# Water

> France and the UK are the only two OECD countries whose water operations are mostly run by private companies. Both countries have virtually universal connection to water supply for urban populations. However, even in these two cases, universal coverage was also achieved through the predominant role of public operators and public finance.

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# 1. Introduction

Based primarily on published sources, this paper looks specifically at the provision of water supply and sanitation services for low-income consumers in England and Wales. Related issues are increasingly attracting attention due to concerns with the affordability of such essential services. There is strong evidence that the 'poor pay more' syndrome applies to the water sector in England and Wales. More precisely, the poor pay more to get an equivalent amount of water or level of service. The table below shows that water poverty, defined as the percentage of households paying above 3 per cent of their disposable income in water bills, affects households in the lowest income quintile by more than three times the average of all households.

**Table B of Cross Government Review of Water Affordability report**

PERCENTAGE OF HOUSEHOLDS SPENDING MORE THAN 3 PER CENT OF DISPOSABLE INCOME ON WATER AND SEWERAGE BILLS

| *Average Income* | *2004–05* | *2005–06* | *2009–10* |
|---|---|---|---|
| Working household with children | 1.2% | 1.5% | 1.9% |
| Working household without children | 3.2% | 3.8% | 4.1% |
| Non Working household with children | 16.5% | 19.0% | 23.0% |
| Non working household without children | 29.9% | 33.4% | 36.5% |
| Pensioners | 11.6% | 13.6% | 16.9% |
| All households | 7.9% | 9.2% | 10.7% |

| *Lowest income quintile* | *2004–05* | *2005–06* | *2009–10* |
|---|---|---|---|
| Working household with children | 6.3% | 7.4% | 9.5% |
| Working household without children | 29.5% | 33.2% | 37.2% |
| Non working household with children | 20.6% | 23.3% | 27.6% |
| Non working household without children | 47.1% | 51.7% | 55.0% |
| Pensioners | 28.0% | 32.3% | 37.5% |
| All households | 29.4% | 32.9% | 36.9% |

Source: *CCWater evidence to House of Lords (House of Lords Science and Technology Committee, 2006b: 144).*

In 2004-05 households in the lowest income quintile were spending an average of 2.92 per cent of their annual disposable income on water bills. This compared with 1.02 per cent spent by average income earners and 4.54 per cent spent by pensioners. Projections for the year 2009-10 were at 3.14 per cent for the lowest income quintile, 4.87 per cent for pensioners and 1.10 per cent for average income earners (Department for Environment, Food and Rural Affairs, 2004: 17).

The paper first addresses the characteristics of the service and the market and institutional structure. It then illustrates charging methods and the mechanisms adopted to ensure the affordability of provision for low-income consumers. Final sections discuss findings on possible approaches to addressing affordability. In so doing, the analysis focuses on England and Wales but it also draws on international experience.

The technical characteristics of water supply and sewerage affect the way in which these services are organised and the extent to which it is possible or desirable to introduce different forms of competition. The fact that the bulk of activities constitute a natural monopoly means that, with minor exceptions, services are typically organised as local or regional long term monopolies. This also restricts opportunities for introducing the most advanced forms of competition, notably product market competition, and implies a more important role of regulation.

In 1989, the Thatcher government privatised the water industry in England and Wales by transferring the whole ownership of operations and infrastructure to 10 regional private companies. It also required the privatised water undertakers to finance all operating and capital expenditure by resorting to the private capital market and to be subject to regulatory oversight. The implications of this political decision go beyond the mere technical dimension. As private companies' remit is to maximise return to their shareholders, they prioritise commercial considerations and aim at social objectives as far as these do not conflict with their profitability.

The technical characteristics of water services also inform alternative approaches to charging and measuring consumption. There is a particular problem of assessing consumption in England and Wales and attempts to address this issue might have repercussions on affordability for low income consumers. The majority of residential consumers are not metered and their charges are based on the rateable value of the premises. The issue of metering raises complex questions of reconciling economic efficiency and responsible use of resources with the need to ensure that all consumers are able to access an affordable supply of this essential service.

Government policy has a major role to play in addressing the limitations of the market. Statutory Universal Service Obligations imply that undertakers have a duty to serve any customer demanding to be connected to the network. Also, rural consumers do not pay systematically more than urban consumers in order to avoid discrimination through cherry-picking. The disconnection of occupied houses is banned by law. On the other hand, there are statutory requirements on the companies to include special provision for assistance for metered consumers with above average consumption, but on the basis of narrow and inflexible criteria. The take-up rate of this assistance is extremely low.

Ultimately, affordability is affected by the action or inaction of the most powerful stakeholders: the privatised companies, the economic regulator and government. Costs borne by low income and vulnerable consumers are a direct result of the level of charges. At the same time, the social impact of charges can be alleviated by favouring solidarity in redistributing overall costs between high and low income consumers, by providing financial support to households facing difficulties in paying bills, and by reducing overall costs. Success of attempts to address affordability concerns thus depends on the combined effect of a mix of decisions, while adoption requires careful consideration of a variety of social, economic, environmental and technical issues.

## 2. Characteristics of the service

Water supply services imply the abstraction of water from a natural source, such as surface water (e.g. rivers and lakes) or groundwater (i.e. aquifers), its treatment to make it fit for human consumption and, finally, its distribution to households and commercial users via a pipeline network. Sewerage implies the collection of sewage from households and commercial and industrial users and its transportation through a sewerage pipeline network to a wastewater treatment plant, where sewage is treated to reduce its capacity to pollute before being released into a water body. Sewerage and wastewater treatment are also referred to as sanitation services.

Like energy, water is a fundamental necessity for human life. It is also an entirely standard product; there is relatively little opportunity to postpone demand and it is a major purchase for many large industrial consumers as well as residential consumers.

Water supply and sanitation represent essential services, satisfying basic human needs (e.g. drinking, cooking and personal hygiene) and preventing public health hazards (e.g. prevention of water-borne diseases through the removal and treatment of sewage). In January 2007, over 11,000 readers of the British Medical Journal (BMJ) chose 'the sanitary revolution'— connecting people's homes both to clean piped water and to sewers to dispose of their waste - as the most important medical milestone since 1840. They thought it was more

important than antibiotics, vaccination, or the discovery of the structure of DNA.[1] The system was first introduced in London in the nineteenth century, to reduce the number of people killed by infectious diseases. The motive was not just humanitarian: the diseases were killing off male breadwinners, and so there were demands for the state to carry the cost of supporting the families. The removal of sewage was crucial in curbing the diseases, and the main reason for connecting every house to clean water was to flush the sewage. To deal with the public problem of the diseases, all households, rich and poor, were connected to water supply and sewers. The system was financed and run by the public sector (Hall and Lobina, 2008: 5).

Due to the essential nature of the needs addressed by water services, there is relatively limited opportunity to postpone demand. Such opportunity might arise more easily for uses related to the satisfaction of non essential needs, such as watering gardens or car washing. It is usually in relation to such non essential uses that restrictions in water supply are first introduced in case of drought, for example in the form of hosepipe bans.

The technology adopted for service provision usually relies on a network of drinking water pipelines and a network of sewers connecting the households and industrial and commercial users in a given operating area. This might be limited to a single city or a number of urban centres and the surrounding rural areas, depending on the operator's remit as defined by the responsible public authorities. No EU directive has to date liberalised the water sector, for example by providing for competition in the market or the freedom of operators to offer their services to customers inside an incumbent operator's operating area. This is also unlikely to occur due to the high fixed costs associated with distribution and the high costs of transporting water over long distances, which would contain the economic impact of liberalisation (Gee, 2008: 8,12). Water and sewerage networks are thus generally limited in scale, for example there is no unique network enabling the transportation of water throughout England and Wales (Sawkins and Dickie, 2008: 98). As a result, water supply and sanitation constitute local services.

Other implications of the technology adopted include the fact that water services are highly capital intensive, a natural monopoly, and that water is supplied as an entirely standard product, whereby suitability for human consumption is strictly guaranteed irrespective of its final use. Attention has recently been given to the potential of enhancing the efficient use of water by duplicating the set of pipes within any served premise, allowing for the separation of drinking water from raw water, which could be then used for flushing toilets, gardening and washing cars. Due to the high costs this would require, at present the predominant mode of delivery consists in the supply of standardised drinking water which is then used for all purposes.

Served premises may be charged on the basis of the volume of water consumed in case metering is available (although in many countries, the norm is that bills are the sum of a fixed charge and a volumetric component depending on the number and cost of cubic metres effectively consumed). In cases where metering is not adopted, as is the case in most households in England and Wales, charging might reflect other criteria such as the rateable value of the property.

Finally, like energy, water is characterised by derived demand. More precisely, part of the demand for water reflects the need to satisfy basic human needs (e.g. drinking, cooking, personal hygiene) and implies the direct consumption of water. Part of the demand for water is, however, derived in that the consumption of water takes place through appliances such as dishwashers, washing machines and toilets. Derived demand might result in reduced consumption for low income families in case of price hikes. Should the upgrade of appliances be beyond the financial means of deprived households, these may opt for reducing water consumption. This situation might in turn produce health hazards (Bakker, 2003: 141). By contrast, should a third party (e.g. government) bear the financial costs of upgrading appliances, the objective of greater efficiency in water use could be achieved at no social cost. However, it should be noted that the described interrelationship between derived demand and reduced consumption in case of price increases is only valid in case of charges based on metering. If charges are calculated on the basis of the rateable property value with no relation to metering, reducing consumption would not affect the amount paid in household bills.

