# Section 4
## Costs


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# Section 4: Chapter 15
# Costs: Capital Investment Programme

## a) Introduction

Chapter 4 discussed the Quality and Standards process. This chapter sets out the costs of achieving the Quality and Standards investment programme.

The investment programme 2002-06 defined by this process is the result of 18 months' effort to determine the investment needs required to ensure environmental compliance and to prevent any further deterioration in existing assets. The Quality and Standards investment programme is expected to:

- reduce the number of supply interruptions,
- reduce the frequency of water quality incidents and sewage floodings,
- enhance river, beach and coastal water quality and compliance,
- improve drinking water quality.

The capital investment programme is one of the most important inputs to this Review. I have accepted all of the original costings of projects supplied by the water authorities, but have applied a substantial efficiency target. I have also slightly reconfigured, in consultation with management, the profile of investment (whilst respecting all statutory deadlines), in order to improve the outlook for customers.

## b) Definition of capital investment

Capital investment covers the building and modernisation of the assets the authorities require to perform their business.

Water industry assets may be categorised as follows:

### Infrastructure assets

These are the network of pipes, pumps and valves. This network is required to operate effectively in perpetuity and provides the means by which distribution of potable water or collection of sewage and storm water is possible. Infrastructure assets may include dams, reservoirs, raw water aqueducts, water trunk and distribution mains, sewerage, sewage pumping mains and sewage outfalls. Infrastructure assets comprise the bulk of the water authorities' assets by value (see Figure 15.1).

### Non-infrastructure assets

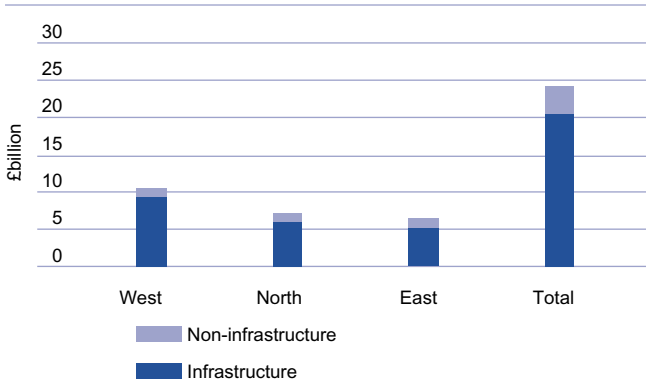
These are the specialised assets, usually of short to medium life. These assets are generally used for the production of water and treatment of waste water. Non-infrastructure assets include boreholes, water pumping stations, water treatment works, sewage pumping stations, sewage treatment works and sludge treatment and disposal facilities.

### Support assets

These are the operational non-specialised assets, usually with a short to medium life, used to manage the business. Support assets include vehicles and plant, information systems, office fixtures and fittings, offices, depots and stores.

Figure 15.1 below illustrates the proportion of the estimated replacement costs of infrastructure and non-infrastructure assets. Infrastructure assets account for around 80% of total asset replacement costs. Support service assets, while not insignificant, are not material in comparison. Their current value is about £160 million.

**Figure 15.1: Split of assets by estimated replacement costs**

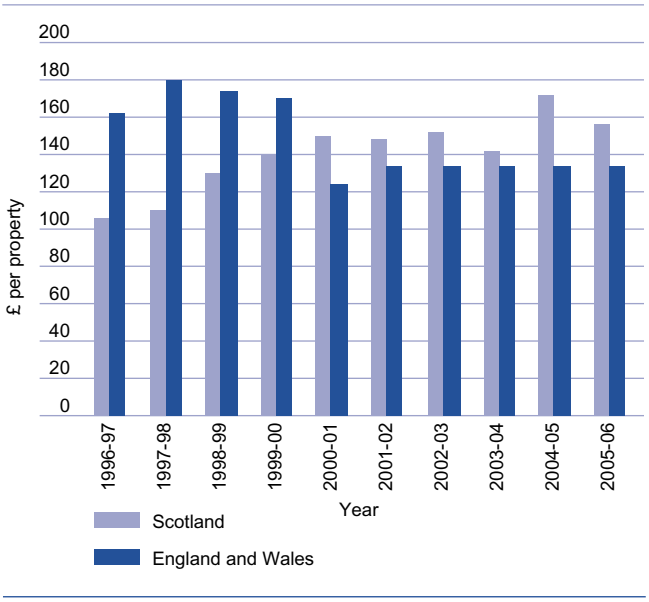



## c) Importance of capital investment

Customers require services to be available 'on demand' and at 'reasonable cost'. The capital investment programme must therefore be delivered to meet the requirements of customers and environmental regulations now, and in the medium term, while reconciling this with the long-term nature of the water and sewerage business and the massive replacement cost of the assets.

The history of under -investment in the water industry in Scotland makes this investment all the more important for customers. This investment is essential if Scottish customers are to enjoy the same service and standards that customers in England and Wales now receive. The increased capital investment in England and Wales during the 1990s has improved customer service, water quality and environmental standards far beyond the current position in Scotland. By increasing investment for each household during the Quality and Standards period 2002-06 to above English and Welsh levels, the authorities should be able to improve service. Levels of capital investment for each property are illustrated in Figure 15.2[1].

**Figure 15.2: Levels of capital investment per property 1996-2006**




By preventing further deterioration of the authorities' assets, the investment programme will provide Scotland with a sustainable water network for the future. This investment will benefit customers now and in the future.

Although the Quality and Standards process only covered the period from 2002-06, the expectation of the quality regulators is that similar levels of investment are likely to be required in future Quality and Standards periods. The focus of this investment may switch from sewerage to water or to maintenance, but it would be imprudent to expect any major reduction in expenditure.

### d) Quality and Standards process

The current Quality and Standards process sets out the standards of drinking water quality and environmental protection that the authorities need to meet, and the resulting cost. This allows prioritisation of the investment programme. The results of the Quality and Standards process were issued in a Consultation Document, by the Scottish Executive. This ensured that all stakeholders were able to express a view on the investment needs of the water industry in Scotland. The Quality and Standards process is outlined in detail in Chapter 4.

### e) Summary of key improvements

The Quality and Standards investment programme will bring a number of marked improvements to customers in a variety of areas. These priorities closely reflect customers' views expressed in the responses to questions put to the Water Panel.

The priorities are as follows:

**i) Cleaner beaches, rivers and coastal waters**

Table 15.1 shows the progress that will be made in improving treatment levels for Scotland's sewage.

There should also be substantial progress in connecting those houses in rural areas whose badly installed septic tanks contribute to pollution of watercourses.

**Table 15.1: Percentage of populations receiving secondary (biological) treatment**

| Year | East of Scotland Water Authority 2000 | 2006 | North of Scotland Water Authority 2000 | 2006 | West of Scotland Water Authority 2000 | 2006 |
|---|---|---|---|---|---|---|
| Population benefiting from secondary treatment | 39% | 97% | 34% | 85% | 62% | 95% |

[1] Investment in Scotland has been adjusted for inefficient spend. Investment is higher in Scotland in 2000-06, largely explained by the higher investment required for each property in more rural areas.

**Table 15.2: Drinking Water Quality 1000 Index**

| Year | East of Scotland Water Authority 2000 | 2006 | North of Scotland Water Authority 2000 | 2006 | West of Scotland Water Authority 2000 | 2006 |
|---|---|---|---|---|---|---|
| Drinking Water Quality 1000 index | 990 | 991 | 948 | 991 | 965 | 980 |

**Table 15.3: Indicative length of water main to be relined/replaced 2002-06**

| East of Scotland Water Authority | | North of Scotland Water Authority | | West of Scotland Water Authority | |
|---|---|---|---|---|---|
| Total length of water main | Length of water main relined/ replaced | Total length of water main | Length of water main relined/ replaced | Total length of water main | Length of water main relined/ replaced |
| 12,233km | 820km | 18,053km | 875km | 16,656km | 1,811km |
| Proportion | 7% | Proportion | 5% | Proportion | 11% |

**ii) improvements in the Drinking Water Quality 1000 index**

The index covers regulatory compliance of drinking water at customers' taps with key parameters. The closer the figure is to 1000, the better the microbiological quality of the water.

These improvements are quite marked (particularly in the North of Scotland) but they still will lag behind the standards achieved in England and Wales in 1999. In 1999 the England and Wales Drinking Water Quality 1000 index average was 995. The planned investments for 2002-06 will bring Scottish drinking water much closer to the 1999 England and Wales standard, but further investment is likely to be required in the next Quality and Standards period.

**iii) Improvements in the reliability of service to customers**

Investment in this area is particularly targeted towards delivering increased water pressure to customers. In the absence of a defined pressure standard (see Chapter 23), an indication of the benefits of this investment is demonstrated by the length of water pipes that will be rehabilitated or replaced.

The measurement of lengths of mains refurbished is not ideal. It may provide an incentive to replace mains that could be replaced later. This would not be in the customer's interest.

I have therefore agreed with the authorities, the Scottish Executive and the drinking water quality regulator that credit will be given if quality of service is improved by means other than full replacement of the mains. This could, for example, be achieved through pressure management or through the replacement of a valve.

The expectation of the Quality and Standards process is that investment in this area should be sufficient to limit the number of properties affected by low pressure to the current level. It is also expected that the investment will reduce the number of bursts and improve water quality generally. For example, the number of properties affected by low pressure in the East of Scotland Water Authority region should be reduced by 17.5%.

**iv) Reductions in sewer flooding and blockages**

The same comments apply to measuring the rehabilitation of the sewerage system as apply to water mains. However, given that management of the industry has been appropriately incentivised to seek the best solution from a customer perspective, measurement of rehabilitation of sewers is a useful proxy.

The expectation of the Quality and Standards process is that the rehabilitation of sewers will reduce the number of properties that are vulnerable to sewer flooding. Although this is a relatively rare problem (see Chapter 22), it is an issue that concerns very many customers. The investment should also

**Table 15.4: Indicative length of sewer to be rehabilitated 2002-06**

| East of Scotland Water Authority | | North of Scotland Water Authority | | West of Scotland Water Authority | |
|---|---|---|---|---|---|
| Total length of sewer | Length of sewers rehabilitated | Total length of sewer | Length of sewers rehabilitated | Total length of sewer | Length of sewers rehabilitated |
| 9,474km | 97 km | 7,422km | 220 km | 12,171km | 129km |
| Proportion | 1% | Proportion | 3% | Proportion | 1% |

prevent an increase in the number of sewer blockages and improve the environment by restricting the amount of sewage that escapes from the system. For example, in the East of Scotland Water Authority area, the number of properties that are vulnerable to sewer flooding will be reduced to 10% of the year 2000 quantity by 2006.

**v) Easing development constraints**

One element of the Quality and Standards consultation that attracted particular interest was the potential for investment in easing development constraints. This was originally included only in the enhanced option, but was included (after the consultation) in the central option. There will, therefore, be a significant investment (over £10 million per year) to ease development constraints and extend rural sewerage connections. This will have quite a major influence on the environment and will provide the option to connect to the public supply for many customers.

### f) Meeting customer expectations

This Quality and Standards programme of investment will meet many customer expectations for cleaner beaches and rivers, reduced sewer flooding and better sewage treatment. The clear intent of the investment is to take full account of future investment needs and to ensure that the current investment programme fits within a framework for a sustainable industry.

In my consultations with customers over the last 18 months, a number of common threads have run through the discussions regarding customers' concerns and desires for investment priorities. In particular, in the first survey of the Water Panel, which was carried out in October and November 2000, the following issues were perceived by domestic customers to be major problems:

- coastal waters polluted with sewage (83%),
- rivers and lochs polluted with sewage (60%),
- leaking water pipes (52%),
- external flooding from sewers (38%),
- smell around sewage works (37%).

In a questionnaire distributed through their industry associations and representative bodies, the non-domestic sector also expressed concerns. Their priorities were for improved sewage treatment, increased cleanliness of rivers, coastal areas and beaches and improvements to the reliability of supply by replacing or repairing water mains. The responses to the questionnaire indicate that the non-domestic sector seem to be prepared to pay for the improvements that they seek. The questionnaire asked: "Which of the following options would you prefer to see in relation to pricing and investment policy in the water and sewerage industry over the next few years?" The responses were as follows:

**Table 15.5: Responses to non-domestic questionnaire**

| Options | Response |
|---|---|
| Prices rise in line with inflation, some quality and environmental standards are not met, the quality of infrastructure remains poor (increased risk of water leaks/service failures) | 25% |
| Prices rise by more than inflation, most quality and environmental standards are met, the quality of infrastructure remains quite poor (risk of water leaks/service failures remains) | 32% |
| Prices rise initially by a number of times more than the rate of inflation, legal and environmental standards are met, the quality of infrastructure improves to sustainable standards of service reliability | 43% |

### g) Implementation of Quality and Standards

The approved central option investment programmes for the three water authorities during the next Quality and Standards period (2002-06) would result in an expenditure of approximately £2.3 billion by the water authorities, at current levels of efficiency. Figure 15.3 below illustrates the total capital investment required over the period.

The investment may be further categorised into Base, Quality, Growth and Infrastructure renewals.

**Figure 15.3: Capital investment by purpose category 2002-06**

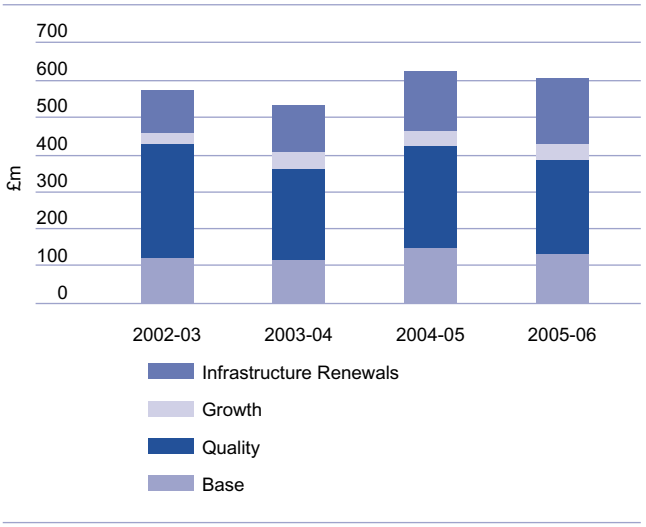


**Table 15.6: Water service quality investment 2002-06**

| | 2002–03 | 2003–04 | 2004–05 | 2005–06 | Total |
|---|---|---|---|---|---|
| Drinking Water Directive (98/83 EC) | £82.8m | £72.0m | £60.8m | £58.0m | **£273.6m** |
| The Cryptosporidium (New Water and Sewerage Directive) Direction 2000 | £19.4m | £18.8m | £27.4m | £22.1m | **£87.7m** |
| Water Mains Rehabilitation | £10.2m | £12m | £15.2m | £17.6m | **£55.0m** |
| The Abstraction Directive | £0m | £0m | £0m | £0m | **£0m** |
| The Birds Directive, The Habitats Directive | £0.01m | £0.01m | £0.01m | £0.01m | **£0.04m** |
| **Totals** | **£112.4m** | **£102.8m** | **£103.4m** | **£97.7m** | **£416.4m** |

The investment purpose categories can be defined as follows:

### Quality

Investment categorised as quality enhancing. This delivers outputs necessary to implement new legislative requirements relating to drinking water quality and waste water treatment. Quality accounts for around 50% of total investment.

### Growth

Investment categorised as growth is required to meet demand for services from new and existing customers by providing new assets or increasing the capacity of existing assets. Growth only accounts for a small percentage of total investment, around 5%.

### Base

Investment categorised as Base is necessary for the maintenance of defined service levels to customers. This is the ongoing replacement of assets that provide the current level of service. It is the replacement of equipment at the end of its useful life with a similar asset. No improvement in the underlying average service results. This does not include the renewal of infrastructure mains (below).

### Infrastructure renewals

Investment categorised as Infrastructure Renewals is the cost assessed to be the average annual cost required to maintain the underground infrastructure of pipes, which are required in perpetuity, in the same condition and at the same performance level. If the investment targeted at 'base' and 'infrastructure renewals' is taken together (this is the total investment required annually to keep the system functioning without any improvement for any customers) then this 'maintenance investment' represents some 45% of the total programme.

Quality and infrastructure renewals are the most significant elements of the capital investment programme in terms of size. These are examined in more detail below.

**i) Quality**

The water quality investment programme in 2002-06 amounts to around £420 million (£181 per property), while the environmental waste water programme totals around £630 million (£272 per property). This is in excess of £110 per property per year – approximately half the current average annual domestic bill.

To put this in perspective, the English and Welsh companies will be spending £2,260 million during the period 2000-05 for water quality improvements, an average of £101 per property. Waste water quality improvements will cost £5,120 million, averaging £237 per property[2].

Table 15.6 sets out the regulations and directives driving the Scottish quality programme.

The main legislative drivers for investment in water quality are the Drinking Water Directive (98/83EC) and the Cryptosporidium Direction 2000.

The new European Drinking Water Directive has far reaching implications for water treatment. Until now, European legislation has required that water authorities must treat the raw water to remove the microbiological impurities that are the principal

[2] *Ofwat 1999 Periodic Review: Final Determinations:* section 4.7 Table 7. Numbers of customers extracted from *Ofwat Tariff Structure and Charges 2000-01 Report Annex B.*

**Table 15.7: Waste water quality investment 2002–06**

| | 2002–03 | 2003–04 | 2004–05 | 2005–06 | Total |
|---|---|---|---|---|---|
| Control of Pollution Act 1974 S34 | £30.0m | £34.4m | £26.5m | £23.9m | **£114.8m** |
| Improvements to poor or seriously polluted waters | £0.1m | £0.6m | £3.0m | £1.4m | **£5.1m** |
| Recreation and non-identified coastal waters | £6.5m | £2.4m | £3.0m | £0.6m | **£12.5m** |
| EC1: UWWTD | £98.4m | £92.3m | £106.5m | £79.3m | **£376.5m** |
| EC2: Bathing Waters Directive | £6.7m | £5.7m | £13.1m | £12.9m | **£38.4m** |
| EC3: Shellfish Waters | £3.4m | £3.9m | £8.5m | £28.8m | **£44.6m** |
| EC4: Freshwater Fish Directive | £0.2m | £1.0m | £7.8m | £10.0m | **£19.0m** |
| EC6: Sludge Directive | £5.3m | £6.2m | £1.0m | £0.1m | **£12.6m** |
| EC8: Habitats Directive | £0m | £0m | £2.9m | £2.5m | **£5.4m** |
| EC9: Dangerous Substances Directive | £0m | £0m | £0m | £0m | **£0m** |
| **Totals** | **£150.6m** | **£146.5m** | **£172.3m** | **£159.5m** | **£628.9m** |

health risk. The main impact of the new Directive will be to ensure that the process of removing these impurities does not itself create new impurities, called THMs (trihalomethanes) and to set progressively tighter standards for the quantity of lead in water that is acceptable. Full compliance with most standards is required by the end of 2003. Compliance with the permanent THM standard is required by the end of 2008 and the permanent lead standard by 2013.

The Cryptosporidium Direction also sets out a strict timetable to reduce the assessed risk by 2005. Customers will benefit from this investment, as there will be a much reduced risk of cryptosporidiosis. This illness is caused by a parasite that infects humans and animals. The effect is severe diarrhoea. This investment will replace or upgrade a number of water treatment works that will be capable of removing cryptosporidium. Amongst the largest is the proposed upgrading of the Milngavie Treatment Works, which serves much of Glasgow.

This quality investment programme (2002-06) in the water service means that customers can look forward to better water quality and the considerable public health benefits that will result.

The major drivers for wastewater quality investment in the period from 2002-06 are the Control of Pollution Act and the EC Urban Waste Water Treatment Directive 91/271/EEC (UWWTD).

The UWWTD links the level of sewage treatment, and the dates by which the treatment should be in place, to the size of the community or communities served by a sewerage system. The Directive states that the water authorities had to provide secondary treatment by the end of the year 2000 for communities with a population equivalent[3] of more than 15,000. There are different legal requirements for areas designated as sensitive or less sensitive waters. If the population equivalent is less than 15,000, the water authorities must provide sewerage systems and treatment plants by the end of 2005. The level of treatment required will depend on the quality of treated effluent and its impact on the environment. This investment will directly benefit a large number of customers in Scotland. (See Table 15.7).

Public Private Partnerships (PPPs) (see Chapter 17) will be delivering approximately £56 million of the quality investment in wastewater. This investment is to meet the deadlines and treatment requirements of the UWWTD in this Quality and Standards period. The £56 million is the construction cost[4].

The Quality and Standards programme also includes investment to meet the requirements of the Control of Pollution Act 1974. This will fund new sewage treatment works and sewerage system upgrading, with the aim of tightening the

[3] Population equivalent is calculated by counting the domestic population and adding the waste generated by industrial and commercial customers. That waste is compared with the quantity generated by the average domestic customer. This leads to an assessment that a particular non-domestic customer is equivalent to a certain number of domestic customers. The 15,000 threshold can therefore impact some very small communities.

[4] As quoted in the Transport and Environment Committee 9th Report 2001 (Volume One).

existing statutory discharge consents. There is no specific legislative timetable, although the investment is no less important to customers. This investment will improve the compliance levels of the water authorities with the Act and, as a result, customers can expect cleaner rivers, beaches and coastal waters.

It should be noted, however, that not all pollution results from the activities (either directly or indirectly) of the water industry. Compliance by the water authority is not in itself a guarantee that all our rivers and estuaries will return to the standard we would like. As highlighted recently to the Transport and Environment Committee, other forms of pollution, notably diffuse pollution from agriculture and industry, will also need to be addressed if the full benefit of the environmental improvement is to be enjoyed.

**ii) Infrastructure renewals**

Spending on infrastructure renewals has traditionally been very low and well below desirable levels. Investment in this area has been growing since 1996 and there will be a further acceleration in investment in the period between 2002-06 (see Tables 15.8 and 15.9[5]). This investment will begin to improve the supply and collection networks and ensure that there is no further deterioration in the performance and condition of the water mains and sewerage network serving Scotland.

The profile of capital maintenance on the underground infrastructure is increased to a level that is higher than the long term normative charge, and which should therefore prevent further deterioration of the infrastructure, and may even begin to address some of the backlog. The back-loading of the investment should also be in the customer's benefit, as investment will be more efficiently prioritised as better quality data becomes available.

**Table 15.8: Water infrastructure renewals investment**

| | 2002–03 | 2003–04 | 2004–05 | 2005–06 | L.T.N.C. |
|---|---|---|---|---|---|
| East | £17m | £15m | £27m | £31m | £23m |
| North | £31m | £25m | £41m | £43m | £33m |
| West | £21m | £22m | £56m | £57m | £35m |
| **Total** | **£69m** | **£62m** | **£124m** | **£131m** | **£91m** |

**Table 15.9: Wastewater infrastructure renewals Investment**

| | 2002–03 | 2003–04 | 2004–05 | 2005–06 | L.T.N.C. |
|---|---|---|---|---|---|
| East | £7m | £7m | £12m | £15m | £10m |
| North | £10m | £16m | £21m | £26m | £10m |
| West | £8m | £11m | £21m | £26m | £17m |
| **Total** | **£25m** | **£34m** | **£54m** | **£67m** | **£37m** |

### h) Potential problems in delivering the investment programme

**i) Quality of asset information**

The Information Project highlighted the need to improve further the information that the authorities have about their assets (See Chapter 3). The information available to the authorities and to regulators has improved very markedly over the last two years. Whilst it is not close to being perfect, there can be quite a high degree of confidence that it is directionally correct. Although there inevitably remains a risk in the Quality and Standards programme to the desired outputs, this is lower than it has ever been before.

The limits to existing information could be a risk to the delivery of the outputs required by future Quality and Standards processes. It is in the customer's interest that we ensure that investment is targeted as appropriately as possible. From the standpoint of sustainability, it is likely that, as the industry learns more about the condition and performance of its networks, further investment needs may be identified. This could have negative consequences for customer prices. I have therefore proposed that I work with the Scottish Environmental Protection Agency and the proposed new Drinking Water Quality Regulator, to design a system of output measures by which it will be possible to monitor the implementation of this and future Quality and Standards programmes. This initiative will be a valuable investment in ensuring that value for money is achieved for customers. This is discussed in more detail in Chapter 19.

**ii) Management distraction**

Some opponents of the creation of Scottish Water have suggested that the proposed merger of the three authorities into Scottish Water might distract management attention away from delivering the capital programme and that this could result in delays. I believe that I have the monitoring systems in place that will allow early warning of any such slippage in the investment programme. Obviously, I would highlight any

[5] L.T.N.C. means the Long Term Normative Charge calculated by WIC (refer to Chapter 4).

danger to all stakeholders, at the earliest opportunity. The potential danger of a loss of focus by management was also recognised by the Transport and Environment Committee, which recommended delaying the implementation of the new competition provisions as this was another potential distraction to management. The delay in the implementation of the new competition provisions should ensure that delivery of investment and efficiencies remains on track.

