

Water for All: How To Combine Public Management with Commercial Practice for the Benefit of the Poor?

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Summary. Water is critical to improving the health and welfare of the expanding urban populations of the South. Unfortunately, few cities in poor countries have managed to develop institutions able to supply the poor with water, let alone take away the waste. One city that has managed to do so is Bogotá, Colombia. The results of this public company are impressive and have been achieved by adopting some elements of neo-liberal economic thought and by maintaining independence from political pressure. Recently, however, the water company's operations, and particularly its efficiency and pricing policy, have come under attack from a new left-of-centre mayor. The paper explores the legitimacy of some of the attacks and examines whether they constitute fair political debate or a means of undermining what, by the standards of the South, is an effective company.

The United Nations asserts that everyone has a right to safe water (UN-WWAP, 2003) and few would disagree. Unfortunately, current estimates suggest that one-sixth of the world's population does not receive safe water and 2.4 billion do not have access to adequate sanitation (UN-WWAP, 2003). One result is that too many people get sick and UN-WWAP (2003) estimates that perhaps 6000 people die every day from water-related illnesses. While access to water has generally improved in recent years, there are all too many cases where water provision has deteriorated (see, for example, Thompson *et al.*, 2000).

The delivery of water and sanitation is clearly a vital element in people's lives and when the service is unavailable or becomes too expensive the issue often spills into the political arena and sometimes beyond. Push people far enough and they are likely to

object, by refusing to pay for the service or by protesting in the streets. Over the years, water protests have been a feature of demonstrations in a number of Latin American cities (Bennett, 1989, 1992; A. Cabrera *et al.*, 1986; Crabtree, 2005; *The Economist*, 2003; Eckstein, 1989; Santana, 1989; Nickson and Vargas, 2002; Olivera and Olivera, 2002; UN-OCHA, 2006). Political stability and meaningful democracy are premised on the supply of decent and affordable infrastructure and services.

An absolutely key issue today, therefore, is how to provide safe water and adequate sanitation to the billions who lack them (IIED, 2003). This paper considers the case of one public company in a middle-income city that I consider to be highly successful. The paper evaluates why it is successful, how its experience fits into current thinking about the water sector, its institutional weaknesses and the

dangers that lurk in the future. In the process, it examines the general issues that arise from the World Bank's advice that water, like infrastructure generally, needs to be managed "like a business, and not like a bureaucracy" (Dillinger, 1995, p. 2).

How to Improve Water and Sanitation Services

Few would dissent from the argument that more investment is required in providing water and sanitation. The Water Council estimates that some \$30 billion a year is required to achieve the Millennium Development Goals, two-thirds of that to provide sanitation (UN-OCHA, 2006). The real debate is about how to achieve that goal, who should pay for the cost of provision and who should administer the service (*The Economist*, 2006; UN-OCHA, 2006).

Engineers once dominated the world of water and provided technological miracles that solved the water problems of major cities such as London and New York (Graham-Leigh, 2005; Gandy, 1997). Unfortunately, it became increasingly obvious that the kind of technological solutions that had proved so effective under Fordism were too expensive for most poor cities and were even failing in many developed countries. Gradually, economists became equally influential in discussions about the management of water and began to argue that universal access could only be achieved if the costs of providing water and sewerage were calculated accurately and priced appropriately (Kessides, 2005; Linn, 1983; Winpenny, 1994, 2003; World Bank, 2004). Cost recovery first appeared as a prominent element of World Bank thinking in the 1970s (see Linn, 1983) and, with the impetus of the logic of neo-liberalism behind it, charging for water became increasingly common. In poor countries, IMF austerity programmes demanded that water companies pay their way, that government subsidies should be reduced and that privatisation was a superior solution to the existing model of bloated and inefficient public companies (Gilbert, 1992;

Kessides, 2005). With the announcement of the Dublin Rules in 1992, few could seriously doubt that the organisational logic behind water delivery had changed forever (WMO, 1992). In many places

The business of domestic water supply, like other utilities, has been gradually evolving from the supply of a service to citizens at subsidized rates, towards the sale of a commodity to consumers on a full cost-recovery basis (Bakker, 2001, p. 143).

Of course, the argument of charging for water has never been very popular with most NGOs or with the left. Similarly, Jackson has suggested that many geographical studies

have tended to treat commodification as a dirty word, implying that once such cultures have been commodified, they have inevitably been devalued and degraded (Jackson, 1999, p. 95).

Critics of charging argue that it leads both to higher costs for the poor and greater profits for the increasingly global supply system. Swyngedouw (2004), for example, has claimed that we are currently witnessing a process of the transformation of local waters into global money. In Bolivia, Olivera and Olivera (2002, p. 1) accuse "transnational corporations and the World Bank, working with local government elites" of wanting "to take away the water and turn this vital resource into a business venture". And, Shiva argues that

Water must be free for sustenance needs. Since nature gives water to us free of cost, buying and selling it for profit violates our inherent right to nature's gift and denies the poor of their human rights (Shiva, 2002).

Charging for water is tantamount to 'commodifying' nature (see Gandy, 2004, p. 370) and constitutes part of the curse of neo-liberal economic management.¹ Like Jackson (1999, p. 96) this paper will argue against the belief that "commodification is, always and everywhere, a 'bad thing'".

In any case, water has long been a ‘commodity’ in most cities around the globe. In Latin America, most water companies originated under private ownership and, therefore, piped water always came at a price (Gilbert, 1998). When ‘municipalisation’ and public ownership took over from less than competent private managers, charging for water never disappeared. Public utilities might have priced water too cheaply, or never got round to collecting the payments, but the principle of charging was rarely, if ever, questioned (Gilbert and Ward, 1985). Later, when public utilities in the rapidly growing cities of the South failed to keep up with the growth of demand, a different form of ‘commodification’ took place—small private operators entered the market to supply the poor (Crane, 1994; Fass, 1978; Gilbert, 1992; Solo, 1999; Nickson, 2001). Privatised tankers and informal companies sold water to the poor, usually at many times the price of water from a tap (Damián, 1992, p. 35; UN-Habitat, 2003, pp. 69–72). In the cities of the South, therefore, water became a commodity long ago and, consequently, “the conversion of water from a ‘public good’ into a ‘marketable commodity’” (Gandy, 2004, p. 371) is anything but new (see Page, 2005, for a discussion of the different phases of commodification in an African context).

