Water Privatisation

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0. Abstract

The article examines the expansion of private water companies since 1989 the withdrawal from developing countries from 2003 onwards, and the economic impact of privatisation. The analysis is set in the context of the historical development of water services in the north and the south, showing that the role of private water companies since the start of the 20th century has been historically limited and exceptional. The impact of water privatisation is considered in relation to the issues of investment, prices, and efficiency, drawing on empirical evidence from the north and developing countries in Asia, Africa and Latin America. Particular attention is given to France and the UK, where private water companies, for different reasons, are most established. The evidence from both north and south shows systematic underinvestment, monopoly pricing, regulatory gaming, and no significant efficiency differences between public and private sector operators. In conclusion, the article identifies institutional policies including fiscal constraints and lending conditionalities as key drivers of privatisation, and questions whether these can sustain privatisation in the water sector where historical experience indicates it is an inappropriate solution.

1. Introduction[1]

The introduction of private companies into water and sanitation services over the last 20 years has provoked considerable political, social and academic debate. It has involved major multinational companies and international institutions, consumers, trade unions and social movements. This experience and debate has taken place in nearly all countries, both north and south.

This article locates the recent trends in the historical context of the development of public water services in the 19th and 20th century. It then examines the evidence on economic features of the recent privatisations, in terms of investment, prices and efficiency. It then discusses the conclusions that can be drawn from this experience, and argues that these mirror the conclusions drawn in the development of public water services a century ago.

This article is constructed in five main sections, followed by a conclusion.

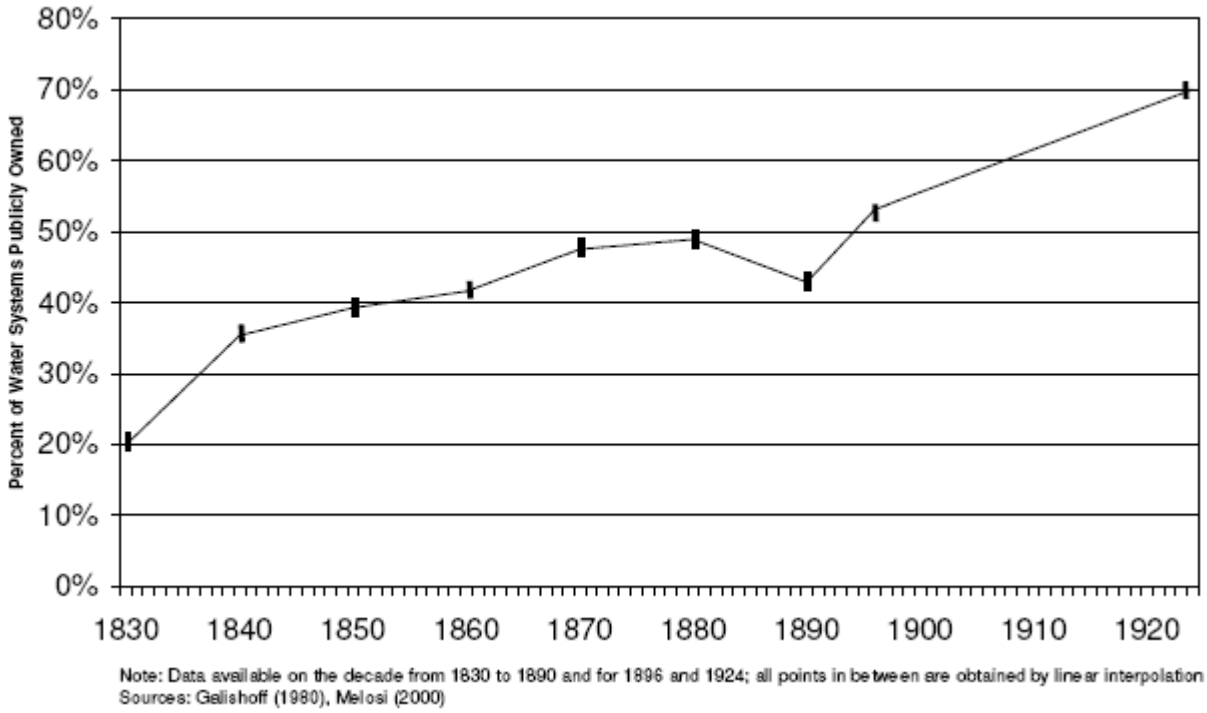
- It discusses the historical development of the role of the private and public sector in water
- It provides an account of the development of private water companies from the 1980s, and the institutional and political context in which this took place.
- It assesses what private water companies have contributed to investment in extending access to water and sanitation systems
- It considers evidence on whether private water companies extract monopoly profits
- It reviews evidence on whether private water companies are more efficient than public water companies.
- The conclusion then draws parallels between the experience of the last 20 years and the factors that led to the growth of the public sector a century ago.

2. History: the dominance of the public sector

The history of the development of water and sanitation systems in the high income countries of the north shows a common pattern. In Europe, urban water systems began developing in 17th or 18th centuries as a limited service to affluent customers and as a public assistance for fire control. As cities grew in the 19th centuries, the demand for water consumption grew and the public health issues became more acute. While the initial systems were usually started by private companies, during the 19th century the utilities were fairly soon taken over by municipalities in nearly all European countries, including the UK. Only in France did the old 19th century private operators survive, which is why the only large water companies in the world are French: Suez (formerly Lyonnaise des Eaux) and Veolia (earlier Vivendi and the Compagnie Générale des Eaux) since 1853.

Municipalisation was seen as a way to overcome the systemic inefficiencies of the private contractors: "During the 19th century, the previously private systems came under public ownership and public provision because of the inefficiency, costs and corruption connected to them…. Democratically elected city councils bought existing utilities and transport systems and set up new ones of their own. This resulted in more effective control, higher employment, and greater benefits to the local people. Councils also gained the right to borrow money to invest in the development of their own systems". (Juuti and Katko 2005). This was linked to the growth of municipal socialism (or 'gas and water socialism'), which saw the public sector as a mechanism to fulfil a set of economic and political objectives - economic development, public health and improvement of social conditions for the urban poor. Public finance mechanisms were similarly central to the development of water systems in the USA. Up to the 1880s most American cities had water and sanitation systems which were inadequate in terms of public health, fire risk and social and economic development. By the 1930s the majority of cities had developed comprehensive and reliable systems, largely under municipal control. The municipalities developed financial mechanisms, superior to the private sector, including borrowing long-term money from local savers, at low interest rates because of the security of their flow of income from taxes. (Melosi 2000; Cutler and Miller 2005)

Chart A. Public ownership of water systems in USA cities 1830-1924



Source: Cutler and Miller 2005

Despite the dominant role of municipalities, central governments have also played a significant role in financing water systems. This has sometimes involved paying directly for the water supply service, so that there is virtually no role for charges (e.g. Ireland); distributing some part of central tax revenue to support local authority spending on water and other services (e.g. Canada); providing cheap loan finance for local authorities to use for capital investment (e.g. USA); or collecting part of water charges centrally and redistributing it to authorities which need to invest (e.g. France). In Europe, the EU itself plays a major role in public financing of water systems in poorer states, and through low interest loans from its public sector development instrument, the European Investment Bank. France and the UK are the only two OECD countries whose water operations are now mostly run by private companies. However, in both countries the cost of extending water and sanitation networks has been met through public finance mechanisms. The case of France is of special interest as it is the home country of the major private water companies, which have operated since the mid-19th century. Despite this, their contribution to investment for extension of the system has been negligible, and the development of the system in France has depended on public authorities using

taxation and cross-subsidies. In the 19th century the private companies were given concessions for providing a water supply to public taps and fountains. However, there was no universal service obligation on the companies to provide piped water concessions to every household, and so the companies could be selective about who they chose to serve. By 1900, only 2% of French households had direct connections, and the municipalities were unable to accelerate development through the private companies. In order to provide a universal service, municipalities had to finance investment themselves. By the end of the 1930s, 32 million people were supplied with tap water, supported by public finance rather than operating surplus: "Urban local authorities financed the development of the public service themselves" (Pezon 2007) In the 1950s, a similar solution was used to finance connection in rural areas. The National Fund for Rural Water Supply (FNDAE) was created in 1954 in order to finance the cost of connecting these households, by levying a tax per cubic metre of water on all water supplied in France. The money was then distributed to rural communes to finance the necessary investments in constructing new networks and connections. The extensions of the system in rural France were thus financed through a massive cross-subsidy from households and businesses already connected to the system. By the mid-1990s the rural connection rate had reached over 95%. (Reynaud 2006)

Table 1. Types of water system and connections to the system in France

		Dominant type of operator	Investment	Operation	Connection at start of period	Connection at end of period
Period A	1848-1900	Concession	Private	Private	0%	2%
Period B	1900-1970	Régie (municipal)	Public	Public	2%	90%
Period C	1970- present	Affermage	Public	Private	90%	-

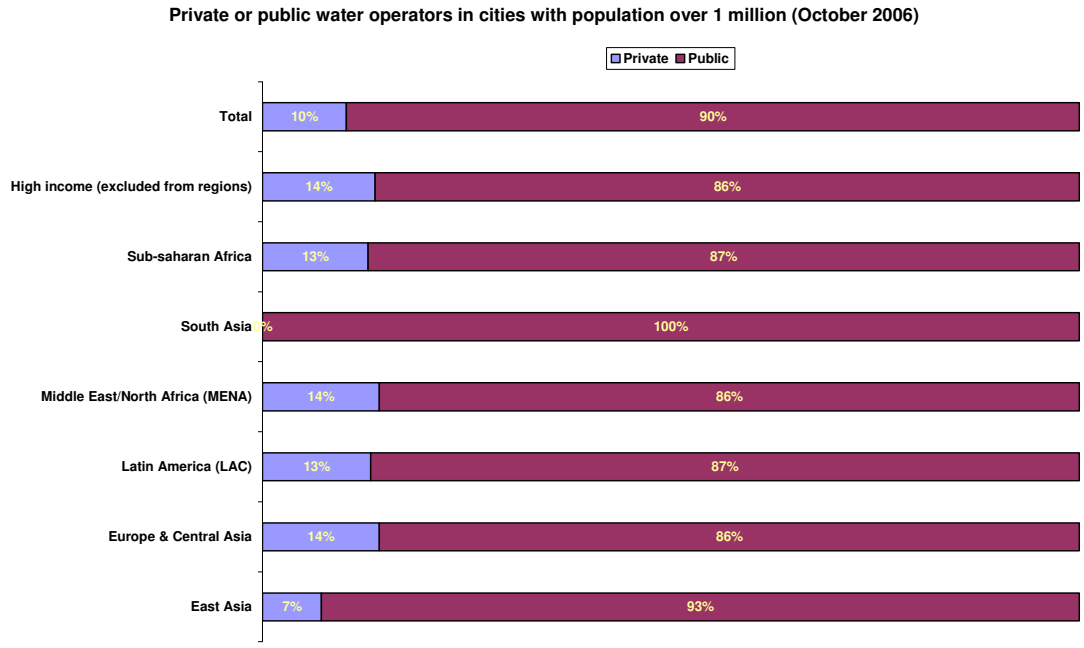
Source: Based on C. Pezon (2003)

Water supply in developing countries has a different history. In the colonial period, whilst the imperial countries were extending public networks in European cities, water supply in the colonies was focused on a colonial elite. These elite systems left a physical legacy of incomplete networks. (Gandy 2004, Nilsson 2006) Colonialism also left a socio-economic legacy of more unequal societies, which both makes the problem more acute and makes the requirement for redistributive public finance greater. After independence, it was possible to start developing the physical and social infrastructure of public services for all. The commitment to water supply and other public services was thus closely associated with the process of building independent states with political accountability to their citizens for the first time.

