the repair of severe ruptures while ongoing precautionary maintenance no longer takes place. The BWB management states in a letter to the authors of this study that “major investments in piping infrastructure” are planned in order “to achieve a renewal rate of approximately 1.0 per cent.” A renewal rate of 1.0 per cent corresponds to an expected lifetime of pipes of 100 years, while normally no more than 75 years are regarded as realistic, corresponding to a renewal rate of 1.5 per cent.

² Simon, J. and Bammert, U.; Letter by BWB management to the authors of this study, Berlin, 20/10/2005.

³ Berliner Wasserbetriebe, investment strategy 30/08/2002, p.3.

The situation is most likely even worse regarding sewers, and definitely, more environmentally harmful. Highly contaminated wastewater can penetrate the groundwater from leaking sewer pipes. In other places, where sewers are laid below groundwater levels, groundwater leaks into sewers and considerably augments the volume of wastewater reaching the treatment plants. In 2000, the first full year under private management, the number of sewer rehabilitation measures went down by 90 per cent from 2.200 (in 1999) to 220 (10 per cent). 512 and 797 sewer rehabilitation measures were reported for 2001 and 2002, respectively. These vague figures in the annual reports are all BWB is willing to publish: no figures on the investment sums involved or the sewer length rehabilitated annually are publicly available – an indication that the management wants to avoid any debate on this contentious issue.

The management of Berliner Wasserbetriebe explains in a letter to the authors of this study that the “rehabilitation measures will be accelerated and continued at markedly larger scale”⁴ once the program of the environment authorities to extend connections to the sewer system and to upgrade sewage treatment plants has been completed. Then, it has been agreed between BWB and the authorities, all major damage to the sewer system will have to be repaired within ten years time. No money has however been put aside for a continuous rehabilitation of the system which would require replacement of approximately 1.5 per cent of the sewer lines annually. To oblige BWB to at least continuously monitor its piping and infrastructure in the future (the most important long term task of a water undertaking), the environment authorities have proposed a new ordinance on sewer self-control of Berliner Wasserbetriebe. This ordinance will stay effective even if the Senate decides to withdraw from BWB and to fully privatise the company – a potential move in the near future (see chapter 5.1.4).

The management further states that the senate of Berlin has “all options to set strategic priorities concerning maintenance and development of infrastructure.” However, the authorities’ room for manoeuvre “is determined by the contractually agreed investment frame”.⁵ In other words: BWB investment decisions don’t reflect actual needs, but contractually fixed investment limits. These limits will become considerably tighter with the intended lowering of the maximum annual investment sum from € 256 million to € 200 million by 2007, a decision for which not only BWB, but also the Berlin senate bears responsibility.

5.4.2 Water Quality

Supplying drinking water in Berlin is a difficult task. While rich in natural and artificial lakes, the city receives only small quantities of fresh water via rivers, and rainfall of 500 to 600 mm is also well under German average. Due to the slow exchange of water (the Spree, the largest river in Berlin, has a flow as low as 25 cubic meters per second (down from 40 cubic metres per second in the early 1990s), the dilution of contaminants is negligible, and the river is on the verge of turning anaerobic and losing the ability to clean itself. Historically, BWB have always resorted to pumping water from deeper strata (> 30 metres), but two thirds of all drinking water are bank filtrate or result from artificial infiltration and are hence strongly influenced by surface water quality. Due to the low water exchange rates in the Berlin region, water is thus effectively indirectly recycled from wastewater.

As a result, drinking water quality in Berlin is determined mainly by the technology installed for waste water treatment. Severe problems are caused by the slow flow of Berlin surface waters and high levels of contaminants in surface and some groundwater bodies. Maintaining a stable, high-quality supply of drinking water requires considerable investments in technology and a precautionary strategy of water resource protection. It is the responsibility of the Berlin environmental administration to safeguard a sound water management strategy. The administration reacted to the privatization plans with pre-emptive activities parallel to the privatization process: The Berlin regional water law and other legislation were changed to

⁴ Simon, J. and Bammert, U.; Letter by BWB management to the authors of this study, Berlin, 20/10/2005.

⁵ Simon, J. and Bammert, U.; Letter by BWB management to the authors of this study, Berlin, 20/10/2005.

limit the expected unwanted effects of commercialisation. For instance, a new provision was established to supply drinking water exclusively from groundwater within the Berlin area (thus preventing import of water from the surrounding Brandenburg and potential negligence of waste water treatment technology in Berlin). Furthermore, a groundwater management ordinance was adopted to ensure that groundwater levels do not rise to levels damaging existing buildings (a problem caused by lack of groundwater pumping upon closure of waterworks).

While BWB recognise these problems, the management states that both drinking water quality and wastewater treatment in Berlin are in tune with German and EU standards. Since other standards do not apply to water supply and wastewater disposal, the management currently regards further BWB activities to improve and secure surface and drinking water quality as unnecessary. Generally, the management is of the opinion that neither environmental protection nor groundwater management fall under the responsibility of BWB, with particular reference to the EU Water Framework Directive. If further improvements of surface water quality in Berlin are politically intended and require investment, the costs will have to be borne by the city, not BWB. The same line of argument is used for regulating groundwater levels.

As a result of the natural scarcity of fresh water in Berlin, bank filtrate (groundwater pumped in the immediate vicinity of rivers) is the source of two thirds of Berlin drinking water, with the remainder being abstracted from regular groundwater. Protecting the water quality of Berlin's rivers and lakes is hence of utmost importance for safeguarding a wholesome drinking water supply in the future. Since the most important input of contaminants into Berlin rivers and lakes is treated wastewater and storm water, the level of wastewater and storm water treatment is the all-decisive issue. The city of Berlin has developed a wastewater disposal plan (*Abwasserbeseitigungsplan*) that stipulates not only nutrient removal from treated sewage, but also additional treatment (e.g. hygienization, membrane filtration) of wastewater prior to its discharge into surface waters. In the past years, the respective investments for extension of wastewater coverage and upgrading and construction of wastewater treatment plants has almost entirely used up the annual minimum investment sum of € 256 million guaranteed in the privatization contract. Since BWB effectively treat this sum as the upper limit of investment, the earmarking of funds mainly for the wastewater disposal plan has caused under-investment and neglect of the water and wastewater infrastructure (see chapter 5.4.1).