The United Nations declared access to adequate amounts of clean water for personal use to be a human right in 2003. This means that all signatory countries to the Convention on Economic, Social and Cultural Rights are obliged to provide their citizens with enough quantities of clean and safe water for domestic use. However, it does not say that water has to be provided for free; only that it has to be ‘affordable’ (UN-OCHA, 2006). Indeed, there is no convincing argument against the principle of charging for water (Devas, 2001; Bond, 2000a; Kessides, 2005; Komives *et al.*, 2005). Those who cite the problem of affordability as a criticism of charging surely ignore the fact that for years most governments have recognised that markets often fail and that compensatory mechanisms are needed to protect the poor. That is why we

have subsidies, hardly a new concept in the debate about water or indeed about most kinds of public good. Providing that subsidy systems are well designed, the poor do not lose out even when water is properly priced. Indeed, a highly sophisticated literature and practice have emerged concerned with how best to deliver and finance subsidies (Trémolet and Halpern, 2006; Komives *et al.*, 2005). Governments of every political conviction have allowed the sale of water while providing subsidies for the poor.² If they have rarely got the balance between cost and subsidy absolutely right, it does not mean that charging for water is wrong.

The most contentious issue in recent debates about water delivery concerns who should provide it: the public or the private sector. If people lack water and sanitation, something must be wrong with the sector’s management. And, since the World Development Movement estimates that the public sector provides 95 per cent of the world’s drinking water, that has been interpreted to mean that most failures stem from the nature of state management. The answer, for many, has been obvious; what is needed is privatisation.

In recent years, denigration of the performance of public water companies has been widespread

Over 170 million people have no access to clean water in urban areas of Africa, Asia and Latin America, according to the latest WHO/UNICEF data (2000). Inefficient operation of state-owned water companies is at the root of this injustice: gross over-staffing and political interference in tariff-setting have starved utilities of the resources needed to expand piped networks to impoverished areas of southern cities (Nickson and Franceys, 2001).

State-owned infrastructure monopolies

suffered from low productivity, deteriorating fixed facilities and equipment, poor service quality, chronic revenue shortages and inadequate investment, and serious

problems of theft and non-payment (Kessides, 2005, p. 82).

Notwithstanding the fact that some highly effective public water companies exist even in poor countries (for example, Porto Alegre, Medellín and Penang), a strong lobby gradually developed in favour of privatising water delivery. And, as the ideology of neo-liberalism spread, the need for privatisation became conventional wisdom in many circles.³

By the 1990s, the international development agencies and many bilateral aid agencies had become devotees of private enterprise and the privatisation of state utilities. Dillinger (1995, p. 7) argued that “governments—by confusing their roles as owner, regulator, and operator—have failed to improve service delivery”. Similarly, a book published by the Inter American Development Bank proposed that: “utilities should be privatised, with an emphasis on achieving widespread domestic participation in ownership of assets” (Spiller and Savedoff, 1999, p. 30). The campaign in favour of more private participation is apparently still very active in Asia where it is claimed that “the public sector has failed to bring safe water and sanitation to Asia’s quarter billion poor urban residents” (Weitz and Franceys, 2002, p. 3). And, while the World Bank now recognises that privatisation is fraught with problems, it is still pushing hard for private participation—albeit usually in association with the public sector (Marin and Izaguirre, 2006; World Bank, 2006).

Privatisation in any form was never likely to be popular with most NGOs or the left but when it involved as crucial a sector as water, it was certain to be controversial. Privatisation was part of neo-liberal dogma that was grist to transnational corporations, whose shareholders’ demands for greater profits would deprive the poor of an essential human right. Such critiques were fed by hostility to the World Bank, IMF austerity programmes and globalisation (Bond, 2000a, 2000b; Robinson, 2004; Peet, 2003; Portes and Hoffman, 2003). They were also fuelled

by the manifest failings of some of the privatisation experiences in many poorer countries (Budds and McGranahan, 2003; Loftus, 2006; Loftus and McDonald, 2001; Nickson and Vargas, 2002; Pérez, 2002; Smith and Ruiters, 2006).⁴

In practice, the scope of privatisation in the water sector in most poorer countries has been rather limited and will clearly not provide a solution for the urban poor (*The Economist*, 2003; World Bank, 2004; Budds and McGranahan, 2003; Marin and Izaguirre, 2006; Hall and Lobina, 2006). Some World Bank economists who are generally sympathetic to greater private participation in infrastructure provision accept that water is different from most network utilities insofar as it is a natural monopoly and therefore should often be treated differently (Kessides, 2005, p. 90). Elsewhere, despite the problems of public management, many governments have decided either that water is too strategic a sector to be privatised (for example, Bogotá) or that their public companies are functioning rather well (for example, in Porto Alegre, Medellín and Penang) (Lahera and Cabezas, 2000, p. 1101; Morandé and Doña, 1999, p. 190; Hall and Lobina, 2006; Ronderos, 2003).

However, the main reason why water privatisation has been limited in poor cities is that the international companies, on whose expertise so much faith was placed, rarely found their investments sufficiently profitable (Budds and McGranahan, 2003).

The companies have learnt that the risks of setting up in a developing country are greater than they thought—and the rewards lower than they hoped (*The Economist*, 2003, p. 7).

Marin and Izaguirre (2006, p. 1) recognise that “the socio-political difficulties of raising tariffs to levels covering costs were often underestimated” and that financial turmoil in Argentina and some east Asian countries took its toll. If the poor in many countries are too poor to pay the full cost of a full water and sanitation service and many do not accept that they should pay, there is

limited scope for making big profits (Komives *et al.*, 2005). Today, private-sector involvement is continuing in the water sector but it is taking a much more nuanced and diversified form, often in combination with the public sector (Marin and Izaguirre, 2006, p. 4; World Bank, 2006).

The key issues therefore remain the same: how to provide effective management of water and sanitation in poor countries and how to supply the poor. Of course, the international development agencies have been providing instruction in this area for years (Kessides, 2005; Spiller and Savedoff, 1999; UN-Habitat, 2003; Dillinger, 1995). The literature, and increasingly the Web, is replete with examples of 'best practice', showing how certain cities or countries have succeeded in creating such institutions. The problem with this flow of advice is that too often it is presented out of context and without specifying the conditions under which 'best practice' struggled to emerge. Best practice normally comes in the form of a toolkit and any reader who has ever tried to programme a video recorder with the 'aid' of a manual will understand the dangers of that. Best practice needs to be put into context. Why have effective institutions emerged in particular places at particular times? What was needed to cultivate them? What did they need in terms of economic, social and political support?

