Overview of the water industry in Scotland

Prepared for the Auditor General for Scotland

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AUDIT SCOTLAND

Auditor General for Scotland

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Key findings and conclusions

Scottish Water has made good progress in merging the three previous water authorities and in improving its efficiency and performance, but there is scope for more.

1. Scottish Water was established in April 2002 from a merger of the three previous water authorities. Its main functions are to provide clean water to 2.2 million households and 133,000 non-domestic, mainly business, properties in Scotland, and to treat their wastewater, such as waste from bathrooms and kitchen sinks. It is funded largely from charges to customers, and from borrowing approved by the Scottish ministers.

2. Scottish Water is the fourth-largest water services provider in the UK and one of the 20 largest businesses in Scotland. It has an annual turnover approaching £1 billion, and it has been estimated that its capital assets, such as water treatment works and sewer networks are worth £28.2 billion at full replacement cost.

3. In November 2002, the Auditor General published his report *Overview of the 2001/02 water authority audits* considering the 2001/02 audits of the three previous water authorities. The report identified issues arising from the merger which Scottish Water needed to address. It promised a further report on progress.

4. This report examines:

- Scottish Water's progress since its establishment
- how the Scottish water industry is regulated.

Key findings

5. Scottish Water has made good progress with the merger of the three previous water authorities and has developed robust corporate governance arrangements. It has responded to the Auditor General's *Overview of the 2001/02 water authority audits* report (Part 2, pages 6 to 9).

6. The regulation of the Scottish water industry is complex. Recent changes to how it is regulated, which include replacing the Water Industry Commissioner for Scotland (WIC) by the Water Industry Commission, are intended to make it more effective and open to public scrutiny (Part 3, paragraphs 3.2 to 3.9).

7. In its first three years, Scottish Water achieved its statutory financial targets and reduced its operating costs significantly. Scottish Water has made some progress in improving the efficiency of its capital investment programme to upgrade and replace its assets. It still faces significant challenges in delivering this programme to 2006 while achieving the efficiency savings demanded by the WIC (Part 3, paragraphs 3.10 to 3.31).

8. Scottish Water has met most of its own customer service performance measures, but the WIC considered that performance fell short of that recorded by water companies in England and Wales (Part 3, paragraphs 3.32 to 3.36).

9. The quality of Scotland's drinking and surface water is improving. Fewer samples fail relevant standards for drinking water quality and Scottish Water's investment in wastewater treatment works is helping to improve surface water quality, including the quality of bathing waters (Part 4, pages 25 to 30).

Conclusions and recommendations

10. Overall, Scottish Water has established a sound basis for strategic planning, business planning and performance reporting, but there is still scope for improvement.

11. The regulation of the water industry in Scotland is complex. Robust regulation is appropriate for a public service monopoly, but those involved need to co-operate to ensure transparency and to minimise the regulatory costs. In particular, there is a need to develop a clearer understanding of how Scottish Water's core costs are attributed between different customer groups and services, and to ensure that Scottish Water submits accurate information to the Water Industry Commission. It is important that any customer service targets and performance indicators which the Water Industry Commission sets, provide a full picture of Scottish Water's performance so as to enhance regulatory transparency and provide clarity for stakeholders.

12. Scottish Water has made significant improvements in efficiency and performance, but there is scope for more. In particular, its capital programme is essential to deliver quality and efficiency improvements, but it will be challenging within the timescale set. Audit Scotland plans to undertake a study of this issue and will report before the end of 2006.

Part 1. Introduction

1.1 From the middle of the 19th century, after a number of epidemics of water-borne diseases such as typhus and cholera, supplying clean water became a public health priority. In the decades that followed, local councils and water trusts created over 200 water authorities to bring fresh water to the towns and cities of Scotland, and to remove wastewater and sewage.

1.2 Local authorities became statutorily responsible for providing adequate water supplies in 1946, and over the ensuing years there has been progressive consolidation of this public utility. This culminated in the creation of Scottish Water in April 2002 by merging the three water authorities which then existed. Scottish Water is now the single provider of water services to Scotland's five million population.

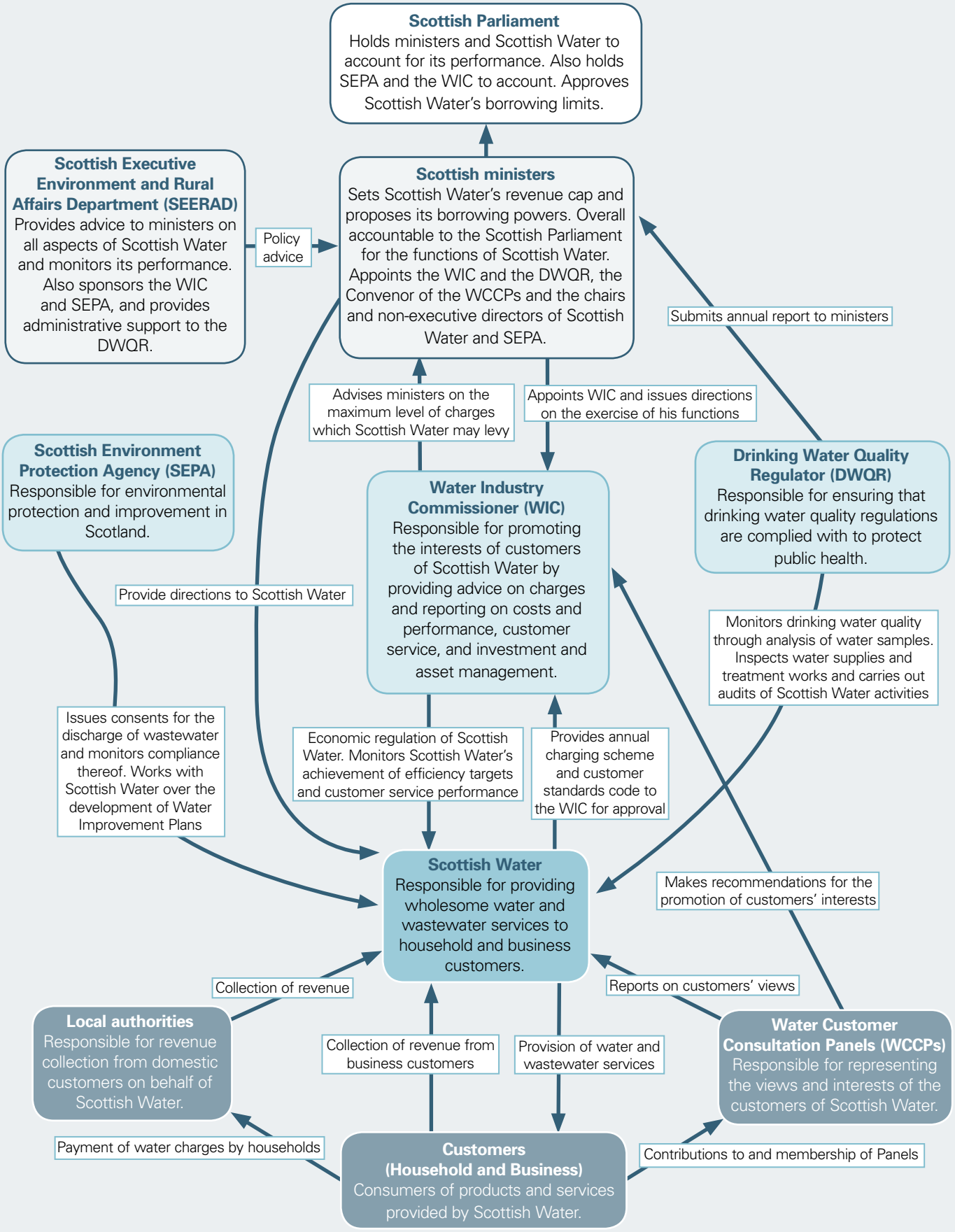
1.3 In November 2002, the Auditor General published his report *Overview of the 2001/02 water authority audits*, considering the 2001/02 audits of the three previous water authorities. The report identified issues arising from the merger which Scottish Water needed to address and promised a further report on progress.

1.4 The water industry is subject to regulation by a number of agencies. EC directives stipulate standards for drinking water quality and for discharges of treated sewage and trade effluent. National legislation sets out statutory responsibilities for regulating Scottish Water's economic and customer service performance and for promoting the interests of customers (Appendix 1, page 31). Scottish Water is also subject to environmental legislation, for example, relating to its treatment and disposal of sewage sludge and other waste. Exhibit 1 provides a summary of the regulatory framework as it existed during most of the life of this review and how the bodies concerned inter-related with ministers and Scottish Water.

1.5 This report sets out the roles and responsibilities of the key agencies involved in the Scottish water industry, reviews the latest progress in integrating the three former water authorities and summarises Scottish Water's performance since it was established. In particular, the report describes how Scottish Water is regulated and reviews what regulators have said about Scottish Water's performance.

Exhibit 1

Roles and responsibilities within the water industry in Scotland



Note: These arrangements changed in June 2005. See paragraphs 3.8-3.9 for more detail.
Source: Audit Scotland

Part 2. Progress since the creation of Scottish Water

2.1 This part of the report covers progress since the creation of Scottish Water. It reviews:

- the establishment, aims and accountability of Scottish Water
- Scottish Water's progress in merging the three previous water authorities and developing robust corporate governance arrangements
- Scottish Water's response to the Auditor General's *Overview of the 2001/02 water authority audits*.