In many developing countries central government has played a greater role in the water systems than in the north. Driven by independence rather than industrialisation, these countries had neither strong municipalities nor a strong local middle class, and so central state ownership of water providers is more common than in the north. In Sri Lanka, a country with an excellent developmental record on health and education, water has been primarily the responsibility of a central government parastatal. In a number of countries, including Uganda and Honduras, central government has retained ownership of the capital city's water operation, which has then be used as an agency to support development of municipal services elsewhere. In Argentina, the extensions of water systems throughout the country were carried out by a central government water agency. But development in non-industrialised countries has continued to be strongly affected by the economic and political demands of international agencies and donors, and water services are a clear example of this. The IMF and World Bank conditions of the early 1990s nevertheless insisted on making municipalities responsible for services, facilitating the break up and privatisation of Argentina's previously national system: there have been continuing pressures on Sri Lanka to do likewise (Castro 2004; Mycoo 2005).

Despite the expansion of the 1990s, water supply services remain overwhelmingly dominated by the public sector. Around 90% of the 400 largest cities in the world, with populations of over 1 million, are served through public sector operators. The proportion is around 85% for these largest cities in high income countries, including western Europe and north America: some estimates for the water sector in Europe offer a figure as low as 55%, but only by treating as 'private' cooperatives and operators controlled by the public sector but with some minority private shareholding. (Hall and Lobina 2007a; Euromarket 2004). In Africa and Latin America the proportion is also around 85%, while in south and east Asia it is over 90%.

Chart B. Public and private ownership of water operators, major cities (2006)



Source: Hall and Lobina 2007a

3. Water companies

The history makes clear that by the 1980s the great majority of water supply and sanitation networks in the world were in the public sector. Private sector activity in water and sanitation services fell into three different categories, all of which can be characterised as residual.

Firstly, the French water companies, which had survived waves of municipal expansion and nationalisation. By the end of the 1980s they had grown to dominate the provision of water services in France, with major public works construction divisions, and developing increasingly strong positions in other public services including waste management, heating and energy services, and healthcare. (Barraque 1995, Pezon 2006). No other country had any companies comparable to this French group - the remaining Spanish and Italian private water companies were partly owned by the French companies - until the privatisation of the English and Welsh companies in 1989. This was a political decision by the Thatcher government, made possible because England and Wales, uniquely in Western Europe, had restructured its water sector 15 years earlier, so that all municipal operations had been merged into a small number of state-owned regional companies. All the expansion in privatisation in the 1990s involved this small group of French companies, and, to a much smaller extent, some of the English companies.

Secondly, some independent private companies also survived municipalisations, but represented only 10-15% of the sector, in countries such as Germany, the UK, and the USA, typically regulated with a low but secure rate of return. None of these expanded in the 1990s, although a number of them were taken over by expanding multinationals.

Thirdly, in developing countries, large numbers of small street vendors and kiosk operators, who supplied water to those without connections or access to a public piped water service. These vendors thus operate in markets which are defined by the failure of public water services, and they continue to play a large part in selling water to those without a reliable public supply.

3.1. Expansion

Two political factors were important drivers of the subsequent expansion of water privatisation. The first was the ideological change of the 1980s, symbolised by the privatisation of water in the UK, demonstrating that it

was both possible and potentially profitable to privatise water. The second was the strategy adopted by the World Bank and donor agencies to promote water systems in developing countries through privatisation. This was expected to deliver finance for investments, efficiency improvements, and better governance than they believed possible through the public sector in developing countries. It was expected that multinational companies would be attracted by a large new profitable market, and that the process would be welcomed by populations disillusioned with the corruption and inefficiency which the World Bank associated with the public sector. It was so central to donor policies that a World Bank official told an international conference in 2000 that 'there is no alternative' to privatisation.

The expansion of the private companies in the 1990s was global in scope, and from 1990 up to 2003 the global share of private water operations grew at a considerable pace, though still remaining a small minority. The attempts at expansion into north America andother west European countries had little success except in the two countries where the French multinationals were already established – Spain and Italy – and to a limited extent in the USA. In Germany for example the private companies were only able to win a few concessions in former east German towns such as Rostock and Potsdam, apart from Berlin itself. Expansion in developing countries was initially far more successful, but has also been reversed since 2002 in the wake of political opposition and failure to make economic returns. The most sustained expansion took place in the former communist countries of central and eastern Europe, where over 35 major cities or regions remained in the hands of the multinationals at the end of 2007. (Hall and Lobina 2007b)

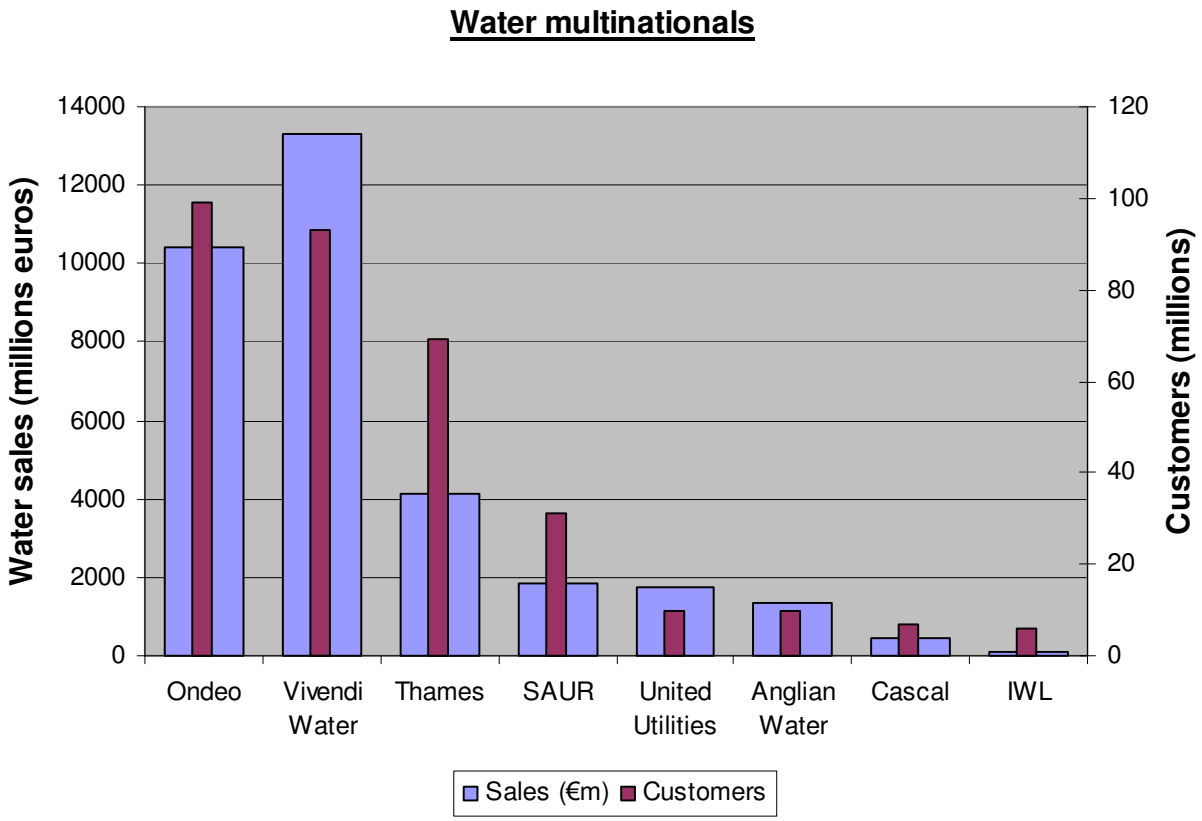
The French companies dominated this expansion. At the peak of water privatisation in around 2002, Suez (whose water division has also been known as Ondeo, and originally as Lyonnaise des Eaux) and Veolia (previously part of Vivendi, and originally known as Generale des Eaux) shared 60% of the 320m customers served by multinationals. (Hall and Lobina 2007b). SAUR was also involved, especially in Africa and Europe. Part of their expansion involved takeovers of English companies, mainly the smaller ones. In Latin America, Suez used its Spanish affiliate Aguas de Barcelona as a lead partner; Veolia used a similar approach, first buying a half stake in the Spanish group FCC, and then setting up a joint venture, Proactiva, to pursue water opportunities in Latin America.

Most of the English and Welsh companies attempted to expand internationally, including Hyder, Severn Trent, Anglian, Yorkshire, Thames, and United Utilities – the latter initially in partnership with Bechtel, the large USA construction company. By 2006 all of these had retreated, except for United Utilities. A privately owned British construction company, Biwater, bought a small English water company and sought international business. Two energy multinationals attempted to enter the market, both of which did so by buying English water companies. The USA group Enron bought Wessex Water, formed a water division Azurix, which failed; the German energy group RWE bought Thames Water, which became the third largest water company in the world, before selling its international operations and then being sold by RWE to an Australian finance group, Macquarie.

One consequence of the dominance of the public sector was that the private companies were not growing by competing amongst themselves. The growth had to come by making inroads into the services provided by the public sector, and the great majority of public sector operators did not seek to compete with the private companies by expanding. Moreover, the total number of private companies seeking to grow was very small, thus forming a de facto oligopoly, which often formed joint ventures with each other. This was reinforced by the fact that the existing companies were protected against new entrants by the length of their existing concessions, lasting 25 or 30 years and in some cases much longer.