## 2.1. Water services and Universal Service Obligations

The essential nature of the service has also other implications. Water services are provided to individual households and commercial consumers but their provision has a broader social significance. For example, deficiency in the provision of service to a limited number of individuals might result in the spreading of water-borne diseases to an entire community. The provision of water services may thus be subject to universal service obligations (USOs) defining the minimum standards that users are entitled to enjoy. A 1996 communication of the European Commission identified the following basic operating principles as underpinning the delivery of services of general interest, including water: continuity, equal access, universality and openness (de Luca, 1998: vii). More precisely:

> *The notion of public service obligation (or Universal Service Obligation) has been defined in Community legislation as the permanent and obligatory provision of a range of services easily accessible to users. Such services may also have to meet specified quality targets and be available at affordable prices. Member States have wide discretion in defining the detailed specifications relating to these aspects (European Commission, 2007).*[2]

USOs have attracted the attention of economists and neo-liberal observers as they are seen as impediments to the introduction of liberalisation and competition in sectors where these apply (Asian Development Bank, 2007). Conversely, USOs can be seen as safeguards for vulnerable users and, in light of the above discussion, society as a whole from the effects of the market and competition:

> *Universal service, in particular the definition of specific universal service obligations is a key accompaniment to market liberalisation of service sectors such as telecommunications in the European Union. The definition and guarantee of universal service ensures that the continuous accessibility and quality of established services is maintained for all users and consumers during the process of passing from monopoly provision to openly competitive markets.*

In this sense, EU law provides for the introduction of USOs in those Services of General Economic Interest (SGEI) that have been liberalised by European directives. Such services include electricity, postal services and electronic communications but not water (Sauter, 2007: 16-17).

However, the fact that EU law does not require member states to subject water service provision to liberalisation and thus USOs, has not prevented those states from introducing equivalent public service obligations in domestic law. In England and Wales, such obligations on water supply operators derive from section 37 of the Water Industry Act 1991,[3] adopted after the 1989 privatisation of the industry. This states that:

> *It shall be the duty of every water undertaker to develop and maintain an efficient and economical system of water supply within its area and to ensure that all such arrangements have been made— (a) for providing supplies of water to premises in that area and for making such supplies available to persons who demand them; and (b) for maintaining, improving and extending the water undertaker's water mains and other pipes, as are necessary for securing that the undertaker is and continues to be able to meet its obligations under this Part'.*[4]

In addition, the protection of rural customers from discriminatory charging is provided for by section 2 (3)(a)(i) of the Water Industry Act 1991.

## 2.2. Water services as a natural monopoly and competition: the international practice

The technical characteristics of water supply and sanitation services affect their organisation and regulation or, in other words, the public-private interface in the delivery of such services. Because, at current technology levels, it is excessively expensive to set up more than one pipeline network to allow more operators to compete among themselves (i.e. to introduce competition in the market), water supply is regarded as a typical natural monopoly. This implies that only one operator, whether public or private, is allowed to operate in a given operation area (e.g. in a municipality, but the area of operations can extend to an entire region or country depending on national law). If the water supply operator is a public undertaking (e.g. an administrative department or a public enterprise), it is often appointed without competition for an unlimited duration and is subject to the scrutiny of public authorities.

In recent years, the international practice in case of appointment of a private company as water supply operator is that this is subject to competition for the market (or Demsetz competition), in the form of competitive bidding whereby the successful bidder enters into a long term contract (typically up to 30 years). Throughout the duration of the contract, the private operator is often subject to the scrutiny of local authorities or regulation by a specialised agency, to try to prevent it abusing its monopolistic position at the expense of consumers and the environment (e.g. by overcharging consumers or under-investing in the system). Regulation is intended to be a substitute for competition, whose introduction in the water sector is limited. The above also applies to sewerage which is also a natural monopoly, at least as regards sewage collection and transport through pipelines. It is, in fact, technically possible to have a separate operator for any wastewater treatment plant. It is technically possible, and it does happen in some cases, to separate the operations of water supply, sewerage and wastewater treatment services. Another approach consists in entrusting a single operator with the long term operation of the whole water supply and sanitation system to facilitate the integrated management of water services and water resources.

## 2.3. A brief history of the organisation of water services in OECD countries

The history of the development of water and sanitation systems in OECD countries shows a common pattern. In Europe, urban water systems began developing in the 17th or 18th centuries as a limited service to affluent customers and as a public assistance for fire control. As cities grew in the nineteenth century, the demand for water consumption grew and the public health issues became more acute. While the initial systems were usually started by private companies, the utilities were soon taken over by municipalities in nearly all European countries, including the UK, during the nineteenth century (Hall and Lobina, 2006: 3-6).

There were a common set of reasons for this:

> *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. In the late 19th century, the emphasis was on municipalisation. 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).

The extension of water systems in European cities thus almost entirely took place under public operators, whether municipal departments, municipally-owned companies, or state-owned companies, ad public finance: the role of the private companies withered away.

This development was part of a broader political process, namely the development of municipal socialism, also known as gas and water socialism, which drove the development of local public services in northern countries. The same process occurred in the USA, where municipalities undertook the major investments needed to extend systems, and did so because of the multiplicity of public needs and the reluctance of the private sector to make the large investments necessary. By 1897, 82 per cent of the largest cities were served by municipal operations. At the end of the twentieth century, the proportion was broadly the same, and was not expected to change significantly. Public finance was a crucial part of the process:

> *The central issue was the ability of cities to incur debt to fund major projects and to sustain the high costs of operation. As the 19th century unfolded, city finances underwent changes in scope and complexity that ultimately made the development of public water supply systems achievable (Melosi, 2000: 245-246).*

France and the UK are the only two OECD countries whose water operations are mostly run by private companies. Both countries have virtually universal connection to water supply for urban populations. However, even in these two cases, universal coverage was also achieved through the predominant role of public operators and public finance. Historically, resort to private operations, market forces and competition have not been central to attaining vital social objectives.

Pézon (2003) shows that the history of French water falls into three distinct periods. During the period of private concessions in the second half of the nineteenth century, there was very little growth in connections to the network. Virtually all the growth in the extension of the network took place during the first two-thirds of the twentieth century, a period when municipal undertakings became the dominant vehicle for investment and operation. The municipalities had, in fact, found that it was not legally possible to force concession companies to extend the network as public policy required, and therefore adopted a different system to achieve this objective. From the 1960s, delegation to the private sector grew again to become the dominant mode, but this time typically under lease contracts, under which responsibility for investments remained with the municipalities (Hall and Lobina, 2006: 4-5).

Until 1989, water services in the UK had been provided by municipalities (until 1974) and then by state-owned regional authorities until 1989. Virtually 100 per cent connection of urban population had been achieved well before that date: privatised water companies have, historically, contributed little to the extension of urban water supply systems in England or Wales (still less in Scotland and Northern Ireland, where the systems remain public) (Hall and Lobina, 2006: 4).

To date, ‘over 90% of domestic water and wastewater services world-wide are provided by the public sector and this is likely to remain the case’ (Rogers and Hall, 2003: 32). Internationally, English-style outright privatisation of water operations, finance and infrastructure ownership remain an isolated exception.

## 3. Service provision for low income consumers in OECD countries

Smets (2005) offers a taxonomy of mechanisms devised to support the provision of affordable water services for low income consumers. This includes the following measures:

- Ensuring that the cost of water services is reduced through good governance and efficiency.
- Subsidising water operations through general or local taxation.
- Cross-subsidising water charges between different user groups (households, industry and agriculture) and/or between rural and urban areas. This approach might include progressive pricing in the form of rising block tariffs, which requires metering to be in place.
- Providing general income support to low income or vulnerable consumers.
- Providing special assistance to consumers who cannot afford to pay their bills.

Interestingly, Smets (2005: 19) observes that: 'In general, countries implement a mix of general and special measures because no measure provides a perfect response to the issue of affordability. The choice of the appropriate mix of measures depends on a large number of factors and no measure except general support can be said to be applicable to every developed country. Recent history, legal tradition, law enforceability and equity considerations play a large role which often goes beyond mere economic considerations.'

## 4. Market structure in England and Wales

Historically, water services in England and Wales were taken over by local authorities from the late nineteenth century onwards, and a mixed pattern developed with some individual authorities running water companies, some large inter-municipal operators, and a number of private water supply-only companies. In 1974 the service was reorganised. Ten unitary regional water authorities (RWAs) were created, each covering a river basin area, and each responsible for water quality, water supply and sanitation throughout the area. The authorities were appointed by the government, not by municipalities, and so were no longer accountable to local government (Lobina and Hall, 2001: 4). The 29 private water supply-only companies continued their activity, serving around a quarter of the population in England and Wales (Sawkins and Vickie, 2008: 72).

In 1989, the Thatcher government privatised water supply and sewerage with the listing on the stock exchange of the 10 RWAs. The 10 privatised water and sewerage companies (WaSCs) also acquired the full ownership of infrastructure and acted as monopoly operators in their respective regions. The 29 private water supply-only companies continued to exist, although their number has been reduced to 13 as of June 2008 as a result of mergers and acquisitions (Department for Environment, Food and Rural Affairs, 2008c: 8). Institutional arrangements varied throughout the years. At present, the WaSCs operate under 25-year licences that are automatically renewed, unless a 25-year advance termination notice is served by the government. The Water Industry Act 1991 provides for water operators' USO within their area of operation. More precisely, water undertakers have an obligation to 'provide supplies of water to premises in [their area] and…make such supplies available to persons who demand them' (Water Act, s. 37(I) as in Bakker, 2003: 139).