Establishing Scottish Water

2.2 Scottish Water was established in April 2002 as a 'public corporation of a trading nature'. As such, it is expected to behave as a commercial enterprise in that it should cover its costs from charges levied, but it has no shareholders and does not pay a dividend in the way that a private sector company would. The business, assets and liabilities of the former East of Scotland Water, North of Scotland Water and West of Scotland Water transferred to it on a going concern basis. The principal benefits anticipated from the creation of Scottish Water were to:

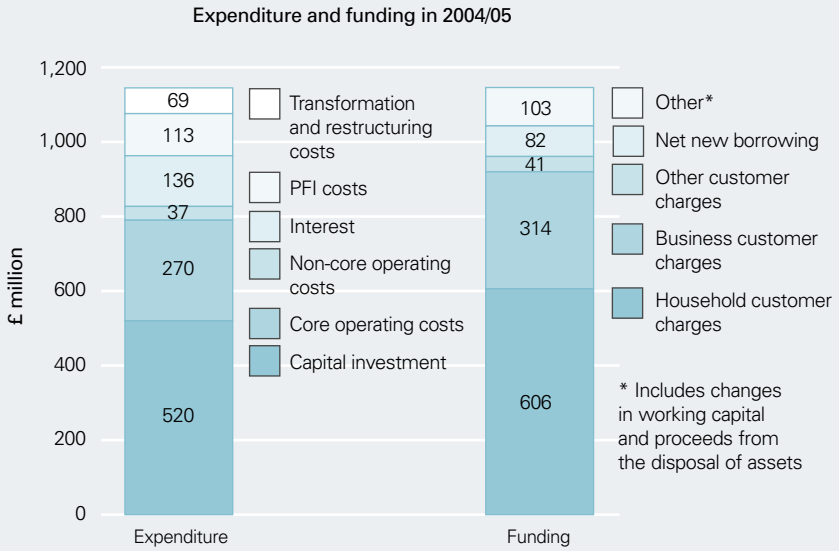
- make the Scottish water industry more efficient and competitive
- improve value for money as a result of economies of scale
- harmonise charges across Scotland.[1]

2.3 Scottish Water is the fourth-largest water services provider in the UK and one of the 20 largest businesses in Scotland, with an annual turnover approaching £1 billion. Its functions are set out in legislation (Appendix 1, page 31). Its main role is providing wholesome water to about 2.2 million households and 133,000 business customers, and treating and disposing sewage and trade effluent. Scottish Water's main source of revenue is charges to customers but it can also borrow from the Scottish Consolidated Fund. Exhibit 2 provides more details on the finances of Scottish Water and its asset base.

2.4 The Scottish ministers are accountable to the Scottish Parliament for the functions of Scottish Water. A summary of the responsibilities and accountabilities of ministers, the Scottish Executive Environment and Rural Affairs Department and Scottish Water as they existed until the end of June 2005, is set out in Exhibit 3 (page 8).

1 Scottish Parliament Transport and Environment Committee, 9th Report, 2001.

Exhibit 2
Scottish Water's finance and asset base 2004/05



Asset base

The net book value of Scottish Water's fixed assets is £2.8 billion, although it estimates that the full replacement cost of these assets is nearer £28.2 billion. Scottish Water also has loans outstanding to the Scottish ministers of £2.2 billion.

These assets include:

- 46,787km of water mains
- 48,288km of sewers
- 360 water treatment works
- 1,807 wastewater treatment works.

Together, these assets deliver 2.4 billion litres of water and take away and treat a billion litres of wastewater everyday.

Note: This Exhibit shows that 80% of Scottish Water's funding in 2004/05 came from charges to household and business customers. Capital investment is the single largest element of expenditure.

Source: *Annual Report and Accounts 2004/05,* Scottish Water

2.5 The Scottish ministers' objective for Scottish Water is to create 'a modern, effective and publicly owned water and sewerage industry, unlocking efficiency gains for its owner and delivering the outputs agreed in the Quality and Standards II (Q&S II) process, within the agreed revenue cap at a fair price for all customers'.[2] Scottish Water has used this ministerial objective to set its own strategic objectives, actions and performance targets to be achieved by 2005/06 (Exhibit 4, page 9).

Scottish Water's progress in merging the three previous water authorities

2.6 Scottish Water was faced with the task of integrating the staff and business systems of the three previous water authorities. It created a Transformation Programme to ensure that the merger was effective and to develop new ways of delivering services through 50 rationalisation and improvement projects. Thirty-two of the original projects are complete and a further 13 have been identified (Appendix 2, page 33). An example of a Transformation Programme project is given in Exhibit 5 (page 9).

2.7 Staff numbers have been reduced from 5,648 in April 2002 to 3,756 by April 2005, and are expected to fall to 3,650 by 31 March 2006. Staff severance costs amounted to £84.8 million of the £183.6 million restructuring and transformation costs incurred by Scottish Water in its first three years.

2.8 Scottish Water's auditor has reported that it has developed robust corporate governance arrangements and has complied with the requirements of the Scottish Water (Corporate Governance) etc Directions 2002. The auditor considers that Scottish Water's financial stewardship is sound, with robust systems of internal control.

Scottish Water's response to the Auditor General's *Overview of the 2001/02 water authority audits* report

2.9 The Auditor General's report *Overview of the 2001/02 water authority audits* identified issues arising from the merger of the three previous water authorities which Scottish Water needed to address. These included matters of financial and general control, such as asset maintenance planning, debt collection levels, the role of internal audit, and arrangements for managing risk and how the business is performing.

2.10 In the report on the 2002/03 audit of Scottish Water, the auditor concluded that Scottish Water had either addressed, or was in the process of addressing, the points raised by the Auditor General (Appendix 3, page 37).

2 *Building a Better Scotland: Spending Proposals 2003-3006: What the money buys*, Scottish Executive, September 2002. The Quality and Standards II process refers to Scottish Water's current capital investment programme, which is discussed in more detail in Part 3 and Appendix 5. The revenue cap is the maximum amount of income which Scottish Water can annually generate from domestic and business customers. Until June 2005, the Scottish ministers were responsible for setting the revenue cap on the advice of the Water Industry Commissioner for Scotland.

Exhibit 3

Scottish Water – responsibility and accountability arrangements

Scottish ministers:	• Are required to give Scottish Water directions as to how it should use its powers and manage and conduct its affairs. • Appoint chair and non-executive directors of Scottish Water. • Set Scottish Water's revenue cap, approve its business plan and determine the conditions under which it can borrow from ministers. • Are accountable to the Scottish Parliament for the functions of Scottish Water.
Scottish Executive Environment and Rural Affairs Department (SEERAD):	• Provides advice to ministers on all aspects of Scottish Water. • Approves Scottish Water's corporate plans, monitors its performance against financial targets and other financial controls, and provides grants for specific purposes. • Sponsors the Water Industry Commissioner for Scotland and the Scottish Environment Protection Agency and provides administrative support to the Drinking Water Quality Regulator. • The Accountable Officer of SEERAD is responsible to the Scottish Parliament for the propriety and regularity of funds provided to Scottish Water.
Scottish Water's board:	• Responsible for the strategic direction of the organisation and for ensuring it is managed and organised effectively and efficiently. • Submits to ministers a report on the activities of Scottish Water every six months and produces an annual report and accounts which are presented to Parliament.
Scottish Water's chief executive:	• Responsible for the day-to-day operations and management of Scottish Water and for meeting its aims and objectives. • Reports to the board on the financial affairs of Scottish Water, including any significant information which is likely to be pertinent to their consideration of Scottish Water's financial status. • Accountable to the Scottish Parliament for the propriety and regularity of public funds administered by Scottish Water. As such, the chief executive may be required to appear before the Parliament's Audit Committee to give evidence on the value for money achieved by the body in discharging its functions.

Source: Audit Scotland

Exhibit 4

Scottish Water's strategic objectives 2002-06

Objectives	Actions	2005/06 performance targets
Customer service and retention	• Improving customer service delivery • Developing a distinct and strong brand • Developing fair prices • Tailored customer relationship management	• 97% compliance with Guaranteed Minimum Standards[a]
Transforming service delivery	• Improving drinking water quality • Enhancing environmental performance • Maintaining infrastructure	• Score of 985 on the Water Quality 1000 index[b] • 98% of wastewater treatment works to comply with SEPA discharge license requirements (equivalent to reducing the number of failing works to 45) • Minimise bathing water failures attributable to Scottish Water discharges • Delivery of the Q&S II investment programme
Deliver significant efficiencies[c]	• Reduce base operating costs • Deliver capital efficiencies	• Reduce annual operating expenditure by £115 million between 2002/03 and 2005/06 • £500 million saving from the Q&S II programme
Engaging people in business	• Linking behaviours to values • Involving employees while reducing staff costs • Right people, right skills • Safe working	• 4% staff absence level • 10% per annum reduction in accidents compared to 2002/03 levels

Notes:
a – Scottish Water's Guaranteed Minimum Standards provide customers with guaranteed standards of service, covering areas such as keeping appointments, interruptions to water supply and responses to enquiries and complaints. Scottish Water's customer service performance is reviewed in Part 3 of this report.
b – The Water Quality 1000 index has now been replaced as a measure of drinking water quality. The quality of Scotland's water (drinking water and surface water) is reviewed in Part 4 of this report.
c – Ministers expect Scottish Water to deliver significant operating and capital efficiency savings between 2002/03 and 2005/06. Its progress in this regard is reviewed in Part 3 of this report.