Since the target market was in the public sector, political decisions were necessary to enable private companies to expand in the sector. It was thus unsurprising that the companies' growth in all continents was characterised by close relationships with development banks – especially the World Bank – donors and politicians. For the French companies, this was an extension of their intense, and sometimes corrupt, relationships with politicians which had facilitated their own survival and growth in France. (Hall and Lobina 2007b)

Chart C. Multinational water companies in 2002



Source: Hall and Lobina 2007b

3.2. Problems

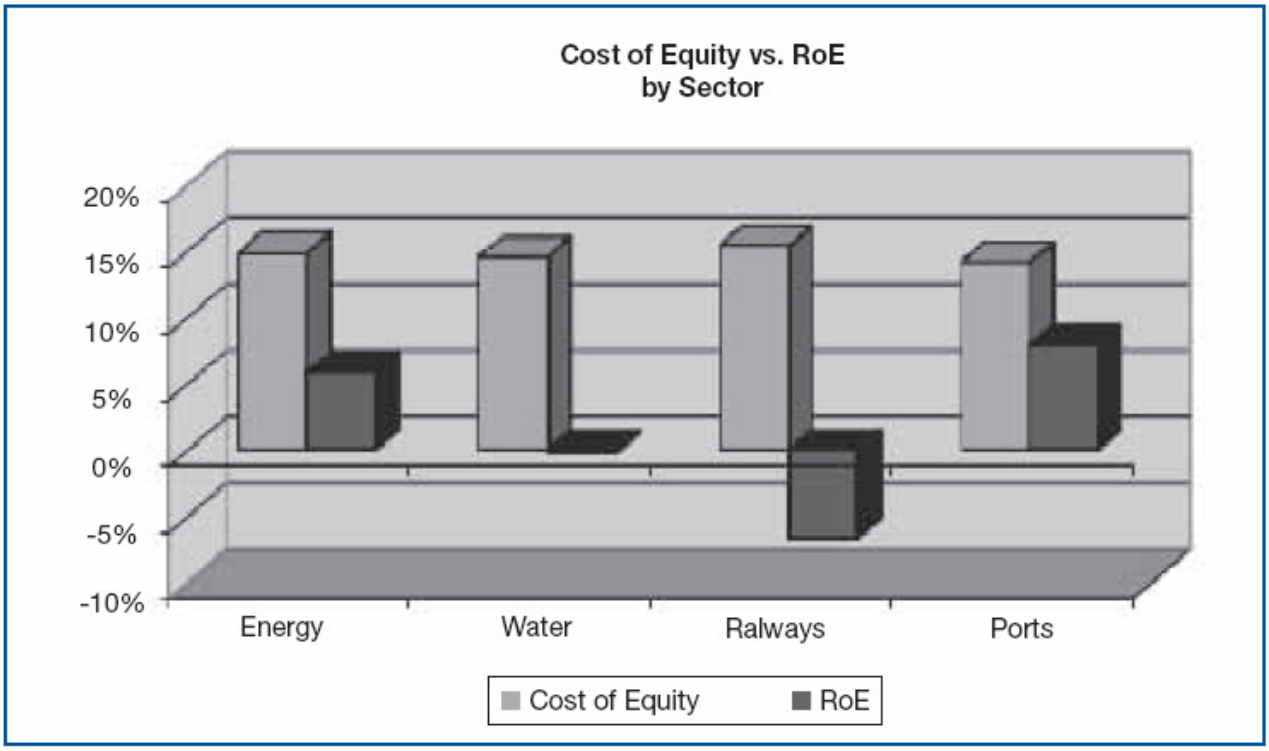
Since 2002 all the multinational groups with water divisions have been seeking to leave or reduce their stake in the water sector. This trend is visible worldwide, as companies withdraw from developing countries, and as private companies are sold to new owners, often financial groups. Three reasons can be identified for this withdrawal.

Firstly, and fundamentally, the multinationals failed in general to make an acceptable return for their shareholders. Suez issued a statement in January 2003 stating that it was withdrawing from developing countries, and would not in future invest in any operation which was not both self-financing and delivered an acceptable return, free of currency risk: "Suez' exposure to emerging countries, as measured by capital employed, is expected to be reduced by close to one third". The problems included currency devaluations, economic crises, over-optimistic projections, and public resistance to price rises. But they also included the same problems which the companies had encountered a century before in Europe and north America, namely the impossibility of making profitable investment in extensions and improvements for poor households who were unable to pay the full cost of water supplied, without substantial public subsidy. A selective service could be profitable, but not a universal service. The point was succinctly made in December 1999 by the manager of a UK water company Biwater, which pulled out of a major water supply project in Zimbabwe, because the project could not deliver the required rate of return: "*Investors need to be convinced that they will get reasonable returns. The issues we consider include who the end users are and whether they are able to afford the water tariffs. From a social point of view, these kinds of projects are viable but unfortunately from a private sector point of view they are not*". (Zimbabwe Independent 10/12/1999)

The problem was specified in general form by J.F. Talbot, the chief executive of SAUR, the fourth largest water company in the world, speaking to the World Bank in 2002. He referred to the huge scale of the

needs, acknowledged that the extension of water supply was necessary for sustainable development, but openly asked *"is it a good and attractive business?"*. He rejected the assumption that the private sector could raise funds on the necessary scale, criticising: *"An often premature or simply unrealistic emphasis on concession contracts and full divestiture…A belief that any business must be good business and that the private sector has unlimited funds….The scale of the need far out-reaches the financial and risk taking capacities of the private sector."* He warned that tighter contracts and regulation make things worse from a business perspective: the general increase in risk was made worse by: *"Unreasonable contractual constraints ….Unreasonable Regulator power and involvement"*. And there was also *"An emphasis on unrealistic service levels …Attempts to apply European standards in developing countries ….The demand for "connections for all" in developing countries"*. Finally, he rejected the possibility of cost recovery from users: *"water pays for water is no longer realistic in developing countries: Even Europe and the US subsidise services….Service users can't pay for the level of investments required, not for social projects…"* The solutions to these problems, in his view, was for public sector subsidies, soft loans and guarantees, without which the multinationals would withdraw: *"substantial grants and soft loans are unavoidable to meet required investment levels… The considerable dependence of the growth of the water sector in the developing world on soft funding and subsidies" . If it does not happen the international water companies will end up being forced to stay at home"* (Talbot 2002)

Chart D. Returns on infrastructure investment in developing countries



Source: Estache at al 2004[20]

Source: Estache and Pinglo 2004

Secondly, there has been a remarkable degree of public and political opposition to water privatisation. This has been visible in campaigns globally, in both north and south. The opposition includes trade unions, environmentalists, consumer groups, citizens' organisations, elected politicians and other groups. A common theme of opposition campaigns include the belief that water supply is an essential service, which should be public, that companies should not be allowed into a position where they can profit from their monopoly of vital resource; another is a reaction against what is usually perceived as a foreign private capture of a vital national service, and resentment of the imposition of conditionalities by the World Bank and IMF. The uprising which led to the termination of the private water contract in Cochabamba (Bolivia) in 2000, was the first and most dramatic of a series of reversals: in 2004 another uprising in El Alto, the poor suburb of La Paz, led to the termination of Suez' concession in that city. Over 71% of people strongly supported the renationalisation of the water service of Buenos Aires in 2006, according to an opinion poll.

The unpopularity of privatisation is such that two countries in the world – Uruguay and Netherlands - have made water privatisation illegal. (Hall and De La Motte 2004; Hall et al 2005).

The opposition was reinforced by evidence and suspicion of corruption not only on the part of politicians and officials receiving bribes, but also by western multinationals offering bribes. This involved not only using inducements to obtain specific contracts, but also attempts to obtain control of the policy-making process itself through a process of 'state capture', through donations that may be legal in some contexts. (Hall 1999, Hellman et al 2003, Kaufmann and Vicente 2005).

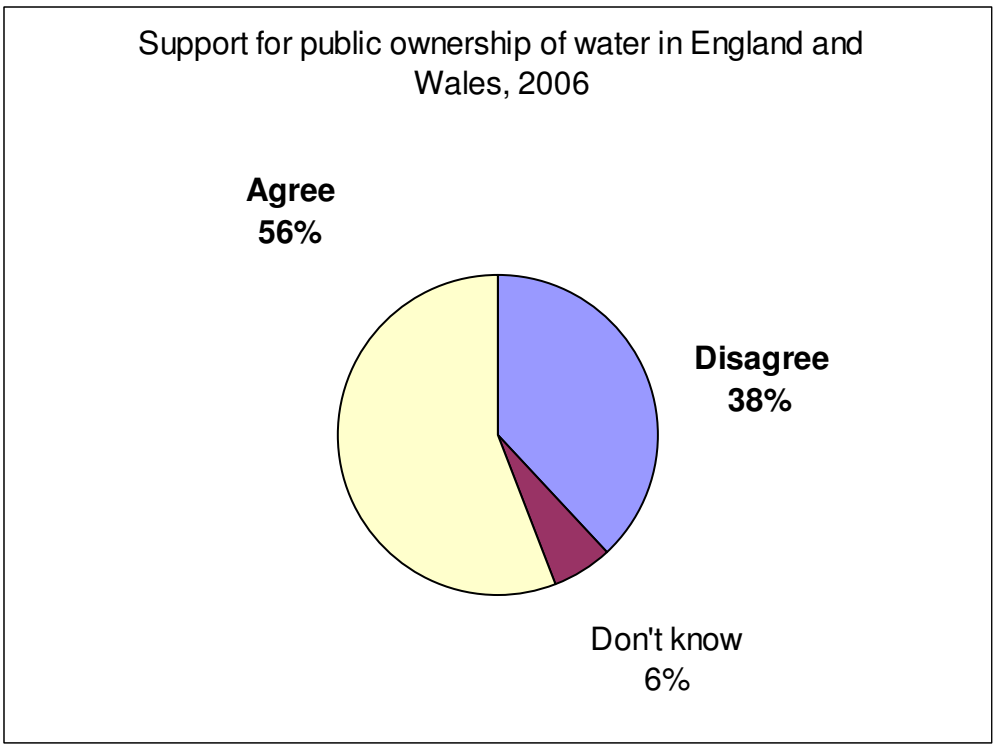
Table 2. Opposition to privatisation of water: some worldwide examples, 1994-2002

Year	Country	City	Event
1994	Poland	Lodz	Privatisation proposals rejected
1995	Hungary	Debrecen	Privatisation proposals rejected
1995	Sweden	Malmo	Privatisation proposals rejected
1996	Argentina	Tucuman	Termination of privatisation
1996	USA	Washington DC	Privatisation proposals rejected
1998	Germany	Munich	Privatisation proposals rejected
1999	Brazil	Rio	Privatisation proposals rejected
1999	Canada	Montreal	Privatisation proposals rejected
1999	Panama	national	Privatisation proposals rejected
1999	Trinidad	national	Termination of privatisation
2000	Bolivia	Cochabamba	Termination of privatisation
2000	Germany	Potsdam	Termination of privatisation
2000	Mauritius	national	Privatisation proposals rejected
2000	USA	Birmingham	Termination of privatisation
2001	Argentina	BA Province	Termination of privatisation
2001	France	Grenoble	Termination of privatisation
2002	Brazil	National	Continuing campaign
2002	Ghana	Accra	Continuing campaign
2002	Indonesia	Jakarta	Continuing campaign
2002	Paraguay	All	Privatisation proposals rejected
2002	Poland	Poznan	Privatisation proposals rejected
2002	S Africa	national	Continuing campaign

Source: Hall et al 2005

Even in the UK, where it is often assumed privatisation has widespread public support, after 17 years of water privatisation, a clear majority of 56% favour a return to public ownership, according to the results of an opinion poll in June 2006. This represents a continuation of consistent public opposition to water privatisation, apparent throughout the 1980s when water privatisation was being proposed and introduced. The first proposals in 1985 were widely criticised: even a Financial Times editorial suggested that: "the water industry has many special characteristics which seem to justify public ownership". A poll in December 1986 showed that 71% were opposed to water privatisation, by December 1988 the majority against water privatisation had risen to 75%, and to 79% in July 1989 The Times commented of these privatisation plans: "by and large the public sees little point and only disadvantages in them. They seem simply doctrinaire." The water companies were nevertheless privatised a few months later. (Hall and Lobina 2008)

Chart E. Popular support for public ownership of water industry in the UK, 2006



Source: BBC Daily Politics Show Poll Fieldwork : June 14th-15th 2006. Conducted by Populus.
http://www.populuslimited.com/pdf/2006_06_20_Daily_Politics.pdf

The third major factor was the failure of the private sector to live up to expectations, especially in terms of investment, exacerbated both of the previous problems. Suez' concession in Manila (Philippines) had become the subject of a bitter dispute with the regulator, and by 2006 had been 84% renationalised. The collapse of the Argentinian economy led to the ending of water concessions in Buenos Aires and Santa Fe, as the companies failed to force Argentina to guarantee profits in dollars. In Africa, contracts were terminated in Gambia, Mali, Chad, Nkonkobe (South Africa) and Dar-es-Salaam (Tanzania). Privatisation has faced similar rejections and reversals in developed countries: in the USA, for example, the city of Atlanta terminated Suez' concession because a public sector operation would be better value.