The privatisation process created three regulators: the Drinking Water Inspectorate (DWI) for monitoring water quality; the National Rivers Authority (now the Environment Agency) for monitoring river and environmental pollution; and the economic regulator Ofwat, to set the price regime that companies follow (Lobina and Hall, 2001: 7-8). 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 a good quality, reliable and affordable service. 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 (Hall and Lobina, 2007: 13). This is illustrated in section 5.1 below.

## 4.1. Competition

The listing on the stock exchange protected the new privatised WaSCs from competition for the market (for example, in the form of competitive bidding for long term concession contracts). Furthermore, the combined effect of the automatic licence renewal and the extension of the termination notice to 25 years considerably restricted the opportunity for contestability of the market (see section 6.3.1 '25 years concessions, plus 25 years notice of termination: eternal private monopolies'). Because of the absence of competition in the market, Ofwat adopts yardstick or benchmarking competition and compares the companies' performances with each other (Lobina and Hall, 2001: 5).

Another, but to date limited, form of competition is the replacement of WaSCs by another vertically integrated water and/or sewerage company in limited areas. This takes place through inset appointments, whereby the new licensee offers to provide the service at more favourable conditions (e.g. lower price) than the former incumbent undertaker. As of May 2008, 16 inset appointments had been granted, involving a change in supplier for up to 7,000 new household customers and 52 commercial customers (Ofwat, 2008: 85). In May 2008, Ofwat launched a proposal for the extension of competition in England and Wales, including competition in the market in the form of retail competition for businesses first and then households too. This is intended to allow water customers to switch supplier in the same way as is possible for energy customers (Ofwat, 2008: 21-23). It remains to be seen whether the introduction of greater competition in water supply and sewerage provision for businesses and households will successfully deliver the intended economic, social and environmental objectives and perform better than regulation (see Ofwat, 2008: 19-21).

## 4.2. Consumer representation

The regulatory framework also provides for consumer representation, although there had been no independent consumer voice until 2005. Upon privatisation, consumer representation was organised through regional Customer Service Committees (CSCs), one for each of the 10 WaSCs, which were created as an integral part of the structure of Ofwat itself.[5] Ofwat created a national non-statutory body, the Ofwat National Customer Council (ONCC), consisting of the chairs of the 10 CSCs.[6] In 2002, the body renamed itself 'WaterVoice', with the ONCC known as the WaterVoice Council and the CSCs known as WaterVoice Committees. The committees' statutory duties were to represent the interests of all customers and investigating and monitoring complaints about the water companies. The committees were appointed, staffed and financed through Ofwat. The chairpersons were appointed by the Director-General of Ofwat, and then the chair appointed the other members of the committee. Staff comprised of Ofwat employees, and WaterVoice's budget came from Ofwat. WaterVoice reported annually to the Director-General of Ofwat (de la Motte, 2005: 15).

The Water Act 2003 set up an independent Consumer Council for Water (CCWater), replacing WaterVoice, with the change due to come into effect in October 2005.[7] The Consumer Council was to be closer to the model employed in the other network industries. Ofwat said that it had anticipated the setting up of CCWater by treating the existing consumer body, WaterVoice, 'as an independent consumer representative whose views may well differ at times from our own'[8] (de la Motte, 2005: 15). However, Ofwat thinking still informs CCWater's views. For example, CCWater's Chief Executive is Ofwat's former Director of Competition and Consumer Affairs (Consumer Council for Water, 2008b: 18)[9].

# 5. Pricing in England and Wales

Ofwat sets monopoly prices by the price-cap procedure, carried out every five years according to a formula RPI + k. 'RPI represents the general retail price index, and k adjusts this by reference to performance standards, efficiency and service and levels (Lobina and Hall, 2001: 16). Within this overall permitted increase (or required decrease), each company may apply different increases to metered or unmetered water, for example. However, charging schemes must also avoid discrimination, recover fairly the costs of providing each service, and maintain a balance between measured and unmeasured household bills (no greater than the extra costs of providing a metered service).[10] Overall, charges should broadly relate to the costs of providing the service, for metered and non-metered customers alike[11] (de la Motte, 2005: 18). In particular, Ofwat has a statutory duty to protect rural customers, which implies that urban consumers cross-subsidise rural consumers (Bakker, 2003: 129; Sawkins and Dickie, 2008: 76). Ofwat refers to this as geographic averaging of water and sewerage charges across an incumbent company's region, which means that household and non-household customers 'in areas that are more expensive to supply are subsidised by customers in other areas of the same region' (Ofwat, 2008: 59).

Since 1989, all new households are fitted with a meter, but the majority of consumers remain unmetered and so are charged irrespective of consumption volumes. Charges for unmetered customers are calculated on the basis of the rateable property value, on the assumption that these represent a proxy for wealth so to allow cross-subsidisation between different classes of consumers within the same region. However, it has been recognised that property values are very imperfectly related to family income (Bakker, 2003: 123-124). The limits of the retail value mechanism are compounded by the fact that it does not represent current property values, but rateable values from the 1970s (Department for Environment, Food and Rural Affairs, 2008a: 12). Smets (2005: 6) observes that in many European countries water supply is metered and that the introduction of metering leads to a reduction of around 10 per cent in consumption. Among OECD countries, the UK is not alone in having no or limited metering as this condition characterises also Canada, New Zealand, Denmark, Iceland, Ireland and Norway. Interestingly, water consumption in Ireland is 'quite reasonable' despite the fact that consumers pay for the service through taxation rather than charges (Smets, 2005: 6, 10).

The percentage of households that have a meter installed is currently increasing (see section below 5.4. 'Implications of measurement methods for charging and affordability'). This is because households deciding to switch to metering do not have to bear individually the cost of installing the device, as this is covered through cross-subsidisation by water undertakers spreading it across their whole customer base (Bakker, 2003: 150). However, there are implications for consumers switching to metering as was recognised by the government in 2000, arguing that the 'link between water use and cost [established by a meter] is precisely [what] creates the possibility of hardship for customers most in need' (Department of the Environment, Transport and Regions, 2000, para 4.3.1, as in Bakker, 2001: 137-138, 155). More precisely, large low-income families are likely to be penalised by metering-based charges in respect of rateable property value-based charges (Bakker, 2003: 129-130).

## 5.1. Price variations since privatisation and impact on affordability

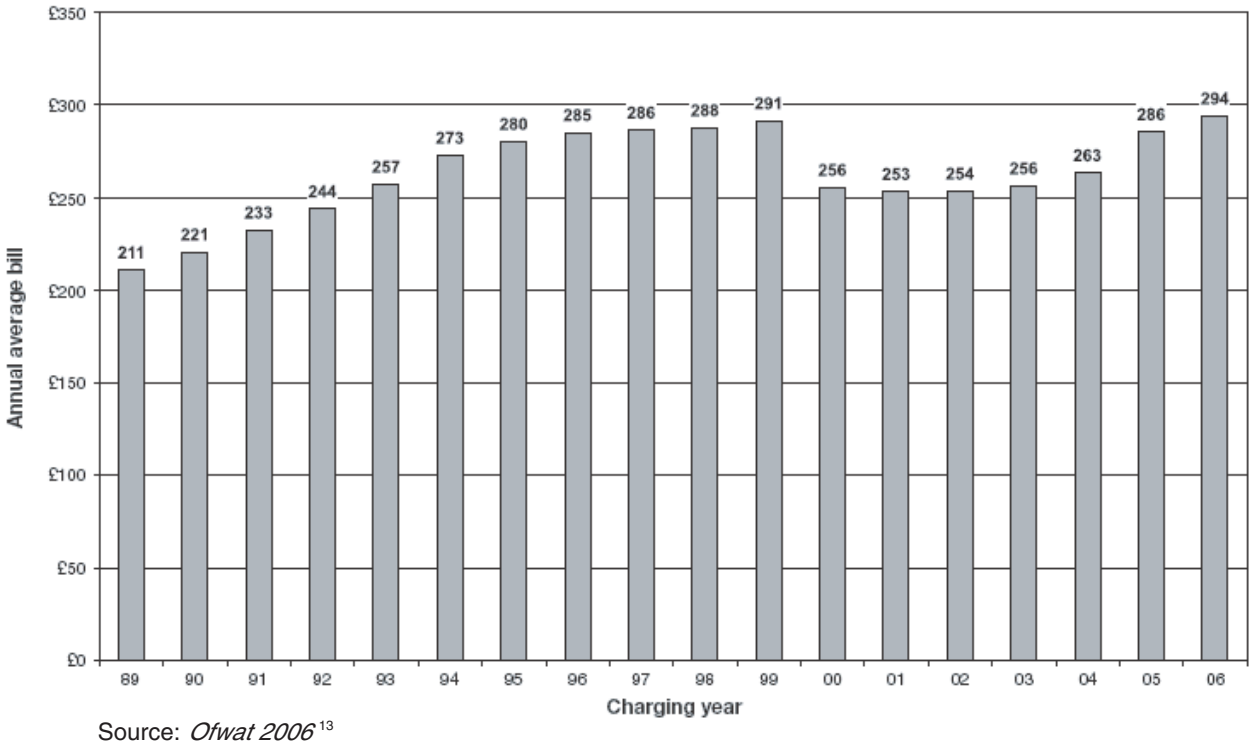
The universal experience of water privatisation in the UK was a sharp increase in the cost of water. In cash terms, the average annual bill for water and sewerage rose from £120 per year in 1989 to £294 in 2006, an increase of 245 per cent in 17 years. In real terms, it represents a rise of 39 per cent over and above the general rate of inflation (Hall and Lobina, 2007: 10). The trend in price variations seems to be continuing. 'The average household bill in 2007/08 is £312 for water and sewerage. This is a real terms increase of 42% since privatisation in 1989' (Department for Environment, Food and Rural Affairs, 2008a: 83).