Apart from existing difficulties with raw water quality, the partial privatization of BWB also offers an example of how commercial pressures tend to directly affect drinking water quality. During the years of separate water supply systems in East and West Berlin up to 1990, the water-scarce and insular Western part installed major infrastructure to make the water supply independent of the more prolific East Berlin waterworks, including several large projects for artificial groundwater infiltration at Jungfernheide, Spandau and Tegel. Much of the infiltration water is taken from Lake Tegel which receives (treated) wastewater (including hospital wastewater) via a canal from the Northern districts of (West) Berlin (Nordgraben) and a local brook (Tegeler Fliess). Due to its origins, these waters contain highly mobile and persistent chemicals (e.g. the anti-epilepsy drug Carbamazepine) which cannot entirely be removed from the infiltrated water and are thus still present in the drinking water supplied by this plant – albeit at trace concentrations. There is agreement in the water sector that everything should be done to keep chemicals with unknown health effects out of drinking water as a matter of precaution.

After re-unification of Berlin in 1990, the two water supply and sewerage systems were re-connected. Due to the abundance of water in the Eastern part, the need to heavily rely on the Lake Tegel infiltration plant ended. In fact, several groundwater works have been closed down because of lower consumption. However, BWB continue to operate the Lake Tegel plant, the largest waterworks of the city supplying several hundred thousand people with drinking water. It can be argued that BWB are supplying drinking water with trace concentrations of contaminants to a considerable part of the Berlin population while other cleaner sources are available. Both reasons for this situation are economic: as the infiltration plants built in the 1970s and 1980s are not yet fully depreciated, BWB wants to keep them functional. The other reason is the Berlin groundwater levy which was installed to protect groundwater and to prevent its over-abstraction. All

groundwater abstractions in Berlin are hence taxed with a groundwater levy of € 0.31 per cubic metre. Artificially infiltrated groundwater is however exempted from this levy as the abstracted quantities are balanced by infiltration (i.e. no net abstraction occurs). To the dismay of the Berlin environmental administration, BWB saved several million Euros in groundwater levy by supplying (trace contaminated) water from the Lake Tegel plant instead of uncontaminated groundwater from elsewhere. Finally, on demand of the environment authorities, the water quantity supplied from the Lake Tegel plant has recently been reduced.

The BWB management underlines that “drinking water quality over-achieves the demands of the (German) drinking water ordinance.”⁶ This is correct, as the quality of drinking water in Berlin is generally good to very good. It ought to be emphasised however, that the German drinking water ordinance does not attempt to regulate micro contaminants such as Carbamazepine, but instead stipulates a ‘minimisation principle’ which requires drinking water suppliers to deliver the best water possible. The removal of micro contaminants from drinking water is technically feasible, for instance by ozonisation or active carbon filtration. Such measures might substantially decrease the concentration of micro contaminants in the drinking water of several hundred thousand citizens in Berlin, but have so far been rejected by BWB because of the costs involved.

5.4.3 Prices/Fees

As one important element of the privatization contract, water and wastewater fees were agreed to remain stable until the end of 2003. By April 1st, 2004, fees were raised by 15.1 per cent. Originally, an increase of 30 per cent had been announced for this date, but withdrawn for political reasons. However, a further 5 per cent increase has been announced for 2005 followed by a 2 to 3 per cent annual increase in subsequent years. By 2008, fees are expected to have increased by 30 per cent compared to 2003. The main reason for the increase is the fixed return contractually guaranteed to RWE/Véolia. Contrary to some political rhetoric that attributes rising water fees to the contractually fixed 15 year employment guarantee, personnel costs have slightly decreased since privatization (see table below). In terms of percentage of total operating costs, costs for return on investment however have increased from 7.1 per cent in 2000 to 10.9 per cent of total operating costs in 2003, while personnel costs have remained stable (25.1 per cent in 2001, 24.7 per cent in 2003). As BWB’s financial results haven’t been sufficient in the past years to pay both the contractually fixed return on investment to the investors and an operating profit to the city, the municipality had to waive much of its income to allow RWE/Véolia’s profits to remain unaffected (see table below).

Table 5.1 Development of payments to investors compared to employment costs, 1999-2003

Year	1999	2000	2001	2002	2003
Payments to investors, as percentage of BWB total operating costs ⁷ (million Euro)	0.75 per cent (1060.1)	7.1 per cent (1139.0)	7.3 per cent (1084.1)	7.4 per cent (1053.8)	10.9 per cent (1110.4)
Personal costs as percentage of BWB total operating costs ⁸ (million Euro)	27.4 per cent (290.4)	25.1 per cent (286.0)	25.1 per cent (272.5)	25.6 per cent (270.2)	24.7 per cent (274.3)

⁶ Simon, J. and Bammert, U.; Letter by BWB management to the authors of this study, Berlin, 20/10/2005.

⁷ Operational costs defined as personal, depreciations, material, interest, taxes, and others, extraordinary costs not included. This also includes payments to investors. Extracted from BWB annual reports.

⁸ Operational costs defined as personal, depreciations, material, interest, taxes, and others, extraordinary costs not included. This also includes payments to investors. Extracted from BWB annual reports.

5.4.4 Municipal Finances

Perhaps the most striking effect of privatization is the financial outcome for the city. To start with, the value of BWB assets in 1999 was estimated to be approximately € 15.6 billion. The sum received by the city from the investors for their 49.9 per cent share was € 1.43 billion. In terms of income, the contract guarantees RWE/Véolia an annual return on investment of more than 8 per cent (based on their 49.9 per cent share). The precise interest rate is slightly flexible, being made up of the long-term public financing rate (calculated from average rates over the past 20 years) plus 2 per cent. Due to the nature of the contracts, the sum effectively received by the investors as so-called ‘partial profit deduction’ (Teilgewinnabführung) is return on investment less interest on BWB borrowed capital.

The ‘partial profit deduction’ is treated as an operating cost and deducted from BWB profits before taxes. The sum available for the city is the remaining operating profit of BWB, if any. Hence, the ‘partial profit deduction’ for RWE/Véolia automatically has priority over the municipal income. In the years from 1999 to 2003, the private investors obtained € 366.6 million, the city of Berlin € 133.2 million (relation 2.75 to 1.00, see table 5.2 below).

Table 5.2 shows that the investors obtained disproportionately high payments compared to the city of Berlin although investors and city each hold half of the shares (49.9 : 50.1 per cent). Despite this financial advantage, the investors still didn’t obtain the contractually agreed sums. In the years 1999, 2000, 2001 and 2002, the payments were below the guaranteed return on investment, in 2003 they exceeded it, yet not compensating for the under-payment in the previous years. The under-payment had summed up to € 27.3 million by the end of 2003. Full compensation for prior under-payment is sought by the investors by the end of 2008. This goal will have to be achieved at the expense of the city’s income from BWB which is expected to decline further.