**iii) New legislation**

The other area of potential risk to the Quality and Standards programme is the possibility that new environmental or water quality legislation will require investment during the current period. I look to the quality regulators to signal as early as possible any extra investment requirement.

**iv) Procurement**

One of the principal delivery risks is in the area of procurement. The transfer or sharing of risk with partners or contractors or joint ventures may be the best way to ensure that the programme is implemented effectively and efficiently.

### i) Monitoring of outputs

My office will continue to monitor the implementation of this huge investment programme. This monitoring will increasingly be on an output basis. The process of monitoring delivery of outputs, and my role in it, is described in Chapter 19.

### j) Conclusion

Capital investment is crucial for a number of reasons; for sustainability, to compensate for historical under-investment and to meet current and future customer needs and expectations.

The Quality and Standards process has planned investment of £2.3 billion pre-efficiencies in 2002-06 and this will deliver marked environmental benefits; cleaner beaches, coastal water and rivers. These have been confirmed as the key priorities of customers. Drinking water quality and overall customer service will also be improved by increasing the reliability of supply (including water pressure) and by reducing the number of sewer flooding and blockage problems. Whilst this may not affect many customers, the consequences of these problems for those customers affected is severe. This therefore is an important initiative for customers.

The Quality and Standards central option of investing £2.3 billion in Scotland's water industry must, however, be delivered efficiently to ensure value for money for customers. The need for efficiency and the targets I have set are outlined in Chapter 19.

# Section 4: Chapter 16
## Costs: Debt Funding & Treasury Management

### a) Introduction

One of the major costs faced by the water authorities is paying interest on outstanding debt. It is important to distinguish between the debt owed by the water authorities and the debt owed by customers to the water authorities. This chapter is about the money owed *by* the water industry.

A commercial organisation should manage debt in much the same way as any individual. It is vital to remember that it will be necessary not only to pay the interest on debt, but ultimately to repay the capital. It is sensible to ensure that the costs of interest do not become too high a proportion of income - the higher that proportion becomes, the more vulnerable the organisation or individual. For example, if a family earns after taxes £15,000 a year in base salaries and a further £6,000 in overtime, total disposable income is £21,000. If interest charges on various household credits (mortgage, car loan etc.) is £6,000 a year then there is a fair margin of income available, which is not committed to interest payments. If the overtime income was lost, however, the impact on this family could be quite serious as disposable income after interest charges would decrease from £15,000 to £9,000. This may mean that sacrifices in lifestyle would result. The situation for a water authority is very similar. If interest charges become too high a proportion of revenue, revenue reductions forced upon the authority by competition or an increased need for environmental investment could result in a lower level of service or a need to increase prices. This would not be in the customer's interest.

The repayment of capital can be an equally important pressure, albeit one, which is less frequent than the day-to-day pressure of meeting interest charges. The capital can be repaid either throughout the term of the debt or at the end of the term. If the borrower opts to repay at the end of the term, it is important that funds are available to repay the loan at this time. An example is the traditional endowment mortgage where only the interest is paid during the term and a separate savings contract is maintained in parallel in order to ensure that funds are available to repay the loan. The importance of having these resources to hand in order to repay debt is evidenced by the problems faced by those who were victim to the mis-selling of endowment mortgages. In these cases, there could be insufficient savings available to repay the outstanding capital of the mortgage. If this occurs when income is limited (after, say retirement) then the consequences are particularly serious. If income is still available, further capacity to borrow (say for a new car) would be reduced if the individual was not to have too high a proportion of their income committed to interest charges.

It is not prudent simply to borrow again to repay the capital of a previous loan - unless this debt is associated with the renewal of an asset and the interest charges remain at a reasonable proportion of total income. If this golden rule is not adhered to by the water authorities, their capacity to borrow to meet the costs of new environmental improvements would be limited. This chapter explains in detail why it is in the customer's interest that we begin to limit borrowing now in order to ensure that we have a financially sustainable industry. If we do not adopt this cautious approach we will substitute a debt mountain for the investment backlog. This is not the inheritance that we would want to leave to future generations.

### b) Current situation in Scotland

Each of the three Scottish authorities has been cash negative since their creation. In April 1996, the three organisations inherited a total debt burden of £1 billion. This has since grown to over £1.9 billion as at March 2001. Figures 16.1 to 16.9 indicate the change in debt levels and interest charges for each of the three water authorities since their creation. The dip in total debt for the North of Scotland Water Authority in 1997-98 was due to a debt restructuring exercise. In each case there has been a steady increase in debt per customer and an increasing absolute amount of the typical bill is going to fund interest. This is clearly not sustainable.

**Figure 16.1: East of Scotland Water Authority debt**

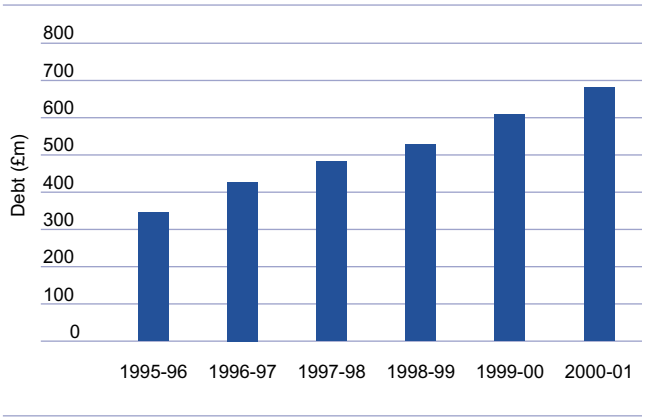


**Figure 16.2: North of Scotland Water Authority debt**

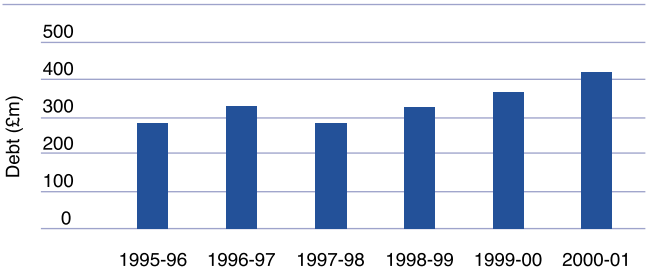



**Figure 16.3: West of Scotland Water Authority debt**

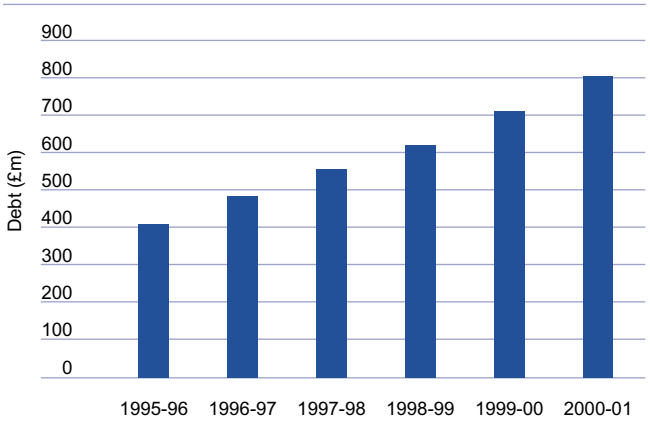



**Figure 16.4: Interest payable by East of Scotland Water Authority**

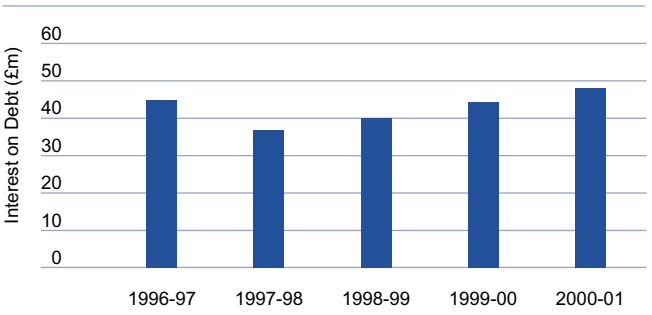



**Figure 16.5: Interest payable by North of Scotland Water Authority**

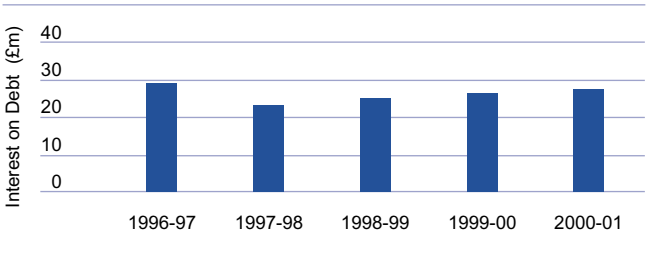



**Figure 16.6: Interest payable by West of Scotland Water Authority**

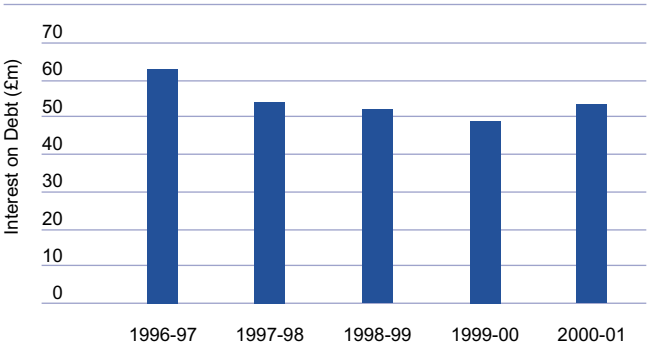



**Figure 16.7: East of Scotland Water Authority interest allocated to a Band D customer**

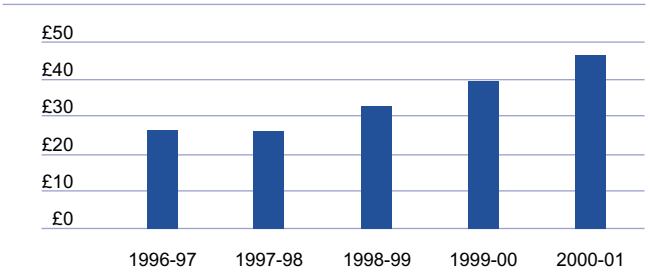



**Figure 16.8: North of Scotland Water Authority interest allocated to a Band D customer**

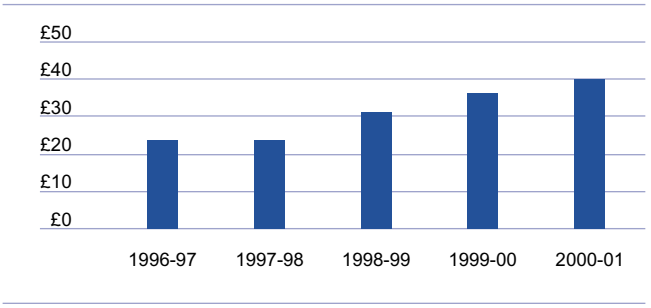
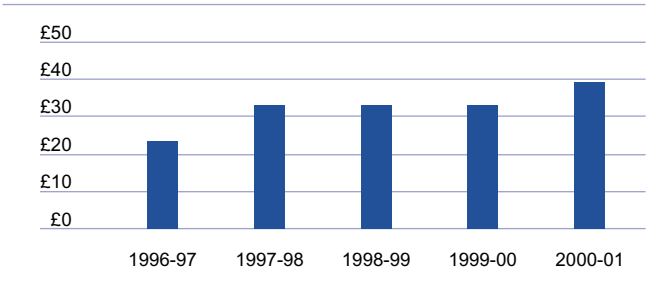



**Figure 16.9: West of Scotland Water Authority interest allocated to a Band D customer**



Unless revenues are brought broadly into line with the average continuing annual obligations of the water authorities, there will be a continuing need to increase borrowing in order to balance the books at the end of the financial year.

As explained above, borrowing can play an important role in smoothing the cash needs of the authorities over periods of particularly high investment. However, the borrowing should only be used when legislative, practical, or operational deadlines require the acceleration of capital spending. Additionally, it must be borne in mind that borrowings need to be repaid with interest from future revenues. This will result in revenues having ultimately to be increased to meet the higher maintenance and replacement costs of the overall improved system, not to mention the interest charges on the borrowing. If the underlying revenue is not sufficient to cover the ongoing operational and maintenance expenditures faced by the authorities, borrowing is only delaying and worsening the charges levels that will be faced by future generations. For example, if revenues are not sufficient to cover all outgoings and the costs of asset maintenance, there will be an increasing debt and interest burden, the bill for which would have to be paid by future generations. This is akin to each of us borrowing during each year of our lives and leaving the bill for our profligacy to our children.

An example illustrates the point. The North of Scotland Water Authority had £421.5 million of debt as at 31 March 2001. If the revenues, operational and investment costs of the water authority were to increase at the rate of inflation, the only way in which revenues could be supplemented to meet the higher operational, investment and financing costs, is to increase borrowings. Table 16.1 demonstrates the result.

A sustainable business requires that interest charges over the long-term should remain at about the same percentage of the cash generated from operations. There will inevitably be fluctuations to meet unforeseen or sudden investment needs, but over the longer term this rule should hold.

It is often argued that debt should be written off (as it was in England and Wales). However, because the need for new debt is currently greater than the interest charges faced by each of the water authorities, the same gloomy picture of interest charges, representing an ever-increasing proportion of revenue, would be repeated. By way of illustration, the North of Scotland Water Authority example above is repeated, except that the £421.5 million of debt that was outstanding at the end of the 2001 financial year has been commuted.

**Table 16.1: Borrowing and financial sustainability**

| | 2001 | 2006 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|
| Revenues | £207m | £234m | £259m | £293m | £331m | £375m | £424m |
| Operational costs | £110m | £124m | £137m | £155m | £176m | £199m | £225m |
| Capital costs | £125m | £134m | £143m | £154m | £166m | £178m | £192m |
| Interest costs | £27m | £47m | £68m | £102m | £147m | £206m | £285m |
| Borrowings increase for year | £54m | £72m | £89m | £118m | £156m | £208m | £278m |
| Total debt outstanding | £422m | £743m | £1,072m | £1,601m | £2,302m | £3,233m | £4,474m |
| Interest costs as % of revenue | 13.0% | 20.2% | 26.4% | 34.8% | 44.0% | 54.9% | 67.2% |

**Table 16.2: Borrowing and financial sustainability (after debt commutation)**

| | 2001 | 2006 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|
| Revenues | £207m | £234m | £259m | £293m | £332m | £375m | £424m |
| Operational costs | £110m | £124m | £137m | £155m | £176m | £199m | £225m |
| Capital costs | £125m | £134m | £143m | £154m | £166m | £178m | £192m |
| Interest costs | £27m | £10m | £20m | £35m | £53m | £76m | £104m |
| Borrowings increase for year | £54m | £34m | £41m | £51m | £63m | £78m | £97m |
| Total debt out-standing | £0m | £157m | £310m | £543m | £831m | £1,189m | £1,634m |
| Interest costs as % of revenue | 13.0% | 4.3% | 7.6% | 11.8% | 16.0% | 20.2% | 24.5% |

### c) Debt commutation

The assertion that the Scottish water industry received a worse deal than the privatised companies in England and Wales in the extent of debt that was commuted does not stand up to detailed scrutiny. Indeed it could be easier to argue that customers of the privatised companies received a worse deal.

It is important first to explain that debt cannot simply be commuted or wiped out. Only the original lender or a third party can eliminate debt. In the case of the original lender a loss of the original capital has to be accepted and there is also a loss associated with the interest payments that are foregone. If a third party wants to eliminate the debt, it can repay in full or it is possible to pay the interest charges and make gradual capital repayments or a one-off payment at the end of the term. The extent to which an individual customer may benefit from this policy would depend upon the extent to which they paid taxes and the relative benefit that they received from public services. It is likely that such a policy would benefit the commercial rather than the domestic sector, since the latter benefits more directly from public services. It is unlikely therefore that even if there were significant benefits in lower water charges that this would be in the best interests of all customers.

At privatisation in England and Wales, a total debt of £5.1 billion was commuted; this is net of £100 million of debt that was issued by two of the companies in favour of the Treasury[1]. In addition tax losses of £7.76 billion were transferred to the privatised companies. The sale of the equity of the privatised companies realised £3.9 billion. The total cost to the Treasury, therefore, was £1.2 billion. The total cost per household was, therefore, £50. The initial public offering of the equity offered a dividend yield ranging from 8.10% to 9.68%.

At the establishment of the three water authorities in Scotland, some £700 million of local regional council debt, which had been accumulated in relation to water and sewerage activities, was commuted. This left a total of £1 billion of debt on the starting balance sheets of the three water authorities. Since the assets remain fully within the public sector, there have been no receipts from the sale of assets by the Treasury. The water authorities do have unused tax allowances, either from losses and from investment allowances that can be used to mitigate tax on future profits. As at 31 March 2001 the tax allowances total approximately £1.7 billion (gross). The total cost to the Treasury from this reorganisation was therefore £700 million. This amounts to more than £300 per customer - about six times greater than in England and Wales.

A persuasive consideration that the Scottish water authorities fared worse concerns the high cost of debt faced by the water authorities after 1996. The average coupon (interest charge) on this debt was 8.4%. This, however, compares favourably with the dividend yield that had to be offered to potential shareholders in order to ensure a successful flotation. In short, the customer in Scotland should have had a better deal. Only operational and capital cost inefficiency can give the impression that the customer in Scotland has received a worse deal. This is indeed the area that has to be addressed if the interests of customers are to be protected. Moreover, the customer in Scotland benefits from the low cost of debt that is available to the Scottish water authorities. This is lower than

[1] Two bonds, one valued at £61.0 million and a second at £11.9 million were issued to the Treasury by Anglian Water plc and Thames Water plc.

**Figure 16.10: Treasury Yield Curve for September 2001**

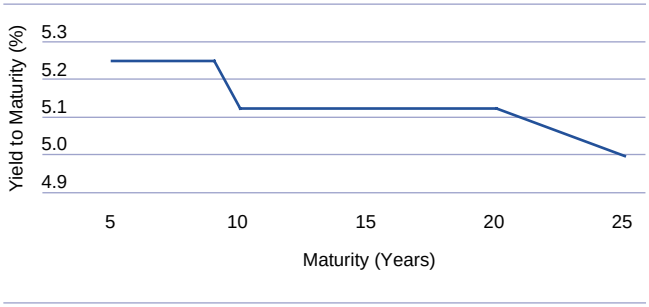
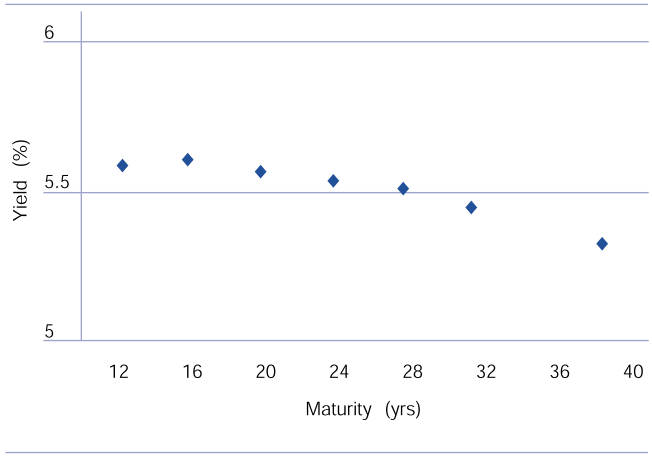



**Figure 16.11: European Investment Bank Sterling Yield Curve (taken as AAA rated) for September 2001**




would be available to even the best private sector company. The above graphs show the Treasury yield curve for 2001 and the equivalent yield curve for sterling AAA rated paper.

Figures 16.10 and 16.11 show clearly that there is a considerable premium (0.2 – 0.4%) on even the highest quality private sector debt. Interest rates at institutions such as the European Investment Bank or the International Finance Corporation[2] for loans related to infrastructure projects may be lower than market rates, but they are not able to compete with loans from the Treasury.

The principal reason why charges have been, until recently, higher in England and Wales is that the privatised companies have made more and earlier progress towards meeting their environmental compliance targets. The effects of the increases have been mitigated by the much greater efficiency that the companies have achieved. Bills may have been as much as 25-30% higher than their current level if the efficiencies had not been achieved.

### d) Achieving sustainability

Financial sustainability is achieved when the growth in new debt in each year is broadly limited to the growth in the free cash flow available to service that debt. Given the significant increase in investment that is required to move from the current level to that associated with the central option of the Quality and Standards process, it is not possible to make a one-off adjustment to revenues in order to achieve the goal of financial sustainability. Nor would this be desirable, as it would result in an increase in revenue to a level greater than that required in order to maintain a constant free cash flow to interest ratio. The targeted efficiencies will take time to achieve and there will also be costs associated with achieving the savings - both of which would again push the revenue level required to a higher level.

The recommendation of this Review is, therefore, that the increases in revenue, which are required to achieve financial sustainability are phased in over the full four year period. This will require new debt to be taken on at a rate greater than is strictly desirable and a consequent worsening in the free cash flow to interest ratio. The ratio that will result under the recommended revenue caps is 1.0 for the year 2005-06. The forward projections for the period beyond 2006 suggest that it should be possible to improve slightly this ratio. This has the advantage for customers that all options regarding the future investment in the industry would be opened up by the end of this review period. This is important because it allows the Scottish Executive, as the de facto owner of the industry, to respond to developments in the water and broader utility sector in the remainder of the United Kingdom. This will ensure that the best option for Scottish water industry customers can continue to be chosen.

### e) Treasury management

Treasury management is an important function within any company or trading organisation. This discipline concerns the effective management of the cash and debt requirements of the organisation. It can extend to covering foreign currency trading risks and the exposure to overseas markets through subsidiaries.

Fortunately, Treasury and debt management is relatively straightforward in a regulated water business. There is no need for some of the more complex activities of the treasury

[2] The commercial lending arm of the International Bank for Reconstruction and Development (World Bank).

management function of an international diversified corporation, such as currency hedging, interest rates swaps or limiting of transaction risk. Income from customers is, relative to most businesses, highly predictable. As a result of this Review, there will be four year visibility of the likely revenue receipts. As a consequence, it should be straightforward to plan the requirement for new debt funding. The knowledge that the water authorities or authority will be cash negative for each of the next four years further simplifies the calculation.

**i) Downward sloping yield curve**

In normal circumstances, short-term debt is cheaper (i.e. it carries a lower coupon) than long-term debt. This can mean that it is better to fund debt needs in the short term and opt relatively rarely for a long term refinancing. There is a need to assess transaction costs (both financial and overhead) in determining the optimum solution. When there is a clear need to acquire more debt during the year and there is a downward sloping yield curve, it is appropriate to take on long-term debt at the earliest opportunity as this will minimise costs.

A simple example will illustrate. In this example, short term debt costs remain constant throughout the year at 5%, and long term costs remain constant at 4%. Two inflows of cash are required on days 1 and 183, each of £500,000. If the debt is taken on a short term basis, and rolled over to a long term basis at the end of the financial year, the total cost is £37,500. If it is taken immediately as long-term debt, the cost would be £30,000. Tables 16.3 and 16.4 illustrate this example.

**Table 16.3: Short-term debt at 5% (Rolled over at end of year)**

| | Day 1 | Day 183 | Day 365 | Total outstanding/ payable |
|---|---|---|---|---|
| Amount borrowed | £500,000 | £500,000 | £0 | £1,000,000 |
| Interest charged | £0 | £12,500 | £25,000 | £37,500 |

**Table 16.4: Long-term debt at 4%**

| | Day 1 | Day 183 | Day 365 | Total outstanding/ payable |
|---|---|---|---|---|
| Amount borrowed | £500,000 | £500,000 | £0 | £1,000,000 |
| Interest charged | £0 | £10,000 | £20,000 | £30,000 |

A review of cash flow management by the authorities has shown that there is an over reliance on short term debt and in one case a tendency to maintain a cash balance (even although the authority is cash negative during the year). This would suggest that the water authorities could improve their treasury management. The recommendations on revenue caps take account of these savings.

**ii) Managing receipts**

This chapter is primarily about the improvements that the water authorities could make in their management of their debt capital. Inevitably, success in the management of this debt depends on the water authorities being able to predict the receipts that they will receive from customers. This predictability in cash flow depends upon active management of customers' debts to the water authority. This is essential throughout the year, and not just towards the end of the year when there is the pressure for action generated by the year-end. This again is an area for improvement by the industry and again the recommendations on revenue cap take account of this opportunity. This issue is discussed at greater length in Chapter 24.

### f) Implications for customers

The costs of debt currently amount to some 20% of the total income received by the water industry in Scotland from customers. There is a short term cost to customers in ensuring that revenues are brought into line with stable financing ratios. There is a clear benefit, however, in the medium to long term as there will be considerable extra flexibility available both to the owner (in terms of organisational structure) and management (in terms of responding to the challenges of further investment in improving the environment). Most importantly, customers will benefit because there will be no likelihood that levels of service are compromised because of pressures on income. Additionally, there should be more than enough financial flexibility to ensure that additional quality standards are implemented in a way that is affordable to customers.