3.3. Retreat

Both Suez and Veoliahave reduced their activities internationally, but broadly maintain their presence in Europe, North America, China, and (for Suez) North Africa and the Middle East. Developing countries are no longer on the map of possibilities.

The specialist water companies have either sold their international operations: Anglian Water, Severn Trent, Thames – or are seeking to withdraw or reduce their exposure as much as possible: SAUR, United Utilities, Berlinwasser, Gelsenwasser. Groups dominated by non-water business have sold their water interests completely, including Bechtel, Bouygues, E.on, and RWE (largely). The two largest groups have effectively experienced the same process: Veolia Environnement was floated as a water and waste management company by Vivendi, the media multinational which had itself originally grown out of the water and waste business of Generale des Eaux. In 2007, Suez Environnement was also being created as a water and waste company, being separated from its parent Suez, which had originally grown from the water and waste base of Lyonnaise des Eaux, but was now merging with Gas de France and making itself a pure energy company.

The problem has been finding buyers for these water operations. A significant proportion of the new owners are private equity funds, including specific infrastructure funds, and various public sector bodies including governments, municipalities, and state investment agencies.

For example, Bechtel's water interests in Europe were up for sale for over a year and in the end were bought by a public development bank, the EBRD. Bouygues' water company, SAUR, the fourth largest in the world, was for sale for 2 years, before being bought by the private equity firm PAI, who refused to take on

the non-European operations, which Bouygues has since sold piecemeal. Thames Water, the third largest water multinational, was formally put up for sale by RWE in November 2005, and finally sold in December 2006 to an infrastructure fund run by Macquarie Bank of Australia. In order to complete the sale, Thames was required to sell off its overseas interests.

In April 2007 PAI sold SAUR to a consortium led by the French state bank Caisse des dépôts et consignations (CDC), which holds over 40% of the shares. In effect, SAUR has been partially nationalized. This was done in order to prevent a foreign private equity takeover of the French operations: "The consortium's offer was chosen not only because it was the best, but also because it will allow the water distribution company to remain French-owned." (Les Echos April 20, 2007) This is part of a more general bi-partisan French strategy to create a state capitalism actively ensuring local French control of major private companiesin infrastructure, property and healthcare. In water, this strategy is now almost complete. At the start of 2008, the French state, either directly or through CDC, owns more than 33% of the newly autonomous Suez Environnement; and CDC owned 10% of Veolia.

The ownership of the privatized water companies in England and Wales shows a major growth in the role of financial and private equity investors. This has been accompanied by a general withdrawal of equity finance and its replacement by debt financing and private equity. At the start of 2008, only four of the 10 large water and sewerage companies are still quoted on the stock exchange, and of these, Northumbrian, is 45% owned by three financial investors, and 30% of Pennon Group, owners of South-West Water, is owned by 5 major financial shareholders. Five other large companies – Anglian, Southern, Thames and Yorkshire - were already owned by private equity or financial groups by the end of 2007. Only one is now owned by a multinational group - Wessex, owned by Malaysian company YTL; and one is a not for profit company (Glas Cymru). Of the smaller water only companies, three are still owned by Veolia, one is now owned by Suez/Agbar, one by a Hong Kong group, one by a private UK group (Biwater), and the rest are owned by private equity.

The great majority of European water operators remain in public ownership. Amongst those which have been or remain privately owned, there is no consistent pattern of ownership emerging to replace the multinationals. In some cases public authorities have re-purchased ownership of the water companies (the state in the case of SAUR in France and Elber in Albania, municipalities in the case of Gelsenwasser in Germany); in a few cases local companies have purchased shareholdings from the multinationals (e.g. GW-Borsodvíz in Hungary); and there have also been cases of shares being sold to the public (e.g. Tallinn).

Table 3. France and UK: Water Company ownership, December 2007

(Type of owner: State= state; SEC = stock exchange quoted; M = multinational; PE=private equity; NPC=not-for-profit company; P= privately owned company)

Company	Principal owner	Country	Type of owner	Comments
Suez Environnemnet	GdF-Suez	France	SEC	35% owned by GDF-Suez, + 5% by CDC
Veolia Environnement		France	SEC	10% owned by CDC
SAUR	CDC	France	PE/state	40% owned by state investment agency CDC
Anglian Water	Osprey/AWG	UK	PE	Consortium of 3 PE funds, inc. 3i
Northumbrian Water		UK	SEC	25% owned by Ontario Teachers Pension Fund, 15% by fund managers Amvescap, 5% by Barclays Bank
North West Water	United Utilities	UK	SEC	
Severn Trent Water	Severn Trent	UK	SEC	
Southern Water	Greensands	UK	PE	Main partners are JP Morgan and Challenger. Bought October 2007
South West Water	Pennon Group	UK	SEC	Pennon is 30% owned by 5 financial investors
Thames Water	Macquarie	Australia	PE	

Welsh Water	Glas Cymru	UK	NPC	
Wessex Water	YTL	Malaysia	M	
Yorkshire Water	Citigroup/HSBC	UK	PE	Bought November 2007
Bournemouth and West Hampshire Water	Biwater	UK	P	Private company, operates internationally, but not in EU outside UK.
Bristol Water	Agbar/Suez	ES/FR	M	
Cambridge Water	Cheung Kong Infrastructure	Hong Kong	M	
Cholderton Water	Cholderton Estate	UK	P	Private family owned
Dee Valley	-	UK	SEC	35% of shares owned by Axa SA.
Folkestone and Dover	Veolia	FR	M	
Mid Kent Water	UTA and HDF	Australia	PE	Utilities Trust of Australia (UTA); Hastings Diversified Utilities Fund (HDF). Bought Swan Group, the holding company of Mid Kent Water. Swan also owns 51% of Halcrow water Services.
Portsmouth Water	South Downs Capital	UK	PE	South Downs Capital is 36% owned by SMIF/Land Securities (PE). SMIF=Secondary Market Infrastructure Fund. SMIF itself was bought by Star Fund (PE) in 2003, sold in 2006 to Land Securities (PE)
South East Water	UTA and HDF	Australia	PE	Macquarie bought South East Water from SAUR in 2003; sold it to UTA/HFM in October 2006, prior to o purchase of Thames Water.
South Staffordshire Water	Alinda Capital Partners	USA	PE	Bought in 2007 from from Arcapita (Bahrein)
Sutton & East Surrey Water	Aqueduct Capital	DE	PE	Aqueduct Capital is part of Deutsche Bank. Bought holding company East Surrey Holdings Group (ESH) for £189m in 2006 from Kellen Acquisitions Ltd – part of Terra Firma. Kellen had bought ESH only in October 2005, and then sold off gas companies.
Tendring Hundred	Veolia	FR	M	
Three Valleys	Veolia	FR	M	

3.4. South

As the multinationals retreat from their international investments, a mixed pattern is also emerging in the south. The difference is that governments and municipalities are the main new owners of formerly privatised water operations. In Latin America, where privatisation made greatest advances, there are now a number of water concessions remaining in the hands of private European companies, but all of these owners would prefer to sell the concessions if possible. There is one private equity investor, Ontario Teachers Pension Plan, which now owns a group of Chilean private water companies, but no others. There are a number of cases where local private sector companies have taken over private concessions: it remains to be seen whether this is a significant future pattern, or whether it is just an interim stage in a slower retrun to public ownership.

In Argentina, the renationalisation of water in Buenos Aires re-establishes a strong role for central government in the sector, which was the case before the privatisations of the 1990s were induced. It is noteworthy that workers and unions often have a formal ownership stake in the new public entities. This is the result of the employee shares which were introduced at the time of privatisation, which were originally intended to buy off opposition from workers and unions.

In Brazil, which has a mixture of state and municipal water operators, there is a range of developments. The association of municipal operators, Assemae, has been actively encouraging the development of municipally owned operators, including the use of public-public partnerships. In the other direction, two of the major

state-owned companies in Brazil have been part-privatised by the sale of shares to investors through the stock exchange. SABESP, owned by Sao Paulo state, is 49.7% owned by investors through the New York and Sao Paulo stock exchanges. Copasa, owned by Minas Gerais state (59.8%) and the municipality of Belo Horizonte (9.7%), is also listed on the Sao Paulo stock exchange, and 30.24% owned by private investors. Both these companies are also engaged in international 'partnerships': SABESP with the utility Sedepal, in Lima, Peru; and Copasa with the Paraguayan state water company Essap.

In Colombia, which has both a multinational and a local private operator, three municipally-owned Colombian water operators are trying to expand into other areas: EAAB (Empresa de Acueducto y Alcantarillado de Bogota), EPM (Empresas Publicas de Medellin) and Aguas de Manizales. Aguas de Manizales agreed to take over the Cartagena concession from AgBar, but this was blocked by Bogota city council. It is developing management contracts in two other regions. EPM, together with an employees pension fund, has taken on a management contract in Bogota, and is bidding for work in Peru.

In Uruguay, a referendum decided to make water privatisation illegal, resulting in the renationalisation, under OSE, of the two privatised concessions. In Venezuela, the state has funded development of water services through community organisations in Caracas and peri-urban areas. (Lobina and Hall 2007)

Table 4. Renationalisation and remunicipalisation of water services in South America, 2007

Country	City/region	Former multinational	Public sector entity	New owners (%)			
				National	State/ region/ province	Municipal	Employees/ union
Argentina	Buenos Aires	*Suez*	AySA	90			10
	B A (province)	*Azurix*	Aguas Bonaerense SA		90		10
	Tucuman	*Veolia*	Sapem/OST		90		10
	Santa Fe	*Suez*	Aguas Santafesinas		51	39	10
Bolivia	La Paz/El Alto	*Suez*	Epsas	100			
	Cochabamba	*Bechtel/UU*	Semapa			100	
Uruguay	Maldonado	*Aguas de Bilbao*	OSE	100			
Venezuela	Hidrolara	*SAUR*	State/municipalities		50	50	

Source: Lobina and Hall 2007

4. Investment

Water systems require extremely high levels of investment. One of the purposes of privatisation has been to obtain investments necessary to extend or improve systems without increasing government borrowing. This has been a common driver for privatisation in north – for example in the UK - and in developing countries in the south.