In 2003, the Berlin senate changed the legislation which guaranteed the investors a fixed return on investment of $r+2$ per cent. The rate of return will now be annually set by a ruling of the Berlin Economics Senator, and was given as 6 per cent for 2004. It is most likely that as a trade-off for this change, senate and BWB agreed to lower the annual investment sums: In order to set free finances to compensate the investors for the sums under-paid until 31 December 2003, the annual investment limit is expected to be reduced from € 256 million to € 200 million by 2007 at the latest.

The Berlin Senate obviously is not considering to buy back RWE/Véolia’s 49.9 per cent share of Berliner Wasserbetriebe, a transaction the Senate estimates to cost € 2 billion. Quite possibly, the ultimate way out of this unattractive situation will be full privatisation of BWB, an option being more and more acceptable to various political actors in Berlin. Such a decision would most likely be taken during the year 2006, and is currently under intense discussion by the Berlin government and the investors. As the environmental authorities expect their influence on BWB and its infrastructure to dramatically reduce upon full privatisation, they have pre-emptively proposed a new ordinance on sewer self-control for Berliner Wasserbetriebe.

Table 5.2 Net amounts received by private investors and Land of Berlin since privatization, 1999-2003

Year	1999 (Nov/Dec only)	2000	2001	2002	2003	Sum 1999- 2003	Ratio
BWB operating							



capital (million Euro) ⁹	3.007	3.194	3.433	3.596	3.703		
Contractually fixed interest rate (return on investment, $r + 2$) ¹⁰	9.3 per cent	9.14 per cent	8.97 per cent	8.7 per cent	8.5 per cent		
Interest on BWB operating capital, I_{OC} (million Euro) ¹¹	279.6	292.0	307.9	312.9	314.8		
Interest paid on borrowed capital, I_{BC} (million Euro) ¹²	103.2	104.2	111.7	123.2	128.7		
I_{OC} minus I_{BC} (million Euro) ¹³	176.4	187.8	196.2	189.7	186.1		
Payments to RVB (RWE/Véolia Beteiligungsgesellschaft)							
49.9 per cent of I_{OC} minus I_{BC} (million Euro)	88.0	93.7	97.9	94.7	92.9		
Contractually fixed sum to be paid to investors ¹⁴	14.7 (for 2 months)	93.7	97.9	94.7	92.9	393.9	
Effectively paid to investors ¹⁵	7.9	80.8	79.5	78.1	120.5	366.6	2.75
Difference to contractually fixed amount	-7.0	-12.9	-18.4	-16.6	+27.6	-27.3	
Payments to Land of Berlin							
Payments from BWB profits (Gewinn) ¹⁶	-	38.0	-	-	107.6	145.6	
Paid/received in total ¹⁷	7.7	71.0	19.4	-81.6	116.7	133.2	1.00

⁹ „Betriebsnotwendiges Kapital“: Estimated from investments according to method laid out by Spiesshofer

¹⁰ Percentages from Senatsantwort 2003 to Lorenz enquiry, 2003. r is the average long term return of German public loans over the past 10 years.

¹¹ Calculated from rows 1 and 2

¹² G+V BWB, Position Zinsaufwand plus zinsähnliche Aufwendungen

¹³ Difference between rows 3 and 4

¹⁴ Calculation is based on principles laid out by Spießhofer, Birgit (Kanzlei Hengeler, Mueller, Weitzel, Wirtz Rechtsanwälte): “Zur gutachterlichen Stellungnahme aus rechtlicher und betriebswirtschaftlicher Sicht zu den wichtigsten Punkten des Gesetzes zur Teilprivatisierung der Berliner Wasserbetriebe und zur Änderung des Berliner Wassergesetzes, erstellt von den Rechtsanwälten Dr. Klaus-Martin Groth und Wolfgang Siederer im Auftrag von "Haus und Grund" im Februar 1999”, Berlin, 10 March 1999

¹⁵ Extracted from Berlinwasser Holding annual reports

¹⁶ Extracted from BWB annual reports

¹⁷ Extracted from Berlinwasser Holding annual reports

5.4.5 Financial Instability an Additional Burden on Consumers

Financially, the company organising water supply and wastewater collection and treatment in Berlin, BWB, a 100 per cent daughter of Berlinwasser Holding (BWH), is profitable. However, most other subsidiaries of BWH (international water business, BerliKomm, SVZ etc), generated losses which effectively swallowed returns from water sales. In May 2002, the city of Berlin (and RWE/Véolia) even had to give security for a further € 158 m each (€ 316 m in total) to prevent insolvency. A further € 140 m in cash became necessary in March 2004. In that respect, the increase in water and wastewater fees at the beginning of 2004 can be regarded as Berlin water consumers directly subsidising unprofitable business ventures. While some of the generated losses are late consequences of decisions taken prior to privatization, others must be attributed to management failures after 1999. However, since the construction of the contracts and the legislative basis of the privatization deal safeguards fixed returns for the investors, the financial consequences are solely borne by the population – either as a reduction of municipal income from BWB or via higher water and wastewater fees.

Table 5.3 Post-privatization profit and loss overview BWB and BWH 1999-2003

Profits and losses Berliner Wasserbetriebe (BWB)						
	1999	2000	2001	2002	2003	1999-2003
Profits/losses from water/wastewater operations (BWB) ¹⁸ (million Euro)	-46.6	126.4	-81.2	33.9	116.4	148.9
Carried forward to next year's account	-46.6	88.5	-81.2	33.9	0	-5.4 (31.12.2003)
Profits and losses Berlinwasser Holding (BWH)						
Year	1999	2000	2001	2002	2003	1999-2003
Total profits/losses BWH (million Euro) ¹⁹	-4.5	-118.3	-217.0	-445.3	-502.2	-1287.3

5.4.6 Internal and external employment

871 jobs out of 6,737 had already been cut in the years preceding privatization (1997-1999). Regardless of the 15 year employment guarantee – the prime condition for the public services union, ÖTV, and BWB staff council to agree to privatization – staff cuts have continued: employment was reduced by a further 475 jobs between 2000 and 2002. According to press reports, a further 1000 jobs will be cut until 2006. At the same time, BWB has internally taken on tasks formerly executed by local private firms (plumbers etc.). Together with the decrease in investment in infrastructure maintenance this has resulted in further job losses in the private sector, which are substantial but difficult to quantify. These developments have to be seen before the background of an already high unemployment rate in Berlin.