Price rises since privatisation have been dictated by the increase in capital expenditure as a result of EU Directives on water and wastewater quality standards (Bakker, 2003: 129, 134). However, a breakdown of cost components from 1989 to 2004 shows that, while operating costs have remained roughly constant in real terms, the entire increase in customers' bills is due to the various elements associated with capital – capital charges, interest, and profits – which have approximately doubled, in real terms, over this period[12] (Hall and Lobina, 2007: 10-11). The pattern of price increases shows clearly that there was an initial rapid rise during the early 1990s, slower but still significant rises during the later 1990s, and then a one-off drop of about 12 per cent in 2000, following the price review. The price reductions in the 1999 review were largely due to 'clawing back' the overgenerous settlements of previous years. Prices then levelled out, but since 2004 have risen sharply once again, following a new price review. The increase from 2004-2006 is the highest rise over two years since 1993-1994 (Hall and Lobina, 2007: 10).

Price increases are linked to the rise in water poverty, especially in regions like the South West, which are affected by higher costs as a result of lower urbanisation, water scarcity and a longer coastline imposing higher wastewater treatment costs. The Consumer Council for Water noted that, while the average water bill increase across England and Wales was 5.8 per cent since 1 April 2008, there was evidence of individual pensioners in the South West being hit by hikes in water bills by up to 54 per cent since 2004. Water bills in the South West were already the highest in England and Wales and it was estimated that a third of people living in the region would be affected by water poverty by 2010 (Howard, 2008).

The correlation between price increases and problems with affordability has also been observed by the 2004 cross-government review of water affordability. The report noted that 'prior to 1999, the proportion of households spending more than 3% of income on water charges was fairly constant at around 15%'. This changed from 1997-8 to 2002-3 when the percentage fell from 15% to 9% (Department for Environment, Food and Rural Affairs, 2004: 10-11). The table below shows the real term increase in water bills from 1989 to 2006. With bills on the increase again after 2004, so again is water poverty (Howard, 2008).

**Chart A. Average annual cost of water 1989-2004 (£ real terms, 2006 prices, excluding general inflation)**




Source: *Ofwat 2006*[13]

However, affordability is not only determined by changes in water price but also by variations in households' income. The following sub-section looks at governmental policies affecting both pricing mechanisms and low income households' income, and in turn impacting on affordability.

## 5.2. Governmental policies affecting affordability

Prior to 1974, public ownership had been accompanied by subsidies aiming to universal provision and equitable access, so that charges were not only determined by cost recovery imperatives. Costs were attributed to consumers according to their ability to pay. After 1974, water and sewerage bills for the majority of consumers stopped being recovered through local taxes and started being charged separately. The adoption of rateable property value as the base for charging was aimed at allowing intra-regional cross-subsidisation between high and low income consumers. In addition, the 1974 Water Charges Equalization Act provided for water undertakers with below average financing costs to pay an 'equalisation levy' in favour of water undertakers with above average financing costs. Overall, equalisation payments revolved around 2% of the water industry's income from unmeasured water, but 'had in some cases a significant impact on water bills'. The Labour government was committed to phasing out subsidies for nationalised industries and so the equalisation mechanism was a form of interregional cross-subsidisation among consumers and did not imply subsidies from central government (Bakker, 2003: 124-126).

Following the 1979 election, the Thatcher government suspended the equalisation scheme arguing that, in the pursuit of social equity, equalisation was undermining efficiency by removing incentives for operators to control costs. By the late 1980s, increases imposed by government in the required rate of return resulted in capital charges increasing at double the previous rate and water bills increasing above inflation (Bakker, 2003: 127). In other words, publicly owned RWAs were being gradually prepared for the pricing regime that would apply under privatisation.

Privatisation was followed by a reform in the benefit system for consumers facing difficulty in paying for water bills, and the new arrangements negatively affected affordability. Prior to privatisation, households unable to pay for services would receive financial support through the tax and benefit system. More precisely, claimants of Supplementary Benefit would receive automatically an amount of money fully rebating water supply and sewerage charges. The Supplementary Benefit scheme was replaced by Income Support in 1988 which, however, broke the automatic link between water charges and the financial support of low income consumers. This erosion in financial support was due to the fact that the Rossi index, used to update means-tested benefits, did not include water charges until 1992 and 'generally lagged well behind water and sewerage charge increases' (Sawkins and Dickie, 2008: 78-79). On the diminishing financial support provided by the benefits system, see also Fitch (2002) and the National Consumer Council in House of Commons Environment, Food and Rural Affairs Committee (2003: 13). In addition, Income Support did not and does not vary regionally, so that it fails to reflect higher costs borne by water consumers in higher charging regions such as the southwest, who are particularly disadvantaged as a result (Sawkins and Dickie, 2008: 79-82). Governmental policies on income support thus exacerbated problems with affordability and consumer water debt in the 1990s (Bakker, 2003: 131-132).

Following privatisation, a degree of intra-regional cross-subsidisation, i.e. cross-subsidisation among consumers in the same operating region served by an undertaker, has continued. This resulted in the use of rateable property values to determine charges for unmetered premises and the unwillingness to de-average regional charges, in order to protect rural consumers (Bakker, 2003: 137). Bakker (2003: 121-144; 2001) illustrates how governmental policy in England and Wales in the last 30 to 40 years has been characterised by a move from the predominance of social equity objectives (e.g. in light of the 'ability-to-pay' principle) to the prevalence of economic efficiency considerations and the 'benefit principle' (e.g. payment on the basis of costs imposed by individual consumers). The return of the Labour party to government in 1997 seems to have led to

a limited reintroduction of social equity considerations, with the ban on disconnections for non-payment and the adoption of limited cross-subsidies in favour of vulnerable groups (Bakker, 2003: 136, 138). On the limited effectiveness and limited scope of the vulnerable groups scheme, see section 6.1 'The Vulnerable Groups scheme (WaterSure)'.

## 5.3. Implications of disconnections and the 1998 ban on disconnections for charging

Service disconnection for failure to pay bills has an obvious impact on access and produces an adverse social impact, particularly on household consumers who cannot afford to pay for their bills. Disconnections are directly affected by two factors: a) the companies' practice, particularly when those prioritising their commercial objectives neglect the social implications of disconnecting low income consumers who cannot pay; and b) governmental policies regulating disconnections, for example banning all forms of outright or partial disconnection.

### 5.3.1. Post-privatisation disconnections and company policies

Following privatisation there was a sharp rise in the number of households being disconnected. The rate tripled in the first five years, with 18,636 households disconnected in 1994.[14] But there was widespread opposition to this practice on social and health grounds.

The companies were criticised for failing to exercise restraint or social responsibility over their disconnections policies. In the House of Commons, it was reported that:

> *The water companies say that they disconnect only the "won't payers" - those who can afford to pay, but refuse to do so. I shall bring to the attention of the House some recent examples of people I know who have been disconnected: in Southampton a lady with seven children, one aged three who suffers from a heart condition; a family of five, in which the mother suffers from a medical condition which requires a constant supply of water and whose neighbours provided that water via a hose pipe; and a severely disabled elderly lady, whose neighbours brought her water in a variety of containers. In south Staffordshire, a single parent on unemployment benefit was threatened with disconnection for arrears of £60.73. When the local citizens advice bureau contacted the water company to say that there was a child in the house, the company said, "So what?--We'll still disconnect." A young mother with three children, aged two, five and eight, handed over £50--all her family credit for a week--when the company turned up to cut her water off. The water company got its money, but the family had nothing left for food for the following week. In mid-Kent, the water company refused to allow a family with two children under five and a baby on the way to repay £5 a week under an instalment plan and demanded the payment of more than £400 in full. I do not call those people "won't payers", but "can't payers"*[15] (Lobina and Hall, 2001: 18-19).

### 5.3.2. Disconnections and public health

A constant and powerful strain of criticism was that cutting off water supplies endangered the health of the household and of the public. In 1992 there was a rise in the number of cases of dysentery reported, in all major conurbations other than London. The water companies were further criticised for failing to notify cut-offs to the local authority, despite their statutory duty to do so and the attendant health risks of not reporting.[16]

The policies were criticised by the medical and nursing professions, who argued that a clean water supply was essential for human life, hygiene and health: 'Both the NGOs concerned with child poverty and the medical profession had opposed the disconnection of consumers who did not pay their bill, arguing that there was no

reason why the companies should have access to a remedy for non-payment of debt that was not open to other creditors seeking to recover debts' (Green, 2000: 14).[17]

The new Labour government adopted the same position – that disconnection is a health risk:

> *The Government believes that access to water is essential to the maintenance of general good health and well being. Some of the greatest improvements in general public health have stemmed from every household having access to a constant supply of potable water. Good hygiene and effective sanitation are key elements to the maintenance of good health and each depends on having constant access to water. Where the water supply is disconnected, the maintenance of good health and hygiene can only be put at risk. In the light of this, and having considered the available evidence, the Government believes that disconnection does not have to be an integral part of the process of collecting arrears of charges for water supplied to domestic premises*[18] (House of Commons, 1998).

### 5.3.3. Use of pre-payment meters

By the mid-1990s, disconnections had become so controversial that Ofwat had instructed the companies to find alternative payment strategies for consumers and to reduce disconnection rates (Bakker, 2001: 153). The companies thus started using the 'pre-payment meter' for customers unable to pay their bills. This supplied water when charged with a card: otherwise the household would get no water. They thus operated as self-disconnecting meters. By 1996 over 16,000 pre-payment meters had been installed, according to Ofwat. At the time, Richard Burden MP (Birmingham, Northfield) described this situation as leading to 'a startling increase in the number of hidden disconnections associated with these meters' (Hansard, 8 May 1996: Column 152).