In the 1990s the World Bank and donor agencies promoted a strategy to develop water systems in developing countries through privatisation. This was expected to deliver finance for investments, efficiency improvements, and better governance than they believed possible through the public sector in developing countries. It was expected that multinational companies would be attracted by a large new profitable market, and that the process would be welcomed by populations disillusioned with the corruption and inefficiency

which the World Bank associated with the public sector. It was so central to donor policies that a World Bank official told an international conference in 2000 that 'there is no alternative' to privatisation.

The private contracts have however failed to deliver significant new investment in water infrastructure in developing countries. This section examines the impact of privatisation on water connections in Africa and Asia; and secondly by looking at the major cases in middle income countries in Latin America; thirdly by examining some weaknesses in the private investments in BOT dams and water treatment plants; and fourthly by comparing progress briefly with the extension of water connections in previous years.

Investment in water in the UK did increase after privatisation. The next section examines how this compared with previous trends, and traces a rapid move from equity to debt by the companies, as well as the background of government assistance. The final case looks at public finance and solidarity mechanisms used to finance water extensions in southern and eastern Europe.

4.1. Africa and Asia

After 15 years, only about 600,000 households have been connected as a result of investment by private water operators in sub-Saharan Africa, South Asia, and east Asia (outside China) – representing less than 1% of the people who need to be connected in those regions to meet the UN Millennium Development Goals (MDGs). One reason for this is the selectivity of the private sector, on both a macro and a micro scale. No private concessions were set up in the whole of south Asia, for example. Some contracts allowed selective provision: Suez'contract at Stutterheim, in South Africa, signed in 1993, allowed the company to 'cherry-pick' the profitable white and coloured areas, which already received dependable water supplies, while much of the official Stutterheim township (Mlungisi) and the unofficial neighbouring townships (Cenyu, Kubusie, Cenyulands) remained almost entirely outside the network. A second reason is that the great majority of contracts in Africa are lease or affermage contracts, under which the responsibility for investments in extension to the system remains with the government or municipality. In the cases of Cote d'Ivoire and Senegal, for example, which are often quoted as successes, the investment in extensions is government financed; the private companies are responsible only for maintenance of the existing system. In Senegal, public and donor finance across the 10 years of the contract totals US$230 million, while the finance provided by the private company SDE is about US$20 million over the same period.

4.2. Buenos Aires

During the period of the private water concession in Buenos Aires, which ran from 1993 to 2006, although services improved, the company did not meet the targets for investment, nor for quality. The water regulator ETOSS estimated that between 1993 and 2002 Aguas Argentinas delivered only 61% of the total investment due (Ducci, 2007).

These problems did not commence with the economic crisis which hit Argentina in 2001. Between 1993 and 1998 the company delivered only 42% of the originally agreed investments, saving the company a total of US$746.4 million. Even after several renegotiations of the investment targets, Aguas Argentinas realised only 60% of projected new connections to the water supply network and 40% per cent of projected investments in the expansion of the sewerage network (Azpiazu and Forcinito 2002).

Table 1 Investment under-performance by Aguas Argentinas, 1993-1998 (in millions of pesos/dollars at supply values)

	1993	1994	1995	1996	1997	1998	Total
Investments committed in original bid	101.5	210.52	302.91	362.36	229.10	83.07	1289.46
Investments realised ($)	40.93	144.55	132.17	100.49	109.52	15.41	543.07
Under-performance ($)	-60.57	-65.97	-170.74	-261.87	-119.58	-67.66	-746.39
Under-performance as % of investment committed	-59.8	-31.3	-56.4	-72.3	-52.2	-81.5	-57.9

Source: Lobina and Hall 2007

Table 2 Population connected to water and sewerage services in Buenos Aires by new extensions to the system: Projected and actual May 1993 – December 1998

	Water (thousands)	Sewerage (thousands)
Connection targets		
• According to original bid	1,709	924
• According to Resolution Etoss Nº 81/94 (First Negotiation)	1,764	925
• According to Decree Nº 1,167/97 (Second negotiation)	1,504	809
Actual connections constructed		
• Regularisation of illegal users	172	152
• Real expansion of the network	917	399
Degree of effective compliance	Percentage	Percentage
(Excluding regularisation of illegal users)		
With respect to the original bid	54%	43.2%
With respect to targets after second negotiation	60%	40.3%

Source: Azpiazu and Forcinito 2002

Despite this underperformance in terms of investment, the average water bill increased 88% between 1993 and 2002, compared with general inflation of only 7%; the company achieved a return on assets of 21% from 1994 to 2001, until the economic crisis; and used a much higher level of debt than implied in the original tender. (Lentini 2004).

The need for solidarity finance was also emphasised during this concession. Poor slum areas remained unconnected to the system, whose households were unable to pay tariffs that would cover the cost of supplying them with water. The private company therefore proposed to implement a solidarity surcharge (known as the SUMA) on existing users, to pay for the cost of supplying the poor. This was however resisted by consumers who won a court case declaring the imposition of the charge illegal: and the company was authorised to collect the charge only after the intervention of the national government and the mayors of various districts in Buenos Aires.

4.3. Chile

Water privatisation in Chile is often held up as a successful case, accompanied by a high level of efficiency, and significant new investment. But it is not clear that this has delivered significant economic and social gains compared with what would have happened otherwise.

The investment following the privatisation did not deliver any significant extension of the system - nearly 100% of households were connected to water, and around 90% connected to sewerage, before privatisation. The new investment was in sewerage treatment works. This implemented a government policy commitment made before privatisation, through a regulatory framework which allowed the full cost of this investment to be raised from water and sewerage charges on consumers. The advantages of carrying out this investment through privatisation were that the large investment does not appear on the government balance sheet, and that the government could distance itself from the price rises. (Bitran and Valenzuela 2003, Bitran and Arellano 2005, Lobina and Hall 2007).

Operations were already comparatively efficient: the utility in Santiago, for example, had been described by the World Bank as the most efficient utility in south America while under public ownership and management. An early review of performance following privatisation found that the relative performance of public and private companies varied according to the dimension examined. Private companies increased profitability faster, increased prices faster, and increased unaccounted for water (leakage) faster than public companies; but private companies reduced labour costs faster, reduced administrative costs faster, and invested more in sewerage treatment.

The sharp increase in profitability was made possible primarily because the average price of water in Chile trebled between 1989 and 2002, which even supporters of the privatisation believe was "unlikely to survive public scrutiny if not accompanied by vigorous and sustained economic growth, which has helped make it possible for households to pay the price." This was supported by a regulatory framework which allowed a return on assets of at least 10%, and a readiness by the government to reach informal agreements with

company negotiators. Some concessions were made more attractive by being of indefinite duration. The result was that the private concessions achieved returns on equity of about 14 percent by 2005, on a par with the best performers on the Chilean stock exchange. Further downstream profits were also achieved by the company winning the concession in Santiago, Suez, which awarded the $330 million contract for the construction and operation of the largest wastewater treatment plant, La Farfana, to Degremont, Suez' own engineering subsidiary. (Bitran and Valenzuela 2003).

4.4. Colombia

In 1994 the World Bank agreed to finance investment in the water system of Cartagena, on condition that the service was privatised: an agreement was signed with the mayor on his last day in office before an election. The election was won by a candidate opposed to privatisation, but the World Bank insisted that the funding would be cancelled without privatisation. The agreement with Acuacar, a joint venture between with Aguas de Barcelona and the council, is a lease contract, so the company has no responsibility for investment finance – as in other leases, the extension is heavily financed by the World Bank and the municipality. Acuacar is also exempt from paying any lease fee for the use of the system, and, in addition to sharing dividends, Aguas de Barcelona also benefits from a management fee paid by Acuacar, which was calculated as a growing percentage of Acuacar's gross income: in the first four years of operation, this management fee was fixed at 2.94%, 3.37%, 3.82% and 4.25% respectively of gross income. The municipality also took on pension obligations worth $8m. per annum for former employees (the company had dismissed all the former 1800 employees and rehired 270 of them in order to boost operating efficiency). (Lobina and Hall 2007).

4.5. BOTs

In recent years private companies have preferred to invest in Build-Operate-Transfer (BOT) contracts, which are used in a number of countries as a way of financing the construction of new reservoirs, water treatment plants, and sewage treatment plants. The principle is similar to Private Finance Initiative schemes used in the UK and elsewhere. To provide security for investors, such agreements are normally guaranteed by national governments; if the municipal water distribution authority does not pay for the water for any reason, the government promises to do so. On the strength of this guarantee of government payments, the companies can borrow money for the construction costs at low rates of interest. BOT contracts do not provide investment in the distribution system itself, and so do not extend water supply to new users, although they clearly increase the capacity of the system to provide water to consumers.

These contracts may actually create extra demands on the finances of a water distribution authority, and so reduce the money available to the distribution authorities for other purposes. There are two factors which tend to produce this result. Firstly, the terms of the original contract are crucial in determining the level of payments for 30 years. As a result, the companies have a large incentive to engage in corruption or misrepresentation in order to increase their chances of winning a contract on favourable terms, for example by exaggerating forecasts of demand for water. Secondly, the take-or-pay agreement, underpinned by government guarantee, limits the risk taken by companies, but means that the BOT contract must be paid before the water distribution authority can use its income for any other purpose, such as investing in extending the system to the poor. The take-or-pay agreement may thus impose financial demands on the water authorities and the public, even if the price of the water turns out to be unaffordable, and even if the extra water supplied turns out to be unnecessary.

For example, In Vietnam, the Thu Duc treatment plant in Ho Chi Minh City began operating in 1999. Under the contract, it sold water to the city water utility at 20 cents per cubic metre, although the price charged by the utility to consumers was only 11 cents. The balance had to be subsidised by the city council. In February 2003 the contract was ended. The bulk water supply contract of Shenyang Public Utility also ended in 2002 because demand was lower than forecast and the public water authority could not afford to pay. A BOT contract in Bogota, Colombia, was terminated after the city council calculated that the project was charging ten times too much, and that it was worth paying US$80 million to buy out the contract. The contract for the Yuvacik Dam near Izmit in Turkey stated that the water would be purchased over 15 years at an agreed price. However, both industrial users and neighbouring municipalities have refused to buy water from the plant as it is too expensive. The purchase of water was guaranteed by the Turkish Government, which has

thus paid over the odds for water which is too expensive for its intended customers. An enquiry in 2003 recommended the investigation for corruption of nine former ministers and the former mayor of Izmit.