Source: *Strategic Business Plan 2003-06*, Scottish Water

Exhibit 5

Customer service transformation project

The Promise to Resolution (P2R) project aims to improve customer service by linking Scottish Water's single customer management centre with operational staff by using new technology. This allows work to be planned better and means that customers can be given an appointment within a window of an hour. Calls are now prioritised based on importance and Scottish Water is aiming to resolve 85% of customer issues at the first telephone call. Scottish Water reports that 10% more calls are now resolved at the customer management centre without the need for an employee to make a visit. Operational staff lost time has been reduced by 55% and repeat visits have been reduced by 50%.

Implementing the project has so far cost £7 million and Scottish Water quantified the benefits described above at around £18 million by April 2004.

Rationalising the three inherited customer management centres into a single centre took place during 2003. The centres in Glasgow and Dundee were closed and functions were consolidated into the centre at Fairmilehead in Edinburgh. Scottish Water has invested in staff training and coaching programmes.

Source: *Annual Report and Accounts 2003/04*, Scottish Water

Part 3. The regulation and performance of Scottish Water

3.1 This part of the report covers:

- the economic and customer service regulation of Scottish Water
- the results reported by the regulators.

Scottish Water's economic and customer service regulation

3.2 The Water Industry Commissioner for Scotland (WIC) was established in 1999 and appointed by ministers who also directed the exercise of his functions. Under the Water Industry (Scotland) Act 2002, the WIC promoted the interests of Scottish Water's customers. As an non-departmental public body (NDPB), the WIC's office published annual reports and accounts which were laid in Parliament.

3.3 The WIC's regulatory role was intended to ensure that Scottish Water did not operate inefficiently as a consequence of its monopoly position. Without economic regulation, customers could be exposed to high prices, poor service, or both. The WIC promoted customers' interests by:

- examining Scottish Water's costs and performance, setting targets to improve its efficiency and monitoring its performance
- reviewing and monitoring the quality of service provided by Scottish Water, and considering customers' complaints
- advising ministers, under Section 13 of the Water Industry Act 1999, on the amount of revenue that Scottish Water needed to provide a sustainable service to its customers and to fund its investment programme
- approving Scottish Water's annual charges to customers, taking into account revenue caps set by ministers.

Ministers accepted the WIC's recommendations on revenue caps for 2002-06

3.4 In October 2001, the WIC published his *Strategic Review of Charges 2002-06*. Ministers accepted the advice, which included:

- a revenue cap for each of the four years covered by the review, which reflected the Scottish Water efficiency savings the WIC considered achievable (Exhibit 6)
- harmonised water charges to all customers across Scotland by no later than 2005/06
- that Scottish Water should seek to develop tariffs that more broadly reflected the cost of the service provided.

3.5 The WIC identified revenue cap levels by benchmarking Scottish Water costs against those incurred by water companies in England and Wales. In the absence of an alternative provider in Scotland, the WIC adapted econometric models used by the Office of Water Services (Ofwat).

Exhibit 6
Revenue caps and efficiency targets

Objectives	2002/03 £ million	2003/04 £ million	2004/05 £ million	2005/06 £ million
Revenue cap	887.8	957.1	1,001.1	988.1
Efficiency savings targets				
Operating expenditure savings	63	97	116	136
Additional merger savings	28	34	38	39
Capital expenditure savings	71	102	169	207

Source: *Strategic Review of Charges 2002-06*, WIC

Scottish Water challenged some of the WIC's findings

3.6 Ministers required Scottish Water to prepare a Strategic Business Plan by September 2002. A draft was prepared on time but not finalised until September 2003 because of Scottish Water's concern about aspects of the WIC's *Strategic Review of Charges 2002-06*. Following a review of these concerns requested by ministers, the WIC concluded that, in the light of updated information, minor changes could have been made to the Strategic Review but he did not propose to make any material changes to his recommendations concerning Scottish Water's revenue caps or efficiency targets.

Recent developments in the economic regulation of Scottish Water

3.7 As a result of the disagreements between Scottish Water and the WIC over the Strategic Review, the Scottish Executive brokered 'Terms of Understanding' between Scottish Water and the WIC in 2003 (Exhibit 7, overleaf). These took into account aspects of Scottish Water's financial position which were not known when the WIC conducted his *Strategic Review of Charges 2002-06*. They also included measures to foster better working relationships between the WIC and Scottish Water, such as the appointment of a Reporter to review and report on Scottish Water's information submissions to the WIC and its costings for its investment programme. The benefits expected from the Reporter included better information exchange, more effective regulation and increased regulatory transparency.

3.8 In April 2004, the Scottish Parliament's Finance Committee published a report of its inquiry into the water industry in Scotland. The report[3] included a number of recommendations about accountability arrangements within the water industry. In particular, the Finance Committee concluded that an improved structure and support for the WIC was needed to ensure independent regulation, and that requiring the WIC to formally respond to submissions made by the Water Customer Consultation Panels (WCCPs) would make the regulator more accountable and open to scrutiny.

3.9 In response, the Scottish Executive decided to replace the individual regulator with a board with collective responsibility for decision-making. The Scottish Executive considered that the new structure would recognise growing best practice on the structure of regulatory authorities and would enhance accountability and transparency.[4] As a result, the Water Services etc (Scotland) Act 2005 changed some roles and responsibilities within the Scottish water industry (Exhibit 8, page 13):

3 Scottish Parliament Finance Committee, 2nd Report, 2004 (Session 2), Report on Scottish Water, April 2004. Three members of the Finance Committee dissented from the Committee's report and produced their own report because of concerns that the WIC's advice contained in his *Strategic Review of Charges 2002-06* had contributed to ministers setting revenue caps which were too high. See Appendix 4 for more details.

4 Scottish Executive Water Services etc. (Scotland) Bill: Policy Memorandum, June 2004.

Exhibit 7

Summary of Terms of Understanding between Scottish Water and the WIC

Scottish Water's financial position

- The upper limit of operating costs for 2005/06 should be raised by £7 million to £265 million to take account of factors that were unknown when the Strategic Review of Charges was finalised in 2001.
- Scottish Water's total allowable debt should be increased to £2.47 billion to reflect higher levels of inflation.
- Schemes of charges for 2004/05 and 2005/06 should be consistent with revenue caps set in the Strategic Review of Charges.
- The basis of measuring Scottish Water's efficiency will be that laid out in the Strategic Review of Charges.
- Scottish Water could undertake non-core activities providing they were funded by better than expected performance.

Working relationships

- The WIC was to appoint a Reporter of regulatory information to audit the quality of information provided to the WIC by Scottish Water.
- Scottish Water will work with the WIC in improving the quality of regulatory information provided.
- Scottish Water and the WIC will work towards improving their relationship.

Source: Terms of Understanding between Scottish Water and the Water Industry Commissioner: Final Version, 30 July 2003

- The post of WIC was abolished on 30 June 2005 and replaced by a Water Industry Commission consisting of a board comprising a chair, four members and a chief executive. Ministers will continue to set the standards and objectives that Scottish Water should achieve. They will also decide on the principles of charging (for example, ministers may provide for reduced charges for particular groups of customers) but the Commission will be responsible for determining maximum charge limits within the principles set.

- The Water Industry Commission will be accountable to the Competition Commission for its decisions on charging. The Water Services etc (Scotland) Act 2005 will also open the water industry in Scotland to retail competition in the non-domestic sector. Scottish Water will continue to have sole responsibility for physical treatment and distribution on the public networks but it will sell these services to either a retail entity, which it is to establish by April 2006, or to competitors. In turn, the retail entity or the competitors will sell water services to non-domestic customers. Competition will be administered by the Water Industry Commission through a system of licenses.

- The WCCPs' powers were expanded to enable them to make recommendations to the Commission, ministers, the Drinking Water Quality Regulator (DWQR), the Scottish Environment Protection Agency (SEPA) and Scottish Water, who must have regard to these recommendations.

- The responsibility to investigate customers' complaints not resolved by Scottish Water transferred from the WIC to the WCCPs. The convener's annual report must include reference to his complaints investigation work.