Birmingham city council challenged the legality of the meters and Burden further stated to the House of Commons:

> *The council estimates that, in Birmingham alone, there have been no fewer than 2,489 disconnections associated with pre-payment meters. Those were the disconnections that had taken place by April. As it is estimated that only about 1,500 pre-payment meters have been installed in the Birmingham area, there is clearly a pretty staggering disconnection rate. Those figures do not sit easily with Ofwat's press release yesterday, in which it applauded the fact, as it saw it, that there had been a 42 per cent. reduction in domestic disconnections in one year. Ofwat stated that only three out of every 10,000 households are having their water supply disconnected* (House of Commons, 1996).[19]

> *In the Severn Trent area, each installation of a pre-payment meter costs the customer about £26. That could be about 10 to 15 per cent of someone's water bill for a year. For the privilege of having a pre-payment meter, the customer is charged £26. There is another catch in the operation of the vast majority of such meters. I said at the beginning of my speech that they differed in one significant respect from traditional gas and electricity meters. The difference is that the vast majority of water pre-payment meters are not volumetric. Normally, when the customer charges up his water key or other pre-payment device, that does not involve his buying a certain quantity of water; he is buying a certain amount of time during which he is connected to the water supply. His annual water charge is divided by the amount charged up on his card or key. The catch is this. If the customer does not keep the card or key charged up, that will not alter his liability to pay his annual water bill. That means that, even if the customer is cut off, he will be charged for water that he is not receiving. That is a very strange aid to budgeting--a very strange easy payment scheme. The customer is told that the device will be helpful, but if he cannot keep up the payments, he is charged for water that he is not allowed to receive.*[20] (Lobina and Hall, 2001: 19-20).

### 5.3.4. Disconnections and pre-payment meters made illegal and the uncertain impact of the 1999 Water Act

The 1999 Water Act made it illegal for water companies to disconnect customers' water supply, or to install pre-payment meters or 'trickle valves' restricting the flow of water supplied in case of non-payment. This confirmed a court ruling that prepayment meters were illegal, after a challenge from municipalities (Lobina and Hall, 2001: 20). It is believed by some that the ban on disconnections has deprived the companies of a powerful deterrent against non-payment by consumers who can afford to pay but decide not to do so.

According to the government's February 2008 water strategy, 'bad debt has been an increasing issue for the water industry since privatisation. Household revenue outstanding for more than 12 months increased by £67 million between 2005/6 and 2006/07, from £508 million to £575 million. The industry also wrote off £105 million worth of household debt in 2006/07 – equivalent to 1.7% of revenue billed that year. Water companies' efforts to recover this revenue adds on average £11 onto customers' bills' (Department for Environment, Food and Rural Affairs, 2008a: 78).

In its 2006 review of water management, the House of Lords Science and Technology Committee condemned the practice of failure to pay water bills. 'The current level of unpaid bills is completely unacceptable. The 2004-5 figures show that the total amount of outstanding household revenue, including revenue written off, was £962 million—an increase of £38 million on 2003-04. This is an astonishing amount of debt which can only place pressure on companies' finances and hence water bills. Moreover, pursuing non-payers and taking them to court adds further expense' (House of Lords Science and Technology Committee, 2006a: 35). The Committee was satisfied to hear that the government was considering Australian-style partial disconnection, 'whereby flow restrictors were used to reduce the water supply to non-paying households to a level sufficient only for basic healthy and safety needs', even if partial disconnection had been banned by the 1999 Water Act (House of Lords Science and Technology Committee, 2006a: 35).

Although the Committee's outrage was directed at consumers who could afford to pay their water bills but refuse to do so, two considerations impose. Firstly, the Committee appears unaware of a report on the Victoria, Australia experience with flow restrictors, which showed arbitrary variation in company practices, with one company restricting nearly 2 per cent of all its customers, with many of those restricted being so poor they were entitled to concessionary rates, and one company restricting the water flow for over 14 days in most cases[21] (Hall and Lobina, 2008: 12). Secondly, it is not clear to what extent total figures on bad debt refer to consumers who cannot afford to pay and those who can. Finally, since companies have now been found guilty of exaggerating these bad debt figures, as discussed in section 5.5.2 'Severn Trent and others: deceiving the regulator', the data they offer may be more questionable (Hall and Lobina, 2008: 12).

## 5.4. Implications of measurement methods for charging and affordability

In its February 2008 strategy for water in England, the Department for Environment, Food and Rural Affairs (2008a: 75) notes that 'unmeasured charging is based on rateable values which have in most cases not been updated since 1973, are only used for water charging, and are not aligned with the actual value of a property or its household size'. Coupled with the recent trend which sees part of consumers switching to metering, this has implications on the affordability of water charges for those households who continue to be billed on an unmeasured basis, including vulnerable consumers (Department for Environment, Food and Rural Affairs, 2008a: 77).

'Households that stand to save money tend to opt for meters, which has an impact on those households left behind without meters, including large families in properties with a low rateable value. As a consequence, these households could be faced with higher bills as bills for unmetered customers grow faster than metered

ones' (Department for Environment, Food and Rural Affairs, 2008a: 12). In 2006/07, 30 per cent of households in England were metered. This proportion was increasing by about 2 per cent per year, 'predominantly through customers' own choice' (Department for Environment, Food and Rural Affairs, 2008a: 75; Department for Environment, Food and Rural Affairs, 2004: 37).

The Department for Environment, Food and Rural Affairs (2008a: 78) found that the current rateable value based system of charging implied 'to some extent' the cross subsidisation of poorer households by those with a larger income. This was due to the fact that 'lower income families are more likely to live in homes with low rateable values'. However, Bakker (2001: 147-148) notes that the rateable property value is a poor proxy for income. Also, the 2008 government water strategy does not shed light on how variations in value dictated by the property market in recent years might have affected cross subsidisation among different categories of household consumers.

Nonetheless, the progressive passage of households with low water use to metered charging results in the erosion of the existing cross subsidy as 'the remaining unmetered households start paying a greater contribution to the total water company cost of providing the water and sewerage services they use' (Department for Environment, Food and Rural Affairs, 2008a: 78). The government recognises that this 'could have potentially serious affordability impacts on some unmetered households', with particular reference to large families on low incomes which are not eligible to receive assistance under current regulations as discussed in section 6.1 'The Vulnerable Groups scheme (WaterSure)' below. 'Many households with high water use and/or low rateable values, would lose out by switching and may choose to remain unmetered.' These families would lose out from the breaking down of cross subsidies, while not being able to qualify for reduced tariffs applicable to vulnerable groups. On the other hand, 'some low income householders, such as pensioners, may benefit financially from having a meter installed' (Department for Environment, Food and Rural Affairs, 2008a: 78).

## 5.5. Implications of price-cap regulation and companies' 'gaming' for charging

Companies' practices resulting in overcharging consumers, or in lower investment than projections used to justify periodic price increases, have a negative impact on affordability. These practices require strengthening governance mechanisms, for example through tighter regulatory oversight, and/or reforming the institutional framework to remove incentives for private operators to abuse of monopoly power at the expense of consumers.

Ofwat is statutorily responsible for ensuring that the companies were profitable, a task which it performed very well, and for encouraging efficiency. As there is no effective competition in the provision of residential consumers, Ofwat compares the companies' performance with each other through the so-called yardstick competition (Lobina and Hall, 2001: 7-8). However, the companies have been able to use the five-yearly price reviews to their advantage and systematically obtain higher price increases than actually justified.

### 5.5.1. 'Unexpected' savings on capital expenditure

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 five 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. Companies are then allowed to charge higher prices, but the real expenditure is lower, and so they can pocket the difference as increased profit.[22] The whole process is in effect a game between the regulator and the companies.[23]

The process began to be noticeable in 1994, after Ofwat's first price review was finalised, and the companies' price caps for the next five years had been fixed. Some companies 'discovered' that they had made 'capital efficiency' savings, or that they did not need to spend so much on capital expenditure in future. The companies then made use of this to justify paying extra dividends.[24] Yorkshire Water paid out an extra £50million in dividends justified by savings in its capital programme (Ofwat later suggested that Yorkshire Water PLC's failures to ensure a reliable supply during the drought of 1995, or to control leakage and flooding from sewers, had to be related to the company's dividend policy[25]); North West Water found £400m savings from capital efficiencies, and also increased dividends to shareholders rather than cutting prices.[26] Thames Water likewise passed the benefits of a £350m reduction in forecast expenditure to shareholders rather than customers:

> *Britain's biggest water company is to cut its investment programme by £350 million - but it will not be passing on the savings to its 7 million customers. Thames Water has no plans for early price reductions or rebates. Instead consumers - whose bills have increased by 50 per cent since privatisation in 1989 - face yet another rise in April, by inflation plus 0.5 per cent. The latest price rise was decided by the industry regulator, Ofwat, during the five-yearly price review last year. It was based on a £2.1 billion capital investment plan agreed with the company. But now, six months after the review, Thames says its investment target is only £1.75bn - down £350m, or £70m a year - equivalent to £10 off every domestic bill.*[27]

For the period 1995-2000 as a whole, capital investment totalled £17.5 billion – 10 per cent, or £1,900 million, less than had been assumed when Ofwat set the price limits.[28] This resulted in a corresponding boost to company profits.