Table 5. Observed problems with BOT contracts

Country	Project	Companies	Problems for water distributor	Public guarantees	Status
China	Chengdu	Veolia	X	X	Distressed/ disputed
China	Da Chang (Shanghai)	Thames Water, Bovis	X	X	Terminated
China	Shenyang	Suez	X	X	Terminated
China	Xian	Berlinwasser (Veolia/Thames)		X	Terminated
India	Bangalore	Biwater	X	X	Cancelled
India	Sonia Vihar (Delhi)	Suez	X	X	Distressed/ disputed
Vietnam	Thu Duc (HCM City)	Suez, Pilecon	X	X	Terminated
Malaysia	Selangor	Puncak Niaga	X	X	
Thailand	Pathum Thani	Thames/Bovis, Kamchang	X	X	
Turkey	Yuvacik (Izmit)	Thames	X	X	Distressed/ disputed
Zimbabwe	10 dams plan	Biwater	X		Cancelled

Source: Hall and Lobina 2006

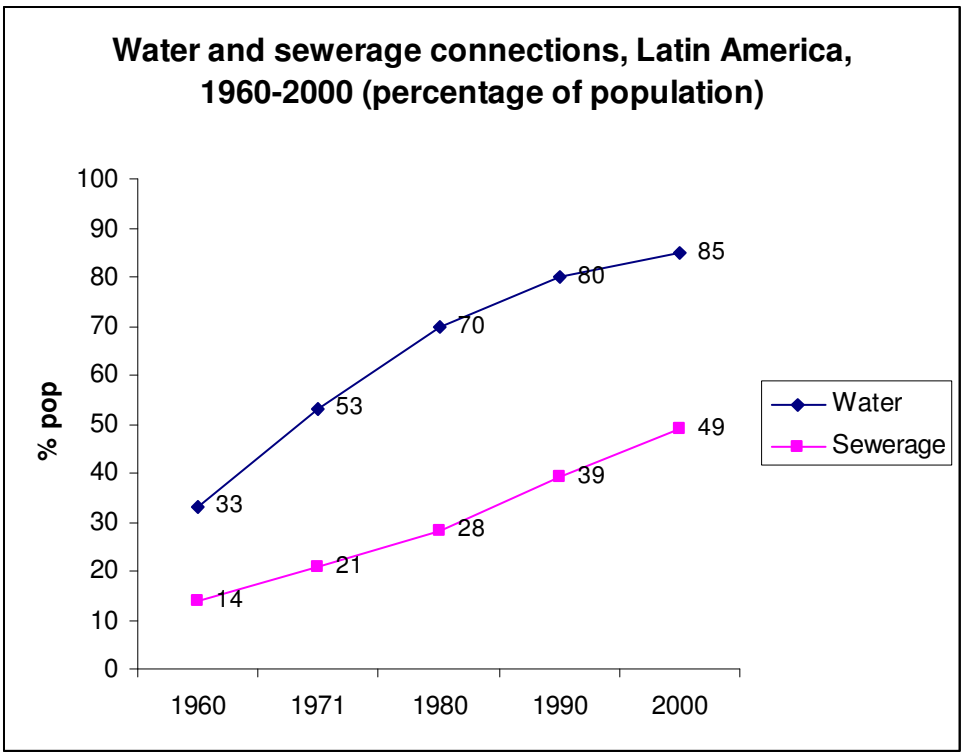
4.6. Comparison with 1980s

Even in Latin America, where private sector investment was concentrated, the expansion of the system in the 1990s was no greater than in the 1980s.. Indeed, the proportion of the population connected to water supply in the 1990s – 5% - was smaller than in any of the preceding three decades.

Table 6. Households connected to water and sewerage by decade, Latin America

	Water		Sewerage	
	m. hab	%	m. hab	%
1960	69	33	29	14
1971	152	53	59	21
1980	236	70	95	28
1990	341	80	168	39
2000	420	85	241	49

Source: PAHO, quoted in Jouravlev, A. (2004)



Source: PAHO, quoted in Jouravlev, A. (2004)

4.7. England: Levels of investment

The level of actual capital investment in the water industry has been much higher since 1989 than it was in the previous decade. This is now claimed as an indicator of the success of privatisation: a factsheet published by OFWAT gives the figures for investment before and after 1989, and claims: "Under Ofwat, investment in water and sewerage services is at its highest ever level". According to OFWAT, a total of £55 billion has been invested in the 15 years since privatisation, an average of £3.7 billion per year, compared with an average figure of £2 billion per year during the 1980s. This is a difference of £1.7 billion per year, or 46% of all expenditure. (All figures are at 2004-2005 prices). (OFWAT 2006, OFWAT 2005)

This picture however exaggerates the difference between investment levels before and after 1989. The RWAs did not make the same level of investment throughout the 1980s, but showed a clearly rising trend towards the end of the decade, recovering from the long decline in investment imposed by successive governments between 1975 and 1985 (see annex). Between 1985 and 1989 investment rose steadily from about £1.6 billion to over £2.2 billion per year, so their investment had been increasing at a rate of 8% per year in the second half of the 1980s. The OFWAT comparison assumes that there would have been no further increase by the RWAs, but this is very implausible: because of the legal requirements for investment (see next section) the RWAs would certainly have had to continue increasing their level of investment. Even if this increase had averaged 4% per annum, half the rate they were delivering in the second half of the 1980s, they would have delivered a total investment of over £50 billion over the next 15 years: about the same as the private companies have actually achieved.

It is also true that, after privatisation, the finance became available to pay for the necessary investment. This however was partly due to the government injecting a large amount of money, by writing off all the debts of the water companies before privatisation, plus a further "green dowry" to meet the environmental standards required by the EU. In addition to this cash injection, the government allowed the private companies to make large real increases in the price of water, which the RWAs had been prevented from doing, and the private companies were freed from the limits on public sector borrowing.

The final value of the debt write-off was worth over £5 billion, and the green dowry £1.5 billion – roughly equivalent to the total received for the sale of the companies (the water and sewerage companies even gained

an extra £120million just by having these gifts in the bank in 1990/91). These public subsidies alone financed roughly one-third of all the investments in the first 10 years of privatisation. There was a further subsidy, in the form of tax relief on the companies' profits, worth £7.7 billion The total amount of public finance injected into the privatised water companies was thus over £14 billion (though much of the tax relief was subsequently clawed back by the 'windfall tax' introduced by the new Labour government in 1997) (OFWAT 1995; Schönbäck et al 2004; OFWAT/DEFRA 2006).

Table 7. Investment level and growth rate before and after privatisation in England and Wales (£billion, 2003-04 prices)

	1985	1989	2004	**Average annual % growth rate**
RWAs (pre-privatisation)	1.6	2.2	-	8%
Privatised companies and OFWAT	-	2.2	3.6	3%

Source: OFWAT 2006, authors' calculations

When the English and Welsh water companies were privatised in 1989, the government wrote off all the existing debts, so it was entirely financed by shareholder equity; for comparison, companies in general in the UK have debts representing between 20 and 30 per cent of the total of debt and equity. The broad expectation was that as the water companies made profits, investors would continue to inject new equity, and the regulator has set price caps based on assumptions about returns on capital which "ensure that returns assumed should provide shareholders with sufficient incentives to provide additional funds, either in the form of retained earnings or new equity, to enable companies to make new investment where this is appropriate." (OFWAT/DEFRA 2006 p.97). But in practice, the water companies preferred to finance investment, at relatively low rates of interest, which allowed them to generate a higher surplus for distribution to shareholders. As a result, the gearing of the water companies has risen from zero to an average of over 60% in 2006. This process has been accelerated because the regulator has overestimated the cost of debt in setting prices, so that price-caps allow the companies to charge users: "at a level significantly higher than the actual cost of debt over the period. As a result customers/users have paid higher prices and returns on equity have been higher than expected when the price control was set." (OFWAT/OFGEM 2006; CEPA 2007 p. i)

Instead of shareholders putting money into the industry, there has been a significant *withdrawal* of shareholder equity from the water companies (OFWAT/DEFRA 2006). Different methods of withdrawing equity were adopted. The most extreme version took place in Wales, where the private water and energy utility was taken over by a consortium of USA energy companies, who wanted to abandon the water business altogether. They transferred all the assets, liabilities and statutory functions to a not-for-profit company, run by an appointed and self-perpetuating group of individuals, and financed entirely by debt. (This entity is neither elected by citizens nor owned by shareholders or customers, but is often wrongly described as a cooperative or a mutual). Another company proposed complete withdrawal of equity from Yorkshire Water, by selling the company to a consumer cooperative, but this was abandoned as a result of fierce local opposition.

Other companies have simply reduced their equity stakes and replaced them with debts, including Anglian and Southern water. The water only companies have undergone a number of similar restructurings: for example East Surrey issued a £100m bond; Mid Kent Water was purchased by a management buyout, the Swan Group, funded predominantly by debt from WestLB; there was a similar deal at Portsmouth Water, backed originally by Royal Bank of Scotland; Veolia's former shareholdings in Bristol Water and South Staffordshire were purchased by an investment fund, Ecofin Water and Power. This represents a return to the same form of finance used by public sector water operators – indeed, a significant part of the borrowing has

been from the European Investment Bank (EIB), a public sector bank owned by the European Union which is able to lend at very good rates.

4.8. Solidarity finance in southern Europe and European countries in transition

The traditional use of solidarity finance has continued in Europe. The European Union collects taxes from all EU member states and distributes them through its cohesion policy. On average the EU collects about €20 Euros in taxes from every person in the EU each year to support investment in water and sanitation alone. During the period 1994 to 1999, environmental investment financed from the Structural Funds amounted to over € 9 billion.(ENEA 2006, European Commission 2006)

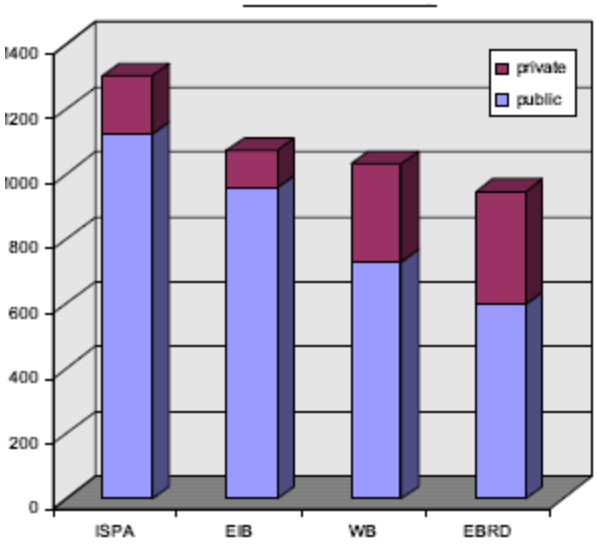
The impact on coverage in less wealthy regions and member states was significant: "In Greece, the number of urban areas connected to main drainage almost doubled between 1993 and 1999, increasing the population covered to over 70%. In Ireland, the proportion covered rose from 44% in 1991 to 80% in 1999. In Portugal, the population connected to drinkable water supply rose from 61% in 1989 to 95% in 1999 and that connected to main drainage from 55% in 1990 to 90% in 1999. The Funds also helped to increase water supply in regions with a serious shortage. In Italy, for example, supply was expanded by over a third over the programming period." Overall, this central support for infrastructure and other measures had a major effect on economic growth; in Greece, GDP in 1999 was 9.9% higher than it would have been without the central cohesion funds, in Portugal 8.5% higher. (European Commission 2006)

The countries of central and eastern Europe provide another interesting study of the relevance of public finance mechanisms for investment in water services. After the collapse of the communist regimes around 1990, their water services were restructured, mainly through decentralisation of responsibility to municipalities. The private water companies of France and the UK took the opportunity to obtain concessions in a number of cities, with particular success in the Czech republic and Hungary; in Poland, however, with the exception of Gdansk, the water services remained in municipal hands.

The systems already provided nearly universal connection, and so relatively little investment was required for extension of the system, but suffered from varying degrees of poor maintenance and technical inadequacy, and a general need for investment in wastewater treatment. These needs became magnified as the countries joined the EU, due to the requirements of EU water and environmental standards.