This paper is concerned with how these debates are being played out in one city in Latin America. Over the past 50 years, Bogotá, the capital of Colombia, has faced the same gamut of problems that have appeared in every rapidly growing city of the South. Its population has increased 10-fold since 1951 and its geographical area has grown equally rapidly (Rueda and Rueda, 2005). Bogotá's economy is relatively healthy but nonetheless more than two-fifths of its people are classified as living in poverty (*Bogotá Como Vamos* and PDH, 2005). At the same time, Bogotá is in no way a 'typical' Third World city. Its water company now provides virtually every home with an internal water supply and universal

sanitation is promised very soon. Water for the poor is subsidised even if the cost of water has been rising. Although the company is in public hands, it has increasingly followed more commercialised practice and has sub-contracted various functions to the private sector. In Bogotá, engineers and economists run the company and follow the broad rules laid down by organisations like the World Bank. This regime has arguably been very successful; over the years, capacity has expanded and the city will not have to invest in additional reservoirs for many years to come. The company now makes annual profits but, because it is a public company, reinvests those profits in extending the network. At the same time, service delivery appears to be improving as private sub-contractors have taken over billing and delivery. Private-public participation in the form of sub-contracting appears to be working. The company is generally competent; indeed, in 2002, the National Planning Department rated it the best water company in the country (Ronderos, 2003). And, if we mark it in terms of the criteria laid down by the World Bank (2006, p. xvii), it clearly qualifies as an effective company.⁵

Are *bogotanos* happy with its performance? Yes and no. Public opinion polls are generally positive about the water company and the poor no longer march to protest against their neglect. At the same time, everyone complains about the cost of water and the city's politicians, particularly those on the left, are vehemently criticising the company's management. The cost of water is at the forefront of the debate and 'privatisation', as it is called, is under attack. Both right and left criticise the company for its excessive water losses and for its extravagant pension provisions.

The criticism from the left has become more trenchant since the current mayor campaigned for office partly on the issue of the price of water. He promised to reduce water tariffs by 10 per cent and is now engaged in a campaign to bring that promise to fruition. Since he took office in January 2004, the debate between his administration, the water company, the council and various other state

organisations has been lively and has encompassed arguments about privatisation, sub-contracting, subsidies, efficiency and water losses. The danger is that the vehemence of the debate, and more particularly the way that it is being conducted, could undermine the managerial competence of the water company.

This paper will consider whether water is too expensive in Bogotá, whether the poor can afford to pay the cost of water, how subsidies are being administered and whether the autonomy of management is being threatened. In particular, it will demonstrate the difficult trade-offs that utility companies and popularly elected governments are forced to make in delivering vital products like water and sanitation. It is clear that it is often necessary to increase the price of water in order to improve the service and to increase coverage. It is clear that the public sector's performance has often been imperfect and can learn things from commercial practice. It is clear that subsidies have to be given to the poor and difficult political decisions have to be made about who should provide those subsidies. By examining how those issues are being resolved in Bogotá, I hope to show those interested in water questions that they should learn to recognise colours other than black and white. Depending on local circumstances, either private or public enterprise may be preferable to incompetence which, alas, is all too common among water companies across the globe.

Method

This paper is based on a research project concerned with urban governance and poverty. Financed by the Leverhulme Trust, the research is examining how Bogotá, the capital of Colombia, managed to improve dramatically the quality of its governance over the past 15 years and how that improvement has impacted on the lives of the poor (Gilbert, 2006).

Data for this paper were gathered from a variety of sources. Interviews were conducted during 2005 with five mayors of the city, two former heads of the water company, two

officials of the regulation agency for water, two local councillors, numerous academics and several other important local figures.⁶ In addition, the investigation benefited greatly from the fact that Bogotá is blessed with a large number of surveys and opinion polls. One set, conducted annually since 1998, is concerned with the popular perception of urban governance and evaluates each of the city's agencies.⁷ Bogotá also has a rich source of documentary sources, including reports from the local press, council minutes and internal government documents. Its public officials are very generous in making such information available and finding time to talk to itinerant investigators.⁸

The research is based primarily on qualitative methods but is backed up by a substantial stock of quantitative material. It is also based on my long experience of working in and on the city.⁹

The Positive Face of Water Delivery in Bogotá

McRobie (1996, p. 15) claims that, in Third World cities, "scarcely any of the poor benefit from the high-cost, high-tech infrastructure and services provided for the well-off citizens". Similarly, Gandy (2004, p. 368), with reference to water, asserts that since the 1970s and 1980s, there has been a "general deterioration in urban living conditions". In east Africa, "there has been a dramatic decline in water use" since the late 1960s (Thompson *et al.*, 2000). Bogotá is clearly very different insofar as it provides fairly complete access to water and sanitation. In 2004, every legal settlement in the city was linked to the water network; 96 per cent of the population were linked to the sewage system and 88 per cent to the drainage network (<http://www.bogota.gov.co/galeria/cifrasacueducto2004.pdf>).¹⁰ In addition to supplying most of the city, the water company also helps to service a much larger area, selling water in bulk to nine neighbouring municipalities and many others beyond (Duff and Phelps, 2004, p. 2).

Connection to the water system in Bogotá means “a full pressure, ‘24-7’ water supply” (World Bank, 2004, p. 160). The water company in Bogotá has used a strategy different from that employed in Buenos Aires during the 1980s, where water connections increased dramatically despite a substantial reduction in investment (Novaro and Perelman, 1994). Nor is Bogotá like Lima in 1990, “when some areas were receiving little or no water at all from public pipes” (Glewwe and Hall, 1992, p. 31). The service is certainly not without interruption, but cuts have been comparatively rare since the drought of 1992 and the associated period of power rationing. Cuts were common in 1997, the result of the collapse of a tunnel connecting one of the main dams to the city, but the service is generally good and the quality of water supplied acceptable (Nieto, 2003, p. 64).

The company claims that the spread of services to the poorer parts of the city has contributed greatly to improving health in the city

Thanks to the arrival of drinking water to the marginal neighbourhoods, child deaths through diarrhoeic illness have fallen dramatically from 17 per 100,000 inhabitants in 1998 to 3.4 in 2002 (EAAB, 2003, p. 223).

Publicity campaigns have also helped to improve health conditions in these areas.

These improvements have been built on solid financial foundations. Duff and Phelps, the rating agency, have raised its risk rating from AA- status in 1999 to its current rating of AA+ and, in 2005, BRC Investor Services gave the company a Triple A rating (*El Espectador*, 2005a).¹¹ The company is immensely proud of the fact that, since 1997, it has made profits every year bar one (Duff and Phelps, 2004) and that all of its profits are reinvested in extending the network (EAAB, 2003, p. 241).