# Section 4: Chapter 17
## Costs: Public Private Partnership Financing

### a) Introduction

**i) Background**

Until 1993, new capital assets in the public sector were funded by a combination of new loans and, where appropriate, customer revenue. In 1993, the Private Finance Initiative (PFI), later renamed Public Private Partnership (PPP), was introduced as an alternative method of providing services to public sector customers. The new scheme placed emphasis on the partnership that would have to exist between the private and public sectors if this method of service delivery was to be fully effective. The original aim may have been to reduce the demand for new loans from central government for new capital investment, but the primary benefit of the successful schemes would appear to be in timely delivery and in the innovative solutions for construction and operation of new and modernised facilities. These benefits ensure that customers face bills lower than would otherwise have been necessary and should receive a better service more quickly.

**ii) Purposes**

By 1997, it had become clear that there needed to be a step function change in the level of investment that was going to be required if the water and sewerage industry was going to comply with pressing environmental deadlines. Little had been done to ensure compliance with the 1991 Urban Waste Water Treatment Directive (UWWTD) prior to the creation of the three water authorities in April 1996. The extent of the investment required and the exceptionally tight timescale meant that the PPP route offered an attractive solution. It seemed likely that the PPP route would deliver the benefits more immediately, within the constraints of public expenditure and would keep charge increases to as low a level as possible. It is an essential criterion of PPP that value for money in the delivery of the service should be demonstrated against traditional public sector delivery of equivalent outputs.

The water authorities assessed a range of possible partnerships and nine projects progressed to completion. All nine are for waste water services in order to comply with the requirements of the UWWTD. These waste water projects have the benefits of large scale in the collection and treatment of waste water and its sludge, and this ensures that the set-up costs are kept to a reasonable proportion of total cost. The initial costs and external fees, pre-contract, both for the authorities and the competing consortia can be substantial. These initial expenses include legal, due diligence and capital commitment fees. Such costs tend to make PPP inappropriate for smaller projects.

Each authority considers the type and quality of service to be secured over an average concession period of around 25-30 years. They invited private sector responses, which are then compared with the best traditional public sector procurement option. The aim of this appraisal is to ensure that the authorities' service delivery and compliance criteria are met in the most effective manner and provide best value. The appraisal process and subsequent negotiation with consortia of service providers, their advisers and financiers, can be protracted (it is governed by European Union competition rules, and involves liaison with government).

A consortium usually consists of a consultant engineering and design firm, a construction contractor, and an operations company. These organisations will form a joint company for the provision of specific services to the authority. Consortium members also have the responsibility for maintenance over the contract period and accept the inherent risks of project delays, cost over-runs and volume changes caused by shifts in demand. The consortium is also required to deliver the service within tightly specified parameters.

The benefits for the partnership companies include:

- the long operating franchise with a guaranteed return if the service level agreement is met,
- the opportunity to establish or develop a presence in the Scottish marketplace.

The results of the nine projects would appear to have realised tangible benefits, which are discussed later.

**iii) Operation of PPP**

An essential element of PPP is the transfer of risk from the public to the private sector. This allows an authority not to record the assets or liabilities associated with the delivery of the service on its balance sheet. Once the PPP waste water treatment works have been commissioned, the authority pays the partnership companies a fee that reflects the volumetric and qualitative services provided to the authority for that period.

This fee is an operational expenditure item for the water authority although the charge reflects the operating, capital and financing costs of the consortium which delivers the service.

The consortium's books and records are open to inspection by the authority to verify the fees and ensure compliance with all contracted obligations. For the duration of the contract the assets adopted, constructed or modernised are in the ownership of the consortium. The water authority leases the land upon which the assets are located to the consortium. At the end of the contract all assets revert to the authority, and are required to be in a fully operable condition.

Each of the PPP contracts provides for the indexation of fees. These are variable in line with annual inflation indices, but apply only to costs excluding interest, funding costs and depreciation. The consortium will bear all existing risks for the agreed fee. However, if a tightening of environmental standards resulted in a requirement for significant new capital or operational expenditure, there would be a renegotiation of the fee. There is also a provision in the agreements that governs the sharing of net revenue arising from third party use of the treatment works. To date there has been no indication of profit-sharing with any of the authorities. The onus would be on the contracting authority to monitor closely the delivery of service and ensure that benefits of any extra efficiency are shared between the concession holder and the customer.

**iv) Customer benefits**

The principal benefits to customers are:

- the provision of improved waste water treatment to secondary and tertiary levels fully compliant with EU standards, and in some cases primary level where none existed before;
- quicker delivery of the service;
- more cost effective construction and delivery of service;
- charges that are variable and reflect the annualised costs of the service used.

The Transport and Environment Committee 9th Report 2001 contains details of the eight projects fully signed up to June 2001. The report also presents the combined operational and capital cost efficiencies, compared with the public sector alternative, for each of these schemes. The largest savings achieved by each authority are reported as follows:

- North of Scotland Water Authority reported a 19% efficiency in the Aberdeen PPP scheme.
- West of Scotland Water Authority reported a 29% efficiency in the Meadowhead, Stevenston & Inverclyde PPP scheme.
- East of Scotland Water Authority reported a 42% efficiency in the Almond Valley, Seafield & Esk Valley PPP scheme.

One of the major potential advantages, from the customer's perspective, of the PPP method of service delivery is that it ensures that the service is delivered before there is significant cost incurred. It also brings with it the market disciplines of finance, management, construction and operation, and does so over the whole life of the agreed project. It is the efficient whole life management of the project that will principally differentiate PPP from current investment delivery within the water authorities.

The annual cost of the services provided will in the future represent a major component of the costs incurred by the authorities and therefore in future bills. In their evidence to the Transport and Environment Committee the authorities claimed that the use of PPP to comply with EU standards, rather than the conventional procurement options, has reduced the increase in revenue required by the water industry by approximately £33 million per annum[1]. This is equivalent to about 4% of customers' bills (or nearly £10 for the average household) at today's prices. The savings achieved have been estimated in each project and are summarised in Table 17.1 below:

**Table 17.1: Savings per annum estimated by each authority**

| | No of schemes | Water authority estimate of annual savings |
|---|---|---|
| East of Scotland Water Authority | 2 | £20m |
| North of Scotland Water Authority | 3 | £6m |
| West of Scotland Water Authority | 3 | £7m |
| **Total** | **8** | **£33m** |

Where conventional procurement and funding provides the same services at lesser cost the PPP route is not followed. The Montrose scheme, which North of Scotland Water Authority originally expected to complete by means of a PPP, proved to be better value if procured by traditional means.

[1] Representing the claimed saving in annualised capital and operating costs, in the authorities' evidence to the Transport and Environment Committee.

### b) PPP projects in progress

The eight signed PPP contracts, together with the ninth contract planned to be signed later this year (for the Moray Coast project), represent a capital investment on behalf of customers of around £550 million, which contrasts with an estimated investment of over £700 million under the conventional procurement route.

The contracted solutions for the collection, transmission and treatment of waste water and its resultant sludge are tailored to each project's particular location. The annual fees therefore are not comparable on an aggregate basis, but only when the actual service delivered and the construction of assets is taken into account. The relative efficiency of each project is discussed below. In large part this will reflect the cost efficiency negotiated for the construction and operation in each area. The current schemes are complex and involve the development and improvement of sewerage mains, pumping stations, storage facilities, treatment works, outfalls and sludge treatment facilities. The nine projects will be in operation by the end of 2002-03 and will process over 80% of the total waste water of Scotland. PPP projects will, therefore, account for virtually all of the waste water treatment in non-rural areas of Scotland. The sewerage needs of rural areas are likely to be met by projects procured in the traditional way.

The projects within each authority are outlined in Table 17.2. The table also shows the projected fee payable to each consortium after the facility becomes fully operational.

Not only is the design of the projects tailored to meet local conditions, there are also some important differences in what has been agreed between the contracting parties. The most obvious is that in the three projects contracted by the West of Scotland Water Authority, operational staff from the authority will work in the waste water treatment works and continue to be paid directly by the authority. These costs are not included in the costs quoted above. The water authorities also continue to pay local authority business rates directly, since there is no benefit from risk transfer in having a consortium pay this directly. Table 17.2 therefore does not include business rate costs still incurred by the contracting authority.

There are also costs related to insuring and maintaining the assets transferred to PPP schemes which cease to be direct costs to the Authority (East of Scotland Water Authority transferred £30 million of treatment works). Assets and equipment which become redundant as a result of the PPP may be closed and sold. This will have two benefits: there is no longer a need to operate these assets and incur expense; and it may be possible to realise cash from the sale of associated land.

**Table 17.2: PPP projects**

| Project name: Company name | Contract Signed | Duration years[2] | Annual fee in 2002–03 |
|---|---|---|---|
| **East of Scotland Water Authority** | | | |
| Almond Valley, Seafield and Esk Valley: Stirling Water (Seafield) Ltd | 1999 | 30 | £25m |
| Levenmouth: Caledonian Environmental Services Ltd | 2000 | 40 | £5m |
| **North of Scotland Water Authority** | | | |
| Highland (Fort William and Inverness): Catchment Ltd | 1996 | 25 | £9m |
| Tay: Catchment (Tay) Ltd | 1999 | 30 | £17m |
| Aberdeen: Aberdeen Environmental Services Ltd | 2000 | 30 | £13m |
| Moray: Catchment (Moray) Ltd | To be determined | 30 | £8m |
| **West of Scotland Water Authority** | | | |
| Daldowie/Shieldhall: SMW Ltd | 1999 | 25 | £16m |
| Dalmuir: Scotia Water UK Ltd | 1999 | 25 | £7m |
| Meadowhead, Stevenston & Inverclyde: Ayr Environmental Services Ltd | 2000 | 30 | £12m |
| **Scotland total per annum** | | | **£112m** |

[2] Duration period may run from the contract date or from the date of service provision, depending on the contractual terms.

### c) Financial and efficiency consequences

It is unfortunate that analysis of PPP projects often focuses on the benefits of substituting an operational payment for a large upfront capital payment. Similarly, some comments focus on the relative merits of the public and private sectors in general. Whilst it is true that the impact of meeting the UWWTD would have placed a very large burden on public spending over a short timescale, the key measure should be whether the PPP has achieved value for money, for customers. The evidence suggests that these schemes have all been delivered at a cost for customers much lower than would have been achieved by the three authorities under traditional procurement.

The annual charge for PPP schemes covers the capital financing costs, maintenance, and day-to-day running costs. Assuming an average weighted cost of capital of 7.5% before tax, the financing cost of an investment of £550 million, annuitised over 25 years, is around £48 million per year. On this assumption, the remaining annual costs of PPP, some £64 million, cover operating and capital maintenance costs. If I compare these costs with information from England and Wales and from the authorities, capital maintenance costs probably account for about half of this £64 million. This leaves £32 million to cover the pure operating costs of the consortium. This cost can be benchmarked against England and Wales, using my adapted version of Ofwat's econometric models (see Chapter 7).

The results of analysis using the econometric models are instructive. The benchmark costs for operating similar works to those provided in Scotland by the PPP in England is approximately £22 million. There may be some special factors that might very moderately increase this allowance for efficient operation. This may be as much as £1 million, taking the allowable operating costs at the frontier of efficiency to £23 million.

In the next chapter, I discuss the results of my analysis of operating cost efficiency. In general terms, my analysis shows that operating costs in Scotland are currently approximately double what it should be possible to achieve. On this basis my expectation would be that if the Scottish industry were to operate these works, the likely operating costs would be £46 million. The £32 million of operating cost included in the PPP contracts therefore compares favourably with the operating costs that would otherwise have been incurred. The 7.5% discount rate on the capital is also broadly equivalent to the 6% real rate that the public sector is required to use.

It would appear (as would almost certainly be expected) that the value of the gap between the efficiency frontier and current Scottish authority performance has been shared. It is therefore possible to conclude that PPP to date in Scotland has delivered some quite significant benefits to customers. These benefits include more timely compliance with the UWWTD and the removal of operating cost and capital delivery risk. Most importantly, customers will actually pay less for the service provided by the PPP contractor than they would have done under traditional procurement.

If the Scottish industry can make the significant operating cost reductions that I target, it may be worthwhile for the industry to revisit its arrangements with the PPP consortia. It may be possible to reduce the inefficiency share that went to the consortia, once the industry in Scotland can demonstrate that it would operate the assets more efficiently than the originally agreed operating cost. There may be some benefit to customers in the next review period from renegotiation of existing PPP contracts. It would not however be available earlier as superior operating cost efficiency to the PPP is not targeted prior to 2006.

One of the most enduring benefits of the PPP contracting experience may be the transfer of some management and financial skills. This experience will be essential in helping prepare the authorities for the challenges that lie ahead in delivering value for money to the customer. This experience could help develop some more general competences that were highlighted as areas for attention during the Information Project. These include strategic planning, whole-life cost appraisal, project evaluation and risk assessment.

### d) Current and future challenges

Successful management of a concession has to be pro-active. There will be on-going challenges that will need to be resolved quickly and effectively if both authority and contractor are to remain committed to the project. The customer could suffer if either party becomes at all reluctant to meet both the letter and

the spirit of its obligations. The challenge of delivering innovative value for money solutions continues in order to minimise costs to customers. These apply equally to both current PPP projects and other possible projects.

**i) Current PPP projects**

On-going management time and effort by the authorities will be required in areas, which include:

- monitoring performance and delivery of service,
- negotiating sharing of profit windfalls,
- reducing volumes for treatment by limiting water leakage into the works.

There may be options available earlier than 2006 to reduce the operating costs of PPP. While I have not included any such benefit in my price limits, reductions in financing costs may have left PPP consortia with an unexpected benefit. Interest rates have fallen considerably since the majority of the PPP projects were negotiated. Since each of these projects is highly leveraged (i.e. there is little equity invested and most of the funding is borrowed) there may be an opportunity for the consortium to refinance and to realise a lower cost of capital. The reduction of an interest rate by even a quarter of one percent can result in an increase in the net present value of the current projects of £35 million. It would seem appropriate that the authority and the customer should benefit if such an opportunity exists. The opportunities for sharing such windfalls was highlighted by a UK Parliamentary examination. The UK Government has stated that a minimum of 30% of any benefit should be returned to the public sector client. There are good reasons, therefore, why the board of the authority should ensure that such opportunities be monitored on an ongoing basis.

**ii) Other possible projects**

The water authorities may continue to see advantages in PPP for the completion of large capital projects, especially where significant innovation may be possible. In Chapter 19 I discuss the importance of innovation and procurement to the achievement of capital efficiency. That chapter highlights in Scenario C of my risk analysis other ways of reducing delivery and operating cost risks which do not involve long-term concessions and asset transfers to the private sector. Notwithstanding these options, however, traditional PPP may remain attractive in areas such as:

- sludge disposal;
- new water supply;
- retail services, including customer billing and debt management;
- technical support services, such as information technology, laboratory services and so on.

### e) Conclusion

PPP appears to have offered reasonable value for money for customers in the projects signed to date described above. It may have application in other areas, but it is important that the value for money test is rigorously and appropriately applied. The major benefit to PPP is the innovation in solutions and service delivery that appears to result. In general, customers are interested only in the delivery of the service. They will hold the water authority, not the private contractor, to account. It is therefore essential that the water authority pro-actively manages its contractors. It is further to be hoped that lessons on project management and delivery and assessment of whole life cost will also be learned by the water authorities.

The public sector model envisaged for the industry in Scotland needs to be sufficiently flexible in order to embrace both traditional and the innovative solutions that will be required to ensure that value for money is achieved for customers. This is a subject to which I will return in Chapter 26.

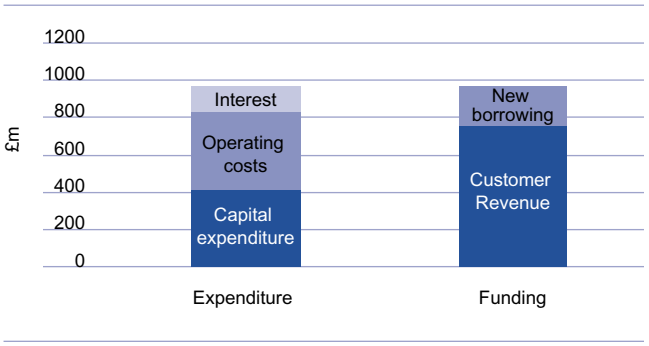
# Section 4: Chapter 18
# Costs: Operating Expenditure

## a) The importance of operating expenditure efficiency

This chapter is one of the key elements of this Strategic Review of Charges. The methodology that has been used to generate the results discussed in this chapter was presented in Chapter 7. This chapter begins with a brief summary of the importance of operating efficiency and a comparison of current performance in Scotland with that in England and Wales. The rest of the chapter describes the application of the efficiency calculation method. Achievability of the operating efficiency targets is also set out. The chapter ends with a review of the impact of the targets on bills and the sensitivity of the investment programme to the achievement of those targets.

Operating expenditure makes up a significant proportion of the total expenditure of a water authority, as shown in Figure 18.1[1]:

**Figure 18.1: Scottish water industry expenditure and funding 2000-01**




Operating costs form a critical part of any review of water industry expenditure. I have taken pains to ensure that my analysis of operating expenditure is based on the best methods available, uses reliable information and is as robust as possible.

The results of the analysis of operating expenditure have had a significant impact on other parts of this Review. My views on competition, affordability, incentives, and, in particular the outlook for prices over the next decade, have all been influenced by the potential for savings in operating costs.

Firstly it is important to define what I mean by efficiency. Cost cutting is not efficiency. Efficiency is about reducing costs, but reducing costs *and* maintaining or improving levels of service to customers.

Currently, inefficiency in operating expenditure is costing domestic customers an average of around £70 per household per year. In other words, if the water industry in Scotland operated at the same level of efficiency as in England, household bills could be, on average, £70 less for the service currently provided. It is, clearly, not in customers' interests to be paying bills that are unnecessarily high. The targets proposed in this Review therefore aim to remove, as far as possible, the current operating inefficiency. In order to set the target, I have taken full account of:

- the extent of the efficiency gap,
- the need to ensure that customer charges are as affordable as possible,
- the speed with which it should be possible to close the efficiency gap.

The water and sewerage service in Scotland is unlikely to have an affordable and sustainable future in the public sector unless the proposed targets are achieved. The reaction in the North of Scotland to the significant increase in charges in 2000 is a clear reminder that customers, above all else, are concerned about the cost of the service. It is not likely that the average household in Scotland will be prepared to pay over £150 extra to justify an inefficient public sector supplier[2]. The efficiency targets minimise the increases in bills required to fund the huge investment programme. Equally important, efficiency will be the best defence to competition and will ensure that competition will bring only benefits to customers.

My analysis has examined in detail the degree of improvement in operating efficiency that best practice in England and Wales would indicate. I have sought to determine the pace and extent of progress that can be achieved, given the right organisation, management and incentives. I have been careful in deriving targets that are supported by practical examples of achievement. I have concluded that an 80% closure of the efficiency gap would be a challenging but fair target.

This target would reduce annual operating expenditure by 33% on average, across Scotland, by 2005-06. This equates to an annual saving of some £136 million. My 2005-06 target would reduce customers' bills by £62, on average. Over the Review period, a total of £400 million is made available for investment that would otherwise have had to come from customers.

[1] Based on 2000-01 audited accounts for each authority.

[2] Impact on average household of not achieving operating and capital cost efficiency targets.

**i) Summary comparison with England and Wales**

Efficiency is often defined in terms of inputs and outputs. Inputs are money, resources and effort, whilst outputs are quantity and quality of goods or services produced. For the water authorities, the outputs are making sure that they meet:

- agreed environmental standards,
- agreed public health standards,
- the Health and Safety requirements of employees and public,
- improvements in quality and continuity of service to customers, including agreed improvements,
- growing demands of existing and new customers.

The record of the water companies in England and Wales is one of improved delivery of these and other outputs, whilst at the same time consistently and significantly reducing their operating expenditure. Improvements in outputs are clearly demonstrated in Ofwat's annual reports on levels of service and on leakage and water efficiency. Chapter 22 discusses the improvements in level of service that have been delivered over the past ten years by the water and sewerage companies in England and Wales. This track record makes the companies an appropriate and challenging benchmark against which to compare the performance of the water authorities in Scotland.

The water authorities do not compare well with their peers in England and Wales. Table 18.1 reproduces the operating efficiency league table for the privatised water companies. If the Scottish authorities and the proposed Scottish Water were added to this league, they would take the bottom positions.

The position of the Scottish industry is calculated by running the standard Ofwat econometric models using water authority information.

Ofwat also produces league tables of higher level benchmarks: volumetric and unit operating costs and unit operating costs per billed property.[3] Table 18.2 and Table 18.3 again highlight the poor rankings of the Scottish water authorities and the proposed Scottish Water.

These comparisons all indicate that the Scottish water authorities incur much higher operating costs than the privatised companies in England and Wales. These comparisons, however, do not take into account the geographical, demographic and other differences in Scotland that also influence the cost of providing a water and sewerage service. A key part of the analysis of operating expenditure efficiency therefore involves a detailed examination of the effects of such regional variations on costs.

**Table 18.1: Relative operating efficiency 1999–2000**

| Company | Water Band | Water Rank | Sewerage Band | Sewerage Rank |
|---|---|---|---|---|
| Anglian | A | 5 | C | 4 |
| Dŵr Cymru | D | 10 | D | 10 |
| North West | B | 7 | C | 7 |
| Northumbrian | A | 2 | C | 9 |
| Severn Trent | B | 8 | C | 5 |
| South West | C | 9 | C | 8 |
| Southern | A | 3 | C | 6 |
| Thames | A | 4 | A | 2 |
| Wessex | A | 1 | A | 1 |
| Yorkshire | B | 6 | B | 3 |
| East | E | 12 | E | 13 |
| North | E | 11 | E | 12 |
| West | E | 13 | E | 11 |
| Proposed Scottish Water | E | 11 | E | 11 |

## b) Current situation

**i) Gap between recommendation and present**

The water authorities are currently positioned well behind their potential competitors in England and Wales. Unfortunately, the gap has been widening. Benchmarking must look ahead, and assess anticipated improvements by competitors. This is in the interest of the authorities' customers, who should not have to pay for inefficient operation of their water and sewerage services. Figure 18.2 illustrates recent trends in operating cost in Scotland and in England and Wales. The level of operating cost shown in this figure has been adjusted to reflect improvements in the levels of service provided.

Details of operating expenditure for the three Scottish authorities are available from their first year of operation, 1996-97. Comparable figures from before 1996-97 are not available. The Regional and Islands Councils, which operated the water and sewerage services prior to 1 April 1996, had different cost

[3] When volumetric unit costs are compared, the authorities' relative positions, and especially that of East of Scotland Water Authority, are distorted by the large volumes associated with industrial customers and low levels of treatment in Scotland. These additional volumes can be pumped and treated at low marginal cost.

**Table 18.2: Volumetric unit operating expenditure (not including depreciation) 1999–2000**

| Company | Water delivered per cubic metre | Company | Sewage collected per cubic metre |
|---|---|---|---|
| Northumbrian | 26p | Thames | 21p |
| Wessex | 26p | Wessex | 24p |
| Southern | 28p | Northumbrian | 25p |
| Thames | 29p | Yorkshire | 27p |
| Severn Trent | 30p | Severn Trent | 30p |
| Anglian | 31p | Southern | 30p |
| North West | 31p | North West | 31p |
| Yorkshire | 31p | Anglian | 33p |
| East | 31p | Dŵr Cymru | 37p |
| South West | 36p | South West | 38p |
| Proposed Scottish Water | 39p | East | 39p |
| Dŵr Cymru | 44p | Proposed Scottish Water | 42p |
| North | 44p | North | 42p |
| West | 44p | West | 45p |

allocation practices and it is not possible to determine exactly the level of operational and capital costs incurred.

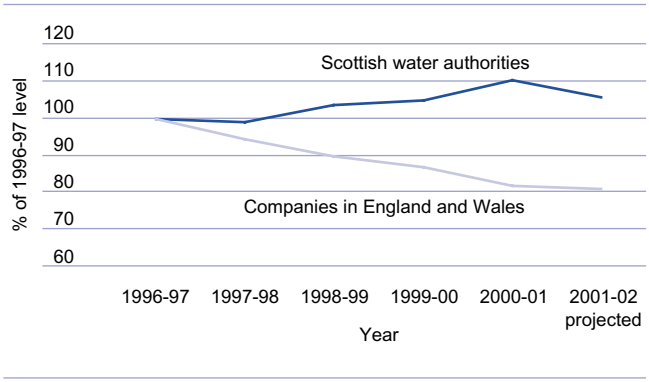
Figure 18.2 shows that, generally, underlying operating expenditure (base service expenditure, as defined in Chapter 7), has, until recently, increased even after adjustments to remove the effects of annual inflation. Overall, the underlying real increase between 1996-97 and 2000-01 is 10%. Comparable figures reported by the water and sewerage companies in England and Wales show a marked reduction, averaging 18%, over the same period. The recent trend has, however, begun to show a marked improvement.