Table 5.4 Development of BWB employment 1996-2003, BWB business plan 2006

Year	31 Dec 1996	31 Dec 1999	31 Dec 2002	31 Dec 2003	2006
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¹⁸ Extracted from BWB annual reports

¹⁹ Extracted from Berlinwasser Holding annual reports

Number of employees	6,737	6,262	5,391	5,283	Planned: 4,100 ²⁰
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5.5 Summary of Case Study Episodes

The decision to privatise BWB was based mainly on two reasons: Firstly, a most severe public deficit of the Land of Berlin (which has been continuing to the present day), secondly a water sector liberalisation discourse in Germany in the 1990s which was readily taken up by key actors in Berlin such as the finance senator who had come to office in January 1996. Under her leadership, the Senate developed an aggressive programme termed ‘asset mobilisation’. Under this programme, public assets were to be sold, privatised or otherwise turned to cash in order to balance the city budget. Despite the privatization of the public gas, water and electricity companies, the city’s financial situation never improved. The senate decreed in October 1996 that BWB alone had to ‘mobilise’ at least DM 2 billion (€ 1.06 billion). All in all, the city obtained € 1.69 billion from the sale of 49.9 per cent of BWB, plus DM 1 billion (€ 0.53 billion) extracted from BWB’s capital stock prior to the sale (€ 1.63 billion in total).

During the decision-making process, different actors proposed several alternatives to privatization. The public services union (ÖTV) and BWB’s employees rejected privatization. In order to generate the DM 2 billion demanded of BWB by the finance senator, they suggested a bank loan to be taken up by BWB, paid out to the city and then re-financed from water tariffs (so-called “integration model”). Parts of ruling party CDU, the CDU economics senator and BWB’s management (also CDU) favoured a joint-stock company (*Aktiengesellschaft*, AG), with up to 75 per cent to be sold in the stock market (“conversion model”). According to this model, shares would have only been sold to non-water investors in order to exclude external utilities from acquiring shares and to retain management responsibility in Berlin. Following an offer by Eurawasser (Suez-Lyonnaise/Thyssen) for a French-style concession, there was also discussion about a long-term lease of BWB (20-25 years; “concession model”). The concession fees would have had to be financed by a credit, the costs of which would have ultimately been borne by the consumer. However, the privatization model finally applied in 1999 followed the ideas of the finance senator (who had previously been a supporter of the aforementioned concession model) and some other key actors, notably RWE and Vivendi. Several other models or modified versions of the models described above were presented by different actors during the discussion period from 1996 to 1999. New options to prevent privatization were still tabled as late as summer 1999 when the political decision had effectively been taken. For details on options see table 5.5.

5.6 Collating episodes

Table 5.1 Overview of various options considered during the decision-making process towards part privatisation of Berliner Wasserbetriebe (BWB)

Option	Description	Actors supporting	Actors opposing
Op1	"Conversion model": BWB to be converted into joint-stock company with BWB shares sold to non-water investors (banks, insurance companies, pension funds etc.)	Economics senator, parts of CDU and SPD groups	Public services union ÖTV, BWB staff council, BWB staff, Green group, PDS group
Op2	"Integration model": Merger of municipal companies (in this case, water and gas suppliers) to form a public law multi utility company; at a	Public services union ÖTV, BWB staff council, BWB staff, BWB management (minority), SPD group (majority, until sudden	CDU group (majority), SPD group (partly), finance senator, mayor, SPD group leader in parliament

²⁰ *Berliner Morgenpost*, 25 October 2003

	later stage, this was combined with a concession model for the withdrawal of capital	swing), SPD speaker for economic affairs, CDU group leader in parliament (for a while)	
Op3	"Concession model": Model based on long-term lease of BWB (20-25 years), concession fees to be financed by credit the costs of which would be born by the consumer	Suez Lyonnaise, finance senator (for a certain time)	CDU group, SPD group (majority), economics senator, public services union ÖTV, BWB staff council, BWB staff
Op4	"Consensus model": Modified version of Op 03; BWB remains public law company; investor leases and operates water and wastewater operations for a certain period of time without taking strategic decisions	Senator for city development, environment and technology, finance senator	
Op4	"Holding model": Combination of AöR (core business officially remaining public law company under city control) and holding with silent partnerships; private investors take over operations, strategic decisions cannot be taken without their consent; investors hold shares of assets as well	RWE, Vivendi, consultant F.-J. Pröpfer, CDU group (majority), SPD group (majority, after opinion swing), SPD Berlin (majority, after opinion swing), permanent secretary of economics senator	Public services union ÖTV, BWB staff council, BWB staff, Green group, PDS group

6 Participation and sustainability in decision-making

6.1 Participation

The collected data suggest that the privatization was a well-prepared and politically intended step, with indications of early involvement – albeit indirectly – of potential investors (RWE and, to a somewhat lesser extent, Suez Lyonnaise). The decision was presented to the public as an absolute necessity in the face of the city's financial difficulties. The fact that the senate had effectively spent the expected revenue from privatization while the political decision was still pending considerably increased political pressure.

All in all, the process leading to privatization of Berliner Wasserbetriebe in the 1990s must be regarded as lacking institutional participation. There was virtually no inclusive deliberation, not even in the most basic form of public information or consultation: No special websites, notice boards or information centres were set up nor were leaflets or other printed materials distributed to citizens. The administration did not organize any issue workshops, public meetings or conferences, let alone establish advisory committees or participatory integrated assessment focus groups. On the contrary, the financial administration even advised potential investors to maintain strict confidentiality about the ongoing negotiations in order not to “disquiet” the general public and BWB employees. Opposition politicians complained on various occasions that they felt excluded from important information. The only available source of information about a decision that affected every single inhabitant of the city was the media.

What may seem from abroad as an exceptionally secretive process is in fact rather the norm in the German water sector as well as wider public services policies. Even major developments, such as a change of ownership or legal form, are seldom communicated to the public, or if so, after decisions have effectively been taken. German public undertakings often still act according to the traditions of Prussian authorities, i.e. to take their decisions under exclusion of the public. Many public servants and politicians regard the public alike as an unwanted element of disturbance.