The company is nowhere near perfect but, by the standards of most cities in Latin America, it is impossible to deny that the company is highly effective and that service delivery is good. UN figures suggest that

coverage is only matched in more affluent cities such as Buenos Aires, Montevideo, Santiago, Porto Alegre and São Paulo (UN-Habitat, 2003b, table C.3). Under these circumstances, it is difficult to understand quite why the company is currently subject to so much criticism.

The Affordability of Water

The Cost of Water

In the 1980s and early 1990s, criticism of the company was mainly directed at its failure to provide water to every part of the city and at the rising frequency of service cuts. Recently, most criticism has shifted to focus on the cost of water. The city’s commercial and industrial lobby has been complaining for years that Bogotá has the most expensive water in the country (CCB, 2004, p. 8) and asks how its businesses can be expected to generate exports if such a key service is so expensive? Why do the rich pay so much more for water than the poor, when national legislation decrees that price differentials should be much smaller? Meanwhile, the left argues that the cost of water has increased so rapidly in the past few years that the poor cannot afford to pay their bills. The reforms of the early 1990s have cut subsidies and allowed the water company to put up prices. Economic recession has aggravated poverty in the city and rising water prices have accentuated that problem by further cutting into family budgets. The left’s presidential campaign of 2001 focused on this issue and its attack has continued ever since (*El Espectador*, 2001). The current mayor of Bogotá came to office with a campaign pledge to reduce the cost of water by 10 per cent.

It is true that water and sewerage charges are higher in Bogotá than in the rest of the country (Contraloría, 2005; CCB, 2004), but the EAAB defends itself in terms of the quality of the service that it offers; Bogotá has a better and more complete service than any other city in Colombia. One general manager after another has made the same case: no other city has such wide coverage,

none has an equivalent drainage system and none has to carry water from as far away as Bogotá (*El Tiempo*, 2004; Álvarez, 2001). Bogotá has a choice they say. If it wants a good service, then heavy investment is required to provide the whole city with water, sewerage and drainage. If prices are cut, then the service will deteriorate. Opponents of the company counter by suggesting that the company is inefficient, that it pays its workers too much, has too generous a pension scheme, has an excess of water, much of which it loses, and is generally less than competent (see below).

In 1994, Congress sought to depoliticise debate about public service tariffs by laying down a clear set of rules for pricing and setting up regulatory commissions to oversee performance (CRA, 1995). While the regulatory agency seems to have worked effectively in the electricity sector, control over water has been less convincing. During interviews, it became clear that authority over water pricing was split between the CRA, the relevant minister, the mayor and the board of directors. Who ultimately decides seems to depend on the relative power and influence of the minister, whether elections are approaching, the character of the mayor and the autonomy of the general manager. The regulatory agency in the case of water appears to have only an advisory capacity—if political pressure is strong enough, the agency is forced to find some way to recommend a reduction in prices. Even then, while the company has to follow the rules laid down by the CRA, it does have “room for manoeuvre”, as one interviewee put it.

A key problem seems to be that the regulatory agency does not have the power to measure the agency’s efficiency. This is why so many attacks are aimed at the competence of the company: “the more the inefficiency, the higher the cost, and the higher the cost, the higher the tariff” as one district comptroller put it (Nieto, 2003, p. 63). However, rather than strengthening the role of the regulator, politicians, mayors, councillors, regulators and the water company prefer to engage in a game of mirrors. It is difficult to be sure

whether prices are rising because what is included in the tariff is constantly changing. Currently, the company does not pay for the cost of sewage treatment and, recently, it was decreed that the company’s pension costs could not be included in the price of water. Whether the cost of pensions is included in the basic tariff may affect the water bill, and therefore be of interest to politicians, but its exclusion simply means that the cost is taken from the company’s profits. Since the profits are all reinvested in service expansion, the consequence is either that the company will slow its connection programme or increase its charges in the future. The decision whether lower tariffs are preferable to increasing the rate of connections is a perfectly valid issue for informed political debate. Whether it should be the subject of day-to-day political jousting is open to question.

The Issue of Subsidies

Water for the poor in Bogotá is heavily subsidised. Water companies in Colombia long ago adopted a practice of cross-subsidisation whereby the cost of public services was calculated on the basis of where every home is located. Each block of housing in Bogotá is classified into one of six socioeconomic categories and different rates are charged to each group. In Bogotá, the rich currently pay almost five times as much per cubic metre of water as the poor.

The cost of the subsidy was a contributory reason why the water company was virtually bankrupt in 1992. At the time, virtually every consumer was paying less than the commercial price and almost all companies were in financial difficulty. National Law 142 of 1994 sought to raise prices across the board so that companies could generate financial surpluses with which to invest in increased capacity—part of the neo-liberal macro-economic strategy of the national government. If realistic pricing was a key element in the equation, the principle of subsidising the poor was never questioned; indeed, it could not be questioned given that it was enshrined in the Constitution of 1991 (Ochoa, 1996).

However, the law did reduce the extent of subsidisation by decreeing that, in future, the rich should pay only three times more per cubic metre of water than the poor. It also changed the way in which the subsidies would be paid. Instead of each water company providing the subsidy, the monies should be drawn from the general budget of each municipality.

Neither aim has so far been achieved. In Bogotá, the differential between rich and poor is gradually being reduced but is still considerable. In 1995, the difference in the cost per cubic metre of water in Bogotá between the richest and the poorest groups was around 7.4 times; today, the difference is 4.6 times. Using a different criterion, however, the poor receive a much higher subsidy; if the basic charge is included, the rich and the commercial sector pay at least eight times more per unit of water than the poorest households (*El Tiempo*, 2005d).

The differential would already have been reduced to the legal limit of three times had it not been for local political opposition. Few cities in Colombia have fully complied with the legislation because their leaders have been fearful of the political backlash, a fear that has often been shared by the minister in charge of the water sector. Nevertheless, prices for the poor are rising as the amount of the subsidy is reduced and as more investment is being devoted to expanding coverage. In addition, the rich are paying less as the national policy is gradually implemented.

The aim of law 142, to shift the source of subsidies to general taxation, is also far from being achieved. The legislators sought to find a way round the subsidy issue by proposing that finance for subsidies should be drawn from a solidarity fund set up by each municipal council. Eight years later, although two out of five of the country's municipalities had such a fund, only three were actually functioning (Bucaramanga, Marinilla and Cali). In Bogotá, the council has established a fund but that fund has very little money (Contraloría de Bogotá, 2005, pp. 164 and 172). Lacking funds from general taxation, the burden of financing the subsidies remains with the water company.