The pattern continued in the subsequent period, 2000-2005. This was again obvious after the first year: capital expenditure for 2000-2001 was £700 million below projected levels. The underspend continued during the rest of the period, and capital expenditure for the full period 2000-05 was around £1.7 billion lower than the assumptions underpinning price limits over the five years as a whole. At £17.7 billion, compared with the £19.4 billion assumed, this represented a shortfall of 9 per cent. This again provided a boost to profits. From the last ten years, the companies have enjoyed windfall profits of over £3.4 billion as a result of these underspends. As a result: 'Profits are at the highest levels that we have seen over the last five years.'[29]

The problem became even worse in 2005-2006, when the underspend in a single year reached nearly £1 billion, 22 per cent lower than the level assumed by Ofwat when setting the price limits: the regulator's comment on this shortfall was the mild observation that 'the companies concerned will face a stiff challenge if they are to deliver all the outputs required of them over the five-year period'.[30] Yet the same report notes that the companies managed to increase dividends to shareholders by a total of £700 million (£385million plus £313 million in special dividends), so all the increase in dividends, and more, was made possible by the shortfall in capital expenditure.[31]

**Table 1. Using capital underspend to boost dividends 1995-2006**

| Period | Underspend as percentage | Underspend/boost to profits in £million |
|---|---|---|
| 1995/96-1999/2000 | -10% | -1,900 |
| 2000/01-2004/05 | -9% | -1,500 |
| 2004/05-2005/06 | -22% | -960 |
| TOTAL | -9.5% | -4,360 |

Source: *Ofwat 2000, Ofwat 2005, Ofwat 2006*

The 2005 stakeholder survey contains a scathing summary of views on a key part of the process, mainly from the companies themselves: 'The cost base methodology is widely seen as flawed. It is open to gaming and different companies take different approaches…. Many see it as unlikely that the wide variations in unit costs can be explained by efficiency'[32] (Hall and Lobina, 2007: 13-14).

### 5.5.2. Severn Trent and others: deceiving the regulator

The recent scandals concerning Severn Trent and other companies also confirm the existence of gaming, which may involve illegal behaviour, and the difficulty for Ofwat in identifying it and countering it. The scandal emerged as a result of whistle-blowing and not as part of Ofwat's regulatory scrutiny. A manager, 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 denied this, and denied that customers had been overcharged.[33]

A year and a half later, however, Ofwat produced a report on the allegations which 'found that Severn Trent Water had provided regulatory data that was either deliberately miscalculated or poorly supported. This led to price limits being set for the water company that were higher than necessary, which would have resulted in customers paying £42 million more by 2009-10'.[34] In November 2007, the Serious Fraud Office also decided to bring three charges against Severn Trent Water under section 207 Water Industry Act 1991, for providing false information to Ofwat. The three charges related to the leakage data in the June Returns for 2000, 2001 and 2002 (Severn Trent Water, 2007). In April 2008, Severn Trent decided to plead guilty to two offences relating to leakage data supplied to Ofwat in 2001 and 2002 (Reuters, 2008).

The allegations prompted further confessions and discoveries of errors. Southern Water confessed to having made mistakes about its responses to customers, and failure to make payments due to customers; the Serious Fraud Office investigated these too, but finally decided not to prosecute.[35] Thames Water[36] and Severn Trent itself[37] 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[38] (Hall and Lobina, 2007: 14-15).

## 6. Limitations of current mechanisms to assist low income consumers in England and Wales

The government has adopted as a sustainability indicator the number of households paying more than 3 per cent of their disposable income on water supply and sanitation services (House of Lords Science and Technology Committee, 2006a: 36). Households exceeding the 3 per cent threshold are regarded as being affected by 'water poverty'.

In its 2006 report on water management, the House of Lords Science and Technology Committee found that expenditure on water and sewerage was 'unacceptably high' for some categories of consumers. According to CCWater, in south west England water and sewerage bills may represent up to 7 per cent of the disposable income of a single pensioner receiving Pension Credit, and this was projected to reach 8 per cent of disposable income by 2009-10. The situation was even worse for those on Job Seekers' Allowance, as this was lower than the level of Pension Credit. CCWater also estimated that across England and Wales in 2005-06 an average of 51.7 per cent of non-working families without children would spend more than 3 per cent of their disposable income on water and sewerage bills. This was expected to rise to 55 per cent in 2009-10 (House of Lords Science and Technology Committee, 2006a: 36; House of Lords Science and Technology Committee, 2006b: 142).

Overall, the 2004 cross-government review of water affordability estimated that in 2004/2005 29 per cent of households on the lowest incomes were paying more than 3 per cent of disposable income on water supply and sanitation bills. This was projected to reach 40 per cent by 2009/2010, as a result of charge increases above the rate of inflation (Department for Environment, Food and Rural Affairs, 2008a: 78).

The only systems for assisting those with difficulties in paying water bills resemble nineteenth century approaches. There is a set of highly restrictive rules for special assistance, which are administered by the private companies (vulnerable groups scheme or WaterSure), and the companies themselves may also provide charitable handouts at their own discretion (Hall and Lobina, 2008: 12).

Both practices are inadequate to address the issue of water affordability. There is nothing comparable to the Winter Fuel Payment scheme (Howard, 2008), and the House of Lords Science and Technology Committee stated that 'providing even a fraction of the almost £2.5 billion that the Winter Fuel Payment cost in 2004-05 would be welcome' (House of Lords Science and Technology Committee, 2006a: 38).

## 6.1. The Vulnerable Groups scheme (WaterSure)

The Vulnerable Groups Regulations (also known as WaterSure),[39] administered by the privatised water companies, represent the main instrument to support households with problems of affordability in England, but do not apply to Wales (House of Lords Science and Technology Committee, 2006a: 36).[40] This is to ensure that certain categories of metered domestic consumers that have to use high volumes of water due to medical or other conditions do not have to reduce essential consumption for fear of increases in their bill.[41]

The scheme was introduced by the Labour government in April 2000 and, according to the National Consumer Council, 'the scheme has been a failure with only a 1.4 percent take up among eligible customers in 2001/2' (House of Commons Environment, Food and Rural Affairs Committee, 2003: 13). In 2004-2005, 9,217 households successfully applied for assistance under the Vulnerable Groups Regulation, a figure that the House of Lords Science and Technology Committee found 'very low'. This appears to be the result of excessively narrow eligibility criteria, as assistance was only available to metered households where someone was a recipient of one of several benefits and tax credits. Furthermore, claimants must 'be in charge of three or more people under the age of 19 in full-time education living in the property, or have someone living in the household who suffers from an eligible medical condition which requires significant additional use of water'. Once eligibility criteria are met, assistance consists in limiting payment to the average household bill for the claimant's region, irrespective of effective consumption (House of Lords Science and Technology Committee, 2006a: 36). The National Consumer Council has claimed that 'the scheme costs more to administer than is paid out to customers' (House of Commons Environment, Food and Rural Affairs Committee, 2003: 13). Governmental estimates put the average yearly cost of cross-subsidies imposed on non-vulnerable consumers by the need to fund the Vulnerable Groups scheme at below GBP 1 per household in England. The then Department of the Environment, Transport & the Regions (DETR) argued that this would be acceptable as it did not represent a 'disproportionate' increase in charges (Bakker, 2003: 137).

In its 2008 water strategy, the government states that, since the 2004 cross-government report on water affordability, the protection available through the Vulnerable Groups Regulations has been extended by widening the eligibility criteria. Furthermore, the government 'identified and encouraged best practice in administrating the vulnerable groups tariff' (Department for Environment, Food and Rural Affairs, 2008a: 78). The 2005 Amendment to the Water Industry (Charges) (Vulnerable Groups) Regulations 1999 does extend the eligibility criteria, for example by adding to the list of medical conditions covered and facilitates a smoother process, for example by removing the need to provide information about treatment received when applying for assistance.[42] However, the 2005 Amendment did not radically extend the take-up of those entitled to claim assistance under the Vulnerable Groups Regulations, nor it did significantly improve the benefits enjoyed by those assisted.

## 6.2. Charitable schemes set up by the private operators

An example of a charitable fund set up by a private water and sewerage undertaker to assist consumers experiencing difficulties in paying their bills is represented by United Utilities' fund. This was set up in 2003 and provided a total of GBP 15 million up to 2008. In August 2008, United Utilities announced it would donate GBP 5 million per year to the fund, up from the previous annual GBP 3 million. The increase in the donation would be funded out of the company's profits, which in the year to March 2008 totalled GBP 478 million.[43]

## 6.3. Institutional responsibility for ensuring affordability of charging

The limitations of the Vulnerable Groups Regulations and the absence of more comprehensive and effective mechanisms almost 20 years after privatisation require that the institutional responsibility for addressing affordability for low income consumers be examined.