Under those circumstances, non-governmental bodies such as environment or development NGOs, unions or professional associations have an important role to play. They make public and comment on the issues that otherwise would never become known to the wider public, and effectively create openness and public accountability. This is also true in the Berlin case where, due to a large public services sector, union

influence has traditionally been high. As a result, strong political opposition had to be overcome from unions and employees, but also from within all parties in the Berlin parliament and even amongst Senate members. Although efforts to prevent privatization were not successful, new important elements were continuously added during the process to appease these opposing forces, particularly an employment guarantee for 15 years, extensive environmental standards, a guaranteed minimum investment sum and stable water and wastewater fees until the end of 2003.

6.2 Sustainability

A thorough assessment of the sustainability of the privatisation decision in Berlin's water sector is not and cannot be the prime objective of this study on decision-making processes. There is no doubt however, that this decision has created some additional problems and pressures that will last for quite some time into the future. Already in the short term, it has definitely yielded a number of detrimental effects which have been described in detail in the previous chapters. To summarize the outcome for politics, economics, social performance, technology and environment (PESTE):

- Politically, the fact that basic democratic rules of a representative democracy were ignored has certainly augmented an already widespread loss of credibility of political actors, thus contributing to a further deterioration of the political climate.
- The economic situation of the city of Berlin, which was supposed to be strengthened by privatization, has been further weakened both in the short and in the long term.
- Social costs have already started to increase due to rising water fees and the creation of additional unemployment in the private sector as a result of BWB in-sourcing.
- The technological basis of BWB has been eroding and clearly continues to erode due to severe under-investment in infrastructure. This is not only a problem in itself, but generates future financial and technological pressures in terms of infrastructure rehabilitation which will be most difficult to resolve.
- This, in turn, will inevitably lead to mid-term environmental problems as a result, for example, of leaking sewers and insufficient wastewater treatment. It should be noted that Berlin takes most of its drinking water from groundwater bodies under the city which are potentially affected by leaking sewage.

All these factors are inextricably linked. Berlin is a graphic example that profit expectations and public interest in a sound and stable water sector are very difficult to reconcile. The water sector, due mainly to its enormously costly and extensive infrastructure, hardly ever is a commercially profitable business. Too much investment capital is needed over too long periods, well beyond the planning and financing horizon of private companies. In Berlin, the specialty of a contractual obligation to generate fixed annual profits for investors exacerbates the situation. The economic pressure thus generated will continue to erode BWB's technical, environmental and social performance. In the water sector, the need to generate major profits is unsustainable in itself. It seems Berlin is no exception to that rule.

7 City in Time

7.1 A Private Episode in the 19th Century

Berlin is the most important example in Germany of early private involvement in the water sector. In 1852, the city of Berlin awarded to the British entrepreneurs and railway engineers Charles Fox and Thomas Russell Crampton the task to exclusively supply Berlin with water for 25 years (until 1881). They founded the Berlin Water Works Company as a London based joint-stock company which undertook at its own cost

the construction works until 1 July 1856. Water for flushing streets and fire fighting would have to be supplied to the city for free, but the investors were allowed to charge for private uses.

The supply system Fox and Crampton built was not intended in the first place to supply drinking water, but mainly for street cleaning and washing purposes. It distributed untreated water from the river Spree. The new water supply was not accepted by the population of Berlin, partly because of its doubtful quality, partly because many home owners refused to pay for water. Not even the administration sought connections for public buildings. By 1857, one year after the inauguration of the supply, no more than 341 houses (314 private households) had been connected, and the Berlin Water Works Company failed to be profitable. By 1862, still only 2,349 connections had been made. A few years later, the quality was improved by sand infiltration, and more households sought a connection. From about 1860, the administration and the mayor were unhappy with the services provided by the private company. Finally, after a chain of episodes, the city of Berlin acquired the Berlin Water Works Company in 1873, eight years before the intended end of the contract.

7.2 The Case of West Berlin

A little known aspect of the water history of Berlin is the development after the separation of Berlin into three Western (American, British and French, West Berlin) and an Eastern, Russian sector (East Berlin) in 1949. The majority of drinking water wells of Berlin were at that time located in the Russian sector, and 34.6 per cent of the water was 'exported' to the Western sectors. However, the Western water supply company was not willing to pay the price demanded for this water by the East Berlin authorities, and decided to disconnect the two pipe systems on Monday, 3 July 1950. From one day to another, the population of West Berlin was cut off from a secure water supply, and several districts with several hundred thousand people were supplied from tankers located on squares. Even hospitals were left without water, and had to reactivate old wells nearby. Although warned by the East Berlin authorities about potential problems of such a cut, the West Berlin waterworks believed they could supply West Berlin from their own wells. In the face of this catastrophic situation, negotiations were reopened immediately and an acceptable price soon found. Only three weeks later, on 25 July 1950, water supply from Eastern to Western sectors resumed. In the years to come, major infrastructure was installed in West Berlin to make the water supply independent of East Berlin waterworks, including a large groundwater infiltration project at Lake Tegel. The main problem with this system is that Lake Tegel receives (treated) wastewater (including hospital wastewater) via a canal from the Northern districts of (West) Berlin. Due to its origins, this water contains highly mobile and soluble chemicals which are not entirely removed from the drinking water.

After re-unification of Berlin in 1990, the two water supply and sewerage systems were re-connected, and the need to use the Lake Tegel infiltration plant ended. However, the plant is still running and still supplying (polluted) drinking water to the present day due mainly to financial reasons – the Berlin groundwater abstraction levy from which it is exempt. Table 3.4 shows a summary of the most important events related to the water supply and sanitation services of Berlin from 1852 to 2002.

Table 7.1 *Cursory overview of important dates in the history of Berlin's water sector, 1852- 2002*

1852	Contract drawn up and agreed between Berlin's Polizeipräsident (police superintendent) and the British engineers Fox and Crampton to supply the city of Berlin with running water
1853	Berlin Waterworks Company founded in London
1856*	Berlin Waterworks Company's first waterworks facility takes up operations
1873*	The city of Berlin acquires (municipalises) the Berlin Waterworks Company. A Municipal Committee on Construction is formed for Berlin's sewer system
1876	Berlin's first wastewater treatment plant takes up its operations
1878	Charlottenburger Wasserwerke AG founded. Official takeover of wastewater treatment plants
1920	The birth of modern Berlin: Greater Berlin is established by merging eight cities, 59 communities and 27 districts
1923	Reorganisation of municipal drainage facilities
1924	Berliner Städtische Wasserwerke AG (plc) founded as a public utility