My comparison of base service operating expenditure depends on assessed allocations of costs between base service and improvements. I have assumed generous

**Table 18.3: Unit operating expenditure (not including depreciation) per property billed 1999–2000**

| Company | Water service per property | Company | Sewerage service per property |
|---|---|---|---|
| Southern | £55 | Thames | £42 |
| Northumbrian | £56 | Wessex | £42 |
| Wessex | £57 | Northumbrian | £44 |
| Severn Trent | £58 | Yorkshire | £45 |
| North West | £59 | Severn Trent | £50 |
| Yorkshire | £59 | Southern | £52 |
| Anglian | £65 | North West | £54 |
| Thames | £67 | Anglian | £61 |
| South West | £69 | Dŵr Cymru | £62 |
| East | £79 | South West | £65 |
| Dŵr Cymru | £88 | East | £67 |
| Proposed Scottish Water | £91 | Proposed Scottish Water | £74 |
| North | £93 | North | £75 |
| West | £100 | West | £79 |

**Figure 18.2: Trends in base operating expenditure since 1996-97**




allocations of extra operating cost to reflect the large investment programme of the authorities. However the audited accounts have shown a widening gap in underlying operating expenditure between the Scottish authorities and their English and Welsh counterparts. It is clearly encouraging that the industry has recently begun to improve its efficiency. This Review seeks to ensure that the industry builds upon recent progress. This would clearly be in the interests of customers.

**ii) Likely gap between recommendation and 2005-06**

The water and sewerage companies in England and Wales continue to make good progress towards outperforming Ofwat's challenging efficiency targets for operating costs. Reported total operating expenditure in 2000-01 for the water and sewerage companies in England and Wales was already 4% below that year's target figure. Some companies were more than 10% below the target level of operating cost.

It is important to benchmark the authorities against the leading, rather than average or poor companies. I therefore chose 'comparator companies', which perform well on relative operating efficiency, and which are broadly similar geographically and demographically. This selection is described in Chapter 7.

The comparator companies are Northumbrian Water and Yorkshire Water, both of which bear similarities to East of Scotland Water Authority and West of Scotland Water Authority, and South West Water and Welsh Water, where there are some similarities with North of Scotland Water Authority. My revisions

**Table 18.4: Operating expenditure efficiency gap in 2000–01**

| | Relative efficiency | Efficiency gap as % of operating expenditure |
|---|---|---|
| Northumbrian | 91% | – |
| South West | 94% | – |
| Yorkshire | 92% | – |
| Wessex (leader) | 81% | – |
| East | 166% | – |
| North | 138% | – |
| West | 167% | – |
| Scotland | 158% | – |
| | | – |
| East vs Northumbrian | | 45% |
| East vs Yorkshire | | 45% |
| North vs South West | | 32% |
| West vs Northumbrian | | 45% |
| West vs Yorkshire | | 45% |
| Scotland vs Northumbrian | | 42% |
| Scotland vs Yorkshire | | 42% |
| Scotland vs South West | | 40% |

to Ofwat's models have ensured that I can make robust like-for-like comparisons of relative efficiency across all companies - notwithstanding some of the extremes of Scottish geography.

The revised econometric models still demonstrate a worrying trend. The three water authorities lag behind their comparator companies considerably. The extent of the efficiency gap is illustrated in Table 18.4. This compares the latest reported operating expenditure for each authority with that of the comparator companies, assuming that they are on track to meet Ofwat's targets. The picture painted is slightly over-optimistic, since the companies are in fact outperforming those targets.

The comparisons show the extent to which operating expenditure is greater, or less, than the level predicted by my revised Ofwat models. The efficiency gap in 2000-01 between the authorities and the comparators is expressed in Table 18.4 as a percentage of the authorities' reported operating expenditure. This allows me to illustrate the degree of cost reduction required to close the current efficiency gap.

**Table 18.5: Potential operating efficiency gap by 2004-05**

| | Relative efficiency | Efficiency gap as % of operating expenditure |
|---|---|---|
| Northumbrian | 83% | – |
| South West | 81% | – |
| Yorkshire | 88% | – |
| Wessex | 78% | – |
| East | 166% | – |
| North | 138% | – |
| West | 167% | – |
| Scotland | 158% | – |
| | | |
| East vs Northumbrian | | 50% |
| East vs Yorkshire | | 47% |
| North vs South West | | 41% |
| West vs Northumbrian | | 50% |
| West vs Yorkshire | | 47% |
| Scotland vs Northumbrian | | 47% |
| Scotland vs Yorkshire | | 44% |
| Scotland vs South West | | 48% |

When operating efficiency targets agreed between the England and Wales companies and Ofwat for the current regulatory period (to 2004-05) are taken into account, the size of the potential efficiency gap widens. Table 18.5 shows the potential operating efficiency gap by 2004-05 if comparator companies just meet Ofwat's targets.

My assessment of the efficiency gap for each authority is the lower of the numbers, where more than one comparator is used.

Even in the unlikely event that the companies fail to beat Ofwat's targets, it could be argued that the figures above still understate the efficiency gap. This is because the water and sewerage companies incur the costs, within the benchmarked figures, of leakage targets and household metering. They also deliver better levels of customer service.

### c) Method used to assess targets for operating expenditure

Chapter 7 describes in detail how the targets for improvements in operating expenditure efficiency were determined. Essentially, the method relies on very detailed benchmarking of each authority with England and Wales. The key features of the approach were as follows:

- Obtain full, detailed financial and technical information for each company in England and Wales, using annual accounts and Ofwat's June Return CD-Rom.
- Use annual accounts and my WIC Annual Return to collect similar information for each authority.
- Analyse detailed information about the:
  - geography,
  - demography,
  - customers of the authorities,
  - underground pipes and sewers,
  - treatment works,
  - raw water sources and other facilities,
  - volumes of water produced,
  - amount of sewage treated,
  - amount of pumping required.
- Use that information to identify comparator companies in England and Wales with similar operating environments to the authorities.
- Use Ofwat's published econometric models as the principal tool for assessing the performance of each authority, relative to the privatised companies.
- Adapt Ofwat's models to take into account Scottish conditions.
- Run the adapted Ofwat models on the full Great Britain dataset to quantify relative costs on a like-for-like basis.
- Collect specific information from each authority regarding particular local circumstances that affect operating expenditure (for example the additional costs of serving island communities).
- Make due allowance for these circumstances in the comparisons of relative costs with England and Wales.
- Quantify the current efficiency gap between each authority and similar water and sewerage companies.
- Calculate the efficiency gap that would exist in 2005 given the targets agreed between Ofwat and the companies in the 1999 Periodic Review.
- Calculate the reduction in operating expenditure that would

**Table 18.6: Calculation of allowable operating expenditure**

| | East | North | West | Scottish Water |
|---|---|---|---|---|
| 2000–01 total operating costs | £226.1m | £182.8m | £304.7m | £713.6m |
| less: depreciation | £50.0m | £45.4m | £66.0m | £161.4m |
| less: interest | £47.7m | £27.6m | £53.8m | £129.1m |
| less: PPP | £12.8m | £9.3m | £0.0m | £22.1m |
| controllable operating expenditure | £115.6m | £100.5m | £185.0m | £401.0m |
| less: exceptionals | £9.5m | £0.0m | £0.0m | £9.5m |
| less: other one-off costs | £4.6m | £8.7m | £12.5m | £25.8m |
| underlying controllable operating expenditure | £101.5m | £91.8m | £172.5m | £365.8m |
| Efficiency gap (%) | 47% | 41% | 47% | 44% |
| Degree of closure of gap for each year (%) | | | | |
| 2001-02 | 10% | 10% | 10% | 10% |
| 2002-03 | 40% | 40% | 40% | 40% |
| 2003-04 | 60% | 60% | 60% | 60% |
| 2004-05 | 70% | 70% | 70% | 70% |
| 2005-06 | 80% | 80% | 80% | 80% |
| Total % reduction in controllable costs by 2005-06 | 38% | 33% | 38% | 35% |

close the efficiency gap, and bring each authority to the level of the comparator companies by 2005-06.

- Confirm the required reduction, using an alternative modelling approach, again based on detailed information from both Scotland and England and Wales.
- Assess the target, i.e. to what degree and at what pace the efficiency gap could be closed, given the right conditions, by reference to previous experience in the private water sector and elsewhere.
- Assess the need for additional operating expenditure funding to cover growth and improved quality in the service provided by each authority (new operating expenditure).
- Calculate the required operating expenditure.

The approach taken for this Review is fully consistent with that used by Ofwat to determine the operating efficiency targets for its price review in 1999. This approach was independently endorsed by the Competition Commission.

### d) Application of the method

I applied the methodology summarised above to complete the benchmarking analysis. This benchmarking allows me to assess the level of operating expenditure required by each authority.

I started by determining the actual controllable operating expenditure of each authority. Controllable operating costs are those that management are able to influence in the short to medium term. I subtracted the costs associated with depreciation, interest, and the costs of the PPP services, from reported total operating costs in the audited accounts and my Annual Returns. I then made adjustments to this controllable operating cost to correct for exceptional and one-off costs. This gave the underlying operating expenditure.

By subtracting the required efficiency target for each year, this allowed me to calculate the allowable operating expenditure for each year, before any level of service improvement. Finally, I added the new operating expenditure required to deliver efficiently the level of service improvement in each year.

These calculations are shown in Table 18.6 for the three authorities and for the proposed Scottish Water.

**Table 18.7: Summary of savings of operating efficiency target**

| | 2002–03 | 2003–04 | 2004–05 | 2005–06 |
|---|---|---|---|---|
| Scottish Water | £63.0m | £96.9m | £115.9m | £135.8m |
| East of Scotland Water Authority | £13.1m | £20.2m | £24.2m | £28.3m |
| North of Scotland Water Authority | £14.9m | £22.9m | £27.4m | £32.1m |
| West of Scotland Water Authority | £35.0m | £53.9m | £64.4m | £75.4m |

### e) Results

**i) Efficiency targets**

I calculated the operating efficiency targets with a view to closing, by 2005-06, 80% of the efficiency gap between each authority[4] and a benchmark water and sewerage company. I set an intermediate efficiency target for each year. These targets increase year on year to the 80% required in 2005-06. The proposed targets are summarised in Tables 18.7 and 18.8. These tables show the savings in millions of pounds per year, relative to 2000-01, and the equivalent savings in terms of average household bills.

Some commentators have criticised the benchmarking process used by Ofwat to calculate efficiency targets. I am, however, satisfied that my method is robust, as Ofwat's models have been described as being "subject to extensive external scrutiny, more so than any other models used across government" (Cabinet Office Performance and Innovation Unit, *"Adding it up"* report, January 2000). No benchmarking analysis can ever be entirely accurate, but errors can be minimised by ensuring that the information being compared has been consistently defined and collected. The consistent structure of my WIC Return and the Ofwat 'June Return' is a strength of this analysis.

It could be suggested that it is not sound to compare the performance of a Scottish authority with a regional privatised company in England. Such an argument would not be sound for two reasons. Firstly the econometric models take account of many factors of scale and rurality. Second, and more importantly, I have adjusted the results to take into account Scottish conditions, where appropriate, and I have also examined in detail the evidence presented to me by the authorities on the impact of local factors on costs. I believe that I have made full and appropriate allowance for all these factors. I have a high degree of confidence that the targets are robust, given the level of detail and consistency in my approach to benchmarking the authorities. The margin of error in the models is less than 5% and I consider that this confirms the reliability of the targets.

**ii) Allowable operating expenditure**

Table 18.9 summarises the allowable operating costs for each of the current authorities and for the proposed Scottish Water. I have applied the targets to the authorities' 1998-99 levels of operating costs.

**iii) Additional operating expenditure allowance for service improvements**

As indicated earlier, the water authorities are not expected to improve service beyond the benchmark level without an additional allowance of operating cost. I therefore calculated the operating expenditure required by each authority to enable them efficiently to fund the operation of the new assets

**Table 18.8: Summary of impact on bills of operating efficiency targets**

| | 2002–03 | 2003–04 | 2004–05 | 2005–06 |
|---|---|---|---|---|
| | £/household | £/household | £/household | £/household |
| Scottish Water | £29 | £45 | £53 | £62 |
| East of Scotland Water Authority | £19 | £29 | £35 | £41 |
| North of Scotland Water Authority | £32 | £48 | £57 | £67 |
| West of Scotland Water Authority | £35 | £54 | £64 | £74 |

[4] The rationale for the 80% is discussed later in this chapter.

**Table 18.9: Summary of allowable operating expenditure**

| | 2002–03 | 2003–04 | 2004–05 | 2005–06 |
|---|---|---|---|---|
| Scottish Water | £321.8m | £297.5m | £288.4m | £278.7m |
| East of Scotland Water Authority | £94.0m | £89.6m | £88.4m | £87.1m |
| North of Scotland Water Authority | £81.6m | £76.0m | £74.0m | £71.8m |
| West of Scotland Water Authority | £146.2m | £131.9m | £126.0m | £119.8m |

created to improve service. The Quality and Standards process (see Chapters 4 and 15) has determined the improvements in environmental and public health performance that have to be implemented in the period 2002-06. In some cases, capital investment will deliver the required improvements to levels of service without any additional operating expenditure (e.g. a mains replacement project), but in many instances there are implications for operating costs.

The benchmark targets compare both the service delivered and the cost for the service that is delivered. This favours the authorities in Scotland, which are assumed in the calculation of the targets to deliver the same level of service as the privatised comparator company. I have not attempted to estimate how much lower companies' costs would be if they did not provide the higher standards of service.

I have asked the authorities to examine their investment programmes for the expected impact on operating costs. I have reviewed and compared the authorities' estimates with comparable figures for England and Wales. I can therefore be confident that I give credit only for a genuine improvement in the level of service that has not already been included in the benchmark. I have also reviewed these estimates to ensure that they are consistent with fully efficient operation of new plant and equipment.

There are several examples of improvements in levels of service for which the authorities could receive an additional operating cost allowance. These include:

- improved responses to customer queries and complaints,
- chemicals and filter media for more effective water purification,
- costs of services to customers in new housing developments,
- operation of processes to reduce pollution levels in sewage
- tankering and safe disposal of sewage sludge previously disposed at sea.

I expect that additional operating expenditure will be required year on year, as a result of the authorities' investment programmes. In England and Wales, there was a similar pattern during the 1990s. Customers both in Scotland and in England are keen to see improvements to the environment and to public health. These improvements will incur both capital and operating costs. The additional operating costs of treating sewage required by the Quality and Standards programme (and not covered by PPP) has been calculated. The extra allowable operating expenditure is outlined in Table 18.10. There is no extra allowance for customer service or water quality because, in each case, the benchmark company was delivering a higher level of service in 1998-99 than the Scottish industry will in 2005-06.

**Table 18.10: Allowable operating expenditure for improvements in levels of service**

| | 2002–03 | 2003–04 | 2004–05 | 2005–06 |
|---|---|---|---|---|
| Scottish Water | £2.47m | £4.56m | £6.76m | £9.02m |
| East of Scotland Water Authority | £0.83m | £1.69m | £2.60m | £3.55m |
| North of Scotland Water Authority | £0.86m | £1.28m | £1.71m | £2.14m |
| West of Scotland Water Authority | £0.78m | £1.58m | £2.44m | £3.33m |

**iv) An alternative approach**

Given the scale of the operating efficiency gap and the proposed targets, I considered it prudent to examine alternative approaches to benchmarking. I had to be convinced that the results of the econometric models were indeed accurate. I therefore developed an alternative analytical model. This alternative model is described in Chapter 7. I also compared

**Table 18.11: Comparison of alternative estimates of the operating expenditure efficiency gap**

| | Efficiency gap as percent of operating expenditure | | |
|---|---|---|---|
| | Econometric models | Alternative model | Unit cost per property |
| | % gap | % gap | % gap |
| East vs Northumbrian | 50 | 50 | 40 |
| East vs Yorkshire | 47 | 49 | 32 |
| North vs South West | 41 | 37 | 32 |
| West vs Northumbrian | 50 | 52 | 51 |
| West vs Yorkshire | 47 | 52 | 43 |
| Scotland vs Northumbrian | 47 | 48 | 47 |
| Scotland vs Yorkshire | 44 | 47 | 38 |
| Scotland vs South West | 48 | 43 | 48 |

the results of the econometric models with some high level comparisons of unit costs. These alternative analyses all agree well with the results of the adapted econometric models. A summary of my results is shown in Table 18.11.

Taken together, these results indicate firmly that the scale of the efficiency gap between the Scottish authorities and the water and sewerage companies in England and Wales has been accurately and robustly assessed. The most reliable results are those from the econometric models, which show the efficiency gaps to be within 5% of results derived by the alternative model, and of a similar order to the results of the unit cost comparisons.

### f) Recommendation

My aim is to set a realistic but challenging target. I believe that the target has to be realistic because it is not in customers' interests to set a target that cannot be achieved. Customers should, however, not have to pay any more than is absolutely necessary. To close 80% of the efficiency gap with England and Wales in just five years may seem ambitious, but it is vital to put this into perspective. If the Scottish industry achieves this target, the industry would still be less efficient in 2005-06 than Welsh Water was in 2000-01 (the company was by far the least efficient of the privatised companies, at the time of the last Periodic Review). The actual outcome in 2005-06 may be worse because there is likely to be significant outperformance of their targets by the privatised companies during their current regulatory period. In each of the previous regulatory periods, the companies have significantly outperformed expectations and based on recent reported results, would appear likely to do so again.

There are a number of other material reasons (apart from the likely outperformance of the privatised companies) why the targets are realistic and achievable and not aspirations. These reasons can be summarised as follows:

- The comparator companies (Yorkshire Water, Northumbrian Water, South West Water) used in the benchmarking, whilst good performers, are not at the frontier of operating efficiency (the leading company is Wessex Water).
- Spend to Save funds were not included in price limits set by Ofwat and were therefore not available in advance from customers in England and Wales.
- Scottish management has the advantage of being able to learn from the experience of the companies in England and Wales.
- Current service level requirements in England and Wales in respect of leakage targets and metering of new homes do not apply in Scotland, but the proposed targets provide funding at English and Welsh levels.
- The remaining efficiency gap of 17% (or more) will still represent a significant cost burden on customers in 2005-06.
- Alternative benchmarking techniques suggest that the efficiency gap could actually be larger than assumed.

The implications for the authorities are serious, because a substantial reduction in costs will be needed to achieve the proposed targets. The implications for customers are also serious. Failure to close the gap would mean further delays to the investment programme and even higher bills for customers. I have therefore examined the achievability of the targets in detail. Achievability depends upon the extent of, and the time available for, implementation of the target. My analysis shows that, although the monetary gap appears very large, the past achievements of the water and sewerage companies in England would certainly support this size of target. The results of my analysis are discussed below.

I have no doubt that Scottish Water would be capable of achieving my proposed targets, and that revenue caps should assume that they are achieved, if the merger proceeds. However, if the authorities retain their existing structure and there is no merger, then I would wish to be more prudent in my assumptions. My calculations of the revenue caps under the existing structure therefore assume that my targets are not fully achieved, and that closure of the efficiency gap would only reach 50%, instead of the target 80%.

**i) Proposed Scottish Water proceeds**

In the event that the creation of Scottish Water proceeds, my proposed targets in this Review, which I base on an 80% closure of the operating efficiency gap, are as shown in tables 18.12 -18.15.

**ii) Existing structure retained**

In the event that the existing three authorities are retained, my proposed targets, assuming 50% closure of the operating efficiency gap, are as shown in Tables 18.16 - 18.18.

**Table 18.12: Summary of operating expenditure efficiency targets for Scottish Water**

| | 2001–02 | 2002–03 | 2003–04 | 2004–05 | 2005–06 |
|---|---|---|---|---|---|
| Target | £15.3m | £63.0m | £96.9m | £115.9m | £135.8m |
| Annual % real reduction | 4% | 13% | 10% | 5.5% | 5.5% |
| Allowable operating expenditure | £360.1m | £321.8m | £297.5m | £288.4m | £278.7m |

**Table 18.13: Summary of operating expenditure efficiency targets for East of Scotland Water Authority in the event that the proposed merger proceeds.**

| | 2001–02 | 2002–03 | 2003–04 | 2004–05 | 2005–06 |
|---|---|---|---|---|---|
| Target | £3.2m | £13.1m | £20.2m | £24.2m | £28.3m |
| Annual % real reduction | 3% | 9% | 7% | 4% | 4% |
| Allowable operating expenditure | £101.3m | £94.0m | £89.6m | £88.4m | £87.1m |

**Table 18.14: Summary of operating expenditure efficiency targets for North of Scotland Water Authority in the event that the proposed merger proceeds.**

| | 2001–02 | 2002–03 | 2003–04 | 2004–05 | 2005–06 |
|---|---|---|---|---|---|
| Target | £3.6m | £14.9m | £22.9m | £27.4m | £32.1m |
| Annual % real reduction | 4% | 12% | 9% | 5% | 5% |
| Allowable operating expenditure | £90.5m | £81.6m | £76.0m | £74.0m | £71.8m |

**Table 18.15: Summary of operating expenditure efficiency targets for West of Scotland Water Authority in the event that the proposed merger proceeds.**

| | 2001–02 | 2002–03 | 2003–04 | 2004–05 | 2005–06 |
|---|---|---|---|---|---|
| Target | £8.5m | £35.0m | £53.9m | £64.4m | £75.4m |
| Annual % real reduction | 5% | 15% | 12% | 7% | 7% |
| Allowable operating expenditure | £168.3m | £146.2m | £131.9m | £126.0m | £119.8m |

**Table 18.16: Summary of operating expenditure efficiency targets for East of Scotland Water Authority in the event that the proposed merger does not proceed.**

| | 2001–02 | 2002–03 | 2003–04 | 2004–05 | 2005–06 |
|---|---|---|---|---|---|
| Target | £3.2m | £13.1m | £15.2m | £16.4m | £17.7m |
| Annual % real reduction | 3% | 9% | 2% | 1% | 1% |
| Allowable operating expenditure | £101.3m | £94.0m | £94.7m | £96.2m | £97.7m |

**Table 18.17: Summary of operating expenditure efficiency targets for North of Scotland Water Authority in the event that the proposed merger does not proceed.**

| | 2001–02 | 2002–03 | 2003–04 | 2004–05 | 2005–06 |
|---|---|---|---|---|---|
| Target | £3.6m | £14.9m | £17.2m | £18.6m | £20.0m |
| Annual % real reduction | 4% | 12% | 2% | 1% | 1% |
| Allowable operating expenditure | £90.5m | £81.6m | £81.7m | £82.8m | £83.9m |

**Table 18.18: Summary of operating expenditure efficiency targets for West of Scotland Water Authority in the event that the proposed merger does not proceed.**

| | 2001–02 | 2002–03 | 2003–04 | 2004–05 | 2005–06 |
|---|---|---|---|---|---|
| Target | £8.5m | £35.0m | £40.4m | £43.7m | £47.1m |
| Annual % real reduction | 5% | 15% | 3% | 2% | 2% |
| Allowable operating expenditure | £168.3m | £146.2m | £145.4m | £146.7m | £148.0m |

### g) Role of action plans

Steps have already been taken to ensure that the efficiency targets can be achieved. The Information Project (described in Chapter 3) led to the development of Actions Plans by each of the authorities. There are two elements of the Action Plans that I wish to highlight here. These are the allocation of operating costs and the adoption of a strategic approach to asset management.

The authorities have the systems available to allocate costs at a more detailed level, but this has not yet been implemented. The result is that the water authorities do not understand in any detail the costs to run particular assets or to serve particular customers. In a future competitive market, understanding of these costs will be essential. If action is not taken to develop a better understanding of costs, achievement of the efficiency targets will be threatened.

Strategic asset management processes would also help the Scottish water industry to improve its operating cost efficiency. Asset management is not just about decisions on capital assets, it is also, critically, about establishing operating rules and procedures. This will identify savings (for example, the frequency of inspection may be much higher than required) but will also assist in developing a better understanding of operating costs. This approach will also ensure that the minimum whole-life cost drives investment and operating decisions.

If the Action Plans are to be successful they need to be clear and properly resourced. The allocation of Spend to Save resources (see Chapter 21) will be crucial. I will therefore

continue to work with the authorities to ensure progress is made in this area.

### h) Implementability

**i) Reducing the efficiency gap**

In order to ensure that the target could be achieved within the regulatory period, I have studied the progress made by other organisations, including the water and sewerage companies, in improving their operating expenditure efficiency.

I first informed the authorities of the likely targets during the late summer of 2000 and they were confirmed in October 2000. By 2006, the end of the regulatory period, the authorities will have had over five years to address the efficiency gap.