Affordability

That water can become too expensive for the very poor is beyond doubt, not only in poor cities but also in rich countries. Affordability, for example, became a major issue in the debate about water privatisation in the UK, particularly when the number of customers having their service suspended rose rapidly (Bakker, 2001).¹² What is more debateable is the level at which water becomes 'too expensive'. A commonly used threshold is that the poor should be able to devote up to 5 per cent of their household budget to the cost of water and sanitation, although recent work has found that some are prepared to pay more and some less (Komives *et al.*, 2006, p. 41). In five small Moroccan cities, McPhail (1993) found that people were prepared to pay a lot more than that. Elsewhere, people were prepared to pay much less, especially when they felt that water was a human right and therefore should come free. They were prepared to pay private suppliers but not a public water company. In one area of Guayaquil, Ecuador, for example

people were unwilling to pay as much for better and more water as they were paying for water from trucks. They said they feared an overcommitment to monthly charges when their employment and income were unstable (Salmen, 1987, p. 42).

In Bogotá, affordability has become an issue because the poor have been suffering from three parallel pressures: rising average prices as the water company seeks ways to break even; reduced subsidies, as the degree of cross-subsidisation is reduced; and rising unemployment. The ability to pay became a particularly serious matter in 1997 when a severe recession hit Colombia. In Bogotá, unemployment reached 21 per cent in 2001 and the proportion of households living in poverty rose to 55 per cent. While the economic situation has improved during the past 5 years, unemployment in the city is still around 12 per cent and 43 per cent of households are still living in

poverty (*Bogotá Cómo Vamos* and PDH, 2005). Even the World Bank recognises that recession

presents a major challenge to policy-makers since it lowers the ability and willingness of the poor to pay for services and increases the tendency for illegal connections and defaults (Persaud and Ortíz, 2002, p. 337).

If water in Bogotá is expensive and bills for the poor are rising relatively faster, does this mean that the poor cannot afford to use the service? A recent study revealed that infrastructure costs as a proportion of the household budget of the poorest groups in Bogotá amounted to 11 per cent (*El Tiempo*, 2005e) and had doubled over the past 8 years (*El Tiempo*, 2005b). By contrast, the second and third-richest groups were paying proportionally no more and the top stratum was paying less; costs for the latter fell from 7 per cent of the household budget to 5 per cent. Since water constitutes at least half of total monthly infrastructure costs, these figures amounted to an attack on the price of water and sewerage.^{13 14}

The annual survey of *Bogotá Cómo Vamos* adds regular fuel to the political fire by reporting that at least four-fifths of all complaints about the water company are about the cost of supply. Figures on non-payment are also worrying for, even though the agency claims that most of the poor in Bogotá act responsibly, every month the company suspends as many as 5.6 per cent of all of its accounts (some 100 000 homes) (Contraloría de Bogotá, 2005, p. 14).¹⁵

Economists are well aware of the dangers that can arise from ‘overcharging’ when the demand for public goods is elastic. As Sepehri and Chernomas observe

In the health sector, ‘the most recent demand studies’ findings indicate that household’s utilization of health services are more responsive to changes in price and income than was initially reported by the early demand studies. Response to price and income are also found to be

greater among the poor than the rich (Sepehri and Chernomas, 2001, p. 183).

Clearly, poor people should not be forced to cut back on key services like health-care or water. Unfortunately, it is less than clear whether the demand for drinking water in poorer cities is price-elastic, because there are relatively few studies and because the water supply is so seldom metered (Zhang and Brown, 2005). Where people are charged directly for the use of water, however, demand does appear to be price-elastic and there is evidence that when incomes fall poor families prefer to cut consumption rather than going into debt (Salmen, 1987, p. 43; Herbert and Kempson, 1995).

In Bogotá, as prices have risen, water consumption has fallen. Indeed, the reduction in usage is truly dramatic: in 1980, the average customer consumed 108 litres every day, in 1993, 82 and, in 2004, 45. A campaign to save water¹⁶ launched by Mayor Mockus in 1994 certainly explains some of the fall but, because there has been a consistent rate of decline since 1980, the rising price of water and the growing efficiency of the billing system seem to have been the main causes (Nieto, 2003, p. 62). The average household in Bogotá consumes much less than cities with similar levels of income (World Bank, 2003, p. 113).¹⁷

While declining consumption is environmentally friendly, falling demand has a welfare dimension insofar as the poor have cut consumption more rapidly than the rich. Between 1996 and 2004, consumption by poor households fell by 53 per cent compared with 30 per cent among the rich. At the same time, it is difficult to argue that the poor in Bogotá are being deprived of water. My estimates suggest that, in 2005, daily per capita consumption by very poor households, who make up 7.6 per cent of all customers, was 35 litres per day (Table 1). There is no consensus in the literature about the minimum that an individual needs, although the WHO is usually cited as recommending a minimum of 25 litres per person per day and the United Nations used the 20 litres figure as

Table 1. Consumption levels per house and per person, Bogotá, 2005

Stratum	Monthly consumption per customer/house (cu. metres)	Persons/house	Consumption per capita per diem (litres)	Percentage of all consuming households
Total	12.13	5.77	70.1	100.0
Poorest	10.87	9.93	36.5	7.6
2	12.16	6.04	67.1	33.3
3	11.52	5.75	66.8	38.4
4	12.36	3.90	105.6	12.5
5	14.16	3.55	133.0	4.5
Richest	16.10	4.27	125.7	3.6

Notes: Virtually all water accounts are delivered to the owner of the house rather than to individual households. Of course, there may be some poor houses that have more than the average number of people living there. Under such circumstances, water consumption may be dangerously close to the minimum benchmark.

Sources: Population figures provided by DAPD for 2001 and consumption figures from CRA.

the goal in its Water Decade campaign (Chattopadhyay, 2001, p. 5). However, some reports of WHO guidelines mention figures of between 25 and 100 litres (*Public Citizen*, n.d.) and 50 and 100 litres as average monthly consumption (Komives *et al.*, 2005, p. 43). Since every group in Bogotá consumes well above 25 litres per day, the climate is temperate, averaging 14°C, per capita consumption of water appears to be reasonable for all but the very poorest. A different subsidy system might solve the problems of the very poorest but, by the standards of most cities in Africa, Asia and Latin America, consumption levels seem to be acceptable.

Is the Water Company Efficient?

The price of water is linked to the question of efficiency; if the company is inefficient, the cost of water may be too high. During the last fifteen years, debate about the company's efficiency has revolved around three particular questions. Has the city created too much capacity? Does the company lose too much of its water through leakages and unpaid bills? And, does the company pay too much, directly and indirectly, to its labour force?