1937	The public limited company "Berliner Städtische Wasserwerke" becomes an owner-operated municipal enterprise
1945	Merger of Berliner Städtische Wasserwerke and Charlottenburger Wasserwerke AG to form Berliner Wasserwerke, a public utility
1949	Division of the city of Berlin, organisational separation of Berlin's municipal water supply and sanitation
1951	Berlin municipal sanitation and Berlin waterworks in Berlin (East) combined to form Groß-Berliner Wasser- und Entwässerungswerke (the Greater Berlin Water and Wastewater Treatment Plants)
1961	Construction of Berlin Wall, and severing of water supply pipes from East to West Berlin
1962	Organisational, yet not operational merger of Berlin sewerage with the Berlin waterworks in Berlin (West)
1964	Formation of VEB Wasserversorgung und Abwasserbehandlung Berlin in Berlin (East) for the provision of water supply and sewerage services (VEB = Volkseigener Betrieb, i.e. people owned company, the main legal form of companies in the Democratic Republic of Germany)
1988	Operational merger of the Berlin waterworks and Berlin wastewater treatment plants to form Berliner Wasser-Betriebe in Berlin (West)
1990	East and West Berlin are reunified, East Berlin magistrate commissions West Berlin Wasserbetriebe to run water and wastewater services in East Berlin.
1992	Merger of Berliner Wasser-Betriebe (West) and VEB Wasserversorgung und Abwasserbehandlung Berlin (East) to become Berliner Wasserbetriebe. According to insiders this transaction was rather a take-over.
1994*	Conversion of Berliner Wasserbetriebe into an Anstalt des öffentlichen Rechts AöR, a public-law corporation
1999*	Part-privatization of Berliner Wasserbetriebe. 50.1 per cent of the shares remain in the possession of Land Berlin, 49.9 held by a consortium consisting of the French corporation Vivendi, the multi-utility company RWE and the insurance company Allianz (10 per cent)
2002	Allianz sells its shares to Vivendi and RWE who now each hold 24.95 per cent of Berlinwasser

7.3 Long-term strategic decision in the Berlin water sector since 1850

The table below lays out the most important strategic decisions concerning technology and ownership and organisation in the Berlin water history after 1850.

Table 7.2 Selected long-term strategic decisions in the Berlin water sector 1850 to present

Year	Event	Reason	Outcome	Organisational change	Stakeholders
1852	Decision by Prussian government (police superintendent) to draw up a contract with English private company to supply water to the city	Urgent need for water supply in the face of cholera outbreaks, yet no action on behalf of city administration	Waterworks facility goes into operation (1856)	Setting up a London-based private company (Berlin Waterworks Company)	<ul style="list-style-type: none"> Municipal government unwilling to invest in water infrastructure Prussian govt acting English entrepreneurs
1860	A municipal committee is set up to organise construction of a sewer system	Rising water quantities supplied to the city and use of WCs lead to overflowing gutters and high river pollution	Begin of sewer construction (1873)	Part of municipal administration, private companies are rigorously excluded from construction works	<ul style="list-style-type: none"> Municipal administration Engineers Physicians
1873	City takes over water supply system from private company, several years before contract ended	Unsatisfactory water quantity and quality supplied by company, private company unwilling to build drainage system	High price paid for private system (double the investment sum), extension and operation of water system in public hands from now on (until 1999)	From private management to management by public administration	<ul style="list-style-type: none"> Municipal govt German government (emperor) facilitating early cessation of contract
1874	Decision to spread cross-border on irrigation fields	The slow flowing rivers of Berlin did not allow direct discharge of cross-border (this had been experienced for a decade)	Purchase of extensive agricultural land and establishment of large irrigation fields (8400 hectares in 1920)		<ul style="list-style-type: none"> Municipal administration Engineers Hygienists Physicians
1901	Decision to change water source from lakes to groundwater	Pollution of lakes by cross-border disposal	Berlin drinking water taken almost entirely from groundwater (by 1910)		<ul style="list-style-type: none"> Municipal administration
1928	Decision to change from irrigation fields to cross-border treatment plants	Economic costs and surface area required made irrigation fields unfeasible	Two major treatment plants (activated sludge) had been completed by 1935		<ul style="list-style-type: none"> Municipal administration



1949	Decision to separate both water as well as cross-border operations in East and West Berlin	Separation of Germany and Berlin in two independent countries	Physical separation of drinking water supply completed in 1954; sewer system only partly separated		<ul style="list-style-type: none"> • Municipal governments of East and West Berlin • Allied (US, UK, F, SU) administrations
1988	Merger between water and cross-border branch in West Berlin	Synergies and joint responsibility for entire water cycle	New municipal utility with 3,250 employees (1990)	Combination of water and cross-border services	City council, Gas and waterworks,
1990	Decision to reunify water activities in East and West Berlin	Economic and political reasons	Joint municipal utility by 01.01.1992 (7,300 employees): BWB	Merger of two hitherto independent water and cross-border units in East and West	<ul style="list-style-type: none"> • Municipal government (Senate)
1994	Change of legal form to private law public company (AdöR)	More operational independence of government, scope to enter international water business	Major investment in mostly unprofitable companies	Change of legal form	<ul style="list-style-type: none"> • Municipal government (Senate) • BWB management • Berlin parliament
1999	Part privatisation with RWE/Véolia as partners	City needed money for budget deficit, ideological reasons	Financially troubled water undertaking of doubtful water service performance	Full private management, sale of 49.9 per cent of assets	<ul style="list-style-type: none"> • Municipal government • Parliament • MNCs • Consultants

Sources:

1. Bärthel, Hilmar: Geklärt! 125 Jahre Berliner Stadtentwässerung. Berlin 2003.
2. Bärthel, Hilmar, Berliner Wasserbetriebe (eds.): Wasser für Berlin. Berlin 1997.
3. Schramm, Engelbert: Private or public sponsorship of water infrastructure in the 19th century. Presentation at University of Graz, Austria, 2004.
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8 Annexes

Annex A: Water and Wastewater system profile Berlin

All data in the tables below should be based on the year 2002, or where relevant on the 31/12/2002.