It is not enough merely to examine the rate at which other organisations have improved. It can be demonstrated that as organisations approach the efficiency frontier, efficiency savings become progressively harder to achieve. Conversely, the less efficient an organisation, the easier it is to make the initial savings. The larger inefficiencies are more obvious to identify and simpler to correct.

I believe that much can be learnt from the experience of the privatised water and sewerage companies. The Scottish authorities have a distinct advantage because they can emulate best practice in England and Wales. It is obviously easier to make gains when others have pioneered the way; this should not, of course, mean that the authorities do not seek to develop their own examples of best practice. The Spend to Save resources that are available will also be important in ensuring that targets are met.

**Table 18.19: Operating cost reductions achieved by water and sewerage companies in five years[5]**

| Five year real % reductions in base service[5] operating expenditure | | | |
|---|---|---|---|
| | **From** | **To** | **% reduction** |
| Anglian | 1994 | 1999 | 27 |
| Dŵr Cymru | 1996 | 2001 | 26 |
| North West | 1996 | 2001 | 19 |
| Northumbrian | 1994 | 1999 | 34 |
| Severn Trent | 1994 | 1999 | 21 |
| South West | 1995 | 2000 | 29 |
| Southern | 1996 | 2001 | 39 |
| Thames | 1995 | 2000 | 18 |
| Wessex | 1993 | 1998 | 27 |
| Yorkshire | 1994 | 1999 | 22 |

**ii) Comparisons with England and Wales**

The recent history of the water and sewerage companies is useful background. Most companies' operating expenditure peaked around 1993 to 1994, and efficiencies were not tackled on a significant scale until Ofwat's 1994 price review.

There were significant efficiency gains by most companies from 1994 onwards. Other companies (such as Southern Water) lagged initially then made significant and rapid gains in the late 1990s. The pace of improvement seemed to have slowed, but Ofwat's latest targets seem to have re-injected urgency into the drive for efficiencies.

I have examined the best progress made by each of the privatised companies over a five-year period. This would be an obvious yardstick for what should be achievable targets for the water authorities. The results are outlined in Table 18.19.
The target for the proposed Scottish Water is 33% in real terms. The Scottish Water target is towards the top end of the range of previously achieved efficiencies. There are, however, three important reasons for believing that the Scottish Water targets are more achievable:

- The Scottish water industry is able to learn from the experience of the companies. The performance of the privatised companies was during a single period and therefore they did not have the same opportunity to learn from observing what had worked for their peers.

- I have allocated £200 million of Spend to Save (nearly 50% of the total operating cost to be saved during this regulatory period) from customers' charges. This is an allowance that was not available to the companies. They had to fund any costs of reorganisation and delivering efficiency by outperformance of Ofwat's targets.

- It is important to note that the efficiency gains of the water and sewerage companies, although significant, were made from a starting position that was closer to the efficiency frontier than the position of the authorities today. This is not solely attributable to the impact of privatisation, since the

[5] Source: Ofwat CD-ROM 1999-00 and 2000-01 accounts. Performance is after adjustments for exceptional and other one-off costs.

**Table 18.20: Analysis of remaining operating expenditure efficiency gap in 2005–06**

| Outperformance of Ofwat target by privatised companies | % cost reduction needed to match comparator companies | | | | | |
|---|---|---|---|---|---|---|
| | Gap closure | | | | | |
| | 60% | 70% | 80% | 90% | 100% | 110% |
| 0% | 28% | 23% | 17% | 9% | 0% | –11% |
| 5% | 33% | 28% | 21% | 14% | 5% | –5% |
| 10% | 37% | 32% | 27% | 20% | 11% | 0% |
| 15% | 42% | 38% | 32% | 26% | 18% | 7% |
| 20% | 47% | 43% | 38% | 33% | 25% | 15% |

English and Welsh water authorities before privatisation made significant efficiency gains during the 1980s.

In England and Wales, the water authorities prior to privatisation were subject to the scrutiny of Central Government and consequent budgetary pressure from the Treasury. In particular, the Water Act 1983 widened the powers of the Secretary of State to regulate and monitor the authorities' activities, and made new provisions as to the appointment of members. These members after 1983 all had significant commercial experience. One example of the impact of tighter scrutiny is that employment numbers fell by 20% between 1982 and 1988[6]. In Scotland, reported employment figures fell by 0.5% during the same period[7]. The efficiency gap between the Scottish industry today and the English and Welsh industry immediately after privatisation is of the order of 35%.

**iii) Assessment of possible future efficiency gaps**

In order to check my conclusion that an 80% closure of the gap was appropriate, I examined the potential impact of various targets for operating efficiency in the period to 2005-06 and compared these to the likely outcome in England and Wales at the end of the current regulatory period. Table 18.20 illustrates a range of possible outcomes, and shows that the 80% closure of the efficiency gap proposed in this Review would place the authorities well behind the likely position of the companies. The table sets out the percentage reductions in operating expenditure still required to reach the benchmark performance implied by various combinations of closure of the efficiency gap and outperformance by the privatised companies.

This sensitivity analysis demonstrates that if a target of less than 80% were set there would be a gap of over 20% in the relative performance of the Scottish industry. Limiting closure of the efficiency gap to 70%, would leave the Scottish industry some 30% behind. This would have severe competitive consequences.

Whilst 90% closure would save customers £8 on their bills, I am doubtful whether that level of closure could be achieved during the next five years, unless the authorities contract out on a significant scale, or adopt similar levels of management and employee flexibility. My 80% target would, assuming a modest 5% outperformance by the companies, leave the Scottish industry 21% behind the companies. If I applied Ofwat's A to E banding system for relative efficiency, the authorities would, on this basis, achieve a 'D' score in 2005-06.

The 80% target would require reductions of 33% in operating expenditure. This is clearly within achievable levels, as demonstrated in the water and other sectors.

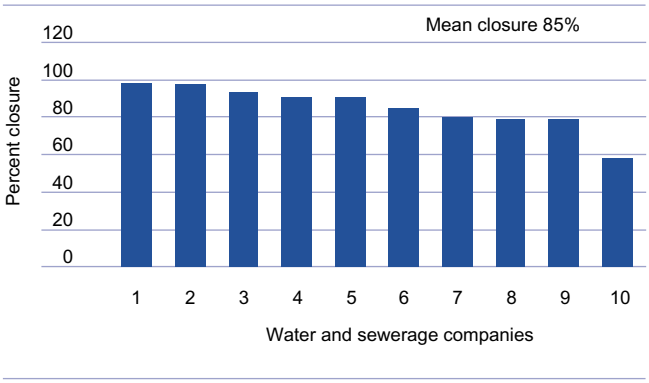
My analysis of the pace of improvement in operating efficiency by the water and sewerage companies supports the view that a closure of 80% of the efficiency gap is achievable in five years. Indeed, this is less than the average percent closure (85%) achieved by the privatised companies over their best five years. This represents a greater achievement than the target I have set in Scotland, because my analysis adopts, as the efficiency frontier, the performance achieved by the leading company in the fifth year, rather than the target set by the regulator. The performance of the companies is shown in Figure 18.3. The chart has had to be anonymised, as some of the information used was obtained in confidence from Ofwat.

The Ofwat practice is to require the companies to improve their efficiency by 1.4% each year and to narrow 60% of the gap to

[6] See Waterfacts 1995 Table 7.1.

[7] ditto.

**Figure 18.3: Closure of efficiency gap by water and sewerage companies over five years**




the frontier, rather than the benchmark company. The following table illustrates the difference between the Ofwat approach and the approach that I have adopted.

**Table 18.21: Ofwat methodology compared to Water Industry Commissioner for Scotland methodology**

| Targeted gap | Ofwat methodology | WICS methodology |
|---|---|---|
| Scotland | 31.3% | 32.8% |
| East | 25.1% | 24.6% |
| North | 26.8% | 30.9% |
| West | 35.7% | 38.7% |

In order to draw a true comparison however, I need to reduce the targets set for the industry in Scotland by my allowance for Spend to Save (see Chapter 21). This would reduce the target savings by £80 million in 2005-06.

The effect on the targeted gap is shown in Table 18.22.

**Table 18.22: Ofwat methodology compared to Water Industry Commissioner for Scotland methodology on a fully comparable basis**

| Targeted gap | Ofwat methodology | WICS methodology adjusted for Spend to Save |
|---|---|---|
| Scotland | 31.3% | 13.5% |
| East | 25.1% | 3.1% |
| North | 26.8% | 13.0% |
| West | 35.7% | 19.9% |

This shows that the challenge faced by the water authorities is less than that suggested by a superficial review of the difference between the Ofwat and WICS methodology. Even if

**Table 18.23: Comparison of total efficiency target (including merger)**

| Targeted gap | Ofwat methodology | WICS methodology with merger and Spend to Save |
|---|---|---|
| Scotland | 31.3% | 20.5% |
| East | 25.1% | 10.1% |
| North | 26.8% | 20.1% |
| West | 35.7% | 27.0% |

I add the targeted merger savings (see Chapter 20), the target for the proposed Scottish Water is still less than would be faced by a privatised company in England even before including the required annual efficiency target.

It is worth reiterating, while reviewing these comparisons that:

- I have not adjusted the expenditure of the English and Welsh companies to take account of their spending to meet mandatory leakage targets.
- I have not adjusted the expenditure of the England and Welsh companies for the costs incurred in domestic metering.
- English and Welsh companies are expected to outperform their targets.
- The proposed Scottish Water should be able to learn from the experience of the privatised companies.
- My target is calculated to a comparator company rather than the 'frontier' company.
- My alternative benchmarking suggested a higher efficiency gap than that from the revised Ofwat econometric models.

The fact that the initial position of the authorities is less favourable than that of the privatised companies should not make the targets any harder to achieve. Indeed, I have found that there is a close relationship between the initial gap and the level of cost reduction achieved by the companies in recent years. The targets that I propose in this Review are fully consistent with this relationship, as shown in Figure 18.4.

Europe Economics and Professor Nick Crafts of the London School of Economics were contracted to complete a detailed study of progress in operating efficiency in other sectors for Ofwat's 1999 price review[8]. The results of that study support the hypothesis that efficiency gains can be large and can be achieved quickly before the frontier is approached. Examples in the electricity sector, taken from Europe Economics' report, are given in Table 18.24.

[8] *Water and sewerage industries general efficiency and potential for improvement,* Ofwat October 1998.

**Figure 18.4: Reduction in operating expenditure for a given initial efficiency**

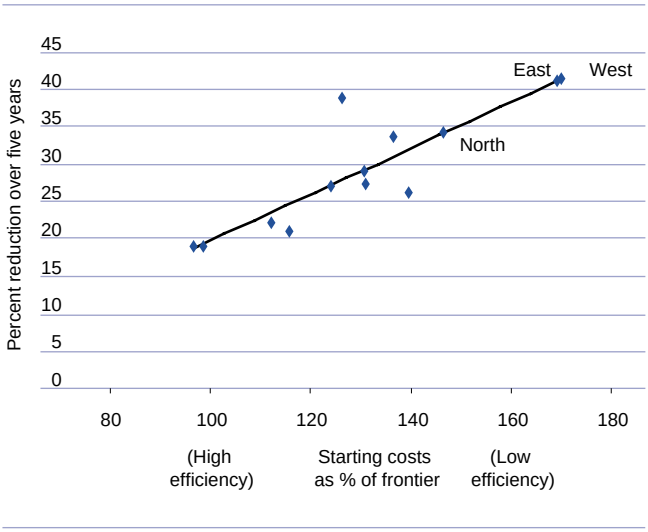



**Table 18.24: Operating cost reductions achieved in the electricity sector in five years**

| Company | Unit operating cost reduction 1992 to 1997 (%) |
|---|---|
| PowerGen | 38 |
| National Power | 31 |
| National Grid | 41 |
| Seeboard | 49 |
| Southern Electric | 43 |
| South Wales Electricity | 41 |
| South Western Electricity | 34 |
| Northern Ireland Electricity | 30 |

My sole interest is to promote the interests of customers. Since the industry is in the public sector in Scotland, it too should be focussed only on improving value for money for customers. As discussed in Chapters 11 and 13, relative cost position is the principal driver of the competitive position of the public sector water supplier in Scotland. This inefficiency, even if it were desirable, would not be sustainable in the medium term. Perhaps most important, I cannot advise Ministers to sanction an increase in customers' charges until all the realistic scope for efficiency has been included within the operating targets of the industry.

**iv) Risks**

The proposed targets imply substantial changes in the way the water authorities carry out their business. It is, therefore, important to take account of factors that may make achievement of the targets more difficult. The authorities are planning carefully how to achieve the targets; however, plans can be delayed or planned solutions may not work. The main risks include:

- the current framework of corporate governance - this reduces accountability and internal challenge and would appear to have devalued management information;
- limited incentives for directors and employees;
- insufficient management focus on reducing cost (a revenue focus would not be appropriate);
- resistance to culture change in the organisations;
- management decisions based on limited information;
- no measurable internal targets (on service levels and costs).

It will be essential for the Scottish Executive and the industry management to address these key areas. The risks can all minimised. However, if a change in culture is not brought about then the targets will not be met. I have taken a prudent approach to the setting of targets and believe that if a real effort to transform the industry is made, the efficiency targets will be beaten. However, given that such a large and fundamental change is required in order to achieve the targets, I consider that if the change does not occur, then the targets will be missed by a wide margin.

**v) Opportunities**

There is certainly scope for the authorities to outperform the proposed targets during the period to 2005-06. Significant outperformance, by say 10% or more, is also, I believe, possible[9] but this would require a commitment to contracting out (or the development of an equivalent level of internal flexibility within the organisation). Prospects beyond 2005-06 are discussed in Chapter 39.

Outperformance of these targets should be encouraged as this would allow smaller price increases, earlier delivery of improved service to customers, and a better environment, or some combination of these.

**vi) Risk analysis**

In the Minister's letter to me that commissioned this Review, I was asked for a formal risk analysis. In order to deliver this

[9] As evidenced by contracting out of operations by Glas Cymru.

analysis, I needed to understand how the risks and opportunities discussed above could affect the level of customers' bills, the level of borrowing and the availability of funds to deliver, in timely fashion, the required environmental programme and service improvements. I have, therefore, carried out a detailed risk analysis on the effects of underachieving, or exceeding, my proposed efficiency targets. This has been completed for both operating and capital costs.

My assumed risk profiles for operating expenditure are shown in Table 18.5 and 18.6.

**Figure 18.5: Risk profiles for operating expenditure – Scottish Water**

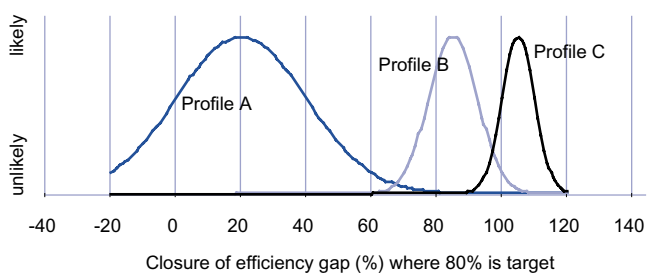
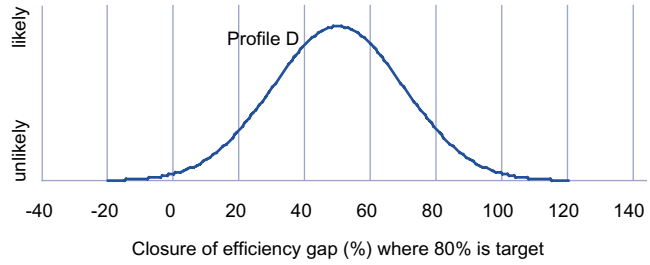



**Figure 18.6: Risk profiles for operating expenditure – three authorities**




These profiles depict my assessment of the relative probability of achieving a particular degree of closure of the efficiency gap, where the proposed target closure is 80%. These profiles have been developed on the basis of all of the information available to me. It therefore draws upon qualitative and quantitative information requests and upon similar information from the English and Welsh water industry and the utilities market in general.

### Profile A – Scottish Water

In this scenario, I have assumed that the degree of efficiency achieved is unpredictable, and that a wide range of outcomes could occur. This happens because the key success factors noted above are not fully addressed. I believe that it is unlikely under this scenario that the proposed targets would be approached, and there is a slight possibility that the recent decline in performance could continue. Broadly, I would expect the authority to make more progress against the capital efficiency target than the operating efficiency target (see Chapter 19). I believe that the target for operating cost is more dependent on the successful transformation of the organisation.

### Profile B – Scottish Water

I have assumed in this scenario that the proposed Scottish Water has addressed the key management issues outlined above. I have also assumed that this is done quickly and is a direct result of the creation of Scottish Water from the three existing authorities.

Under this scenario, the likely closure of the efficiency gap is much more predictable. I believe that given the conservative assessment of the targets, the management should be able to achieve the targets with a margin to spare and that significant under- or out-performance of the targets is unlikely. My analysis has shown that the water and sewerage companies in England and Wales have a very consistent record of performance. I cannot see any reason why this should not be repeated in Scotland.

The worst case in this scenario is broadly similar to the level of efficiency of Welsh Water at the 1999 Periodic Review. The best case is broadly equivalent to the achievement of the leading company in England and Wales by 1998-99. The management of Scottish Water has a significant advantage in that it can learn from the experience of the privatised companies.

### Profile C - Scottish Water

The critical issues are addressed and there is a commitment to contracting out (or an equivalent level of internal flexibility)[10]. In my view, this scenario could, at one extreme, produce

[10] Wessex Water has a policy to contract out very little. It has developed a very flexible internal organisational culture. This has resulted in a high level of efficiency and fewer redundancies.

efficiencies at the leading edge for the UK. The attractiveness of the Scottish market to potential contractors could well encourage very competitive pricing of any contracts. This scenario is very unlikely to fail to deliver the proposed efficiency target, because this would imply contract prices well above the norm in England and Wales.

### Profile D – three authorities

This covers a wide range of outcomes, driven mainly by the degree of commitment within the authorities to achieving efficiencies. Unlike Scottish Water, where there are three distinct scenarios, I consider that in the three authority model, the degree of commitment can best be represented by a smooth spectrum of risk.

I find no compelling reason to suppose that the risk profiles A to D should be skewed in any way. I believe, therefore, that a Normal distribution seems most appropriate.

I have adopted these assumed profiles in my financial risk analysis. This uses a standard risk analysis software linked to the simple financial model described in Chapter 10. The results of this analysis are set out in Chapters 33 and 37.

### i) Sensitivity

In addition to the formal risk analysis, I also conducted a sensitivity analysis of the impact of achievement (or non-achievement) of the operating cost efficiency targets on customers and on environmental outputs.

**i) Impact on customers**

Table 18.25 sets out the impact in millions of pounds, and as pounds on average household bills, of varying degrees of success in achieving the targets, across Scotland.

Table 18:25 demonstrates the importance of the efficiency targets for operating expenditure to customers. A shortfall in performance of just 20% of the identified efficiency gap would mean that customers pay £48 more in bills over the four years of the review period. Alternatively, an additional £100m would have to be found from public expenditure over the same period. The potential benefits if the authorities outperform the targets are also, however, considerable.

**ii) Impact on the environment**

If price and borrowing constraints are not to be breached, then failure to achieve the efficiency targets would delay capital investment designed to improve environmental compliance. Expressed in terms of months delay to the planned investment programme, the sensitivity of the level of achievement of the operating efficiency targets is detailed in Table 18.26.

The impact of failure to meet the operating cost targets on the capital expenditure programme is not a major area of concern. Although the programme as a whole could slip considerably, there is not likely to be any significant threat to environmental compliance. It is likely that base maintenance would bear the brunt of any shortage of revenues. This would not, of course, be in the customer interest because base maintenance has already been neglected for too long.

**Table 18.25: Sensitivity of customers' bills to degree of closure of operating expenditure efficiency gap**

| | Degree of closure of efficiency gap by 2005–06 (%) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| £ millions excess cost in 2005–06 | 84 | 67 | 50 | 34 | 17 | 0 | –17 | –34 |
| £ millions total cost in 4 years to 2005–06 | 250 | 200 | 150 | 100 | 50 | 0 | -50 | –100 |
| £ excess on bills in 2005–06 | 41 | 32 | 24 | 16 | 8 | 0 | –8 | –16 |
| £ excess total on bills in 4 years to 2005–06 | 121 | 96 | 72 | 48 | 24 | 0 | –24 | -48 |

**Table 18.26: Sensitivity of delays in investment programme to closure of operating expenditure efficiency gap by 2005–06**

| | Degree of closure of efficiency gap by 2005–06 (%) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| Delay (months) | 7½ | 6 | 4½ | 3 | 1½ | 0 | –1½ | –3 |

### j) Monitoring the delivery of efficiencies

My Strategic Review of Charges is only the start of the regulatory process. I will continue to monitor rigorously, the authorities' progress towards delivering the reductions in costs and the improvements in levels of service. This monitoring role will be achieved through:

- regular data returns, comprising the Annual Return and more frequent updates of key performance indicators, and forecasts;
- a process of query, challenge and confirmation of numbers;
- rigorous analysis of current and expected progress against targets;
- reports to the authorities, to the customer and to their owner;
- the development of analytical tools that are designed to distinguish progress from gaming.

In my view, it will be necessary for all stakeholders to monitor and discuss progress against targets. This would ensure that we minimise delays and surprises. The key role of my office will be to provide the framework for information necessary to judge progress, and to conduct the rigorous checking and analysis of that information. I am confident that the framework and most of the analytical tools are already in place, but I will be striving to improve this system of monitoring over the coming months.

### k) Conclusion

The efficiency targets for operating expenditure appear to be large, but they reflect the relative lack of progress in Scotland compared with England and Wales. The targets will still leave a significant gap, even in 2005-06, between the Scottish industry and the privatised companies. The public sector, with its lower cost of capital, should deliver a cheaper, not a more expensive service to customers.

I believe that there is a very clear line between the role of the regulator and the role of the board and managers. I have no role in determining how the efficiencies are achieved. I do have a very clear role in holding the organisation(s) to account on behalf of customers. My analysis gives an accurate indication of the scope for improvement, but it is up to the authorities, using their own specialist knowledge and skills, and with external assistance where necessary, to determine how and where to deliver the improvements.

It is clear, however, that budgetary belt-tightening will not go far in closing the efficiency gap. The targets will, almost certainly, need a very significant degree of cultural change, better corporate governance, financial control, and a transformation of processes and procedures. In all these areas, there are instructive parallels and lessons to be learnt from the experience of the English and Welsh water and sewerage companies, and from other utility sectors across the UK. It is vital that the authorities draw on this experience, and take full advantage of it. The Scottish Executive, as de facto owner of the industry, can help by requiring that more detailed cost allocations be made than is the current practice. As regulator, I will certainly be looking to understand in detail the cost allocations to treatment, networks and retail services, in order to be confident that tariffs are sustainable in the medium term and are in the broader customer interest.

It is instructive to note that, where water and sewerage companies have delivered large reductions in operating costs, they have delivered significant improvements in levels of service *at the same time*. I will not consider it acceptable to find that levels of customer service or environmental compliance slip. The efficiency targets are not - in any way - an excuse for a fall in standards.

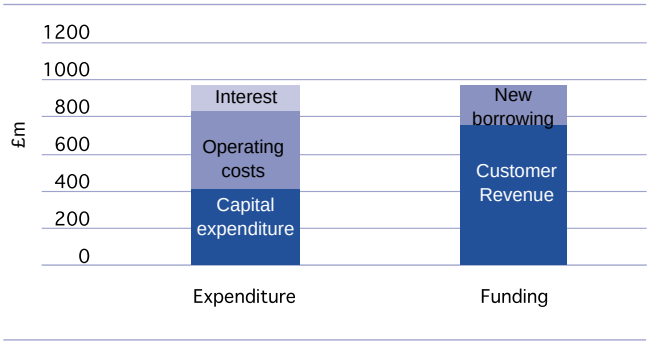
# Section 4: Chapter 19
## Costs: The Scope for Capital Efficiency

### a) Importance of capital efficiency

Chapter 18 focussed on efficiency in operating expenditure. In this chapter I assess the potential for efficiency in capital investment. Efficiency is at least as important in capital investment as it is in operating expenditure. The amount of capital investment planned by the authorities is very considerable and would total £2.3 billion between 2002 and 2006, if there was no potential for efficiency. The reasons for such a large capital programme are outlined in Chapter 15.

The relative importance of this investment can be seen from Figure 19.1. It clearly shows where the water industry spends the revenues paid by customers. Capital investment accounts for over half of customer revenues[1].

**Figure 19.1: Scottish water industry expenditure and funding 2000-01**




The achievement of improved efficiency in the capital programme is necessary if the authorities are to deliver the outputs of the Quality and Standard programme and ensure that charges remain affordable for customers in Scotland. Every £10 million extra that is spent on capital will increase the average bill by £5 per year. Inefficient spending therefore results in higher customer bills. As a result, the customer interest is maximised when every pound that is spent by the authorities is spent as efficiently as possible and is targeted at ensuring a sustainable industry.