The financing of this investment came from four major public sources. Firstly, for the countries bordering the Baltic Sea – Poland and the Baltic republics – international finance was made available through grants and development bank loans associated with the Helsinki Commission, dedicated to improving the water quality of the Baltic. Wastewater treatment plants, in particular, were financed in this way. Secondly, the EU's own development banks – the European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD) – made loans for investment in the water sector. These loans were made to both public and privatised water operations, with the EBRD in particular making loans to a number of municipalities in Poland and the Baltic states without requiring government guarantees. Thirdly, as the countries prepared for EU membership they became eligible for large grants from the cohesion and infrastructure funds of the EU itself. Fourthly, national and local governments themselves used tax revenues to finance water investment. In Poland, for example, municipal or enterprise funds financed around 45-50% of capital investment in environmental improvements in the 1990s, with the balance coming largely from environmental funds and domestic loans. In Hungary, central government continues to finance most capital investment in the water system, even in cities where this is privatised. (De la Motte 2007; Hall and Lobina 2007b)

Chart F. Development bank finances for public and private water projects in central and eastern Europe 1990-2002



Source: Hall and Lobina 2007b

Finally, the national and local governments of the countries also continued to provide substantial finance for investment, even in cities where the operation had been privatised. In Poland, for example, water operations were supported through both municipal funds and a national environmental fund, financed from taxation; in Hungary, the cost of investments in the system is still largely borne by national government funds (De la Motte 2007; Boda et al 2006).

5. Prices

Water privatisation is often associated with increases in prices and the opposition to privatisation often centres around these price rises. Prices may be affected by a number of external and general factors, including the relative cost of collecting and distributing water, and also by trends in investment. Because water operators have a monopoly of an essential service, it is expected that private water companies will have a constant incentive to try and extract monopoly profits by excessive pricing (and underinvestment). This section examines evidence from France and the UK which supports this view., despite the presence of experienced or professional regulation.

5.1. France

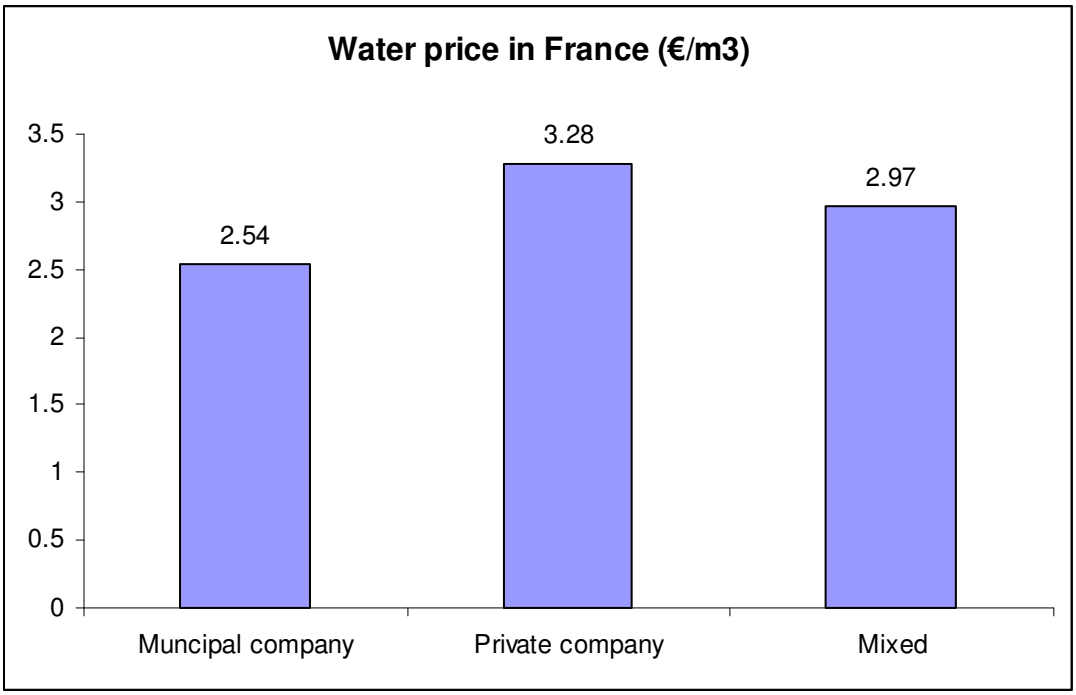
It is possible to compare the price of water charged by public and private water operators in France, where municipalities still provide water directly in a quarter of cases. Data collected annually shows consistently that the prices charged by private companies is significantly higher than the prices of municipal operators. In 2004, the average price charged by private companies was 29% higher than that charged by municipal companies (IFEN 2007).

This difference could be due to other factors affecting the cost of water supply, such as the requirement for treatment, the density of the network, and the condition of the network. However, a recent analysis of comprehensive data covering 5000 municipalities in France controlled for all such factors, and found that privatisation alone accounts for a difference of 17% in prices: "choosing any kind of PPP [i.e. private water companies] over direct public management seems to increase the average retail price of water in a municipality….the average price for delivery of 120 cubic meters of water in a year jumps from approximately €151 to €176 when a public authority chooses a lease contract instead of managing its own water distribution" and concluded that "consumers pay more when municipalities choose PPPs" (Chong et al 2006 p.163, 150). As the authors note, this result may be the result of collusion strategies and/or corruption, as revealed in a public audit report in 1997 (Cour des comptes 1997).

The poor suffer all the impact of this difference. A study of affordability of water in France found that the poorest households receive significantly higher water bills under private operators, especially in concession contracts, whereas rich households receive slightly smaller bills. By contrast, the same study supports the

view that politics also made a difference to prices, with leftwing parties associated with more affordable water: "A high proportion of votes to the socialist or to the communist party at the last local election results in a lower share of income spent on water charges". (Reynaud 2006 p.20)

Table 8. Price of household water in France, 2004



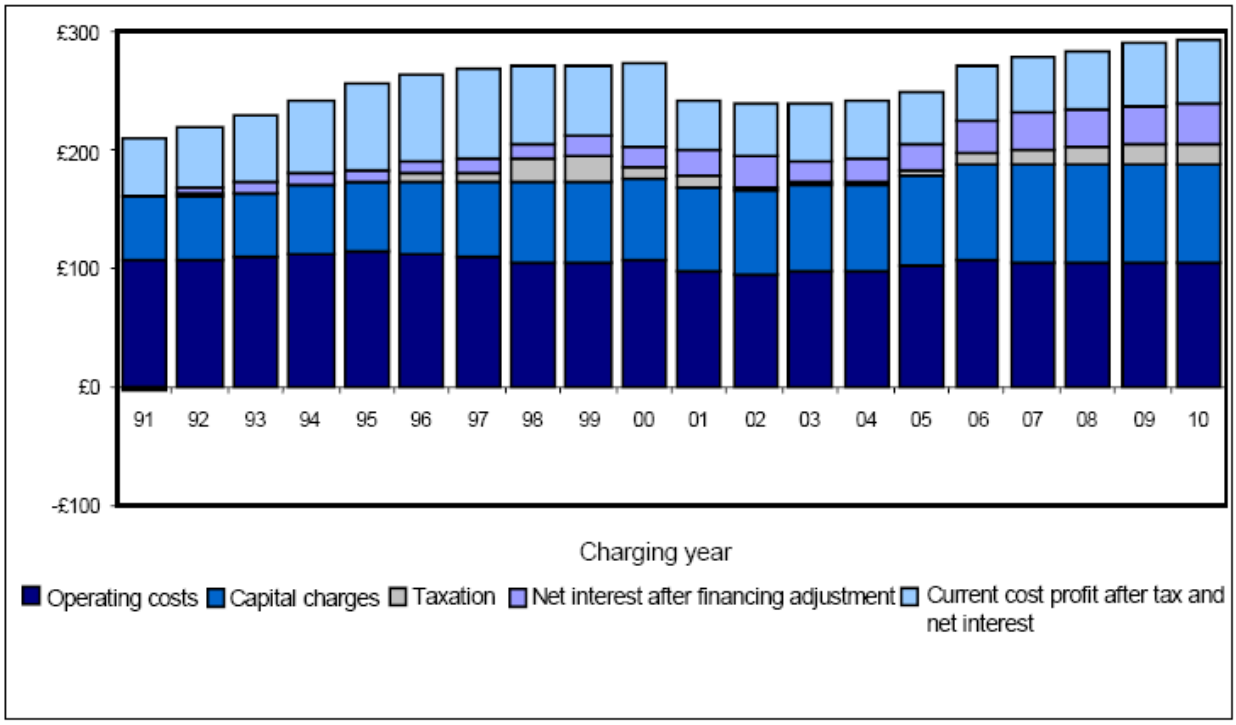
Source: IFEN 2007

5.2. UK: prices and gaming under regulation

The evidence from England and Wales is also consistent with this view that privatisation itself tends to generate higher prices as a result of concerted activity by the companies. In cash terms, the average annual bill for water and sewerage rose from £120 per year in 1989 – the year of privatisation - to £294 in 2006, an increase of 245% in 17 years. In real terms, it represents a rise of 39% over and above the general rate of inflation. A breakdown of the component elements in the water bills shows that operating costs have remained roughly constant in real terms: the increase in customers' bills is almost entirely due to the various elements associated with the capital – capital charges, interest, and profits – which have nearly doubled, in real terms, over this period. (OFWAT/DEFRA 2006).

Some such increase would be expected, due to the increased investment resulting from the requirements of EU directives, but international comparisons of changes in volumetric charges to industrial users indicates that the UK privatisation has had a distinct additional effect. In 1988-89, the last year of public ownership, the NUS survey of water costs for industrial users showed that British companies paid relatively low charges for water: Britain was ninth in the NUS league table, behind five of its EC counterparts including Italy. The NUS figures show that in 1988-89, the cost of water in the UK was less than half that in Australia and West Germany. In 2005 the corresponding NUS survey showed the UK was in third highest position, with costs nearly double those of Australia, 70% higher than in Italy, and only 18% lower than Germany. (NUS 2005)

Chart G. Components of the average household bill in England and Wales 1991-2004 (constant prices)



Source: OFWAT/DEFRA 2006.

Under the privatised system, the regulator, OFWAT, is responsible for setting price limits and incentives so that the companies, while making a profit, can deliver the service, and the prices, that consumers want. The water companies are responsible to their shareholders for achieving the best possible return. The system is intended to result in regulations which create incentives for the companies to improve their performance, but also creates incentives for the companies to try and arrive at a more favourable deal for themselves at the expense of consumers.