Scottish Water's performance and the results of economic regulation

3.10 The financial performance of Scottish Water is of direct importance to the people of Scotland. In 2004/05, for example, some 80% of Scottish Water's funding was generated from household and business customers (Exhibit 2 on page 7). The financial framework within which Scottish Water operated in its first three years required it to:

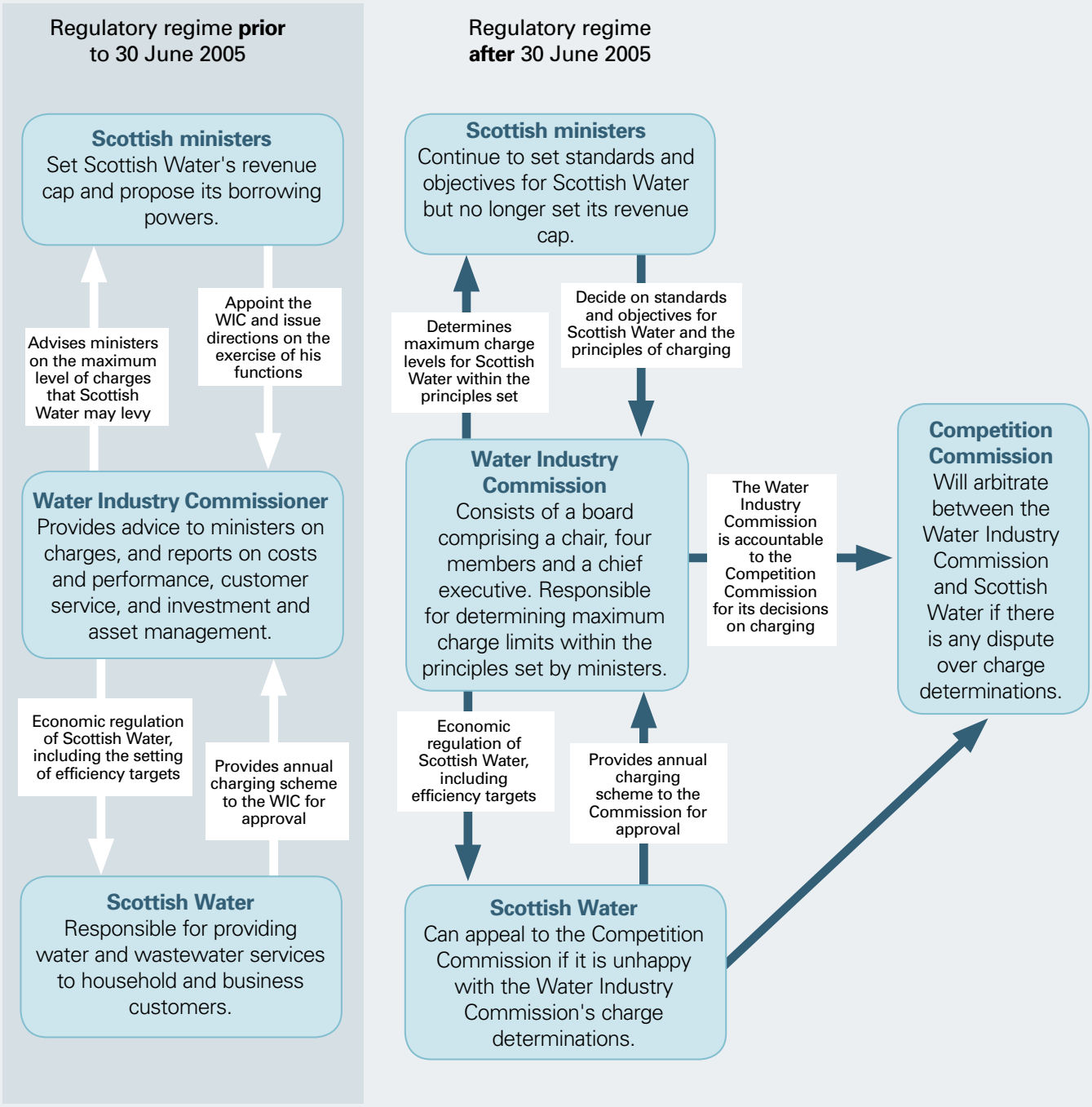
- cover its annual operating costs from charges to customers

- contain the amount of income it generates annually from customer charges to within maximum limits which are externally set. The cap is used, therefore, to control Scottish Water's overall expenditure

- finance its capital investment in new and replacement assets required to supply water and wastewater services – partly from income raised from charges and partly from borrowings

Exhibit 8

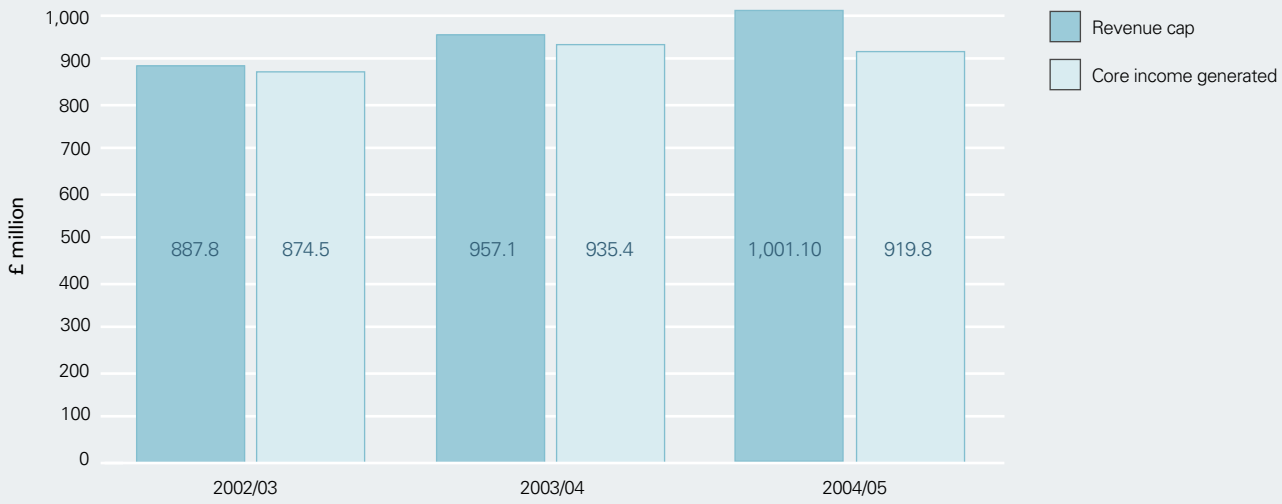
Changes to the economic regulation of Scottish Water



Source: Audit Scotland

Exhibit 9

Scottish Water's core income compared to revenue caps set

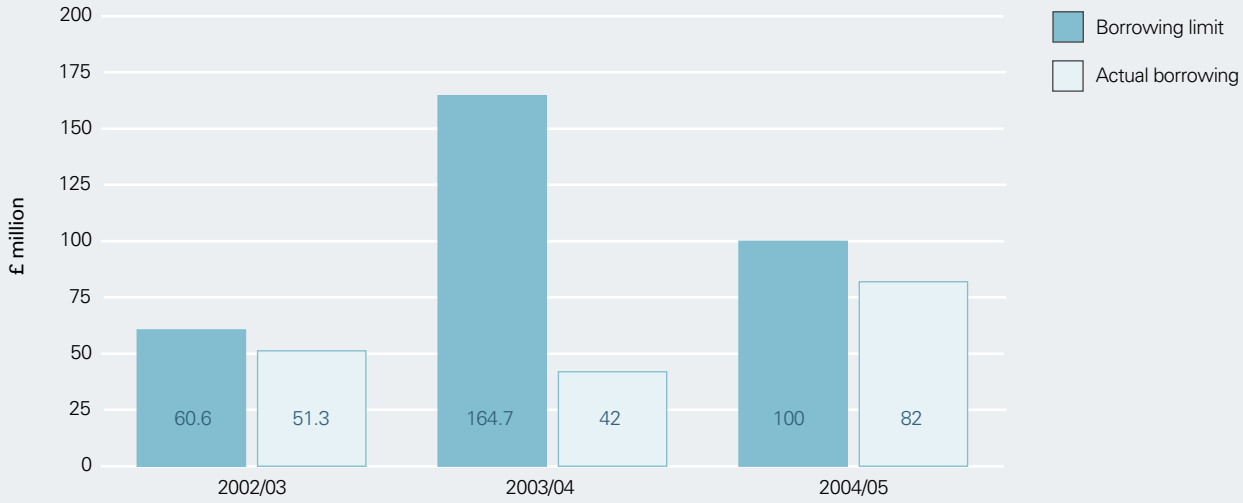


Note: Core income refers to Scottish Water's recurring activities of providing water and wastewater services to household and business customers. In 2002/03, 2003/04 and 2004/05, it also generated £20.8 million, £22.9 million and £40.7 million respectively from other activities. The surpluses achieved from these other activities also score against ministers' revenue caps.

Source: Scottish Water annual accounts

Exhibit 10

Scottish Water's borrowing compared to borrowing limits



Source: Scottish Water annual accounts

- Achieve operating and capital expenditure efficiency savings targets set by the WIC.

3.11 Under the Water Industry (Scotland) Act 2002, Scottish Water must ensure that, taking one year with another, its income is not less than sufficient to meet its expenditure. Any surpluses are expected to be reinvested in the business. Scottish Water achieved its financial targets in its first three years. In 2002/03, it generated a surplus before tax of £51.4 million on a turnover of £895.3 million. In 2003/04, its surplus rose to £87.8 million on a turnover of £958.3 million, and in 2004/05, the surplus before tax was £91.4 million on a turnover of £960.5 million.

3.12 Scottish Water also stayed within the revenue caps set by ministers (Exhibit 9).

3.13 Under the 2002 Act, Scottish Water is also required to stay within new borrowing limits contained within Budget Acts proposed by ministers and approved by the Scottish Parliament (Exhibit 10). Borrowing limits and the extent to which they can affect charges to customers was a central concern of the Scottish Parliament's Finance Committee report on the water industry in April 2004 (Appendix 4, page 40).