I have devoted extensive time and resources to the calculation of an appropriate efficiency target for capital expenditure, because this is the largest single element of water authority expenditure. This process has included rigorous information collection from Scottish water authorities and thorough research into both the water industry in England and Wales and other utilities. The efficiency targets that I am recommending will, if they are achieved, generate savings of £0.6 billion between 2002 and 2006. As with operational expenditure efficiencies, these savings have to be achieved with no reduction in the level of outputs to customers - otherwise I will not consider the industry to have met its target. This target reduces the charges faced by the average household between 2002 and 2006 by about £120. The savings in 2005-06 alone will be almost £60.

### b) Method used to assess targets for capital expenditure

I described the methodology which I used to calculate my capital efficiency targets in detail in Chapter 8. The starting point in assessing the scope for capital efficiency improvements was to study the asset lifecycle, then to build discrete efficiency blocks around this lifecycle, which I could analyse. This allowed me to identify potential areas where efficiencies may be achieved. The next step was to assess the sources of information and analytical tools that could inform my analysis.

**Table 19.1: Areas for efficiency**

| Area identified for efficiency | Tools |
|---|---|
| Strategic Asset Management | Information Project; industry consultation; investment appraisal |
| Programme planning (appraisal) | |
| Procurement | Cost base analysis |
| Innovation | Babtie Group Report |

The methodology combines both qualitative and rigorous quantitative analysis of the costs of capital projects. I have then made appropriate adjustments to allow these costs to be benchmarked against the costs faced by other water and sewerage companies in England and Wales. This is the Cost Base Analysis and it allows me to estimate the efficiency of the procurement function within the Scottish industry. I used this analysis alongside qualitative evidence from the Information Project, industry consultation and investment appraisal audits to provide a complete picture of the potential for efficiency.

The current level of efficiency in Scotland is compared with the level of capital efficiency that is assumed by Ofwat (and agreed

[1] Based on 2000-01 audited accounts for each authority.

with the privatised companies) in the capital spending budgets agreed for the current regulatory period in England. In order to ensure that the targets that I recommend are achievable, they are phased over the full Strategic Review period.

### c) Application of the method: quantitative and qualitative

**i) Information Project**

The Information Project is discussed in detail in Chapter 3. It is worth reiterating here, however, that this initiative identified a number of areas, which are key to achieving capital efficiency, and which required urgent improvement. The results of this project provided a useful background to the study of the potential for efficiency and allowed me to understand the relative positions of Scotland and of England and Wales. The key areas for improvement identified by the joint teams were:

#### Strategic long term planning

One of the principal conclusions of the Information Project was that major changes in structure, methods and quality of resources were needed if the authorities were to prepare robust, long-term investment plans. The teams reported that the authorities typically planned over short horizons and mainly to achieve quality and environmental outputs. There appeared to be no strategic approach to developing a long-term asset management plan.

#### Strategic asset management plan

The authorities all seemed to be very operationally focussed. The authorities needed to develop a strategic asset management structure. This crucially requires a top-down approach, which defines the outputs required from the investment programmes in terms of the business strategy of the organisation.

#### Risk based approach to asset management

The teams found that the authorities needed to develop robust and more informed decision-making capabilities. There was a need to establish levels of acceptable risk and to measure investment plans and their costs against this profile. This would enable the comparison of benefits between capital schemes on a like-for-like basis.

#### Project appraisal

The teams were also concerned about the level of scrutiny and challenge given by authorities to projects as they pass through the appraisal stage. They added that insufficient project appraisal was completed to derive optimum whole-life cost solutions.

These conclusions provide useful background information about the position of the authorities at the end of last year. The managements of the authorities have accepted these comments and have begun to try to address the gaps. All three authorities, for example, have restructured their asset management functions in the last year. There remains, however, much to be done.

**ii) Industry consultation**

As described in Chapter 8, my office spent a considerable amount of time meeting with stakeholders from other capital-intensive industries. These interviews were completed using a standard questionnaire in order to allow me to compare the results more easily. These industry interviews have broadly confirmed that the conclusions of the Information Project, which are summarised above, are in line with the experience of most utilities. There was a consistent common theme that efficient delivery of a capital programme required a step-function change in organisational culture. Table 19.2 provides a snapshot of some of the responses to my questionnaire.

**iii) Industry benchmarking**

My review of Ofwat's publications suggested that there has been significant progress by the privatised companies in delivering capital efficiency. Moreover, it is clear from the price limits that were agreed for the current regulatory period, that the companies recognise that there is considerable further scope for efficiency. It was therefore encouraging that the interviews with the privatised water companies confirmed their achievement of significant efficiencies and the potential for further improvement.

**Table 19.2: Results of industry consultations**

| Changes in culture | Improved data | Better procurement |
|---|---|---|
| "Capital efficiencies have been achieved through improved visibility of the work programme (i.e. better planning) combined with cultural change and incentivisation." (ScottishPower) | "We have achieved many efficiencies through effective planning with robust information to support that planning." (Northumbrian Water) | "We take out RPI less 10% each year in procurement costs alone." (Yorkshire Electricity) |
| "Five year plans have improved project planning and encouraged the cultural change necessary for capital efficiencies." (Scottish and Southern) | "Effective planning has been dependent on good IT systems with 80% of planning efficiencies coming from investment modelling, forward planning, design and estimate." (Severn Trent Water) | "Recently partnerships have introduced procurement efficiencies of 10-30%." (Yorkshire Water) |
| "The need for a cultural step change and partnering in achieving our capital efficiencies." (Anglian Water) | "Standardisation of components, training and specifications can result in large project savings: specific cost can add 50% to base costs." (BAA) | "Value engineering, lesser frequency of tendering, meeting of contractors and end-users as early as possible and incentives all cut costs and therefore increase value." (Civil Engineers Contractors Association) |

**Table 19.3: Gap in procurement water authority 2000-1 versus Ofwat benchmarks 1998**

| | East | North | West |
|---|---|---|---|
| Water infrastructure | 18.4% | 23.3% | 21.2% |
| Wastewater infrastructure | 16.6% | 13.8% | 11.9% |
| Water non-infrastructure | 0.2% | 3.6% | 10.7% |
| Wastewater non-infrastructure | 19.4% | 17.0% | 15.7% |
| Overall % | 13.4% | 14.7% | 14.1% |

Between 1995 and 2000, the average saving in England and Wales was 13%. This is based on an average saving across the industry in capital maintenance of 11%[2] and in quality enhancement of 15%. The 15% capital efficiency is not published, however, and is my estimate. I believe this to be prudent because it is clear that capital efficiency in the quality programme by the privatised companies has been much higher than their achievements in capital maintenance[3].

Between 2000 and 2005, the price limits assume that the likely cost of delivering quality enhancements will be on average 26% lower than those included by companies in their Business Plans submitted to Ofwat. These business plans also contained an efficiency target for capital spending, but any agreed settlement was lower than anything contained in the company Business Plan[4].

**iv) Cost base analysis**

### Comparison against Ofwat benchmarks

Table 19.3 summarises the percentage gaps as at 2000-01 when the authorities' capital unit costs are compared with the Ofwat benchmarks.

[2] *Ofwat Water and Sewerage service unit costs and relative efficiency 1999-2000 Report*, Table 11.

[3] *Ofwat 1999 Periodic Review: Final Determinations,* section 6.2.

[4] *Ofwat 1999 Periodic Review: Final Determinations,* section 7.3.1, Table 21a and Table 21b: combined reductions in enhancement and maintenance of 25.8%.

**Table 19.4: Gap in procurement versus Ofwat benchmarks as at 2000-01**

| | East | North | West |
|---|---|---|---|
| Water Infrastructure | 23.5% | 28.1% | 26.2% |
| Wastewater Infrastructure | 21.9% | 19.4% | 17.5% |
| Water Non-Infrastructure | 6.5% | 9.7% | 16.3% |
| Wastewater Non-Infrastructure | 24.5% | 22.2% | 21.0% |
| Overall % | 18.9% | 20.1% | 19.5% |

**Table 19.5: Projected gap in procurement versus Ofwat benchmarks as at 2005-06**

| | East | North | West |
|---|---|---|---|
| Water infrastructure | 32.6% | 36.7% | 35.0% |
| Waste water infrastructure | 31.2% | 29.0% | 27.3% |
| Water non-infrastructure | 17.6% | 20.4% | 26.3% |
| Waste water non-infrastructure | 33.5% | 31.5% | 30.4% |
| Overall | 28.5% | 29.6% | 29.1% |

**Table 19.6: Gap in procurement versus Ofwat lowest submission as at 2000-01**

| | East | North | West |
|---|---|---|---|
| Water infrastructure | 31.0% | 38.0% | 34.8% |
| Waste water infrastructure | 35.9% | 35.2% | 43.6% |
| Water non-infrastructure | 13.5% | 12.1% | 27.6% |
| Waste water non-infrastructure | 32.0% | 36.9% | 31.0% |
| Overall | 28.2% | 30.5% | 32.9% |

These gaps have to be adjusted for the time that passed between the submission of information by the companies in England and Wales and the time when the authorities provided their standard costs to me. As outlined in detail in Chapter 8, I have assumed that the rate of progress by the companies has been steady across all areas and that it is equal to a 4% real reduction per year (-2.5% in nominal terms)[5].

The overall results for each authority are within 1.2% of one another, at around 20% behind the Ofwat benchmarks.

As I explained in Chapter 18, I have to look forward to ensure that Scottish customers are being asked to pay no more than is absolutely necessary. It is clear that the privatised companies are continuing to make progress in improving their procurement of the capital programme. The expected improvement in capital unit costs over this period is likely to amount to 12%. This reduction in capital unit costs for the privatised companies will cause the gap between Scotland and England and Wales to widen to between 28.5% and 29.6% by 2005-06. This gap assumes that no progress is made by the authorities and that their procurement procedures cope with the complexities of a much larger and more varied investment programme. This is illustrated in Table 19.5.

### Comparison against Ofwat lowest submission

As I explained in Chapter 8, the Ofwat benchmark is not based on the lowest price submitted and verified as a result of the Cost Base Submission process. It is based on Ofwat's assessment of the lowest realistic price obtainable as a result of the submissions. The benchmark cost can therefore be quite significantly higher than the lowest price submission. The Ofwat lowest submitted cost differs from the benchmark when the submission is from a company that does not meet set criteria to be representative of the industry. There is a marked increase in the efficiency gap in 2000-01 from 20% to around 30%, if the authorities' capital unit costs are compared to these

[5] The COPI measure of inflation has been applied.

**Table 19.7: Gap in procurement versus Ofwat lowest submission as at 2005-06**

| | East | North | West |
|---|---|---|---|
| Water infrastructure | 39.2% | 45.4% | 42.5% |
| Waste water infrastructure | 43.5% | 42.9% | 50.3% |
| Water non-infrastructure | 23.8% | 22.6% | 36.2% |
| Waste water non-infrastructure | 40.1% | 44.4% | 39.2% |
| Overall | 36.8% | 38.7% | 40.9% |

Ofwat lowest submissions, as opposed to the Ofwat benchmarks. Table 19.6 illustrates this point.

This gap would widen to around 40% if the privatised companies were to continue to perform as well as they have done previously in seeking out capital efficiency. Table 19.7 illustrates this point.

### Overall cost base assessment

My analysis of the cost base information that was submitted to me by the water authorities demonstrates that there is very clear scope for improvement. It is vital to reiterate that these savings have to be achieved without sacrificing, in any way, the outputs to the customer or the level of environmental compliance. This analysis demonstrates that the gap in cost base or procurement efficiency ranges from at least 28.5% when compared with the Ofwat benchmarks, up to 40.9% when compared with the Ofwat lowest submissions.

I have used a number very much at the lower end of this range 29.5% when the results of the cost base analysis are combined with the other strands of analysis to establish a final capital efficiency target.

### d) Recommendation

**i) Combining results**

I have considered the potential for efficiency across the whole asset life cycle. It was clear from the conclusions of the Information Project and from the industry interviews that significant progress was possible by introducing strategic asset management and by planning the capital programme better. As discussed in Chapter 8, however, it is not easy to quantify these potential savings. The most sensible way forward seemed to be to calculate the efficiency gap that will result from the achievement by the privatised companies of their targeted capital efficiency.

In order to calculate the asset management savings, I have reduced the overall target by the procurement efficiency gap (from the cost base analysis).

There would appear to be little doubt that the capital efficiency target agreed between the privatised companies and Ofwat will be achieved. Failure to achieve the capital (and indeed operating cost) efficiencies mean that the privatised company would earn a lower cost of capital than would otherwise have been available. This is not likely to impact positively on the market's perception of either the company or its management.

**ii) Total assessed gap**

Table 19.8 summarises the total assessed gap:

This total 41.9% capital efficiency achieved since privatisation can be divided into the four areas described in Chapter 8 as the building blocks of capital efficiency. This is shown in Table 19.9.

In Table 19.9, the procurement gap of 29.5% was established by the cost base analysis. It is assumed to have been achieved over the three regulatory periods: 11.9% in 1990-95, 9.2% in 1995-2000, and 11.9% in 2000-05. The estimate for the impact of new process and technologies innovation is taken from the Babtie Report, prepared for Ofwat. Since I have calculated a cumulative gap of 41.9%, the balance of 12.7% relates to strategic asset management and programme planning efficiency.

**iii) 2005-06 Target**

I have tried to establish a prudent approach to the setting of targets. I have, therefore, opted to set the capital efficiency target at 80% of the expected efficiency gap in 2005-06. This mirrors my approach to setting the target for operating costs in Chapter 18.

**Table 19.8: Analysis of total assessed efficiency gap**

| Period | Saving |
|---|---|
| 1990-95 | 11.9%[6] |
| 1995-2000 | |
| Total achieved efficiency | 13%[7] |
| Procurement efficiency | 9.2%[8] |
| Asset management saving | 4.2% |
| Delayed element of capital programme | 2.1% |
| Planned spending not required | 2.1% |
| Actual efficiency | 11.1% |
| | |
| 2000-05 | |
| Total reductions agreed from Business Plans Estimates of which: | 25.8%[9] |
| Estimated procurement efficiency | 11.9% |
| Asset management saving (including innovation)[10] | 15.8% |
| Total assessed efficiency gap | 41.9%[11] |
| of which potential procurement saving | 29.5% |

I have, therefore, set the capital investment efficiency target at 34% for each authority. This target is phased, unlike in England and Wales, in order to take account of capital commitments already signed up to by the authorities and to allow the authorities to build up expertise in the areas highlighted by the Information Project as needing attention. There appears to be no material difference between the authorities, either as a result of my cost base analysis or from the conclusions of the Information Project. It would not therefore be appropriate to set any of the authorities a different target.

I have no doubt that Scottish Water would be capable of achieving my proposed targets, and that revenue caps should assume that they are achieved, if the merger proceeds. However, if the authorities retain their existing structure and

**Table 19.9: Summary of total assessed efficiency gap by efficiency area**

| Area identified for efficiency | Comments | Efficiency gap (multiplicative) |
|---|---|---|
| Strategic asset management | No allowance for out-performance by plcs, or for efficiency gains after current Price Review, in 2005-06. | 12.7% |
| Programme planning (appraisal) | | |
| Procurement | Comparison against Ofwat benchmark, not lowest submission. | 29.5% |
| Innovation | An estimate as some of the potential Innovation saving is reflected in the procurement saving. | 5.5% |

[6] Assumes that the gap in cost base efficiency has built up since 1990, and the companies in England and Wales have improved at the rate of 2.5% nominal per annum.

[7] Refer to Chapter 19, c, iii.

[8] Assumes companies are 20% more efficient by 2000, consistent with a continued improvement of 2.5% per annum.

[9] *Ofwat 1999 Periodic Review: Final Determinations,* section 7.3.1, Table 21a and Table 21b: combined reductions in enhancement and maintenance of 25.8%.

[10] Asset management saving = Total saving – Estimated Procurement Efficiency
(1-25.8%)=(1-Y%)x(1-11.9%) = (1-Y%) x 88.1% 1-Y% = 74.2% ÷ 88.1%
Y% = 1 –(74.2%÷88.1%) = 15.8%

[11] Cumulative gap is calculated by a multiplicative calculation of the actual efficiency attainments between 1990-95, 1995-2000 and 2000-05 i.e. [1-(1-11.9%)*(1-11.1%)*(1-25.8%)]

**Table 19.10: 2005/06 Capital efficiency target**

| | |
|---|---|
| Cumulative Gap | 42% |
| Actual Target (80% of Gap) | 34% |

**Table 19.11: Capital expenditure element (92% of Quality and Standards Programme[12])**

| | 2002-03 | 2003-04 | 2004-05 | 2005-06 |
|---|---|---|---|---|
| East | 0% | 7% | 14% | 20% |
| North | 18% | 24% | 28% | 34% |
| West | 18% | 24% | 28% | 34% |

there is no merger, then I would wish to be more prudent in my assumptions. My calculations of the revenue caps under the existing structure therefore assume that my targets are not fully achieved, and that closure of the efficiency gap would only reach 50%, instead of the target 80%.

The phasing of my target is set out in Table 19.11.

These targets are then applied to the profile of capital spending required in each year. I have slightly modified these profiles (in consultation with the authorities) in order to phase increases in charges for customers.

The overall saving in the North area is slightly less than in the West area. This reflects the greater number of water quality undertakings that have to be completed by the North of Scotland Water Authority early in the regulatory period (see Chapter 15).

The actual bottom line cash available for the East of Scotland Water Authority does reflect the same efficiency targets as for the other two authorities. The actual percentage targets are, however, different and this reflects the fact that during the Quality and Standards process, the East of Scotland Water Authority requirement for capital investment was reduced significantly. Figures 19.2 to 19.4 illustrate this.

**Table 19.12: Overall Quality and Standards Programme capital expenditure efficiency**

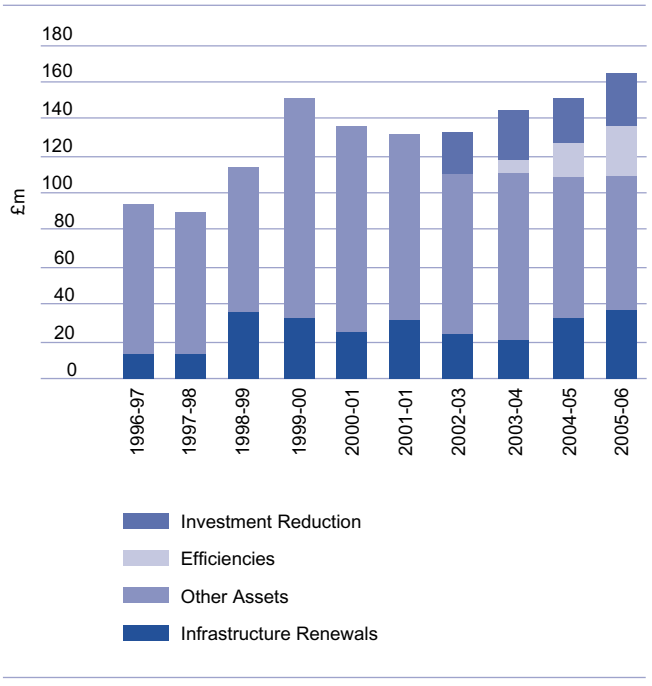
| | Overall efficiency |
|---|---|
| East | 11% |
| North | 26% |
| West | 27% |
| Total | 23% |

**iv) Impact on capital investment spending**

The total spending on capital investment by the Scottish water industry will be reduced from the £2.3 billion over four years as originally costed by the water authorities to £1.7 billion. This total investment spending excludes any potential capital element of the Spend to Save allowance. This represents a total efficiency of £0.6 billion, or a reduction of nearly £280 in the total amount paid by the average domestic customer over the regulatory period.

The phasing of the total capital programme for each authority is shown in Figures 19.2 – 19.4.

**Figure 19.2: East of Scotland Water Authority post-efficiency investment profile**




[12] The capital efficiency targets are applied to 92% of the Quality and Standards investment programme. The other 8% represents capitalised labour, which is subject to the average operating cost efficiencies across Scotland.

**Figure 19.3: North of Scotland Water Authority post-efficiency investment profile**

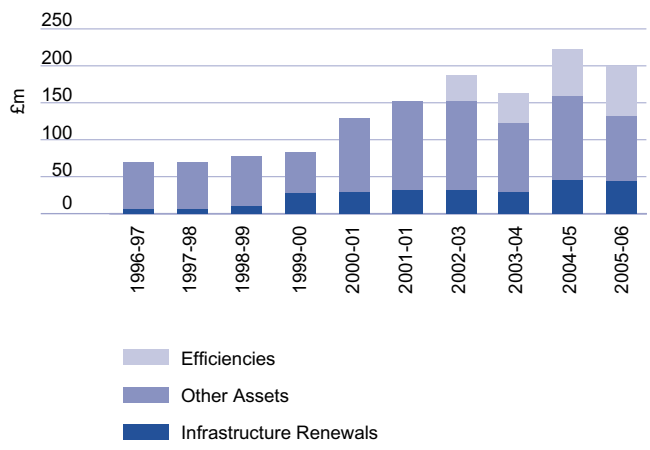
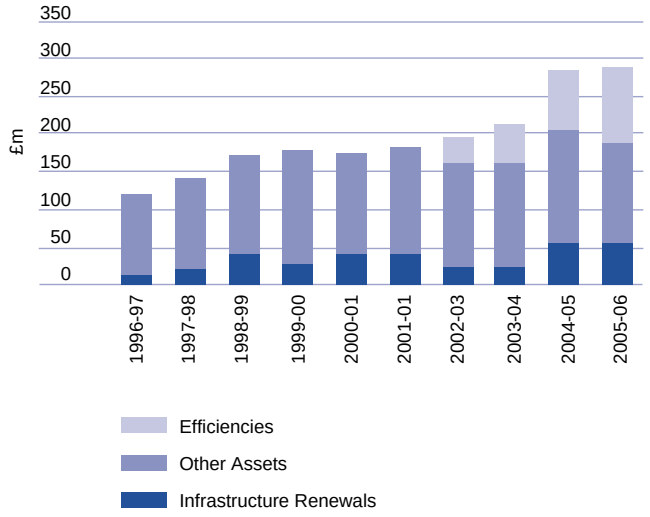



**Figure 19.4: West of Scotland Water Authority post-efficiency investment profile**




In Figure 19.2 for East of Scotland Water Authority, the investment reduction elements illustrate that the bottom line cash available to East of Scotland Water Authority is the same irrespective of whether it is calculated on the basis of the 18%/24%/28%/34% phasing applied to the original investment estimated, or on the basis of 0%/7%/14%/20%, which I have applied to the revised capital budget estimates by the authority.

Across Scotland, the capital maintenance component is fairly level in the first two years in actual cash terms before accelerating in the latter two years. In terms of outputs, however, the phased efficiency targets would imply that the capital maintenance component grows consistently over the regulatory period as Table 19.13 shows.

The total expenditure on investment is some 50% of the revenue paid by water customers (approximately £750 per household in Scotland) over the 2002-06 period. The investment in 2005-06

**Figure 19.5: Scotland post-efficiency investment profile**

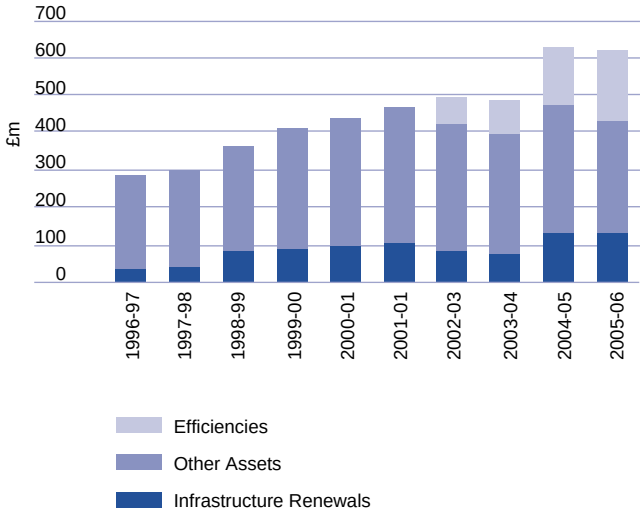



**Table 19.13: Investment profile across Scotland**

| | 2002/03 | 2003/04 | 2004/05 | 2005/06 | TOTAL |
|---|---|---|---|---|---|
| New/other assets | £341m | £317m | £339m | £292m | £1,289m |
| Infra- structure renewals | £82m | £76m | £133m | £138m | £429m |
| Total | £423m | £393m | £472m | £430m | £1,718m |
| Target efficiencies | £69m | £98m | £159m | £192m | £518m |
| Pre efficiency total | £492m | £491m | £631m | £622m | £2,236m |
| Infra structure restated - for inefficiency | £99m | £100m | £195m | £228m | £622m |

represents an increase of 54% on the amount spent in Scotland in 1996-7 in cash terms and an increase of approximately 120% in terms of level of service impact.