Does the Company Have Too Much Water?

Although the company can supply up to 28 cubic metres per second, consumption

averages only 15 cubic metres per second (Nieto, 2003, p. 60; EAAB, 2003). The water company explains the surplus capacity either in terms of the lumpiness of investment—it cannot increase capacity by one cubic metre per annum—or in terms of security—all of the water cannot be relied upon all of the time. Periods of drought lower the level of water in the dams and even when climate does not intervene there is always the danger of guerrilla attacks cutting the water supply.¹⁸ The most positive gloss is that further expansion will not be needed until 2017 (Álvarez, 2001; Nieto, 2003, p. 60).

Recent falls in consumption have highlighted the problem of overcapacity. Although one former manager is delighted that Bogotá is showing the world how to economise on the use of water, the financial implications for the company are serious and it has been trying hard to sell as much of its surplus as possible. It supplies water to low-income families, whatever their legal status, supports the legalisation programmes of recent mayors and increasingly sells water to other municipalities, often well beyond the city boundaries.

Water Losses

Water losses averaged around 25 per cent between 1970 and 1976 but rose to 43 per cent between 1986 and 1992 (EAAB, 2003).

While both figures were better than the Colombian average, losses of this order were clearly unacceptable.¹⁹ They were caused by a combination of non-payment of bills, water being stolen (often by self-help settlements), false metering (often by companies) and leaks (due to old pipes or lack of maintenance).

The company's economic studies have concluded that losing water is often cheaper than investing in new pipes or repairs. Since most of the losses occur in the poorer parts of the city, the low price charged to the poor means that the company loses relatively little income (Álvarez, 2001). In addition, because the company has so much water in reserve, the opportunity cost of losing water is low. Finally, since the mains network is now quite old, repairs are expensive and it is often cheaper, and less disruptive, to put up with leaks rather than to close down the system for several days for repairs. Despite the strength of these arguments, the company has taken some action and managed to reduce losses from 45 per cent in 1988 to 37 per cent in 2003, although this was a long way from the targets established for it.²⁰ Local critics point out that Bogotá currently loses more water than the combined consumption of the cities of Barranquilla and Medellín and perhaps of several small cities as well (*El Tiempo*, 2005c).

The Pension Fund and the Labour Force

Another major criticism of the company is that it has been far too generous to its staff. In the early 1990s, labour charges made up 79 per cent of the company's total costs, a figure that should be compared with better-run enterprises where the proportion was less than 45 per cent (Yepes, 1992, p. 73). To some this was the result of the water company having been "captured by the trade union", something that had been permitted by the "complacency" of the heads of the agency, who were more interested in their political careers than in the future of the agency (Avendaño, 1997, p. 51). Recent falls in the number of staff, as the company has

sub-contracted out more of its services, have weakened that argument but have made the pension problem worse.

Because workers could claim a pension after 20 years, the number of pensioners increased rapidly over the years: from 820 in 1980 to 1394 in 1990 to 3486 in 2004. In 1981, there were 3 employees for every pensioned worker; in 1993, 1.3 to 1; and, in 2004, only 1 worker for every 2.3 pensioners (Nassar *et al.*, 1995, p. 80). In 2002, the pension deficit was twice as large as the annual income of the company (Duff and Phelps, 2004, p. 2) and pension contributions made up 12 per cent of the average consumer's bill (Nieto, 2003, p. 63).

The Nature of Political Opposition

At times the poor of Bogotá have taken to the streets to protest about the water or sanitation service. Protests were quite common at the turn of the millennium, particularly when the left was using the price of water as part of its campaign for the presidency (Cabrera, 2001). However, unlike the situation in many other Colombian cities in the 1980s, protest in Bogotá never led to a general strike (A. Cabrera *et al.*, 1986; Santana, 1989). Discontent always tended to be localised, the inhabitants of particular neighbourhoods coming out to protest about a specific local problem (Hataya *et al.*, 1993). Today, even this kind of protest is rare, something about which a recent head of the water agency is very proud; the service is much better so people no longer march along the street beating on their saucepans (Álvarez, 2001).

Today, discontent is more likely to be registered in the dignified form of poor ratings in the annual *Bogotá Cómo Vamos* survey. Since the results are published on the front-page, they are taken very seriously.²¹ Agencies that fair badly, feel the political backlash and Table 2 shows that, although the water company does not earn bad ratings, over the past 5 years it has not done as well as other companies providing similar kinds of services (Table 2).

Table 2. Evaluation of service in domestic public services

Sector	2000	2001	2002	2003	2004	2005
Gas	4.16	4.15	4.17	4.36	4.43	4.49
Electricity	3.78	3.48	3.87	4.06	4.24	4.34
Telephone	ND	3.38	3.75	3.88	4.03	4.03
Rubbish	ND	3.75	3.82	3.94	3.97	3.97
Sewerage	3.55	3.32	3.61	3.74	3.88	3.88
Water	3.66	3.31	3.67	3.62	3.78	3.78

Key: 1 = very bad; 5 = very good.

Source: *Bogotá Cómo Vamos* (2005).

The EAAB does relatively badly because it receives so many complaints about the cost of water and sanitation; in 2005, 83 per cent of complaints about the company were about the “high tariffs”. Some would argue that private ownership is the reason why the electricity and gas companies are more popular than the water company, and why, since much of the distribution and billing functions was sub-contracted to five private operators in 2003, the image of the latter has improved.

Despite Law 142 politics have continued to intrude in the setting of prices and subsidies. The volume of the debate in Bogotá has recently risen because the mayor who took office in January 2004 campaigned partially on the basis of reducing water charges. Since taking office, many of his, now arguably nominal, supporters have been roundly denouncing the high cost of water and the general competence of the water company. Indeed, the last two comptrollers (posts appointed by the city council) have launched major attacks on the water company and the ‘overpricing’ of water and sewerage (Nieto, 2003; Contraloría de Bogotá, 2005). One recent reaction to that criticism is that water prices for 2006 were maintained at current rates for the richest groups and a 70 per cent subsidy offered to the poorest (*El Tiempo*, 2005a). In March, the cost of water was reduced by an average of 13 per cent for the bottom four social strata (*El Espectador*, 2005c). Since the water company is required to pay for these subsidies from its profits, and its profits are always reinvested in new service expansion, the company argues that this will delay development of the sewerage system.²²

Politicisation of the debate about pricing has led to a less than transparent pricing schedule. While the price to be paid by each household in 2006 seems to have fallen, calculating the extent of the fall is less than easy. The bi-monthly bill contains separate charges for water, sewerage and for rubbish collection and the cost of each depends on the level of consumption and the economic stratification of the house. There is a connection charge, a basic charge and a variable charge based on the level of consumption. One moment the basic charge is modified, then the connection charge, then perhaps a change in the variable cost. The costs to particular groups also change over time because of the reclassification of households from one socioeconomic sector to another. Since the stratification rating determines the subsidy level for each household, it affects the cost of the service. Calculating accurately whether prices are rising or falling for any income-group is extremely complicated—arguably this is one of the symptoms of politicisation, all sides can gain credit, no one is free of blame?