Borrowing has an important impact on Scottish Water's costs

3.14 The annual financial performance of the three previous water authorities improved during the six years in which they existed. Taken together, in 1996/97, the three water authorities reported an annual operating deficit of £47 million on a turnover of £525 million. By 2001/02, however, performance had improved so that an annual surplus of £78 million was reported on a turnover of £865 million. Throughout this period, however, the water industry in Scotland spent considerably more than it received in customer charges. The excess expenditure, which largely arose from increased capital investment, was financed from borrowing. Between 1996/97 and 2001/02, the three water authorities' capital expenditure doubled to £441 million a year but their combined debt burden also doubled to £2.1 billion.

3.15 When it was formed, Scottish Water inherited a debt burden of £2.1 billion. The WIC concluded in his *Strategic Review of Charges 2002-06* that increased borrowing was not financially sustainable in the long term. Continued reliance on new borrowing to fund the gap between total expenditure and income from charges would result in excessive increases in future bills to fund the increased rate of borrowing. The WIC accepted that some increase in customers' charges was necessary, but he believed that it could be contained if Scottish Water improved its efficiency. The WIC used the example of the former North of Scotland Water Authority to show that unless some increase in charges was allowed, the level of borrowing would increase over time so that after 30 years the water authority would be faced with borrowing simply to pay interest charges on older loans (Exhibit 11, page 16).

Scottish Water is set efficiency targets by the WIC

3.16 The WIC's advice to ministers on the amount of revenue required by Scottish Water included three efficiency targets (Exhibit 6, page 11) challenging Scottish Water to improve its performance and offer better value for money to its customers:

- Cut annual operating expenditure relative to 2000/01 by £63 million in 2002/03, rising to £136 million in 2005/06.

- Make additional annual efficiency savings in operating expenditure directly associated with the merger of the three previous water authorities of £28 million in 2002/03 rising to £39 million in 2005/06. The combined result of both these savings would reduce Scottish Water's annual operating expenditure to £265 million by 2005/06 on a like for like basis.[5]

- Improve the efficiency of capital expenditure relative to 2000/01, by £71 million in 2002/03 rising to £207 million in 2005/06, giving a total efficiency saving target of £549 million over the four-year period.

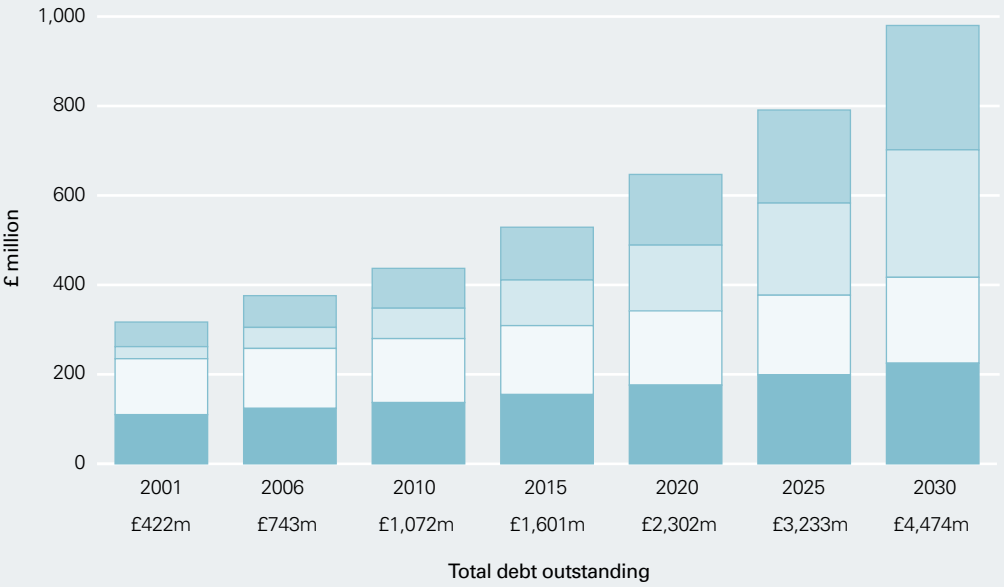
3.17 In his *Costs and Performance Report 2002/03*, the WIC reported that Scottish Water reduced its base operating costs by £29.3 million (£37 million in real terms) to £351.2 million in 2002/03. This fell short of his expectations that base operating costs would reduce to £304.3 million during the year. Scottish Water has subsequently reduced operating costs by a further £70 million and is confident that it will be able to reach the final target of £265 million by 2005/06. The WIC accepted that this is Scottish Water's key target rather than the interim targets set for each of the years covered by the Strategic Review. The WIC also believed it likely that Scottish Water will achieve the target by 2005/06.[6]

5 The upper limit of operating costs was raised by £7 million to £265 million after 'Terms of Understanding' were agreed between Scottish Water and the WIC. See paragraph 3.7 on page 11 and Exhibit 7 on page 12.

6 *Our work in regulating the Scottish water industry: The scope for operating costs efficiency*, Volume 4, WIC, October 2004.

Exhibit 11

The consequences of the water industry's funding gap between expenditure and revenue from charges (North of Scotland Water Authority)

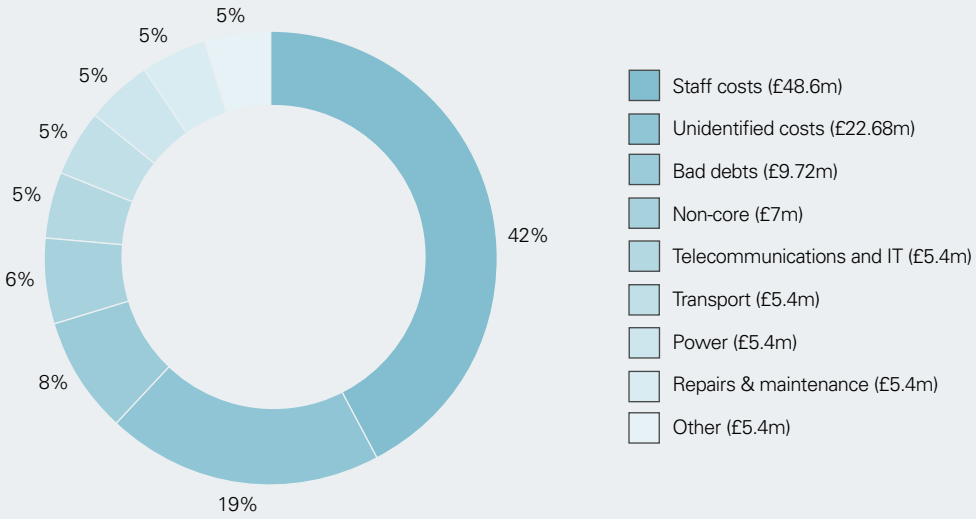


As demonstrated in the WIC *Strategic Review of Charges 2002-06,* using the former North of Scotland Water as an example, the annual shortfall between revenue and costs is financed by new borrowing. New borrowing increases the interest payable in subsequent years, which in turn increases the annual shortfall. After 30 years, the total debt outstanding would have increased tenfold and the water authority would be borrowing simply to repay interest on older loans.

Source: *Strategic Review of Charges 2002-06,* WIC

Exhibit 12

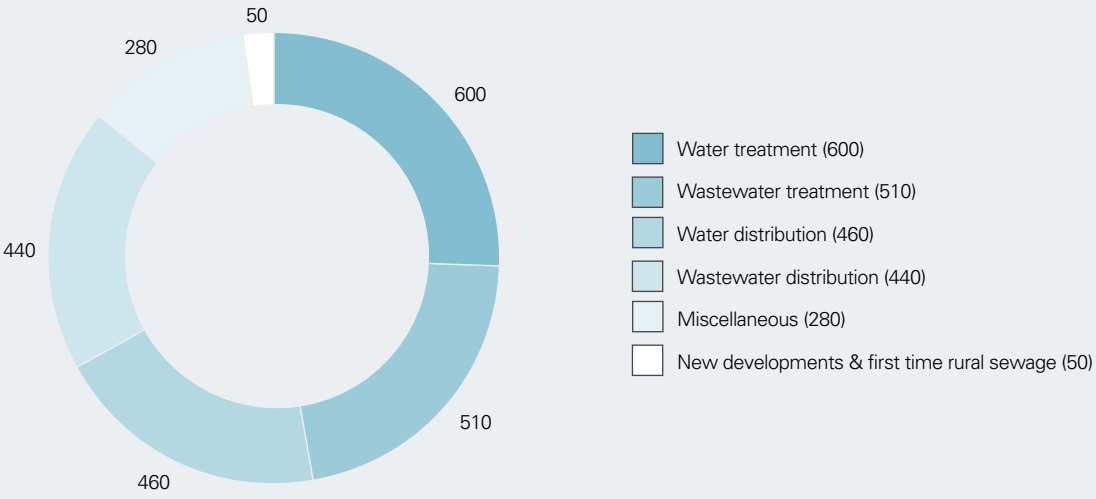
Scottish Water's planned operating efficiency savings



Source: *Strategic Business Plan 2003-06,* Scottish Water

Exhibit 13

Q&S II investment plans (before the application of efficiency targets)



Note: Although the overall level of investment during Q&S II was originally costed at £2.3 billion, the WIC expects that efficiency savings should enable Scottish Water to deliver the programme for £1.8 billion.