### f) Implementability

**i) Reducing the efficiency gap**

I have adopted estimates consistently at the low end of the possible outcomes. I can, therefore, see no reason why the authorities should not be able to achieve the target. Indeed, achieving the 80% target will still leave the authorities or the proposed Scottish Water some 8% short of the average level of capital efficiency which the companies in England and Wales had achieved by 2000-2001. If the leading companies continue to outperform the target (as history suggests they will) the gap could be even larger by 2005-06.

**ii) Industry consultation**

As I have phased the introduction of my target the industry is being required to save 23% of the total capital budget during this regulatory period. This is less than the 26% saving from the companies' business plans that was assumed by Ofwat.

Moreover, the results of the industry consultation process suggest that companies in the private sector have achieved capital efficiencies of this scale in the past. These consultations also confirmed that better procurement should account for a large proportion of the initial savings. There are many examples, both in the utilities industry and in other asset intensive industries, which would suggest that my target is definitely achievable.

- Yorkshire Water and Northumbrian Water claimed that savings of at least 20% were made in the 1994-99 period. Severn Trent claimed that savings of just under 15% over the same period. South West Water has achieved an 18% saving in its partnering agreement with Babties to build a sewage treatment scheme. It should be emphasised that the companies achieved these savings from a much more efficient level than that of the authorities today. This would imply that the scope for efficiency in Scotland is much higher than these figures would suggest. Meanwhile, AWG (formerly Anglian Water) has estimated that capital efficiencies in the 2000-05 period will exceed 25%. The majority of these savings are expected to be in planning and procurement.

- Scottish and Southern plc claim that improved and common specifications have resulted in capital savings of up to 30%. This indicates the level of savings that might be available if a more strategic approach to asset management planning is introduced.

- Yorkshire Electricity sets targets of RPI – 10% in capital procurement costs alone. Similarly, Scottish Power claim improvements in procurement savings of 7-10% each year. These achievements are all the more impressive because they are achieved from a more efficient baseline than the authorities.

- BAA plc's five year pavement partnership with AMEC has achieved efficiencies of 30%. The targeted savings on the original planned expenditure on Terminal 5 at Heathrow already exceed 20%.

- EXXON expects to continue to make savings of 4% per annum in nominal terms over the next ten years. This is in a mature industry (and one of the first to introduce risk-based strategic asset management), where many of the efficiencies will already have been achieved.

**iii) Public Private Partnerships**

Significant efficiencies have already been achieved in the Scottish water industry. The PPP discussed in Chapter 17 delivered savings over conventional procurement as follows[13]:

- East of Scotland Water Authority - 42% efficiency in the Almond Valley, Seafield and Esk Valley PPP scheme
- North of Scotland Water Authority - 19% efficiency in the Aberdeen PPP scheme
- West of Scotland Water Authority - 29% efficiency in the Meadowhead, Stevenston and Inverclyde PPP scheme

In particular, the East of Scotland Water Authority savings give assurance that sound management can drive the authorities to achieve my efficiency target.

[13] Water authorities' evidence to the Transport and Environment Committee.

## g) Risk analysis and sensitivities

### i) Risk

The capital programme accounts for approximately half of a customer's bill. I therefore need to understand how the risks and opportunities discussed could affect the level of customers' bills, the level of borrowing and the availability of funds to deliver, in timely fashion, the outputs of the agreed environmental programme and service improvements.

In response to the Minister's request for a formal risk analysis, I have developed three risk profiles for capital expenditure. These profiles have been developed in response to the potential scenarios outlined in Chapter 18.

**Figure 19.6: Risk profiles for capital expenditure – Scottish Water**

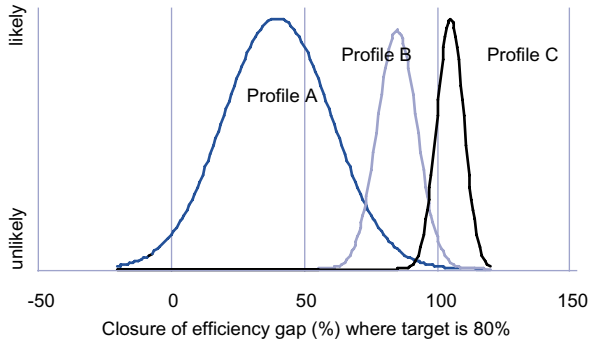
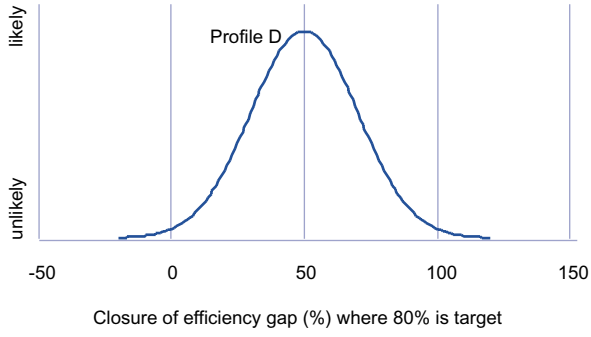



**Figure 19.7: Risk profiles for capital expenditure – three authorities**




Each of these profiles depicts my assessed relative probability of achieving a particular degree of closure of the efficiency gap. The proposed target closure in each case is 80%.

### Profile A – Scottish Water

In this scenario, I have assumed that the degree of efficiency achieved is unpredictable, and that a wide range of outcomes could occur. This happens because the key success factors noted above are not fully addressed. I believe that it is unlikely under this scenario that the proposed targets would be approached, and there is a slight possibility that the recent decline in performance could continue. Broadly, I would expect the authority to make more progress against the capital efficiency target than the operating efficiency target (see Chapter 18). I believe that the target for capital cost is less dependent on the successful transformation of the organisation.

### Profile B – Scottish Water

I have assumed in this scenario that the proposed Scottish Water has addressed the key management issues outlined above. I have also assumed that this is done quickly and is a direct result of the creation of Scottish Water from the three existing authorities.

Under this scenario, the likely closure of the efficiency gap is much more predictable. I believe that given the conservative assessment of the targets, the management should be able to achieve the targets with a margin to spare and that significant under- or out-performance of the targets is unlikely. My analysis has shown that the water and sewerage companies in England and Wales have a very consistent record of performance. I cannot see any reason why this should not be repeated in Scotland.

The management of Scottish Water has a significant advantage in that it can learn from the experience of the privatised companies.

### Profile C – Scottish Water

The critical issues are addressed. Scottish Water adopts capital procurement and strategic asset management best

practice. This would involve risk/benefit sharing in procurement and potentially the use of short term BOOT (Build Own Operate Transfer) or BDOT (Build Design Operate Transfer) agreements in order to minimise unit costs. In my view, this scenario could, at one extreme, produce efficiencies at the leading edge for the UK. This scenario would be very unlikely to fail to deliver the proposed efficiency target, because this would imply contract prices well above the norm in England and Wales.

### Profile D – three authorities

This covers a wide range of outcomes, driven mainly by the degree of commitment within the authorities to achieving efficiencies. Unlike Scottish Water, where there are three distinct scenarios, I consider that in the three authority model, the degree of commitment can best be represented by a smooth spectrum of risk.

I find no compelling reason to suppose that the risk profiles A to D should be skewed in any way. I believe, therefore, that a Normal distribution seems most appropriate.

I have adopted these assumed profiles in my financial risk analysis. This uses a standard risk analysis software linked to the simple financial model described in Chapter 10. The results of this analysis are set out in Chapters 33 and 37.

**ii) Sensitivity**

I have again completed a sensitivity analysis for capital expenditure. This is in addition to (and separate from) the risk analysis. This sensitivity analysis covers the impact in terms of:

- impact on public expenditure,
- household bills and;
- months of delay in receiving the outputs of the planned investment if my targets are to be achieved.

Table 19.14 demonstrates the importance of the efficiency targets to the affordability of the capital investment programme. A shortfall in performance of just 20% of the identified efficiency gap would mean either: that customers pay £44 more in bills over the four years of the Review period; or that an additional £124 million has to come from public expenditure over the same period, or that there is 3 months delay in the outputs of the investment. Out-performance of my targets could potentially have a positive impact on the future bills of customers.

### h) Monitoring delivery

**i) Role of the Regulator**

It is my duty to promote the interests of customers, and I do not intend that customers should pay more because there is an unidentified scope for efficiency within the Scottish water industry.

**Table 19.14: Impact in £m of level of achievement, relative to proposed capital investment expenditure efficiency target:**

| | Degree of closure of efficiency gap by 2005-06 (%) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |
| Total cost in 4 years to 2005-06 | £310m | £248m | £186m | £124m | £62m | 0 | -£62m | -£124m |
| Impact on bills in 4 years to 2005-06 | £110 | £88 | £66 | £44 | £22 | 0 | -£22 | -£44 |
| Months delay in outputs | 7.5 | 6 | 4.5 | 3 | 1.5 | 0 | -1.5 | -3 |

I do not, however, have any role in deciding how the efficiencies should be achieved. This would cross the important line between management and regulation. It is entirely a matter for management to decide how to allocate the resources that are available to them.

The authorities do have to manage risk appropriately, but the performance criteria are quite well defined in the Quality and Standards process. There are, of course, choices for the authorities on the precise allocation of the resources available to meet the outputs required.

**ii) Monitoring outputs**

It is an important part of my role to ensure that the outputs delivered by the industry are the same or greater than has been agreed during the Quality and Standards process. It is vital to confirm that customers receive the levels of service for which they are being asked to pay.

I am developing a process in collaboration with the quality regulators to monitor the delivery of outputs. There are already two monitoring tools for the capital investment programme of the water authorities in my office.

- Annual Return Tables[14] - Table K is the Investment plan and Table G the Investment Plan (forecasts and actual outturn), and Table H contains current and future asset information. If I compare the movements in Table G with Table K (which has been fixed in time) I am able to scrutinise investment expenditure by timing and amount. Any significant changes are immediately obvious and will be queried with the authority. This should ensure timely delivery of projects for customers and that legislative deadlines are met. Reductions in expenditure and maintenance of the same outputs in the asset Table H also provides evidence of efficiencies.

- Quarterly monitoring – This monitoring focuses on the investment within the particular financial year. It is also reconciled to the tables returned annually (Table G). This quarterly monitoring gives my office a report on the actual compared to planned expenditure on each individual scheme. This format also allows me to receive a summary of spending within the year by investment purpose and by project status every three months. I am, therefore, able to query quickly any changes in project status or spend within a financial year. This should provide me with an early warning of a delay in project implementation or of a large unplanned overspend.

When I monitor environmental or water quality improvements delivered by the investment programme, collaboration with SEPA and the Drinking Water Quality Regulator is a critical part of the process. This process has been on an ad-hoc basis, but is now going to be on a more formal basis. I am currently working with SEPA and the Drinking Water Regulator to scope out the terms of reference for a project to review the definition of levels of service outputs. The aim of this project will be to improve the current output measures and to ensure consistency of interpretation Scotland-wide. This is an important initiative which I recommend the Minister endorse.

### i) Conclusion

I have set my capital efficiency target at 34% annually by 2005-06. This is 80% of the assessed gap of approximately 42% between the Scottish and the water industry in England and Wales. This target is phased in over the period 2002-2006.

The authorities can achieve the target by becoming more efficient in any of the areas in the asset lifecycle: strategic asset management, programme planning (appraisal), procurement and innovation. However the majority of the target is likely to be accounted for by procurement. This means that objective measurement of the delivery of the targets is possible. It also means that some of the more difficult to achieve culture changes, while no less vital in the medium term, are not a pre-requisite of achieving the target.

The target is not easy, but it is possible - (the privatised companies are already doing better than the targets, and in most cases achieved this over a shorter period).

[14] See Chapter 3

# Section 4: Chapter 20
## Costs: Merger Savings

### a) Introduction

Chapters 18 and 19 discussed the efficiencies in operating and capital expenditure that should be achievable by the authorities as individual entities. It is the aim of this chapter to examine the potential for savings resulting from the proposed merger of the three existing water authorities. The Scottish Executive stated in its Water Services Bill Consultation Paper that one of the primary attractions of the proposed merger was to improve the authorities' ability to become more efficient. There are certainly clear synergies in dealing with the multi-site non-domestic customers and the merger would also provide an opportunity to create a stronger, more focussed, management team.

The current three Scottish authorities are relatively small in a UK context. Table 20.1 shows the number of customers of each of the current water and sewerage undertakers in the UK.[1]

If Scottish Water is approved by Parliament, it will become the fourth biggest in the UK. This will undoubtedly bring benefits to the merged authority. There will be increased buying power for vital inputs (e.g. chemicals and electricity) and a stronger negotiating position with capital investment contractors. It is also likely that the proposed Scottish Water would find it easier to attract, retain and reward the highest quality staff. It is to be hoped that this merged organisation will attract a board of the highest calibre.

This chapter reviews the potential for merger efficiencies and sets an efficiency target for the proposed Scottish Water. This efficiency target would only apply if Scottish Water comes into being. Merger efficiencies might result from the integration of head offices and support services, from economies of scale and from disposals of assets no longer required by Scottish Water.

The merger efficiency target comprises two elements. The first is the actual sustainable efficiency that results from the creation of Scottish Water. The second is the benefit received from property disposals. The scope for disposing of assets will inevitably fall over time, although it is interesting to note that, more than ten years since privatisation, property disposal is still a significant revenue stream for the privatised companies.

I have devoted considerable resources to the calculation of an appropriate efficiency target. I have collected Scottish water industry information and researched the experience of other utilities that have merged. I have set a target of £39 million of

**Table 20.1: Relative sizes of the water authorities and companies**

| Company/Authority | Total number of customers (domestic and non-domestic) (1999–2000) |
|---|---|
| Thames | 5,018,000 |
| Severn Trent | 3,468,000 |
| North West | 2,937,000 |
| **Proposed Scottish Water** | **2,385,000** |
| Anglian | 2,245,000 |
| Yorkshire | 1,968,000 |
| Southern | 1,687,000 |
| Welsh | 1,237,000 |
| **West of Scotland Water Authority** | **1,110,000** |
| Northumbrian | 1,100,000 |
| Wessex | 1,009,000 |
| **East of Scotland Water Authority** | **715,000** |
| South West | 685,000 |
| **North of Scotland Water Authority** | **560,000** |

[1] Due to discrepancies caused by customers having separate provision of water services/septic tanks, the figure given for each company is the greater of the two values of the number of billed properties for water or for sewerage.

savings. This saving reduces the required increase in household bills by almost £20 in 2005-06.

It is again important to stress, as I have in previous chapters, that these savings have to be achieved with no reduction in the level of outputs to customers. Mergers should not adversely impact on service to customers. In a number of other mergers and takeovers, customers have benefited from an improved level of service. For example, Southern Water received top placing for customer service the year after being taken over by Scottish Power, when it centralised its call and control centres. This improvement in customer service occurred while costs were reduced by some 15%.

### b) Methods used to assess the scope for merger efficiency

I described the methodology used to assess the scope for merger efficiency in Chapter 9. I looked at the potential for sustainable merger efficiencies in five ways:

- application of an Ofwat econometric model to Scottish Water;
- assessment of head office and support service savings based on information provided by the authorities about indirect costs;
- assessment of head office and support service savings as above, applying an estimate of actual salaries in head office functions;
- review of efficiencies achieved in water sector mergers;
- review of efficiencies achieved in other utility, public and private sector mergers .

As has been my practice in operating and capital cost efficiency, my final target will take 80% of the assessed potential. I then add potential disposal proceeds in full from the sale of assets to each of these methods. It is appropriate to add 100% of disposal proceeds as experience from England and Wales shows that any early assessment of potential will be significantly lower than the level of proceeds achievable.

I have, of course, concentrated on savings that could only be achieved if the authorities were to merge. I have assumed that costs are reduced by 35%, in line with the individual authority targets for operating and capital expenditure. I then calculated the scope for the merger savings from this more efficient starting point. I am therefore confident that I have avoided double counting any potential for efficiency already included in my operating cost and capital efficiency targets.

Despite the additional investment savings that should be possible from better procurement, I have opted not to include these savings as it is difficult to make a robust estimate. The merger savings therefore result only from additional operating cost efficiencies. My prudent starting point and my inclusion only of operating cost potential should ensure that the merger savings target should be comfortably achievable.

### c) Application of the method

**i) Ofwat model**

The Ofwat model approach provides a useful benchmark. It should provide a relatively prudent answer, because Ofwat is always keen to provide an incentive to the privatised companies to achieve greater savings than those implied by any target. The model was established to estimate economies of scale on operating expenditure for water supply. It is described in Chapter 7. Unfortunately no similar model exists for sewerage, although I can see no reason why economies of scale should be fundamentally different for sewerage. The economies of scale estimated by the model are based on the relationship between operating costs and the total number of properties billed. The model predicts that a merged single authority would cost 11% less to operate than the three authorities.

As explained above, I have assumed a 35% reduction in the reported costs for 2000-01. I have done this to avoid double counting the operating cost and capital efficiency targets. This calculation is shown in Table 20.2:

Expressed in 2005-06 prices, the merger savings estimated by the Ofwat model amount to £36.6 million. This potential saving therefore reflects the economies of scale that would result from combining the three authorities, but excludes the savings resulting from my other efficiency targets.

**ii) Head office function savings**

Inevitably, efficiencies are equated with job losses. The experience of the privatised companies has, however, been very varied. Wessex Water has reduced employment by 15%

**Table 20.2: Calculation of potential merger savings – Ofwat model**

| | Water service operating expenditure | Sewerage service operating expenditure | Own work capitalised | Total |
|---|---|---|---|---|
| Reported costs 2000–01 | £227.2m | £195.7m | £28.9m | **£451.8m** |
| Costs after 35% efficiencies | £147.7m | £127.2m | £18.8m | **£293.7m** |
| Merger savings (11% of efficient cost) | £16.2m | £14.0m | £2.1m | **£32.3m** |
| Costs after all savings | £131.5m | £113.2m | £16.7m | **£261.4m** |

and is the most efficient company. Welsh Water (Dŵr Cymru), in contrast, reduced employment by 54% and was in 1998-99 the least efficient company.

In the analysis that follows I talk about headcount reductions. This should not be taken to mean that I advocate job losses or a particular method of achieving a target. This is properly an issue for management, workers and unions.

Head office costs, however, do tend to be a function of the cost of employees, in terms of both salary and overheads. I now set out my calculations of the potential efficiency in the following four areas:

- savings in general and support labour and overheads,
- scientific services labour and overheads,
- customer services procurement,
- other scale procurement.

I have set out both versions of my bottom-up analysis of potential merger savings together. The only difference is in the average salary used. I have assumed that the new single head office would be approximately half the size of the three existing head offices (post efficiency). I reviewed the sensitivity of this assumption and the results are presented below.

### General and support labour

Labour cost savings are the largest part of the potential efficiencies. Table 20.3 summarises current labour costs per head, after my 35% efficiency target adjustment. I have tried to calculate more accurately the average salary in head office functions and the available information would suggest that it is about 15% higher than the indirect salary cost average. In my second version, I have added this 15% to the standard labour cost per head.

This analysis gives average costs per head of £33,000 (version 1), or £38,000 (version 2). I have applied these averages to the revised head office size. The resulting savings were then inflated to 2005-06 prices. The results are shown in Table 20.4.

Likely savings as a result of the merger would be in the range of £21 to £24 million.

**Table 20.3: Calculation of general and support labour costs**

| | East | North | West | Scotland |
|---|---|---|---|---|
| General and support employees | 493 | 382 | 344 | 1,219 |
| General and support employees costs | £18,300,000 | £6,900,000 | £14,600,000 | £39,800,000 |
| Capitalised employment costs | £137,000 | £168,000 | £209,000 | £514,000 |
| Standard labour costs per head | £37,500 | £18,600 | £43,000 | **£33,000** |
| Added head office percentage (15%) | £5,600 | £2,800 | £6,500 | **£5,000** |
| Head office labour costs per head | £43,100 | £21,400 | £49,500 | **£38,000** |

**Table 20.4: Potential range of general and support labour merger savings**

| Reduction in head office staff | 2005–06 labour savings: version one | 2005–06 labour savings: version two |
|---|---|---|
| 40% | £16.8m | £19.3m |
| 45% | £18.9m | £21.7m |
| **50%** | **£21.0m** | **£24.1m** |
| 55% | £23.1m | £26.5m |
| 60% | £25.1m | £28.9m |

## General and support overheads

There is a close link between any reduction in the number of staff and reductions in overheads. Staff reductions will lead to fewer or smaller premises, and the need for lighting, heating and other expenditures is obviously reduced.

The overheads after my efficiency targets adjustment were as shown in Table 20.5.

This produced average figures of £24,300 or £27,900. I then applied these results to the revised head office size. I have inflated the current value of the saving to 2005-06 prices. The results are shown in Table 20.6.

Likely savings as a result of the merger would be between £15 million and £18 million in 2005-06 prices.

## Scientific services savings

Scientific services are separate from general and support services. There is significant evidence from England and Wales that efficiencies can be achieved in this area. I have, however, taken a prudent approach and assumed that two laboratories will be required by the proposed Scottish Water. This does reduce the potential for savings, but the merger will still bring benefits.

Total annual laboratory costs in Scotland are £11.8 million. Applying my 35% efficiency would leave £7.6 million as the pre-merger cost base.

**Table 20.5: Calculation of general and support overhead costs**

| | East | North | West | Scotland |
|---|---|---|---|---|
| General and support employees | 493 | 382 | 344 | 1219 |
| General and support other costs | £3,100,000 | £11,100,000 | £12,500,000 | £26,700,000 |
| Capitalised overhead costs | £248,000 | £69,000 | £109,000 | £426,000 |
| Standard overhead costs per head | £6,800 | £29,300 | £36,700 | **£24,300** |
| Added head office percentage (15%) | £1,000 | £4,400 | £5,500 | £3,600 |
| Premium overhead costs per head | £7,800 | £33,700 | £42,200 | **£27,900** |

**Table 20.6: Potential range of general and support overhead merger savings**

| Reduction in head office staff | 2005–06 Overhead savings: version one | 2005–06 Overhead savings: version two |
|---|---|---|
| 40% | £12.3m | £14.2m |
| 45% | £13.9m | £15.9m |
| **50%** | **£15.4m** | **£17.7m** |
| 55% | £16.9m | £19.5m |
| 60% | £18.5m | £21.2m |

**Table 20.7: Potential range of scientific services merger savings**

| Scientific services reduction | Savings | 2005–06 Savings |
|---|---|---|
| 10% | £0.8m | £0.9m |
| 15% | £1.1m | £1.3m |
| **20%** | **£1.5m** | **£1.7m** |
| 25% | £1.9m | £2.2m |
| 30% | £2.3m | £2.6m |

Likely savings as a result of the merger would seem to be around £1.7 million in 2005-06 prices.

**Table 20.8: Assumptions on customer services merger savings**

| Item | Treatment |
|---|---|
| Labour costs | 50% saving to account for head count reductions |
| IT related expenditure | 50% saving to account for head count reductions, and then 6% saving to account for procurement scale saving |
| Indirect support costs | 50% saving to account for head count reductions, and then 6% saving to account for procurement scale saving |

### Customer services and related procurement

The proposed merger should allow centralisation of customer service and should provide substantial focus for economies of scale in procurement. For example, one call centre could be established to cover all customer enquiries; this would not require the same staffing levels as three separate call centres.

For consistency, efficiency savings of 35% prior to the merger are assumed. I have also assumed procurement savings of 6%.

I have used the information provided to me by the authorities in response to my WIC 21 letter. I have treated labour costs, IT expenditure and indirect support costs as outlined in Table 20.8.

**Table 20.9: Potential range of customer services merger savings**

| Staff reduction level | Customer services savings | 2005–06 savings |
|---|---|---|
| 40% | £3.4m | £3.9m |
| 45% | £3.8m | £4.3m |
| **50%** | **£4.2m** | **£4.8m** |
| 55% | £4.6m | £5.2m |
| 60% | £5.0m | £5.7m |

Table 20.9 shows the efficiencies that may be available in the customer services and procurement areas.

Likely savings as a result of the merger would seem to be around £4.8 million.

### Procurement

As I explained above, one of the principal obvious benefits of the creation of Scottish Water is that the organisation will have credible scale. This should allow significant procurement savings. A single authority should be able to realise savings in areas such as power, materials and consumables, and hired and contracted services. Table 20.10 presents current spending on these categories. I also make my standard 35% adjustment to ensure no double counting.

I have assumed that 6% savings could be achieved. This is just over half of the projected efficiency from the Ofwat model and is therefore prudent. The results are shown in Table 20.11:

Likely savings as a result of the merger in 2005-06 would seem to be around £2.9 million.