DATA	CONCEPT
SERVICE DATA (in 2002, as of 31/12/2002 where relevant)	
Type of water supply system <ul style="list-style-type: none"> • Bulk water supply • Direct distribution - yes • Bulk supply and direct distribution 	One single choice can be replied as “yes”
Type of wastewater system <ul style="list-style-type: none"> • Collection • Treatment • Collection and treatment - yes 	One single choice can be replied as “yes”
Population (no) <ul style="list-style-type: none"> ▪ Water supply - 3.4 Mio. ▪ Wastewater - 3.4 Mio 	Resident population within the service area
Population served (no) <ul style="list-style-type: none"> ▪ Water supply - 3.38 Mio. ▪ Wastewater - 3.38 Mio. 	Size of resident population directly served within the service area
Supply area (km ²) <ul style="list-style-type: none"> ▪ Water supply - 902 ▪ Wastewater – 902 	Area that can or is intended to be served by the network

PHYSICAL ASSETS SACHANLAGEN	
WATER RESOURCES (in 2002, as of 31/12/2002 where relevant)	
Annual abstraction capacity (m ³ /a) Q₃₆₅ = 251.000.000 (9 waterworks)	Maximum yearly allowance of water abstraction for water supply, based on the availability of raw water resources under normal climatic conditions (i.e. the value used in design and abstraction licence if any) Q_{max} = 400 Mio. m³
Daily abstraction capacity (m ³ /d) Q_d = 1.181.000	Maximum daily allowance of water abstraction for water supply, ditto 1.400.000 m ³ /d
Reliable annual yield of sources (m ³ /a) 251.000.000	Estimated annual reliable yield of water resources under adverse (drought) conditions (i.e. the value used in supply/demand balance evaluation) – not applicable
Reliable daily yield of sources (m ³ /d) = 1.181.000	Estimated annual reliable ditto – not applicable
IMPOUNDING RESERVOIR STORAGE (in 2002, as of 31/12/2002 where relevant)	
▪ Number (no) - none	Number of impounding reservoirs
▪ Total capacity (m ³) - none	Volume of impounding reservoirs that can be used for water supply
WATER TREATMENT PLANTS (in 2002, as of 31/12/2002 where relevant)	
▪ Number (no) – none	Number of treatment plants
▪ Number (no) - 9	Number of extraction plants (water works)
▪ No treatment (m ³ /d)	Water delivered to users without any treatment
▪ No water treatment necessary	
▪ Disinfection only (m ³ /d)	Water delivered to users with disinfection only
▪ No disinfection necessary	



<ul style="list-style-type: none"> ▪ Conventional treatment (m³/d) ▪ Removal of solved iron an manganese - 588.800 m³/d 	Water delivered to users from conventional treatment plants
<ul style="list-style-type: none"> ▪ Advanced treatment (m³/d) ▪ No advanced treatment necessary 	Water delivered to users from advanced treatment plants
WASTEWATER TREATMENT PLANTS (in 2002, as of 31/12/2002 where relevant)	
<ul style="list-style-type: none"> ▪ Number (no) - 7 	Number of ww-treatment plants
<ul style="list-style-type: none"> ▪ No treatment (m³/d) - 0 	Wastewater disposed without any treatment
<ul style="list-style-type: none"> ▪ Mechanical treatment (m³/d) - 680.000 (100per cent) 	Wastewater disposed after mechanical treatment
<ul style="list-style-type: none"> ▪ Conventional treatment (m³/d) - 680.000 (100per cent) 	Wastewater treated with conventional systems
<ul style="list-style-type: none"> ▪ Advanced treatment (m³/d) - 680.000 (100per cent) 	Wastewater treated with advanced systems

PHYSICAL ASSETS (2002)	
TRANSMISSION AND STORAGE TANKS/SERVICE RESERVOIRS (2002) GETRIEBE-	
<ul style="list-style-type: none"> ▪ Number (no) – 11 	Number of transmission and distribution storage tanks (customer storage excluded)
<ul style="list-style-type: none"> ▪ Total capacity (m³) – 590.000 	Volume of transmission and distribution storage tanks (customer storage excluded)
PUMPING STATIONS (WATER SUPPLY) (2002) PUMPENDE STATIONEN (WASSERVERSORGUNG) (2002)	
<ul style="list-style-type: none"> ▪ Number (no) - 8 	Number of pumping stations of the transmission and distribution system (customer pumping systems excluded)
<ul style="list-style-type: none"> ▪ Total capacity (kW) - 4.300 	Total nominal power of the transmission and distribution system pumps (customer pumping systems excluded)
PUMPING STATIONS (WASTEWATER AND STORMWATER) (2002) PUMPENDE STATIONEN (ABWASSER UND STORMWATER) (2002)	
<ul style="list-style-type: none"> ▪ Number (no) - 181 (thereof 146 owned and 35 operation management) 	Number of pumping stations of the ww-collection system (customer pumping systems excluded)
<ul style="list-style-type: none"> ▪ Total capacity (kW) – not known 	Total nominal power of the ww-collection system pumps (customer pumping systems excluded)
TRANSMISSION AND DISTRIBUTION NETWORK (2002)	
Mains lengths (km) - 7.802	Transmission and distribution mains length (service connections excluded)
SEWERAGE NETWORK (2002)	
Mains lengths (km) - 9.116	Wastewater and storm water sewer mains length (service connections excluded)
SERVICE CONNECTIONS (WATER SUPPLY) (2002)	
Total number of service connections (no) - 247.910	Number of service connections
Total number of metered service connections (no) – 247.910	Number of metered service connections
SERVICE CONNECTIONS (WASTEWATER) (2002)	
Total number of ww-service connections (no) - 218.927	Number of ww-service connections

CONSUMPTION (2002)	
Daily average input (m ³ /d)	Annual input of the transmission system / 65
Total per capita consumption (l/capita/day) - 121 l/d	(Daily average input – exported water) / population served /



	65
TREATED WASTEWATER (2002)	
Daily average treated wastewater (m ³ /d) - 680.000	(Annual treated wastewater – imported wastewater – exported wastewater) / 65
Total per capita treated wastewater (m ³ /d) 100 per cent	Daily average treated wastewater / population served

CUSTOMER SERVICE (2002)	
Existence of system to record all customer complaints (yes, several systems did exist, depending on nature of complaint)	Existence of registers that record total number of verbal and written customer complaints, enabling nature of complaints to be determined by scrutinising individual entries
Existence of formalised system to record all customer complaints for service quality monitoring and assets management purposes (yes)	Existence of customer complaints recording and data processing system that is used for resolving customer complaints, monitoring of service quality and performance and assets management planning
Existence of a guaranteed standards scheme (yes)	Existence of guaranteed standards scheme that establishes the rights of customers, including at least: minimum service pressure at the delivery point; maximum time to get a new connection and to repair an existing one; maximum time of written responses; appointment times to attend customers' premises