Source: *Investment Priorities for Scotland's Water Authorities 2002-06,* Scottish Executive

3.18 In its *Strategic Business Plan 2003-06*, Scottish Water explained how it intended to achieve the WIC's efficiency savings target. Most of these savings were expected to come from significant reductions in its workforce allied to redesigning processes and systems, and investing in automation (Exhibit 12). About £23 million of savings were unidentified at that time because of the risks that cutting costs too quickly could affect service delivery, public health, environmental performance and health and safety. Scottish Water is now more confident that these risks are less likely to transpire in the period to March 2006.

Scottish Water's capital investment programme has delivered efficiency improvements but, according to the WIC, not at the rate achieved by water companies in England and Wales

3.19 Investment is necessary to improve and replace ageing assets to meet tighter standards for drinking water quality and wastewater treatment. Scottish Water is currently in the second of three planned capital investment programmes (Appendix 5, page 41). The Quality and Standards I (Q&S I) programme saw £890 million invested between April 2000 and March 2002 by the three previous water authorities. Q&S II involves planned investment of £1.8 billion between April 2002 and March 2006 (Exhibit 13). Q&S III is expected to result in the same rate of investment as Q&S II during April 2006 to March 2014.

3.20 The WIC concluded in his *Strategic Review of Charges 2002-06*, that Scottish Water could substantially improve the efficiency of its capital expenditure by managing its strategic assets better, improving how it plans and appraises programmes through greater innovation and, in particular, by better procurement. He expected that efficiency savings should enable Scottish Water to deliver the Q&S II programme for £1.8 billion, representing a saving of approximately £500 million on the former water authorities' original cost projections.

3.21 The WIC concentrated his monitoring of capital expenditure efficiency on procurement efficiency because, in his view, this could be measured objectively on an annual basis. In 2002/03, he calculated[7] that Scottish Water improved its procurement efficiency by 5% in real terms. While welcoming this improvement, the WIC noted that water companies in England and Wales had made a 9% real improvement between April 2000 and March 2003.

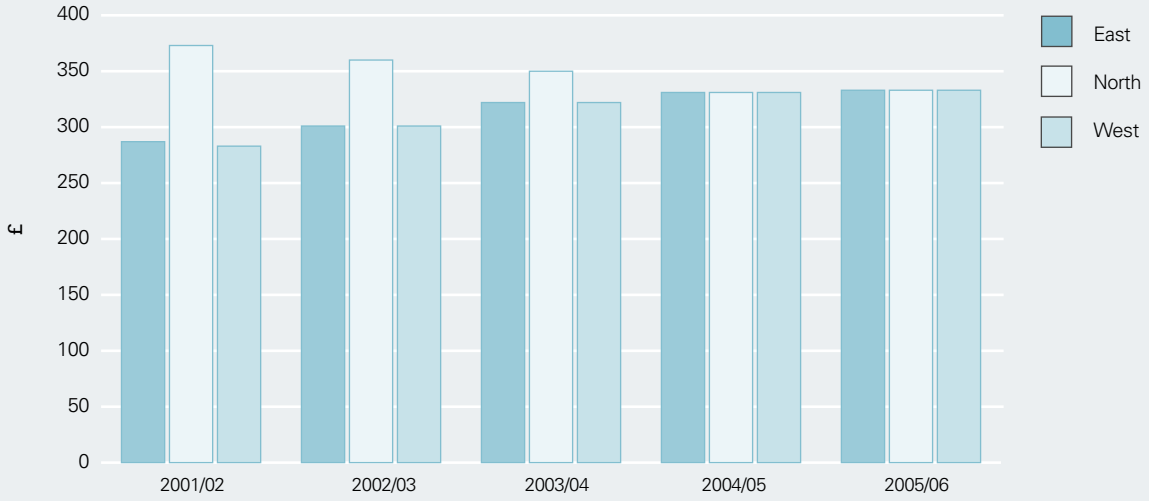
Scottish Water faces significant challenges in delivering its capital investment programme to 2006

3.22 The WIC expressed concern at the rate of Scottish Water's investment.[8] Scottish Water is well on course to achieve its target to improve the percentage of properties whose wastewater receives secondary, or biological, sewage

7 *Costs and Performance Report 2002/03*, WIC, November 2003.

8 *Investment and Asset Management Report 2002/03*, WIC, April 2004.

Exhibit 14
Average Band D charges for domestic customers



Note: All figures are in 2003/04 prices to adjust for the effects of inflation.

Source: Scottish Water charge schemes

treatment to 93.3% by 2005/06. However, progress on repairing and replacing water mains and sewers was initially slower. Scottish Water invested £743 million in its first two years, but £143 million of this was associated with projects started by the three previous water authorities as part of the Q&S I programme. This left £1.2 billion still to be invested under the remaining two years of the Q&S II programme.

3.23 Scottish Water has subsequently improved its rate of progress with its investment programme and it considers that its water mains and sewer rehabilitation programme is now on track. Scottish Water believes that this improvement is the result of creating Scottish Water Solutions in September 2003. This is a joint venture with two private sector consortia specifically to deliver a significant proportion of the investment programme.

3.24 Scottish Water attributes much of the slow progress made in the first two years of the investment programme to the time taken to establish the joint venture and to other factors such as the time taken to agree the contents of the investment programme. While Scottish Water considers it will invest £1.8 billion in the four years to 2005/06, some of this investment will relate to projects uncompleted under the Q&S I programme and to new obligations which were not envisaged when the Q&S II programme was prepared. The WIC estimates that £253 million of Q&S II projects will remain to be completed at April 2006.[9] The main challenge Scottish Water faces in delivering as much as possible of the Q&S II investment programme by March 2006 relates to the requirement for local authority planning approval and SEPA wastewater discharge consents to be issued for some of the projects.

3.25 The lower than anticipated level of capital expenditure partly explains why Scottish Water's borrowing has been lower than budgeted for (Exhibit 10, page 14). Scottish Water has, however, not lost this source of funding because it has been carried forward as part of the Scottish Executive's end year flexibility arrangements. This allows Scottish Water to better plan its investment with a view to maximising capital efficiency savings.[10]

Scottish Water has harmonised charges across Scotland and some customers now pay more

3.26 Before Scottish Water was set up, customers paid different water charges in different parts of the country. In particular, customers of the North of Scotland Water Authority were paying much higher water charges than customers in the East and West. The WIC advised, in his *Strategic Review of Charges 2002-06*, that users in the same customer group should be paying

9 *Strategic Review of Charges 2006-10 Draft Determination*, WIC, June 2005.

10 EYF is a financial system which allows the Scottish Executive and other arms-length bodies to carry forward any unspent resources from one year to the next.

Exhibit 15
Summary of Scottish Executive principles of charging 2006-10

- Charges should be set to recover the full costs to Scottish Water of providing public water and sewerage services.
- Charges for households should be set with a view to ensuring that they are as affordable as possible for low-income households.
- All charges should be set on a harmonised basis, so that customers in the same group and using the same services should pay for these services at the same rate, irrespective of where they are in the country.
- Subject to making charges affordable for low-income households, harmonised charges to a particular group should be set to recover, as closely as possible, the fixed and variable costs of serving that group.
- All significant changes in charge levels as a result of applying these principles should be introduced gradually during the period 2006-10, and beyond in the most significant of cases.

Source: *Paying for Water Services 2006-10,* Scottish Executive, July 2004

the same water charges by no later than 2005/06. Ministers accepted this advice.

3.27 Because the water industry is capital intensive, most of Scottish Water's operating costs are fixed, regardless of the volume of water used. Almost all domestic customers (99.94%) and nearly 50% of business customers pay fixed water charges, and the remaining business customers have their water usage measured through meters. Scottish Water harmonised charges for business customers in 2003/04 and for domestic customers in 2004/05. For the average customer previously served by the East and West of Scotland Water Authorities, charges harmonisation, and the requirement for additional revenue for capital investment, has contributed to their water bills rising faster than inflation. But for the average customer living in the North of Scotland, charges have fallen in real terms (Exhibit 14).

3.28 During 2004, the Scottish Executive consulted[11] on its proposals for water charges during the period 2006-10 (Exhibit 15).

3.29 A consultants' report for the Scottish Executive, in February 2005, concluded that the complex nature of the water industry made it very difficult to allocate costs accurately between different customer groups but that, overall, business customers currently subsidised domestic customers by about £44 million per annum. The consultants recommended that a clearer understanding of Scottish Water's core costs and income should be developed to allow more transparent charging structures to be introduced.

The Water Industry Commission is expected to set Scottish Water's maximum charge limits for the next four years later in 2005

3.30 In June of this year, the WIC published his draft *Strategic Review for 2006/07 to 2009/10*. It concludes that Scottish Water has made good progress in improving its efficiency and is likely to have reduced its annual operating costs by £145 million over the current review period. On that basis, the WIC proposed revenue caps for Scottish Water that rise from £982.7 million in 2006/07 to £1,018.2 million in 2009/10. The proposed increase in Scottish Water's revenue from customer charges is therefore less than the current rate of inflation, in keeping with the ministerial objective that average charge levels should remain stable in real terms during the review period.[12] If Scottish Water is able to sustain its efficiency improvements, the WIC expected that most household customers will see their water charges fall by 4% in real terms.

3.31 The newly established Water Industry Commission will consider representations from Scottish Water and others on the draft Strategic Review. The consultation period

11 *Paying for Water Services 2006-10,* Scottish Executive, July 2004.