**Table 20.10: Calculation of potential merger savings on procurement**

| | East of Scotland Water Authority | North of Scotland Water Authority | West of Scotland Water Authority | Total |
|---|---|---|---|---|
| Power | £6.2m | £4.8m | £7.5m | **£18.5m** |
| Hired and contracted services | £4.2m | £6.2m | £5.1m | **£15.5m** |
| Materials and consumables | £6.0m | £4.9m | £19.8m | **£30.7m** |
| **Total** | **£16.4m** | **£15.9m** | **£32.3m** | **£64.6m** |
| Pre-merger efficiencies (35%) | £5.7m | £5.6m | £11.3m | **£22.6m** |
| **Revised total** | **£10.6m** | **£10.3m** | **£21.0m** | **£42.0m** |

**Table 20.11: Comparison of estimated merger savings**

| Procurement scale savings | Savings | 2005–06 Savings |
|---|---|---|
| 5% | £2.1m | £2.4m |
| **6%** | **£2.5m** | **£2.9m** |
| 7% | £2.9m | £3.3m |
| 8% | £3.4m | £3.8m |

### Summary

My approach clearly demonstrates that significant savings can result from the creation of Scottish Water. My analysis of the 'bottom up' potential suggests greater savings than the Ofwat model. The results of my analysis from each of the three methods is summarised in Table 20.12:

**Table 20.12: Summary of merger savings**

| | Ofwat model approach | 'Bottom-up' version one | 'Bottom-up' version two |
|---|---|---|---|
| Labour cost savings | | £21.0m | £24.1m |
| Overheads savings | | £15.4m | £17.7m |
| Customer services savings | | £4.8m | £4.8m |
| Scientific services savings | | £1.7m | £1.7m |
| Procurement scale savings | | £2.9m | £2.9m |
| **Total** | **£36.6m** | **£45.7m** | **£51.2m** |

**iii) Empirical observations of merger savings**

I sought to confirm my quantitative analysis by comparing the results with mergers that have taken place in the water sector, in other utilities and in the wider public and private sectors.

It is always difficult to compare savings achieved by mergers. I have opted to compare the savings from my review of other mergers on a percentage of operating costs or of revenue. For reference, my assessment of potential for efficiency in merging the three authorities is between 3.5% and 5% of revenue.

My assessment of this potential would seem to be broadly shared by City analysts. Credit Suisse First Boston has estimated that savings, ranging from £30 million to £90 million, have been made through the recent large mergers and acquisitions involving utilities. In addition, Deutsche Bank has estimated that the merging of two medium-sized utilities, each of around 1.5 million customers, would allow for cost synergies of between £28 million and £42 million to be made[2].

### Utility mergers

The following three examples of utility mergers provide an indication of the potential for merger savings.

- The merger of North East Water and Northumbrian Water

The Competition Commission judged that further efficiency savings were not possible unless the merger took place. The estimated annual merger savings ranged from £3 million to £11 million. This was between 1% and 4% of annual turnover. Northumbrian Water has confirmed to us that this range was a significant underestimate.

Indeed, the companies accepted a 15% price reduction over six years imposed by Ofwat, as a condition of the merger (water only).

- Creation of Three Valleys Water plc

It was reported that the 1990 merger of three small water companies to form Three Valleys Water was expected to achieve savings of £6 million per annum. These savings represented around 6% of turnover. As above, the company accepted a 10% price reduction over six years as a condition of the merger.

- Scottish & Southern and Swalec

The recent acquisition of Swalec led the new owners to identify £20 million of potential savings solely through streamlining billing and customer service systems. The creation of Scottish and Southern itself has created £53 million of savings per annum, constituting 1.7% of group turnover. Total savings are expected to reach £120 million, which would represent 3% to 4% of turnover.

### Other mergers

A further indication of the scale of savings can be gained by looking at merger cases outside the utilities industry, both in the public and private sectors.

- Public Sector

There are numerous examples where government initiatives achieved or are seeking to achieve merger benefits:

[2] *Moneybags 2,* report on UK utilities, 23 July 2001

- The aim of proposals to reduce the number of health trusts in Scotland is to save £18 million per annum. This equates to 6% of total expenditure on management and administration.
- The probation services are aiming to save 9% of operating costs by merging 54 services into 42.
- The creation of the Welsh Development Agency, through the merger of the Development Board for Rural Wales and the Land Authority for Wales, led to savings of £2.25 million. This is equivalent to 9% of pre-merger running costs.

- Private Sector

Merger activity in the private sector is more commonplace and the benefits claimed are often large. The following examples illustrate:

- Marley merged its operations to save £30 million per annum. This amounts to 5% of turnover.
- The creation of Reckitt and Benckiser aimed to save £160 million per year by 2001. This amounts to 5% of net revenues.
- Nycomed Amersham announced that following the completion of their merger, savings of £70 million per annum, or 5% of their turnover would be made.
- Astra Zeneca aims to achieve merger savings equivalent to 9.5% of its turnover.

While the above examples are purely illustrative they do indicate that merger savings of about 5% of revenue are common. I am therefore encouraged that my detailed analysis is in line with industry experience. I would also note that a merger of three organisations with common boundaries should be expected to generate greater savings than those of organisations distant from each other.

**iv) Asset disposals**

As explained above, I have added my estimate of the potential for property disposals to each of the estimates of merger savings.

Many disposals will be possible as a result of the operating cost efficiency targets. However, the merger will undoubtedly free up more properties for disposal.

### Potential for disposals

The most obvious asset disposals as a result of a merger would be two of the three head offices. It could be argued that it may be possible to sell all three since the new headquarters may actually be smaller than any of the existing offices. I have been informed by the authorities that the three owned head office properties have a market value in excess of £15 million. The receipt from two sales could therefore be prudently estimated at £8 million.

**Table 20.13: Comparison of number of depots**

| | East | West | North | North West | North West Proposals |
|---|---|---|---|---|---|
| Number of depots | 11 | 42 | 47 | 10 | 5 |
| Population per depot | 143,000 | 57,000 | 23,000 | 686,000 | 1,370,000 |
| Area per depot ($km^2$) | 1,000 | 500 | 1,000 | 1,400 | 3,000 |

**Table 20.14: Comparison of number of offices**

| | East | West | North | South West | Southern | North West | Wessex |
|---|---|---|---|---|---|---|---|
| Number of offices | 10 | 21 | 10 | 4 | 8 | 12 | 5 |
| Population per office | 158,000 | 114,000 | 110,000 | 381,000 | 278,000 | 571,000 | 236,000 |
| Area per office ($km^2$) | 1,100 | 1,000 | 4,600 | 2,700 | 1,300 | 1,200 | 2,000 |

My analysis shows that Scotland has a relatively high number of offices and depots. I believe therefore that there is likely to be significant scope for proceeds from premises disposals. To try to understand the scope for disposals, I compared the situation in Scotland with comparator water companies in England and Wales. The results are shown in Table 20.13 and Table 20.14[3,4,5].

It is instructive to note that North West Water is proposing to have one depot per 3,000km$^2$. In contrast, West of Scotland Water Authority has six depots covering the same area, and North of Scotland Water Authority and East of Scotland Water Authority each has three. The number of offices in Scotland would also appear to be high, with each authority having at least one third more offices per head of the population than any of the comparator companies.

In order to quantify the scope for asset disposals, I have assessed the potential in terms of real estate value per employee. The responses to my WIC 20 letter by the authorities allowed me to calculate a real estate value per head. I have assumed a headcount reduction of 35% to reflect pre-merger efficiencies, and a 50% reduction of the remaining head office employees to reflect merger efficiencies.

The resulting savings, totalling £38.9 million in 2005-06 prices[6], are set out in Table 20.15.

These savings, if achieved over four years, correspond to an annual rate of £9.7 million in 2005-06.

### d) Recommendation

My assessment of the potential scope for savings in 2005-06, derived by different methods, is as set out in Table 20.16.

The figures above show a range from a minimum of over £36 million to £52 million, without the inclusion of asset disposals. This increases to between £45 million and £60 million when asset sales are included.

I believe that my 'bottom-up' quantitative estimates are robust. They are based on detailed information submitted to me by the authorities. However, I am seeking to set a target that balances the need to keep customer charges down with the need to ensure that the target is achievable. I have therefore chosen to use the lowest estimate of potential efficiency. This is £36.6 million and is the result of my application of Ofwat's model for scale efficiency.

**Table 20.15: Calculation of potential asset disposal savings**

| | Efficiency | Disposal value realised | 2005–06 prices | Annual average |
|---|---|---|---|---|
| Pre-merger | 35% | £23.2m | £29.6m | £7.4m |
| Merger | 50% of post efficiency head office | £7.3m | £9.3m | £2.3m |
| **Total** | | **£30.5m** | **£38.9m** | **£9.7m** |

**Table 20.16: Summary of potential merger and asset disposal savings**

| | Ofwat model approach | 'Bottom-up' version one | 'Bottom-up' version two | Industry norm (5% of turnover) |
|---|---|---|---|---|
| Labour cost savings | | £21.0m | £24.1m | |
| Overheads savings | | £15.4m | £17.7m | |
| Customer services savings | | £4.8m | £4.8m | |
| Scientific services savings | | £1.7m | £1.7m | |
| Procurement scale savings | | £2.9m | £2.9m | |
| **Total** | **£36.6m** | **£45.7m** | **£51.2m** | **£51.9m** |
| Asset disposals | £9.7m | £9.7m | £9.7m | £9.7m |
| **Overall total** | **£46.3m** | **£55.4m** | **£60.9m** | **£61.6m** |

[3] Depot figure represents United Utilities' service delivery business as a whole; this incorporates North West Water.

[4] North West Water's proposals regard plans to cut combined depots to five for entire United Utilities service delivery business.

[5] Again, North West offices figure refers to United Utilities service delivery business.

[6] Inflated at 5% per year to reflect, prudently, inflation in the property market.

In line with my approach to operating costs and capital efficiency, I have set the target for 2005-06 at 80% or £29.3 million. I have added property disposals to the potential for this to arrive at a target of £39 million by 2005-06.

### e) Implementability

I am confident that good management will deliver my target of £39 million. Past examples of mergers support this, both in terms of the size of the target and the timescale for achievement.

Table 20.17 relates to English water companies following mergers. The percentage represents operating costs/revenue. The lower the level, the greater the level of efficiency.

**Table 20.17: Effect of mergers on operating costs**

| Company | Year | 2 years before | 1 year before | 1 year after | 2 years after |
|---|---|---|---|---|---|
| Bournemouth & West Hampshire | 1994 | 60% | 59% | 56% | 56% |
| Three Valleys | 1994 | 62% | 60% | 57% | 51% |
| Sutton & East Surrey | 1996 | 52% | 52% | 46% | 49% |

The table shows a marked expenditure decrease within the first two years after a merger.

These examples indicate that the majority of savings can be made early and that within three years Scottish Water should be able to realise almost all the full potential of the merger.

It is likely that significant asset disposals should be possible within the first two to three years. Recent examples of mergers in the English and Welsh water industry show both the scope of, and an acceleration in, asset disposals after mergers. The percentage figures included in Table 20.18 reflect the value of the disposals as a percentage of total revenue.

**Table 20.18: Effect of mergers on asset disposals**

| Merger | Year | 1 year before | 1 year after | 2 years after (%) |
|---|---|---|---|---|
| Bournemouth and West Hampshire | 1994 | 0.4% | 0.4% | 13.8% |
| Three Valleys | 1994 | 2.2% | 0.9% | 2.2% |
| Sutton and East Surrey | 1996 | 0.4% | 0.4% | 3.5% |
| Essex and Suffolk | 1995 | 0.9% | 2.1% | 2.6% |
| United Utilities | 2001 | n/a | 18% | n/a |

The sale of premises could, however, be influenced by the property market and I am therefore opting for a prudent, even phasing of the benefit.

**Table 20.19: Sensitivity analysis of estimated merger savings – minimum scenario**

| Assumption | Comment |
|---|---|
| Head office staff number reduction estimated at 40% headcount | One organisation is being created from three. The new authority will require only one head office. A 40% reduction in size would assume that the revised head office would be some 60% bigger than a current head office. |
| Procurement savings taken as 5% | Scottish Water would be able to procure on a larger scale than any single authority. 5% would seem to be well short of the potential savings. |
| Scientific services expenditure will fall by 5% | Although the merger will not reduce scientific services by two thirds, there is scope for sizeable reductions in expenditure; 5% should be easily achievable. |
| Head office salaries and overheads are 10% higher | The information available to me suggests that this figure is well below actual extra costs incurred by head office. |
| The percentage of projected operating turnover for the empirical approach will be 3.5% | The evidence gathered from past merger cases suggests that this figure is below realistic levels of savings that can be attained. |

### f) Sensitivity and risk

My prudent assumptions should lead to the merger savings being higher than I have estimated. Any delay to the transition process would, however, reduce the available savings recommended.

I have carried out a sensitivity analysis of my bottom-up calculation in order to check that the Ofwat model was as prudent as it appeared. My assumptions for this sensitivity analysis are outlined in Table 20.19.

On the basis of my minimum scenario the efficiencies that would result from the merger are shown in Table 20.20. This would seem to confirm that the 80% of the Ofwat model answer is a very prudent target.

### g) Monitoring delivery

My role as regulator is to set challenging, achievable targets, which promote customers' interests. It is not for me to direct how targets should be achieved. This is a matter for the board and management of Scottish Water.

It is my role, however, to monitor progress against targets, and to verify that service levels to the customer do not suffer as a result of management action to address inefficiency.

### h) Conclusion

The proposed merger could act as a catalyst for change that will facilitate the full and effective coordination required for the authorities to achieve their capital and operating expenditure efficiency targets. In the medium term, the creation of a single authority would also generate additional efficiency savings, largely in relation to the amalgamation of head office functions of the three authorities. I have assessed the potential for these savings as £48 million. I have set a target of £39 million for 2005-06. The target is analytically robust and is supported by empirical evidence of mergers in the utilities and other industries. My sensitivity analysis demonstrates that the target is without question achievable.

**Table 20.20: Summary of minimum merger and asset disposal savings**

| | Ofwat model approach | 'Bottom-up' version one | 'Bottom-up' version two | Industry low (3.5% of turnover) |
|---|---|---|---|---|
| Labour cost savings | | £16.8m | £18.4m | |
| Overheads savings | | £12.3m | £13.5m | |
| Customer services savings | | £3.9m | £3.9m | |
| Scientific services savings | | £0.4m | £0.4m | |
| Procurement scale savings | | £2.4m | £2.4m | |
| **Total** | **£36.6m** | **£35.7m** | **£38.6m** | **£35.0m** |
| Asset disposals | £9.7m | £9.7m | £9.7m | £9.7m |
| **Overall total** | **£46.3m** | **£45.4m** | **£48.3m** | **£ 44.7m** |

# Section 4: Chapter 21
# Costs: Spend to Save

## a) Introduction

One of my priorities within this Strategic Review of Charges is to ensure that the efficiencies that I have identified are realistic and can be implemented within the period of this Review. I have tried to ensure that the targets are realistic by ensuring that the assumptions, which underpin the analysis are as robust as possible, and that they are prudent.

I have also included a very significant allowance within price limits for the costs of:

- achieving an efficient capital programme; and
- making the organisational and business process changes that will ensure that the operational cost efficiency targets are achieved.

The costs of achieving this efficiency have been termed Spend to Save. I am including Spend to Save as a discrete category of expenditure up to 2005-06 in order that the spending of these valuable resources can be properly monitored. Spend to Save comprises spending of both a capital and an operational nature. I believe that this will be important in securing long-term sustainable annual savings for customers.

It is important to note that Spend to Save is additional to any on-going spending within the authorities to achieve efficiency. The Spend to Save allowance should therefore be used to meet one-off costs of change rather than the continuing costs of performance improvement. As a separate line item in the budget, it will be possible to review the spending of this allowance. The most important issue from a customer perspective, however, is not when or if the allowance is spent, but that it is used effectively and does reduce annual costs in the future. I would expect that the Spend to Save should have a maximum payback of between two and three years. This would suggest that this Spend to Save allowance on its own will facilitate savings of between £70 and £100 million per year. This equates to between half and three-quarters of the targeted operating cost efficiency by 2005-06.

The operating efficiencies now being required in the Review period to 2005-06 will be a major step change. They will ensure that we narrow the efficiency gap by 80% between the level of efficiency in Scotland in 1998-99 and benchmark operating costs in England and Wales. Spend to Save allows the closing of this gap to take place more quickly than would be feasible in the absence of a dedicated allowance.

**i) Impact on customers**

In this Review, I present a series of recommendations, which, I believe, will minimise bills for customers over the medium to long term and will give all of us, as customers, a public sector industry of which we can be proud. I therefore considered setting lower targets and not providing for Spend to Save in advance. This option may keep bills a little lower in the first couple of years, but it would lead to a much greater increase in later years and the price faced by customers by the end of the Review period would be higher. The Spend to Save allowance amounts to a total of £200 million over the Review period and compares to some £3.5 billion in revenues from customers. The impact of this investment for the future amounts to just over 5% of the total spending of the water industry in Scotland over the period 2002-06. By the third year the resulting savings will be higher than the Spend to Save allocation and these savings will continue to benefit customers over the long term.

**ii) Impact on my Review**

As explained above, I have included Spend to Save in the Review, because it is clearly in the interests of customers to do so. The introduction of Spend to Save has impacted on the Review in three main ways.

- Firstly, it has been necessary to determine an appropriate phasing of the Spend to Save allowance so that it can be used effectively and in order that efficiencies for customers are achieved as quickly as possible.
- Second, I have ensured that there is more Spend to Save available in years one and two of the Review period than total operating cost savings required. This means that the water authorities will actually spend marginally more money in these years than they would otherwise have spent.
- Third, I have established Spend to Save as a separate cost category with a view to being able to ensure post factum that the spending is achieving the desired benefits.

## b) Implementation of Spend to Save

There are many elements of the efficiency targets that can be achieved relatively easily and without large one-off expenditure.

These savings would include items such as procurement and management of the authority. Other costs (such as exiting a lease) will be upfront costs, but will bring immediate and significant benefits. It is, of course, up to the management of the industry to decide how best to allocate these resources. I have consulted extensively with the prospective management of Scottish Water and with the management of the current three authorities to determine an appropriate phasing of the Spend to Save investment. The phasing is proposed to be as set out in Table 21.1.

I have allocated allowances of Spend to Save for each of the existing three authorities. As there is little difference in the efficiency targets faced by each authority, there is no reason to provide a greater proportion to any single authority. I have therefore opted to split this Spend to Save on the basis of the number of domestic households served by each. This gives the split between the three authorities that is set out in Tables 21.2 – 21.4. There also does not appear to be any justification for a higher Spend to Save allowance for a merged authority.

I have tried to ensure that the total Spend to Save allocation in this Review is reasonable. At my request, therefore, each water authority prepared and submitted Spend to Save proposals for its area. In total, there was, inevitably, a desire to spend more

**Table 21.1: Scottish Water**

| Years | 2002–03 | 2003–04 | 2004–05 | 2005–06 | Total |
|---|---|---|---|---|---|
| Operational costs | £40.0m | £85.0m | £25.0m | £0m | **£150.0m** |
| Capital investment | £15.0m | £35.0m | £0m | £0m | **£50.0m** |
| Total Spend to Save | £55.0m | £120.0m | £25.0m | £0m | **£200.0m** |

**Table 21.2: East of Scotland Water Authority**

| Years | 2002–03 | 2003–04 | 2004–05 | 2005–06 | Total |
|---|---|---|---|---|---|
| Operational costs | £12.4m | £26.4m | £7.8m | £0m | **£46.6m** |
| Capital investment | £4.7m | £10.9m | £0m | £0m | **£15.6m** |
| Total Spend to Save | £17.1m | £37.3m | £7.8m | £0m | **£62.2m** |

**Table 21.3: North of Scotland Water Authority**

| Years | 2002–03 | 2003–04 | 2004–05 | 2005–06 | Total |
|---|---|---|---|---|---|
| Operational Costs | £9.3m | £19.7m | £5.8m | £0m | **£34.8m** |
| Capital Investment | £3.5m | £8.1m | £0m | £0m | **£11.6m** |
| Total Spend to Save | £12.8m | £27.8m | £5.8m | £0m | **£46.4m** |

**Table 21.4: West of Scotland Water Authority**

| Years | 2002–03 | 2003–04 | 2004–05 | 2005–06 | Total |
|---|---|---|---|---|---|
| Operational costs | £18.3m | £38.9m | £11.4m | £0m | **£68.6m** |
| Capital investment | £6.9m | £16.0m | £0m | £0m | **£22.9m** |
| Total Spend to Save | £25.2m | £54.9m | £11.4m | £0m | **£91.5m** |

than the £200 million that is included in this Review. However, the £200 million was likely to cover more than all of the Spend to Save investment projects, with a reasonable payback period, which the authorities have identified to date.

### c) The current Spend to Save plans of the water authorities

The initial proposals for Spend to Save from the authorities offered a payback of slightly over two years. Their proposals covered all of the major costs that I would have expected, with the exception of property costs. I regard the information that has been provided by the water authorities to be a draft and subject to significant revision, and there is therefore little to be gained by reviewing in detail their proposals. There are three main areas that were included:

- information technology,
- voluntary severance,
- capital solutions.

The efficiencies projected through the Spend to Save initiative are independent of the savings that will become available if the Scottish Water merger is approved by the Scottish Parliament.

### d) Experiences to date

There have been efforts to control rising costs in the water authorities by reorganisation since 1996. These reorganisational costs have been included in their Annual Reports and Accounts.

**Table 21.5: Water authority employment reorganisation costs**

| Employment reorganisation costs | East | North | West | Total |
|---|---|---|---|---|
| **1996–97** | £4.8m | £3.0m | £2.8m | **£10.6m** |
| **1997–98** | £0.4m | £4.7m | £1.0m | **£6.1m** |
| **1998–99** | £0.6m | £0.0m | £2.6m | **£3.2m** |
| **1999–00** | £1.0m | £0.2m | £5.7m | **£6.9m** |
| **2000–01** | £9.5m | £3.3m | £16.8m | **£29.6m** |
| **Totals** | **£16.3m** | **£11.2m** | **£28.9m** | **£56.4m** |

In the price determinations of 1994 and 1999, Ofwat excluded from price cap calculations any allowance, to be funded by customers' bills, for Spend to Save. The companies have been required to improve their efficiencies, both in operations and in capital investment, either by using external funds and/or by outperforming the efficiency targets set by Ofwat.

As discussed in Chapter 18, for the years to 2001 the English and Welsh companies have outperformed the efficiency targets placed upon them. The extent to which they have invested to achieve the savings required by the regulator has not been fully reported (in the private sector model, this is a matter primarily for each company). However an indication of relative scale can be obtained by totalling restructuring expenditure charged to their Profit & Loss Accounts. The total investment on non-capital items approaches £800 million since privatisation. No similar disclosure is required for investment in capital with the aim of reducing costs. It can, however, reasonably be estimated to be of a similar order of magnitude. This means that the privatised companies have spent around £1.6 billion in achieving their current level of efficiency. This is about £150 million per year for some 20 million households. In Scotland, the equivalent figures are £50 million per year for 2 million households. There is, of course, less of an onus on Spend to Save when there is less pressure to achieve efficiencies. However, the Spend to Save allowance I have included in price limits appears generous by comparison with the equivalent figures in England and Wales.

### e) Spend to Save recommendation

I believe that this Spend to Save allowance is a further example of the prudent approach that I have adopted in trying to ensure that customers' bills are minimised for the long term.

The authorities are not able to go to the markets and borrow to fund an investment designed to save for the future (unless this is already allowed for within the authority's Resource Accounting Budget settlement). This means that their only source of funds for projects of this nature would be outperformance of my targets. While I do expect the industry to do better than I am projecting, I would prefer that there is a degree of flexibility and discretion given to management as to how they choose to use this outperformance. I therefore

believe that Spend to Save is appropriate. However, comparisons with total Spend to Save investment in England and Wales do highlight the conservatism of such a high allowance. I judge, however, that the customer interest is best promoted by the delivery of a more efficient industry over the period of this Review.

### f) Current situation

The criteria for using the Spend to Save provision will be maximising the financial saving on an ongoing annual basis by 2005-06. It will be up to management to develop their existing proposals further and implement these successfully. They will have to justify the spending in this area and will have to be able to demonstrate the benefits to customers. Immediate attention in this area will be necessary, as only in this way will management realise the full scope of the targeted efficiencies by 2005-06.

### g) Impact and monitoring of effectiveness

As noted above, I will monitor the spending of this allocation and will want to see clear evidence of good process (a proper investment appraisal) and a good result (cash savings). I will use periodic and annual accounting reports to understand progress throughout the Review period. It is important that customers' money, which is invested to minimise prices in the medium term and not in water assets, is seen to be justified. Econometric measurement, discussed in Chapters 7 and 9 will be undertaken to judge the extent of savings achieved in each year of the Review period. At the same time, I will monitor customer service levels and will consult with the quality regulators in order to ensure that the savings made are actually efficiencies.