PHYSICAL ASSETS

FINANCIAL INFORMATION (for 2002, as of 31/12/2002 where relevant)		2002
OPERATING REVENUES		
Sales revenues (EUR/a)		966,114,544.88
Work in progress (EUR/a)		-53,905.01
Capitalised costs of self-constructed assets (EUR/a)	The summation of the amounts in each of the below mentioned cost categories that have been incurred in the construction of new or rehabilitated assets.	63,134,188.13
Other operating revenues (EUR/a)		85,182,457.75
TOTAL OPERATING REVENUES (EUR/a)	The summation of the above mentioned amounts	1,114,377,285.75
FINANCIAL INFORMATION (for 2002, as of 31/12/2002 where relevant)		
OPERATING COSTS		
OPERATIONAL COSTS		
Imported (raw and treated) water costs (EUR/a)	BULK SUPPLY IMPORTS: total payments, for imported bulk supplies (imported raw water and/or imported treated water).	380,483.01
Energy costs (EUR/a)	POWER: all energy costs for water supply – electricity and fuel for motive machinery.	27,297,085.33
External services costs (EUR/a)	OUTSOURCING: outsourcing of technical or administrative services, such as consultants, contractors undertaking, operational tasks, meter reading and accounting fees.	0.00
	SOFTWARE LICENCES AND TECHNICAL SUPPORT: license fees on computer software and technical support by software companies.	21,495,397.49



	ASSOCIATED COMPANIES: costs of associated companies not included in other items.	28,827,998.54
	THIRD PARTY SERVICES: operating costs of providing water services to third parties (other than the regulated water supply function) that are not included in other items.	118,893,250.38
Leasing and rentals costs (EUR/a)	Payments for leasing or renting premises, vehicles, mobile and fixed plant and equipment.	15,434,497.70
Purchases of consumables and other materials for maintenance and repair (EUR/a)	MATERIALS AND CONSUMABLES: all materials and consumables other than energy, that are not in HIRED AND CONTRACTED SERVICES and which are required for operation of sources, treatment plants, transmission and distribution systems.	16,325,035.30
Taxes, levies and fees (EUR/a)	Any operating license paid to a governmental or municipal authority, abstraction charges, local authority rates.	76,130,399.55
Exceptional earnings and losses (EUR/a)	Any exceptional income or expenditure from donations, investment subsidies, compensations or adjustments related to sales / writing off of fixed assets.	85,650,893.16
Other operating expenditures (EUR/a)	OTHER DIRECT COSTS: any other operating costs (but excluding interest and taxation, on an aggregated basis).	60,865,303.03
	GENERAL AND SUPPORT EXPENDITURES: the aggregate direct cost of GENERAL AND SUPPORT ACTIVITIES (manpower costs excluded) (see section .2 for definitions).	316,307.85
	CUSTOMER SERVICES: costs directly associated with customer services that are not included in previous items, related to customer accounting, reading of meters, debt recovery, costs of disconnections, customers' enquiries and complaints handling.	0.00
	SCIENTIFIC SERVICES: costs directly associated with scientific and laboratory services and with the monitoring of quality that are not included in previous items.	0.00
	OTHER BUSINESS ACTIVITIES: costs directly associated with other business activities that are not included in previous items, except for cost depreciation.	0.00
	DOUBTFUL DEBTS: charge/credit to the profit and loss account for bad and doubtful debts.	5,397,451.99
INTERNAL MANPOWER COSTS (EUR/a)	EMPLOYMENT COSTS: the sum of the total manpower costs of permanent and temporary personnel, including employment-related social costs and benefits paid by the employer.	270,234,404.05
TOTAL OPERATING COSTS (EUR/a)	The summation of the above mentioned amounts	727,248,507.38
FINANCIAL INFORMATION (for 2002, as of 31/12/2002 where relevant)		
DEPRECIATIONS (EUR/a) Depreciation (referred to the book values)	COST DEPRECIATION: cost depreciation charge on tangible fixed assets	204,446,155.57
	AMORTISATION OF INTANGIBLE ASSETS: any amortizations or other reduction in the balance sheet valuation of intangible assets, such as goodwill.	8,020,941.41
	THIRD PARTY SERVICES: cost depreciation on assets relating to third party services, together with any infrastructure renewal charge for infrastructure assets relating to third party services.	
E.B.I.T. = O.I. (EUR/a)	Operating income = Earnings before interests and	174,661,681.39



	taxes	
NET INTEREST (EUR/a)	NET INTEREST: Net cost of short, medium and long-term loan capital (INTEREST EXPENSES – INTEREST INCOME).	-110,592,676.90
E.B.T. = G.I. (EUR/a)	Gross Income = Earnings before taxes	64,069,004.49
TAXES (EUR/a)	All taxes and levies on gross income related to water supply activities. <i>Tax costs and levies strictly connected with plants operation (such as sewerage charges on treatment wastes, charges for water abstraction, pipeline and concession charges, environmental levies, water control authority charge etc) have to be regarded as operational costs and included in TAXES, LEVIES and FEES (Running costs)</i>	-1,326,711.77
NET INCOME	Earnings after interests and taxes	65,395,716.26
FINANCIAL INFORMATION (for 2002, as of 31/12/2002 where relevant)		
INVESTEMENTS (for 2002, as of 31/12/2002 where relevant)		
Average investment	Cost of the investments over the last three years /	318,738,044.00

The tariff system is briefly described.

TARIFF SYSTEM (2002)	
Kind of tariff applied	Fixed price per m ³
Average supply water tariff for direct residential consumption (EUR/ m ³) – 1.764	Average tariff, excluding public taxes
Average wastewater tariff for direct residential consumption (EUR/ m ³)	Average tariff, excluding public taxes
Total average water charges for direct consumption (EUR/ m ³)	Annual water sales revenue from residential, commercial, industrial, public, institutional and other customers (exported water excluded; public water taxes excluded) / (total annual authorized – exported water)



PERSONNEL	
Total personnel – 5.123	Number of full time equivalent employees
Management and support personnel - 586	Number of full time equivalent employees dedicated to administration, strategic planning, legal affairs, personnel, public relations, quality management and other supporting activities
Financial and commercial personnel - 185	Number of full time equivalent employees working in financial and commercial activities
Customer service personnel - 453	Number of full time equivalent employees working in customer service activities
Technical services personnel - 3899	Number of full time equivalent employees working in technical services
Salary average (EUR/year) per category See table below	Euro per year per each of the above categories

PERSONNEL	Salary average (EUR/year) per category
	EUR
Total personnel	251.808.446
Management and support personnel	30.105.056
Financial and commercial personnel	9.307.878
Customer service personnel	21.547.184
Technical services personnel	190.848.329
total	251.808.447