The Water Act 1989 provides for Ofwat's general duty to protect customers in relations to matters of charges imposed by water and sewerage undertakers. While the Act does not explicitly rule out cross-subsidies between high and low income households, it does require 'that the interests of customers and potential customers in rural areas are so protected and that no undue preference is shown, and that there is no undue discrimination, in the fixing of those charges and amounts'.[44] However, Ofwat has, since the beginning, interpreted its duty to protect customers as one to defend economic equity and the 'benefit principle' according to which individual consumers should be charged in light of the costs they impose on the system, not in view of their ability to pay, irrespective of the implications for social equity and affordability. Ofwat argued in 1990 that cross-subsidies between high and low income consumers aimed at achieving social objectives such as addressing hardship in paying bills would be unfair to the better off. Instead, it demanded that the Department of Social Security or any other governmental agency should intervene to alleviate the social costs of water charges (Sawkins and Vickie, 2008: 83-84). Ofwat has been consistent with its position throughout the years (Bakker, 2003: 127-128) and it has refused to allow one water company to extend their vulnerable groups scheme to customers who were not in receipt of benefits, or to non-metered customers (de la Motte, 2005: 18).[45]

In its February 2008 consultation on draft statutory Social and Environmental Guidance to Ofwat, the Department for Environment, Food and Rural Affairs (2008b: 8) states that:

> *Protecting and supporting vulnerable groups remains a key Government priority. Alongside its general duty to protect the interests of all consumers, Ofwat has particular responsibilities towards certain groups in society: the disabled or chronically sick, pensioners, individuals with low incomes, those in rural areas and those whose premises are not eligible to be supplied by a licensed water supplier (as set out in the Water Industry Act 1991, as amended by Section 39 (2C) of the Water Act 2003). Ofwat is expected to regularly review how it fulfils this duty, taking into account:*
>
> - *information contained in the Vulnerable Groups Regulations;*
> - *the Government's approach to social inclusion and to vulnerable groups expressed in other current policy documents;*
> - *relevant policies on income related benefits; and*
> - *guidance from the Secretary of State on matters to be taken into account in approving companies' charges schemes.*

In this sense, it should be noted that the Labour government's policy since the late 1990s is to 'address unacceptable distributive outcomes within the system of water regulation rather than through the benefits system' (Bakker, 2003: 137; Bakker, 2001: 155). This position remains unchanged to date (Howard, 2008).

The above suggests that, irrespective of Ofwat's statutory responsibility for protecting the interests of all consumers including vulnerable groups, it has failed to take action to adequately address the issue of water affordability by a growing section of society. This contrasts with the robust action that Ofwat has in the past taken to protect the interests of the companies and specifically to ensure their ability to remain profitable (by extending the advance termination notice to 25 years). It suggests that Ofwat has selectively defined its own remit to exclude the protection of vulnerable consumers, either through pricing mechanisms or promotion of additional measures. Ofwat's stance on the growing problem of water poverty can thus be described as principled inflexibility with the weak and accommodating leniency towards the powerful.

### 6.3.1. 25 year concessions, plus 25 years notice of termination: eternal private monopolies

As noted in section 4.1, competition in the water industry is at best extremely limited. The private water companies hold regional monopolies, created by the act of privatisation in 1989, when the companies were sold to private shareholders complete with statutory rights to enjoy these monopolies. There was thus no competition for these monopolies in the first place. The Water Act 1988 specified that these monopolies are in fact concessions, lasting 25 years from the date of privatisation, and thus due to expire in 2014. Therefore, at least in principle it would be possible to either terminate or invite tenders for the licenses, as happens in France when private concessions come to an end.

The 1988 Act did not provide for what would happen at the expiry of the concessions, but placed some constraints on the ability of ministers to terminate them. The Water Act 1992 introduced a much stronger constraint: government ministers had to give companies at least 10 years' notice before terminating these concessions. In 2002, Ofwat lengthened this period even further, to 25 years. The stated purpose of the proposal was to create stability and security:

> *Ofwat today published proposals to reduce regulatory uncertainty in the water industry by increasing the minimum ten-year notice period for the termination of a company licence to 25 years… Under the current arrangements notice would have to be given by 2004 for licences to be terminated by 2014. OFWAT Director General Philip Fletcher said the approach of 2004 was creating uncertainty for the water industry, which was likely to drive up the costs of raising finance. Mr Fletcher said: "Customers' interests are best served by a stable regulatory environment that keeps costs down. The longer notice period will enable companies and their investors to plan ahead more securely.* [46]

The change was proposed in a consultation document on 30 July 2002 and implemented - without publishing any responses to that consultation - in October 2002 by inserting a new clause into the license of all the water companies.[47] The timing of the consultation effectively minimised the opportunity for public and parliamentary debate because parliament was already suspended for the summer holidays and all comments were required by 24th September, before parliament reconvened. It is not known what representations were made, as Ofwat never published them. Indeed, the consultation paper itself was removed from the Ofwat website by the end of September 2002. All that remains is the press statement issued at the same time.[48] The change was welcomed by United Utilities: 'We welcome the decision to change companies' licences so that the minimum notice period of termination will be 25 years rather than 10 years.'[49]

The change certainly creates greater security for the companies. It means that a decision to submit the current monopolies to tender for the first time ever, or a decision to end the private monopolies altogether, would take 25 years to implement, in which time it could be reversed by any one of at least five different governments. If the clause remains, it effectively provides a government guarantee which protects the privatised companies in perpetuity. This is in sharp contrast to France, which used to permit indefinitely long private concessions, but in the 1990s it changed the law to require the periodic submission of concessions to tendering and limited the duration of concessions to a maximum of 20 years (Hall and Lobina, 2008: 15-16).

### 6.4. Solutions currently considered to address affordability issues

The House of Commons Environment, Food and Rural Affairs Committee, the House of Commons Environmental Audit Committee, and now the House of Lords, have all argued that 'people suffering from serious difficulty in paying their bills should be helped through the benefits and tax credits system' (House of Lords Science and Technology Committee, 2006a: 36).

The February 2008 governmental water strategy for England does not provide for the introduction of any such benefits and tax credits system (Department for Environment, Food and Rural Affairs, 2008a: 78). In March 2008, Environment Minister Phil Woolas, interviewed by BBC Radio4, stated that: 'We have worked with the water companies and Ofwat to put into place a number of short term measures to ensure there is help, either by budgeting or by benefits checks… I think it is better to address the issue by bearing down on the costs rather than creating new benefits.' (Howard, 2008)

## 7. Discussion of findings

Since the 1989 privatisation, the accessibility of water supply and sewerage services for low income consumers in England and Wales has been affected by a number of factors. These include the combined behaviour of the private operators and the economic regulator resulting in increasing water charges and the adoption of controversial disconnection practices. Governmental social policy has seen the dismantlement of interregional equalisation payments among operators and reduced support for households through the social benefits system. The negative effect such developments have cumulative produced on affordability have only been more recently marginally contained by governmental decisions to ban disconnections and to provide for cross-subidisation in favour of vulnerable groups. These measures, and the voluntary charitable schemes introduced by some companies, are inadequate to address the resurgent problem of water poverty.

In August 2008, the government announced an independent review of household charging and metering for water and sewerage services, to be chaired by the chief executive of the Healthcare Commission. The review would assess the 'effectiveness and fairness of current and alternative charging methods, considering social, economic and environmental concerns, making recommendations on any actions to be taken to ensure England and Wales have a sustainable and fair system of charging'. This would include looking at: the effectiveness and fairness of charging methods in view of metering trends and use of the rateable property value; the costs and benefits of metering; the effectiveness of different types of innovative tariffs in helping vulnerable households and/or reducing demand; the effectiveness of measures to manage affordability concerns for low-income households; the impact on health and health inequalities of current and alternative charging methods; and the effectiveness of measures to incentivise people to pay for water and sewerage services, with the exclusion of disconnection, and minimise the impact of bad debt on those that do pay (Stedman, 2008).

Pending the outcome of the review, this section discusses the implications of a number of possible approaches to revising the charging system aiming at enhancing affordability for low income households.

### 7.1. Direct subsidies to consumers through means-tested benefits

This approach is adopted with different effect in a number of countries, including France and Chile, although in different sectors. The system has the advantage of targeting those in need of financial help without dispersing precious resources. However, the case of the Income Support system in England and Wales shows that financial assistance provided through social benefits might be inadequate to address mounting concerns for the affordability of water services.

> *In France, housing support is high enough to pay most of the rent but may be earmarked for this purpose. Hence separate water, electricity and telephone bills may remain unpaid. Each supplying company will seek reimbursement separately (from social services). Reduced price is already available for the telephone of the poor. Electricity may not be cut off and delays are available for the payment of telephone and water bills. Special social tariffs for electricity are available but a special social tariff for water is not yet contemplated. The total number of beneficiaries of these targeted measures is at most 4% of the population and the actual cost implication is likely to be less than 1% of turn over of the utilities concerned (Smets, 2005: 12).*

Interestingly, Bakker (2003: 139) proposes that an alternative policy to address social equity in England and Wales could consist in regionally (rather than nationally) indexing the 'notional value of water in income-support payments, as is already done for housing'. This solution would take into account the considerable regional differentiation of water and sewerage bills.

## 7.2. Cross-subsidisation between high and low income consumers

This approach implies charging high income consumers relatively more in order to reduce charges to low income households in the same operational area. In principle, it might also envisage cross-subsidies between different categories of users, for example from industrial and commercial users to households. In practice, requirements in the European Water Framework Directive to progressively remove cross-subsidies between different categories of users might limit its applicability. Cross-subsidisation can be implemented through a variety of mechanisms, including lower, 'social' tariffs for entitled consumers. A number of these schemes require metering, although not all, as demonstrated by the Vulnerable Group Regulations and the cross-subsidisation inbuilt in the rateable property value mechanism.

Increasing block tariffs, whereby the unit price of water increases with consumption, consists in applying a lower tariff to the first block of cubic metres consumed and increasingly higher prices to subsequent blocks. This form of progressive pricing is used in many countries and cities, including Brussels and Wallonia in Belgium, and several countries in southern Europe, Japan and South Korea. However, it is more effective at discouraging consumption, and thus promoting water conservation, than at addressing social needs. Large, low income families are in fact likely to be penalised, while high income single household occupiers might benefit (Smets, 2005: 10).

In light of similar considerations, the Consumer Council for Water has recently warned against the possible adverse social impact of an expansion of metering on low income families (Consumer Council for Water, 2008a). As noted in section 5 'Pricing in England and Wales', the government, and more precisely DETR, demonstrated its awareness of such risks and expressed its opposition to the full application of the principle of 'economic equity' in water charging.