Even more worrying is that political opposition may be disrupting the company’s day-to-day activities. The city council, having lost much of its control over the company in the early 1990s—for example, over the signing of contracts and naming people to the bureaucracy—has been seeking ingenious new ways of influencing the city’s public agencies (EAAB, 2003, p. 241). One innovation is to attempt to make managers’ lives difficult by constantly summoning them to

attend council meetings. Different agency heads have told me that they spend several days a month at the council, sometimes listening to complaints without being given any opportunity to reply. The councillors make accusations that they hope will appear next day in the press and on the radio. As one former head of the water company said

The council knows that it can make my life impossible. They also know that I need them to approve things, my budget, tariffs and permission to contract debt. As such, they can treat me how they like.

Worse still is that all the heads of Bogotá agencies are regularly being summoned to court, both when they are in office and afterwards. The claims can go back years and most former managers are still defending themselves against a whole range of diverse charges.²³ At least one agency head has taken out a personal insurance policy that pays his legal costs.

Another new tactic is to attack the administration through the city's comptroller and solicitor. These posts were established under the auspices of the 1991 constitution to provide more effective control over local authority action than that previously offered by the city council. Many in the city are now questioning whether that aim has been distorted. Have councillors merely voted in controllers who can be relied upon to hound members of the public administration? While some of the denunciations made by the control agencies are perfectly reasonable and carefully documented, there is clearly some truth in the accusation of political bias. The water company is particularly open to criticism because its service is so closely linked to the welfare of the population, its water is expensive and because, unlike several other city agencies, it continues to be a public company.

Conclusion

By the standards of most cities in Latin America, Bogotá has an excellent water and drainage system. Recently, the city has been

successful in reforming its water company, maintaining it in the public sector and expanding coverage. Most cities in poorer countries would be delighted to have virtually universal water and sewerage coverage and such a high quality of service. Experience in Bogotá also shows that the doom-laden prophecies of some experts are overpessimistic. It most certainly contradicts Atkinson's (2005, p. 279) declaration that: "social conflict and insecurity and degraded environmental conditions are a universal accompaniment to urbanisation". It also gainsays the argument that "as increasing numbers of cities become integrated into a highly competitive global system the scale and intensity of water conflict is likely to become more pervasive" (Gandy, 2004, p. 373). Either prognosis is possible, but if other cities follow some of the lessons of Bogotá, such a social disaster is unlikely.

Of course, the company is not perfect. Despite its carefully cultivated image of technical competence, it has some very obvious failings. It charges more than most other companies in Colombia and, while it has managed to reduce its water losses, they remain alarmingly high. It rewards its employees very generously and has a vast number of former employees in receipt of a pension—the result of previous mismanagement, which has now largely been corrected. Arguably, it has created far too much capacity and high prices have cut the demand for water too far.

Currently, the agency is under attack from both the right and the left. Both accuse it of charging too much. Its defence is that it is creating a service for everyone and in the process creating a more equitable city. It cannot continue to do this if it is required to cut prices. The left are concerned that the poor are being charged rates that they cannot afford at a time of economic difficulty and there is some evidence to support that claim. Yet the water company is not wholly responsible for this situation. National legislation decrees that the amount of cross-subsidisation must be reduced. Although the rich will continue to pay much higher tariffs than the poor, the rules say that the differential must be reduced

and so poor households must pay more. When the national legislation was formulated, this was not unreasonable because poor consumers were paying nowhere near the real cost of supply. Today, there are increasing signs that some are unable to pay the higher bills. And, it is arguable that a three-fold differential in bills between rich and poor households is too little in a city where the richest 10 per cent receive 49 times more than the poorest 10 per cent (*El Tiempo*, 2006).

This raises the question of how the tariff should be subsidised. The national legislation says that every municipality should create a solidarity fund from which subsidies for public services can be drawn but so far Bogotá has not complied. The law follows the general advice given by the World Bank, even if the tenor of that advice seems to be wavering slightly (Kessides, 2005). However, the mayor does not want to raise taxes (indeed this was a campaign promise), but he does want to cut water prices. The 'solution' is that the water company pays some of the subsidy from its profits but, since the profits are always reinvested in service extensions, this cuts the rate of service improvement. To bring the water company into line, the mayor has changed the head of the company, appointing a close political ally.

The worry is that the current approach to the water question in Bogotá risks pushing water too much into the political arena. This is not unknown, of course, even in developed countries, as recent experience in the UK demonstrates (Bakker, 2001). Nonetheless, it is potentially dangerous. Arguably, Bogotá has a good water system today because for many years partisan politics was kept at arm's length (Gilbert and Dávila, 2002). When in the 1970s, political influence in the company increased, political appointments raised staff turnover, bloated their number and led to a decline in efficiency (Avendaño, 1997). Unlike the situation in Medellín where the politicians were kept out of the public service utility (EPM), and which consequently acted much more like a private company, Bogotá politicians allowed the heads of the water company (and other

agencies in the city) to do what they liked with the enterprise. A high-ranking employee of the company denounced the 'Uruguayisation' of the enterprise when he resigned in 1979 (*El Espectador*, 1979). Most people with whom I have talked attribute the improvement in the company's fortunes since 1993 to keeping the politicians out.

Excessive politicisation and certain kinds of political interference are dangerous because they quickly threaten the effective operation of a public company. As Spiller and Savedoff point out

While the potable water sector may be constructed of concrete, it is nonetheless quite fragile. The water sector suffers acutely from the implications of three essential features: large sunk costs, economies of scale and density, and massive consumption. Because of these features, the sector is prone to government opportunism, triggering a downward spiral of low prices, low investment, low quality, low coverage, and high levels of corruption (Spiller and Savedoff, 1999, p. 29).

Over the past decade, Bogotá has escaped most of those failings partly at least because high-level political decisions have kept council interference to a minimum.