12 *The Principles to be Applied in Charging for Public Water and Sewerage Services in Scotland 2006-10*, Scottish Executive, February 2005.

Exhibit 16

Scottish Water's customer service targets and performance for 2002/03 to 2004/05

	2002/03 (target)	2002/03 (actual)	2003/04 (target)	2003/04 (actual)	2004/05 (target)	2004/05 (actual)
Customer service						
Number of written complaints*	7,000	7,263	10,000	9,526	12,000	8,712
Number of enquiries (telephone and written)*	300,000	111,365	500,000	490,038	500,000	420,672
Guaranteed Minimum Standards compliance	–	–	94%	94%	95%	96%
% response to all complaints within ten days	99.5%	97.7%	99%	99.8%	99%	99.5%
% calls answered within 30 seconds	94%	92%	90%	85%	92%	92%
% calls abandoned	5%	2%	5%	5%	4%	2%
Billing enquiries						
Number of accounts written complaints*	4,700	1,821	4,600	2,055	4,600	1,498
Number of accounts enquiries*	140,000	214,717	230,000	298,095	175,000	258,780
% response to accounts enquiries within ten days	95%	95%	95%	94%	95%	96%
Asset management						
Number of properties removed from 'at risk' flooding register	–	–	145	193	150	268
Number of properties affected by unplanned interruptions >12 hrs	4,000	1,725	3,500	3,180	3,350	2,863
Number of interruptions to trunk mains lasting > 48 hrs	–	–	1	0	1	0
Debt collection						
Overdue debtor days – business customers	46	33	41	52	36	42
Household customers – collection performance	90.5%	91.1%	91%	92%	91.5%	92.6%

Note: * Scottish Water regards these indicators as measures of activity and does not assign targets to them.

Source: *Strategic Business Plan 2003-06*, Scottish Water

Exhibit 17

The WIC's comparison of Scottish Water's customer service performance against water companies in England and Wales for 2002/03

Performance measure	Scottish Water performance	Performance relative to England and Wales
Customer service		
Billing enquiries		
No. of billing contacts	233,555	Low relative to E&W companies
% of enquiries answered within five working days*	79.9%	Lower than any E&W company
% of enquiries answered within ten working days	94.8%	Lower than any E&W company
Written complaints		
No. of written complaints per 1,000 properties	3.4	Lower than E&W average
% responded to within five working days	58.9%	Higher than E&W average
% responded to within ten working days*	97.8%	Lower than any E&W company
% responded to in more than 20 working days	1.1%	Higher than any E&W company
The quality of written responses – targets met	44%	Comparison not possible
Telephone contacts		
% of telephone calls abandoned	3.5%	Worse than all but one E&W company
% of calls answered within 30 seconds*	90.1%	Worse than all but one E&W company
Asset performance		
Pressure		
Proportion of properties experiencing low pressure*	63/10,000	Worse than any E&W company
Planned supply interruptions		
% of properties experiencing a planned interruption	5.1%	Higher than E&W average
No. of properties affected per km of mains renewed	268	Higher than E&W average
% of properties not restored within four hours of stated time	0.2%	Comparison not possible
Unplanned supply interruptions		
% of properties experiencing an unplanned interruption*	5.4%	Higher than all but one E&W company
Proportion of properties where supply is not restored within 12 hrs	12/10,000	Higher than all but one E&W company
Sewer flooding		
Proportion of properties experiencing sewer flooding*	3.2/10,000	Higher than all but one E&W company
Proportion of properties classed as 'at risk' of sewer flooding – once in ten years	23/100,000	Relatively good performance
Proportion of properties classed as 'at risk' of sewer flooding – twice in ten years	22/100,000	Higher than all but two E&W companies

Note: * Performance measure used in calculating the overall customer service performance score (Appendix 6 refers).

Source: *Strategic Business Plan 2003-06*, Scottish Water

Exhibit 18

Scottish Water's Guaranteed Standards Scheme

Keeping appointments
Appointments made will be kept or 24 hours' notice will be given of cancellation or change. Failure to make the appointment or to inform a customer of a change or cancellation at least 24 hours in advance results in an automatic payment of £20.

Planned interruptions to water supply
Customers will be informed in advance of any need to interrupt the water supply, except for leakage detection work. If the work is planned to last more than four hours, 48 hours' notice will be given, either individually or through local media. Failure to provide warning of the interruption or to restore water by a notified time means business customers can claim £50 and domestic customers can claim £20. Additional claims can be made for each additional 12-hour period that customers are without water.

Emergency interruptions to water supply
The water supply will be restored within 12 hours if it is unexpectedly interrupted. If the problem is caused by a strategic main, the supply will be restored within 48 hours. If it is not restored within these timescales, business customers can claim £50 and domestic customers can claim £20. Additional claims can be made for each additional 12-hour period that customers are without water.

Water getting into gas systems
If water has entered a customer's gas supply, Scottish Water will contact Transco immediately. The customer will be called back within two hours to explain the next steps. If Scottish Water fails to do this, it will make an automatic payment of £20.

Flooding from sewers
Customer's annual wastewater charge (up to a maximum of £1,000 per flooding event) will be automatically refunded if a property is flooded with wastewater from sewers.

Billing/Invoice enquiries
Customers will receive a response to a general billing/invoice enquiry within ten working days or five working days if the enquiry relates to a change of payment method. Failure to meet either of these standards results in an automatic payment of £20.

Written or telephone complaints
Customers will receive a written response to a complaint within ten working days. Failure to do so will result in an automatic payment of £20.

Meter applications
If a customer requests a water meter, Scottish Water will carry out a property survey. The customer will be informed within ten working days of what is required to allow the meter to be installed and if there are any costs involved. Failure to do this will result in an automatic payment of £20.

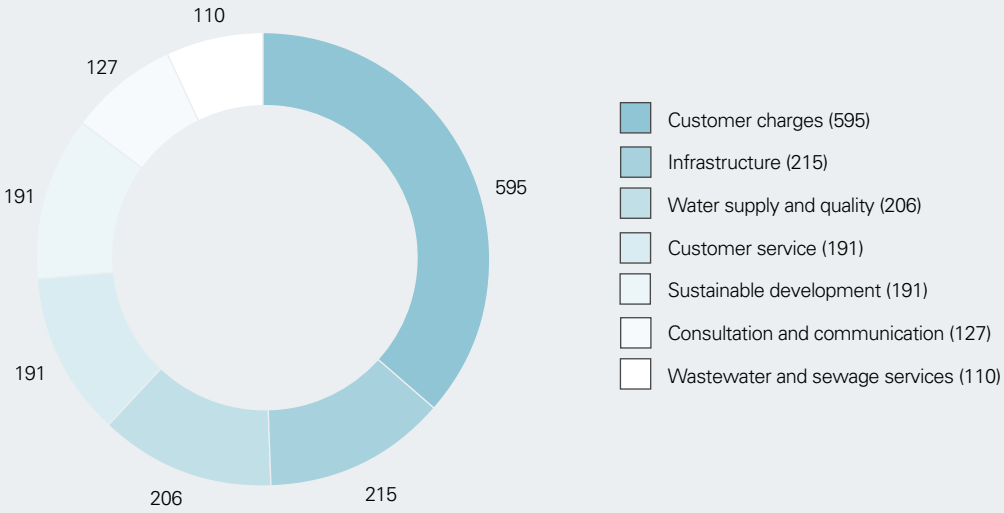
Pressure complaints
Customers will be informed of the outcome of an investigation into a water pressure problem within five working days. Failure to do so means that customers can claim £20. If Scottish Water confirms that pressure is lower than one bar and that this was caused by its system, the customer will automatically be paid £20.

Response in major incidents
Regular information updates will be provided (at least every 48 hours) in the event of a major incident that causes disruption to service. Scottish Water will provide alternative supplies of drinking water within 24 hours or 48 hours for very large-scale incidents. Vulnerable customers will be provided with a reasonable supply of drinking water, and business customers with critical water needs will be provided with alternative sources of water. If Scottish Water fails to meet these standards, domestic customers can claim between £20 and £100, and business customers can claim between 5% and 15% of the annual water and wastewater charge up to a maximum of £5,000.

Notification of charges
For business customers only, charge increases will be communicated through the media within 14 days of approval by Scottish ministers. If there is a failure to do so, £20 can be claimed.

Source: Scottish Water Guaranteed Standards Scheme

Exhibit 19
Issues raised with the WCCPs during 2003/04



Source: *Water Customer Consultation Panels Annual Report 2003/04*

ended in late September. The Water Industry Commission is now expected to announce Scottish Water's maximum charge limits for the four-year period.

Scottish Water's customer service regulation

3.32 The WIC analysed Scottish Water's customer service performance, using a methodology based on that developed by Ofwat to assess the performance of water companies in England and Wales. The WIC considered that Ofwat's approach to measuring customer service is well regarded in England and Wales and has led to significant improvements in customer service. The approach is used, for example, as a basis for awarding bonuses to water company management and by providers of loan finance as a means to assess performance. Scottish Water has also developed its own series of performance measures to assess customer service performance. In the WIC's view, Scottish Water's performance measures and targets do not include some areas of importance to customers, such as measures of leakage, water pressure and pollution incidents.