In fact, in order to ensure that increasing block tariffs are effective at enhancing access for low income households, it is necessary to adopt more sophisticated approaches:

> *In a progressive tariff, the size of the blocks of water consumption can be increased in line with the number of people in the household in order to avoid too large a financial burden on large families (a minority of the beneficiaries). This is done in Luxembourg, Barcelona and in Flanders (15 m3 per person per year) but requires that the user applies to the water company to have a special tariff from social services* (Smets, 2005: 14).

## 7.3. Reducing the overall cost of service provision through good governance

Section 5.5 'Implications of price-cap regulation and companies' "gaming" for charging' shows that there is scope for improving the effectiveness of economic regulation. The strengthening of current regulatory mechanism should be aimed at minimising the practice of 'gaming' and underspend, as this amounts to overcharging of consumers. The savings thus obtained from current charging levels could be passed on to all consumers with no differentiation or could be selectively targeted to benefit low income households.

Improved governance can also take place through the institutional reform and restructuring of the water industry. Hall and Lobina (2008: 30) estimate that bringing the private water companies into public ownership and finance investment through bond issues would result in annual savings of at least GBP 900 million.

> *Dividends to shareholders represent a cost of about 8.8% on capital; interest payments on debt represent a cost of about 5% on capital. The total cost in 2004-05 was £2.4 billion. If all this was replaced with public sector debt at 4%, the cost instead would be about £1.5 billion – an annual saving of £900million. If lower cost government debt was used, at 3% or less, the savings could be even greater: long term debt at 2.5%* (Hall and Lobina, 2008: 30).

It should be noted that the estimated GBP 900 million per year of efficiencies thus obtained would allow for a reduction of about 12 per cent off the average household bill for water and sewerage, about £20 per year per person in England and Wales, or an increase of 25 per cent in capital investment (Hall and Lobina, 2008: 30). Again, reductions in water bills could be targeted to particularly benefit low income households. The estimated GBP 900 million efficiencies due to bringing water operations and financing under public ownership would represent a multiple of what current private undertakers seem prepared to donate to their charitable schemes.

At present, proposals are being put forward for the introduction of more advanced forms of competition, for example product market competition such as energy sector-style retail competition. These proposals are aimed at the reduction of overall costs of service provision, the protection of the environment and contributing to the government's social objectives (Ofwat, 2008: 6-7). The proposals provide relatively limited detail as to how the different forms of competition contemplated would work. However, it should be noted that previous attempts to introduce competition for the market and in the market respectively via inset appointments and common carriage, have had limited success (Bakker, 2003: 92-97; Ofwat, 2008: 85). Where inset appointments have been introduced, substantial price decreases for large industrial users were compensated for by price increases for household consumers (Bakker, 2003: 95-96). Furthermore, current proposals on competition in the water industry do not go beyond envisaging guarantees to maintain cross-subsidies in favour of rural consumers and vulnerable groups (Ofwat, 2008: 9-10; 60-63). It thus remains questionable that competition can by itself provide a substantial contribution to fostering affordability for low income households.

## 7.4. Reducing the overall cost of service provision through enhanced water efficiency

In the February 2008 government's water strategy for England, DEFRA announced a review of the Water Supply (Water Fittings) Regulations 1999 aiming at enhancing the water efficiency of household appliances. The regulations 'cover for example the maximum water use of toilets, urinals, washing machines etc. The review will also consider enforcement issues, advances in technical standards and water conservation, and the case for setting new performance standards for key water fittings' (Department for Environment, Food and Rural Affairs, 2008a: 27). Such measures can be expected to produce positive environmental effects as a result of water conservation, but are unlikely to provide a substantial contribution to social objectives.

Demand for water is in principle derived, but only 30 per cent of households in England are currently metered and metering is growing by 2 per cent per year (see the above section 5.4 'Implications of measurement methods for charging and affordability'). This means that the remaining majority of domestic users would not benefit from reduced bills irrespective of the adoption of water efficiency measures (which in turn might require subsidies or cross-subsidies for those low income families unable to afford the cost of replacing water-inefficient household appliances). Furthermore, it has already been noted that large low-income families or vulnerable consumers with high water consumption levels would stand to lose from switching to metering.

In reality, there is no direct correlation between reduced water consumption and reduced overall costs to consumers. Switching from an unmetered to a metered supply usually implies a reduction in water consumption of around 10 per cent (Department for Environment, Food and Rural Affairs, 2008a: 12; Smets, 2005: 6). It is estimated that fitting water efficient household appliances may save from 20 per cent to 30 per cent of household water consumption (House of Lords Science and Technology Committee, 2006a: 82). However, in a capital intensive sector such as water supply and sewerage cost, reductions would not be proportionate to the decrease in demand. Capital costs would remain unaffected while only part of operating costs would decrease (mainly the electricity costs of pumping water to households). The tenuous correlation between reduced water consumption and reduced costs to consumers is demonstrated by a number of cases where substantial drops in demand, or overestimated consumption, have been followed by compensatory price increases. These were justified by the need to protect the operator from the unchanged incidence of capital costs. Examples include Grenoble, France (Lobina, 2006: 15), Arezzo, Italy (Lobina, 2005: 17) and Rostock, Germany (Lobina and Hall, 2003: 10).

# 8. Conclusions

In his review of social measures adopted by OECD countries, Smets (2005: 19) observes that 'in general, countries implement a mix of general and special measures because no measure provides a perfect response to the issue of affordability'. This is also the current situation in England and Wales, although the specific mix of measures appears inadequate to addressing rising concerns with water poverty and affordability. It is the combined effect of all measures adopted that is to be judged.

Ofwat's reluctance to address social equity issues, for example through more extensive cross-subsidisation in favour of low-income households, has certainly been a contributing factor in financial hardship experienced by domestic water consumers in England and Wales since privatisation. Ofwat's inaction, however, has been compounded by the Secretary of State's failure to provide the economic regulator with specific guidance on how more extensive and effective cross-subsidisation should be used to achieve social objectives.

The implications of resorting to cross-subsidisation appear more than tolerable for operators. As noted by Smets (2005: 11) in his international comparison of social practice, 'as the number of beneficiaries is generally below 15% of the population and the amount of support provided to poor people is generally below one third of the value of the average water consumption, the total cost of targeted support is always smaller than 5% of the price of water and most probably below 2% of the price of water. Such limited financial support should have no significant effect on pricing, water efficiency or resource efficiency'. Interestingly, equalisation payments made pursuant to the 1974 Water Charges Equalization Act amounted to 2 per cent of aggregate revenues.

On the other hand, the rationale for the government's stance to exclude resorting to the social benefits system could be clarified and strengthened. It is not clear why adequate, targeted subsidies directed at assisting consumers in need cannot be adopted to compensate for ever increasing water charges. Even more so when winter fuel payments are being considered for an increase.

Irrespective of the composition of the range of measures adopted – cross-subsidisation through the charging system, subsidisation through the social benefits system, reduction of overall provision costs – their effectiveness depends on the extent to which resources reach those in need. This requires simple and accurate identification mechanisms, possibly relying on the existing lists of beneficiaries of social benefits. For example, such lists might help identify consumers who are entitled to a reduced, social tariff in case they had a metered supply. Otherwise, measures intended to tackle social issues might end up diverting resources to those who can afford to pay for their bills (Smets, 2005: 7). Furthermore, as recommended by Bakker (2003: 139), measures should be targeted to address regional differentiation in water charges, aiming at assisting hard hit consumers in high charges regions such as the South West.

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[40] Source: Statutory Instrument 1999 No. 3441, The Water Industry (Charges) (Vulnerable Groups) Regulations 1999 (http://www.opsi.gov.uk/si/si1999/19993441.htm).

[41] Source: www.ofwat.gov.uk/aptrix/ofwat/publish.nsf/Content/ConsIssue_ProblemsPayingBills_VulnerableGroups.

[42] Source: Statutory Instrument 2005 No. 59, The Water Industry (Charges) (Vulnerable Groups) (Amendment) Regulations 2005 (http://www.opsi.gov.uk/si/si2005/20050059.htm).

[43] Source: BBC News, "Water firm expands hardship fund", BBC News Channel, Business, 5 August 2008 (http://news.bbc.co.uk/1/hi/business/7542238.stm).

[44] Source: Water Act 1989, section 7 (http://www.opsi.gov.uk/acts/acts1989/ukpga_19890015_en_2#pt1-pb4-l1g7).

[45] Ofwat, "Tariff structure and charges: 2002-2003 report", June 2002, p21 http://www.ofwat.gov.uk/pdffiles/tariffs_report02.pdf .

[46] See press notice PN 56/02 30 July 2002 Ofwat Proposes 25 Year Notice Period For Water Company Licences http://www.gnn.gov.uk/Content/Detail.asp?ReleaseID=20509&NewsAreaID=2

[47] The relevant section reads: 'For the purposes of paragraph (c) of Section 7(4) of the Water Industry Act 1991, the only circumstances in which an appointment or variation may be made, in relation to the area for which the Appointee holds the Appointment as water undertaker or, as the case may be, sewerage undertaker under this instrument, are where the Secretary of State has given the Appointee at least 25 years' notice to terminate the relevant Appointment in relation to the whole of its area and that period of notice has expired.] [inserted with effect from 15 October 2002].'

[48] At http://www.gnn.gov.uk/Content/Detail.asp?ReleaseID=20509&NewsAreaID=2

[49] United Utilities Interim Results for the Six Months Ended 30 September 2002 Progress In Growth Businesses Offsets Anticipated Reduction In Regulated Earnings 05 December 2002 http://www.unitedutilities.com/?OBH=1477&ID=37