Of course, when technocratic management proves to be less than efficient, then politically led change is required. Recent heads of the agency recognised certain faults in the company and reacted by sub-contracting billing and water distribution to private companies. Today, this form of 'privatisation' is under attack—perfectly reasonable providing that the debate does not become too polemical, thoroughly acceptable so long as it does not lead to excessive interference in day-to-day management. Despite the agency's imperfections, Bogotá should be proud of its water company. Other cities in poor countries can learn much from the history of this company and how it now manages to provide virtually everyone in the city with water, drainage and sewerage. The company's operations can certainly be improved and the city's politicians are right to apply pressure

with that aim in mind. At the same time they must be very careful not to intervene in ways that may undermine the very qualities that allow the company to function as well as it does.

Globalisation and what some might argue are neo-liberal forms of management have impinged on the activities of the company for years. It expanded capacity with the help of massive loans from the World Bank. It modernised following the engineering and economic rules propagated from Washington but then it failed badly in the 1980s, partly because the World Bank failed to apply its own rules, and the national government was forced to bail the company out (Gilbert, 1990; Gilbert and Dávila, 2002). Throughout the period, it has remained in public hands, although some of its work is today contracted out and key functions are now in the hands of transnational companies. All of this is part of the complex process that has created a company that, by the standards of poor countries, is very successful. The experience of Bogotá cannot tell us whether similar approaches can work anywhere else, but it does demonstrate that commercial practice combined with relative efficiency, political autonomy and, very importantly, a commitment to cross-subsidies can create a public company that actually delivers. Both rich and poor receive a generally good and reliable service, the rich contribute to the service for the poor and only the extremely poor struggle to pay their bills. Compared with the situation in so many poor cities, this constitutes a commendable performance. Thus, it is a salutary lesson, to the right and the left, neo-liberals and defenders of the state, not to overgeneralise.

Notes

1. Jackson (1999, p. 96): "Commodification refers, literally, to the extension of the commodity form to goods and services that were not previously commodified".
2. Experience in Chile shows that even centre-left governments are prepared to sell water with a clear conscience when targeted subsidies are available: in 1995, 18 per cent of customers in Santiago received water

subsidies, the equivalent to 5.2 per cent of total billing costs (Morandé and Doña, 1999, p. 175). The poor now receive water vouchers to pay their bills.

3. In this paper, I will broadly follow Harvey's definition of the term

Neoliberalism is in the first instance a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets, and free trade. The role of the state is to create and preserve an institutional framework appropriate to such practices. . . . But beyond these tasks the state should not venture (Harvey, 2005, p. 2).

4. Perhaps the cessation of the contract of Suez and its affiliate Aguas de Barcelona in Buenos Aires in March 2006 is the final straw (<http://news.bbc.co.uk/1/hi/business/4830720.stm>).
5. The authors state that "the water service people want" includes

adequate, safe water and sanitation for all inhabitants in the area; a utility that is able to invest to meet new demands, good management that keeps the cost of service low; and tariffs that cover costs (but no more), with a social safety net to ensure that everyone can get at least basic services (World Bank, 2006, p. xvii).

The paper shows that Bogotá's water company largely satisfies all of these goals with the possible exception of the third.

6. With respect to this paper, I should particularly like to thank former mayors Paul Bromberg, Jaime Castro, Antanas Mockus and Enrique Peñalosa, former heads of the EAAB Astrid Alvarez and Alberto Merlano, Cristián Stepper and Rene Urueña of the CRA, former District Auditor, Juan Antonio Nieto, and various academic friends for the time they spent with me discussing these issues. My failure to cite their views *verbatim* is because I promised that our interviews were confidential conversations.
7. The Leverhulme project paid part of the cost of the 2005 survey in return for adding certain questions.
8. Maria Teresa Garcés co-ordinated the local research team and Sabina Talero collected background material on the water sector.

9. I have been working in Colombia since 1967 and have acted on various occasions as a planning consultant as well as conducting a number of research projects in the city (Gilbert and Ward, 1985; Gilbert, 1998; Gilbert and Dávila, 2002).
10. A small number of new illegal settlements exist but these do not account for more than 1 per cent of the population of the city. In any case, the company supplies them through a fleet of water tankers.
11. The maximum rating for Duff and Phelps is AAA.
12. Suspending water connections is now prohibited.
13. The cost included electricity, gas, light and rubbish collection as well as water and sewerage.
14. In the UK, 3 per cent of disposable household income is the affordability threshold for water.
15. My calculations would put the figure still higher, at up to 11 per cent of homes. To put this into context, however, comparable figures for the UK in the early 1990s were equally alarming. According to Herbert and Kempson

Almost two million households in Britain had defaulted on their water bills during 1994—nine per cent of all households and a nine-fold increase in the past five years (Herbert and Kempson, 1995, p. 77).
16. *Viva Bogotá Viva*, whose objective was to reduce consumption by 34 per cent to 160 litres per diem by 2000.
17. Average consumption in low-income cities in 1998 averaged 88 litres per day, in lower-middle-income cities 161, upper-middle-income countries 232 and 247 high-income cities. However, these figures appear to be high when compared with the average combined per capita consumption of water in England and Wales in 2004/05 at approximately 150 litres per person per day and in Denmark and Germany 127 litres per person per day (<http://www.ippr.org.uk/pressreleases/?id=2330>). In Bogotá, with fewer washing machines, dishwashers and even baths, consumption among even the richest is only 125.7 litres each day (see Table 2). My own domestic consumption per capita is 142 litres per diem.
18. On 20 January 2002, the FARC tried to dynamite one of the major valves in the pumping system.
19. Guillermo Yepes of the World Bank claims that at the turn of the 1990s, Singapore lost less than 10 per cent of its water, São Paulo 27 per cent and Santiago 28 per cent. Only
20. Caracas in his limited list had a higher rate than Bogotá. (Yepes, 1993; cited in Nassar *et al.*, 1995, p. 70). In Colombia, the companies in Medellín, Valle, Bucaramanga and Cúcuta all had better records (Giraldo and Jiménez, 1996, p. 225).
20. A maximum of 30 per cent is permitted by the regulatory agency (*El Espectador*, 2005b) and 19 per cent was the goal laid down for 2000 in the Santafé I project (Nassar *et al.*, 1995, p. 47).
21. It is well advertised partly because *El Tiempo* was one of the founders the survey.
22. In neighbouring Cundinamarca, other political groups are attacking the water company with other, much more politicised, agendas. Attacking the water company of Bogotá provides “a perfect platform on which to launch a campaign for the governorship” according to one interviewee.
23. One head mentioned that he/she is still fighting one case, from a different job, that dates back 9 years and his/her immediate predecessor was still fighting more than 20 cases. An earlier head was still fighting 15 cases.

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