There is strong evidence that OFWAT has been unable to deal with active and persistent 'gaming' by the companies in order to gain higher profit margins. This gaming happens around the price caps set by OFWAT in the price reviews, which effectively set the level of water prices in England 5 years in advance. The companies submit their projections of expenditure and claim that they need to increase prices to cover this spending. OFWAT then has to try and make its own assessment of the accuracy of these forecasts, and then set the prices. The companies have every incentive to mislead the regulator, by exaggerating the capital expenditure necessary – then they get allowed to charge higher prices, but the real expenditure is lower, and so they can pocket the difference as increased profit. The whole process is in effect a game between the regulator and the companies, with the company behaviour summarised by Helm: "a utility has an incentive at price-setting to inflate the asset base, to inflate CAPEX, and to argue for a high OPEX. It will also want to maximize the assumed cost of capital. The higher the expected costs, the higher the added value to shareholders". (Helm 2003; Wietze and Bakker 2005). The extent of it was indicated by a series of disclosures and confessions of systematic attempts to mislead the regulator. A manager of Severn Trent, David Donnelly, said in 2004 that he had been instructed by his bosses to exaggerate figures of debts owed by non-paying customers: Severn Trent were charged with fraud at the end of 2007. Other companies confessed to similar 'errors': Southern Water admitted mistakes about its responses to customers, and failure to make payments due to customers; Thames Water and Severn Trent itself admitted that they had misrepresented data on its response to customer enquiries, which also affects customer bills; Tendring Hundred admitted it had made an "accounting error" in its estimates of income from metered customers, and overcharged customers £5 per head as a result of this unfortunate mistake. (OFWAT 2006b)

6. Efficiency

The question of comparative efficiency is central to the arguments over the economic merits of privatisation, in water as in other sectors. This section examines the empirical evidence on this issue, both in general and

specifically in the water sector. A paper by the IMF in 2004 noted that the issue is crucial for justifying any form of PPP because public sector borrowing is invariably cheaper than private sector borrowing, and so the key question is whether PPPs result in efficiency gains that more than offset the higher borrowing costs. The IMF paper warns against making a priori assumptions of superior private sector efficiency: "Much of the case for PPPs rests on the relative efficiency of the private sector. While there is an extensive literature on this subject, the theory is ambiguous and the empirical evidence is mixed….. It cannot be taken for granted that PPPs are more efficient than public investment and government supply of services." (IMF 2004 para 25).

Contrary to widespread assumptions, and the conclusions of Megginson and Netter (2001) in favour of private ownership, the overall results of empirical studies are inconclusive, and do not support any general conclusion of superior private sector efficiency. In monopolies, typified by the water sector, there are also theoretical arguments for expecting better performance from public sector companies (Willner and Parker 2007; Willner 2001). Studies of the UK privatisations support this. A review in the late 1990s concluded that there is "little evidence that privatisation has caused a significant improvement in performance. Generally the great expectations for privatisation evident in ministerial speeches have not been borne out" (Martin and Parker 1997). A comprehensive review in 2004 was "unable to find... evidence that output, labour, capital and TFP productivity in the UK increased substantially as a consequence of ownership change at privatisation compared to the long-term trend." (Florio 2004).

6.1. Comparative public-private efficiency in the water sector

In the water sector, there is now a considerable body of empirical evidence supporting the view that private operators are not intrinsically likely to be more efficient than public sector operators. A World Bank paper in 2005 summarised the econometric evidence thus: "Probably the most important lesson is that the econometric evidence on the relevance of ownership suggests that in general, there is no statistically significant difference between the efficiency performance of public and private operators in this sector….For utilities, it seems that in general ownership often does not matter as much as sometimes argued. Most cross-country papers on utilities find no statistically significant difference in efficiency scores between public and private providers." (Estache et al 2005). The evidence covers both developed and developing countries. The results put in perspective observations of improvements following privatisations, which assume that any improvements observed are due to private ownership, without making any comparison with control group of public sector operators.

In Africa, a 2004 study by Kirkpatrick at al, covering 110 African water utilities, including 14 private, found no significant difference between public and private operators in terms of cost. A much smaller earlier study by Estache and Kouassi of water operators in Africa in 2002 did find that private operators were more efficient, but only included 2 private operators, and institutional quality was a more important factor than private ownership in explaining differences in efficiency. (Kirkpatrick et al 2006; Estache and Kouassi 2002)

A 2004 study of about 4000 sanitation operations in Brazil found that there is no significant difference between public and private operators in terms of the total variation in productivity; a further study in Brazil, published in 2007, also concluded that "that there is no evidence that private firms and public firms are significantly different in terms of efficiency measurements". (Seroa da Motta and Moreira 2004; da Silva e Souza et al 2007). A study of water utilities in Chile found that private operators had increased investment and labour productivity by more than public companies: though they had also increased their rates by more, and had performed worse in dealing with unaccounted for water. (Bitrán and Valenzuela 2003)

A paper published by the Brookings Institute in 2004 studied the growth in water and sanitation connections in cities in Argentina, Bolivia and Brazil, both in cities which had private sector participation, and in cities which had no private sector involvement. Using household level data, it is the most comprehensive comparative survey of connections under private and public management – other case studies have focussed on private sector operations alone and assumed that any improvements observed were due to private ownership. It concluded that "while connections appear to have generally increased following privatization, the increases appear to be about the same as in cities that retained public ownership of their water systems" (Clarke et al 2004).

In Asia, a similar mixed picture emerges. In 2004 the Asian Development Bank conducted a survey of 18 cities in Asia, which included two cities with private sector concessions - Manila and Jakarta. These were performing significantly worse than most public sector operators on four indicators of coverage, investment, and leakage: on six indicators (unit production costs, percentage of expenses covered by revenue, cost to consumers of constant level of usage per month, 24 hour supply, tariff level, connection fee) their performance is middling, not outstanding; the private cities perform relatively well on two indicators: revenue collection efficiency, and minimizing the number of staff per 1000 connections (ADB 2004). An earlier study on 50 cities in Asia also concluded that "The results show that efficiency is not significantly different in private companies than in public ones" (Estache and Rossi 2002). A study of towns in Cambodia found that consumer satisfaction and service continuity was higher (however prices were higher and not affordable for all), although the privatised towns had been selected by the operators and so may have been better performing anyway (Garn et al 2002)

Table 9. Selected ADB water indicators for 18 Asian cities

		Manila (private)	Jakarta (private)	Average of 18 cities (public)
Water Coverage	(%)	58	51	79
Sewerage Access	(%)	7	2	51
Non-revenue Water	(%)	62	51	34
Capital Expend/Connection	(US$)	18	47	88

Source: ADB 2004.

The picture is similar in respect of operators in OECD countries. A Brookings Institute paper in 2005 looked at public and private water operators in the USA in terms of regulatory compliance and household expenditure on water. It found that "when controlling for water source, location fixed effects, county income, urbanization, and year, there is little difference between public and private systems." (Wallsten and Kosec 2005)

Comparisons over time in the UK suggest that efficiency of the water sector, measured by productivity, has not improved since privatisation, and may actually have got worse. An analysis of productivity growth in the five years before privatisation, and the 10 years after privatisation, concluded that: "despite reductions in labour usage, total factor productivity growth has not improved since privatisation." (Saal and Parker 2001) A further study using a different methodology showed that total factor productivity may have improved after 1995 but "neither paper finds any evidence of an increase in TFP growth that can be directly attributed to privatisation" (Saal 2003). A third study, with a further change in methodology, concluded that productivity had declined, showing that "that while technical change improved after privatization, productivity growth did not improve, and this was attributable to efficiency losses as firms appear to have struggled to keep up with technical advances after privatization…. average efficiency levels were actually moderately lower in 2000 than they had been at privatization." (Saal et al 2007 p. 127, 138). Despite the technical advances, the private water companies are not spending more on research and development (R&D) than before privatisation: "many companies' research and developments budgets have all but disappeared". (House ofg Lords 2006). R&D has very high returns, and even higher social returns, but is risky and the benefits may not be limited to the company that does the research. As a result: "Private markets, including competitive markets, are expected systematically to under-provide R&D in relation to what is socially desirable" (Thomas S. 2004 p.6; Rosenberg 1990).

This sector-specific result mirrors the results of studies of the UK privatisations in general, which have concluded that there is "little evidence that privatisation has caused a significant improvement in performance. Generally the great expectations for privatisation evident in ministerial speeches have not been borne out", and were "unable to find .. evidence that output, labour, capital and TFP productivity in the UK increased substantially as a consequence of ownership change at privatisation compared to the long-term trend." (Martin and Parker 1997; Florio 2004).

It is finally worth noting the evidence of case studies especially in Africa, where repeated outbreaks of water-related diseases like cholera and typhoid, in areas run by private water companies, have often been accompanied by reports of extremely ineffective management responses, e.g in time taken to repair systems.

This evidence does not establish a comparative inferiority, but does provide further support for the view that superior performance should not be consistently expected from the private sector. (Hall and Lobina 2006)

7. Conclusions

The experience of water privatisation over the 20 years since the late 1980s can be said to have confirmed the experience of a century earlier. Private companies can operate and invest in a water system based on market principles, where customers are connected according to their willingness and ability to pay. Such markets exist now, both in the shelves of expensive bottled water in supermarkets, and in the vendors of water in slums with no piped connections. The development of a universal piped water service, however, places demands on private investors which are likely to be resisted – as it was a century ago in Europe and the USA - as marginal customers are unable to pay enough to make the connection profitable. The lack of private investment in developing countries is simply because it would be bad business, as the private companies themselves explained to the World Bank.

In developing countries where extensions are imperative for economic, social and health reasons, public finance is now – as in the 19th century – the only reliable mechanism for delivering the extensions. The key element in public finance is the ability to use legitimate solidarity mechanisms to redistribute the cost of financing extensions from the unconnected to the society and economy as a whole.

In effect, in the last 20 years, governments and municipalities in developing countries have found ways of injecting public finance – using national or donor sources, or development banks - as a way of sustaining investment. Extensions of water services have happened, and public finance has been the mechanism for doing this, even where water systems have been privatised. The use of lease contracts, rather than concessions, in Africa, is one way of operating the system while investing in this way; the use of direct public sector operations is another – mirroring the mix of policies developed by French municipalities a century ago.

In systems which are already virtually complete, as in the north, private companies still suffer from the disadvantage of a higher cost of capital. The experience of the UK private sector shift from equity to debt implies the loss of the distinctive incentive of equity finance, in favour of debt financing which is cheaper through the public sector.

These disadvantages in terms of capital finance have traditionally been regarded as offset by efficiency gains, but the empirical evidence heavily supports the presumption of no significant difference in efficiency.

The evidence from France and England further supports the presumption that private companies can and will find ways of driving up prices, and/or underinvesting, to obtain monopoly profits, including corruption. In the absence of efficiency gains, and in the absence of any advantage in financing investments, there is no obvious advantage held by the private sector to offset this risk of monopoly behaviour and the transaction costs of attempting to control it. The fact that even lease and management contracts have been terminated supports the view that these effects are significant.

There may also be significant institutional and social gains to a country and a region from using its own expertise rather than outsourcing such a function, as well as a reduction in the opportunity for corruption. The continued greater popularity of direct public sector operations thus echoes the popularity of the public sector option across Europe and north America a century earlier.

Water privatisation retains two great attractions, arising from institutional factors. One is that it can be used to disguise investment for public policy purposes as private investment. This is of advantage in any situation where there are constraints on public authority spending, borrowing and debt. The second is that international development banks continue to be set privatisation as a lending condition. It remains to be seen how long these institutional factors can continue to impose policies with are at odds with the lessons of both recent and historical experience.

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