Scottish Water has met most of its own customer service performance measures but falls short of the performance of companies in England and Wales

3.33 Scottish Water measures how its customer services are performing over four areas – customer service, billing enquiries, asset management and debt collection (Exhibit 16, page 20). Scottish Water met five of its seven targets in 2002/03, seven of its ten targets in 2003/04 and nine of its ten targets in 2004/05.

3.34 The WIC's *Customer Service Report 2002/03* compared Scottish Water's customer service performance against water companies in England and Wales using 19 customer service and asset performance measures. The methodology used allowed the WIC to calculate a single, overall performance score (Appendix 6, page 44). The WIC calculated that Scottish Water's overall customer service performance score in 2002/03 was 38% of that of the worst performing water company in England and Wales and less than a quarter of the best performing company. Scottish Water compared reasonably well with water companies in England and Wales on a few individual performance measures, such as its response to written complaints within five days. However, its performance was often worse than the average for England and Wales and was sometimes the lowest (Exhibit 17, page 21).

3.35 The WIC considered that his approach provided a clear process for independent and objective measurement, and allowed meaningful comparison between Scottish Water's customer service performance and that of water companies in England and Wales. Scottish Water, however, considers that the WIC's comparisons did not put Scottish Water's customer service performance fully in context. For example, Scottish Water considers that:

- The asset performance comparison does not reflect the poor state of the water industry's assets in Scotland compared with England and Wales and the low levels of historic and effective investment. The WIC contends, however, that there is no evidence that Scotland's water assets are in any worse condition than those in England and Wales, or that investment has been lower in Scotland.

- The scoring system used to calculate Scottish Water's overall performance assessment is based on a system where its performance is scored against the historical performance of English and Welsh water companies. Since Ofwat began regulating levels of service in 1989, water companies in England and Wales have more experience of focusing attention on the measures used in the overall performance assessment.

- The performance measures used to calculate the overall performance assessment do not fully take into account areas where Scottish Water is performing relatively well. For example, Scottish Water gets no credit for answering complaints within five days because this performance measure does not form part of the overall performance assessment.

Scottish Water's Code of Practice sets out the standards of customer service to be expected, including compensation claims if these standards are not met

3.36 Scottish Water now has a Guaranteed Standards Scheme (Exhibit 18, page 22). It has published its *Code of Practice for Customers* informing customers of the services it provides and the standards they can expect. The Code provides details of how to contact Scottish Water, describes the water and wastewater services it provides, and sets out how to complain and the regulatory environment within which Scottish Water operates.

Water Customer Consultation Panels

3.37 Five WCCPs were established under the Water Industry (Scotland) Act 2002 to represent the views and interests of Scottish Water's customers on a local basis. They publish reports on matters relevant to the interests of customers and make recommendations to the WIC who was required to have regard to the WCCPs' representations, reports and recommendations in exercising his own functions.

3.38 Under the Water Services etc (Scotland) Act 2005, the powers of the WCCPs to make recommendations were expanded to include the Water Industry Commission, ministers, DWQR, SEPA and Scottish Water. The Convenor is now responsible for investigating customers' complaints not resolved by Scottish Water. WCCPs publish quarterly customer issues reports based on topics raised at their meetings or through correspondence from water customers. During 2003/04 (the latest year for which information is available), a total of 1,635 issues were raised, the most common topics being customer charges and the water network (Exhibit 19, page 23).

Part 4. The quality of Scotland's water

4.1 This part of the report covers the quality of Scotland's drinking and surface water.

The public water supply

4.2 The Drinking Water Quality Regulator (DWQR) was established under the Water Industry (Scotland) Act 2002 to regulate the supply of drinking water within a framework set by EC legislation. The DWQR is appointed by ministers and works independently of the Scottish Executive. He publishes an annual report to ministers on his activities.

4.3 The DWQR checks that Scottish Water complies with statutory standards for drinking water by inspecting and auditing Scottish Water's water treatment works and laboratories (where samples of drinking water are analysed). Some 93% of water supplies are derived from surface water sources, such as reservoirs, and the remainder come from groundwater sources. Scottish Water treats this water (by disinfection, filtration, etc) at around 360 treatment works before it reaches customers.

4.4 Under the Water (Scotland) Act 1980, Scottish Water must supply wholesome water. The Water Supply (Water Quality) (Scotland) Regulations 2001 define wholesomeness by setting standards for around 50 parameters. The Regulations also specify detailed requirements for samples taken at taps, reservoirs and water treatment works.[13] The DWQR monitors Scottish Water's performance against ten key parameters set out in the 2001 Regulations (Exhibit 20, page 26).

The quality of drinking water has improved since the 1990s

4.5 The DWQR has reported that there has been a steady improvement in the microbiological quality of Scotland's drinking water since the early 1990s (Exhibit 21, page 27).[14] The number of coliform tests not meeting the standards at customers' taps in 2004 was approximately 7.7% of that recorded in 1991, the first full year in which the earlier Water Supply (Water Quality) (Scotland) 1990 Regulations were in operation. The DWQR attributes much of this improvement to Scottish Water's investment to refurbish service reservoirs and upgrade or replace smaller water treatment works.

4.6 The number of samples taken at customers' taps failing to meet the required standards for all parameters has also fallen since the 1990s (Exhibit 22, page 28). In 2004, 152,318 tests were carried out on samples

13 The 2001 Regulations replaced the Water Supply (Water Quality) (Scotland) Regulations 1990 with effect from 25 December 2003. The 2001 Regulations require a completely new sampling programme and imposed tighter standards for several parameters. The DWQR considered this made it difficult to draw direct comparisons between drinking water quality in 2004 and previous years. The 2004 results will provide a baseline against which water quality will be judged in future years.

14 Annual reports by the DWQR 2002 to 2004, Drinking Water Quality in Scotland.

Exhibit 20

The ten key drinking water quality standards in Scotland

Parameter	Significance
Total coliforms	The coliform group of organisms is present in large numbers in the gut of all warm-blooded organisms but they are also widely distributed in the environment. Their presence in water supplies indicates a breach in the integrity of the water supply system, but does not necessarily mean faecal pollution has occurred.
Faecal coliforms	Faecal coliforms are present in large numbers in the gut of all warm-blooded organisms. Their presence in water supplies indicates a breach in the integrity of the water supply system and that faecal pollution may have occurred.
Colour	Colour is derived from humic substances, particularly in acidic water sources derived from moorland catchment areas. High colour is unacceptable to consumers on aesthetic grounds. Colour may be removed by treatment.
Turbidity	Turbidity describes water that appears cloudy or opaque. Naturally occurring turbidity is caused by suspension of fine material derived from matter other than plants and animals. Turbidity may also be caused by overloaded or badly maintained filters. It is unacceptable to consumers on aesthetic grounds and may also compromise disinfection.
Hydrogen Ion (pH)	Most surface waters are slightly corrosive towards the materials used in water treatment systems and consumers' installations. This is countered by adding an alkali during treatment to raise the pH. Extreme pH values may present a health risk.
Aluminium	Aluminium occurs in acidic waters derived from moorland catchments and is removed in water treatment by coagulation and filtration. High concentrations are unacceptable on aesthetic grounds.
Iron	Iron is present naturally in many water sources and is removed by conventional water treatment processes. Iron in water supplies may also be derived from corrosion of iron mains and inadequate filtration of the residues of iron-based coagulants used in water treatment. High iron concentrations are unacceptable on aesthetic grounds.
Manganese	Manganese occurs naturally in many water sources, especially anaerobic groundwaters. It is removed by conventional water treatment processes. High manganese concentrations are unacceptable on aesthetic grounds.
Lead	Lead is not normally present in water sources but significant concentrations may be present at consumers' taps if lead pipes are present and the water supply is able to dissolve lead from pipes.
Trihalomethanes	Trihalomethanes occur in drinking water principally as the products of chlorine reacting with naturally occurring organic materials and bromide which may also be present in the water.

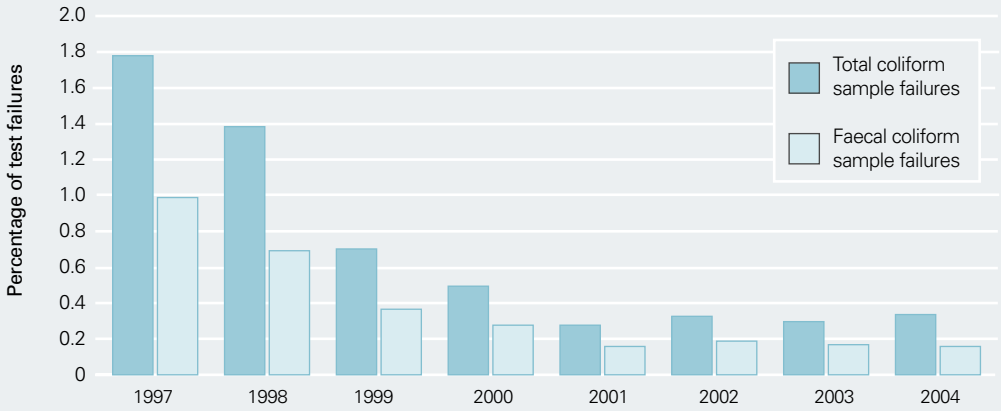
Source: DWQR

Exhibit 21

Microbiological quality of water in service reservoirs, leaving treatment works and at consumers' taps 1997-2004

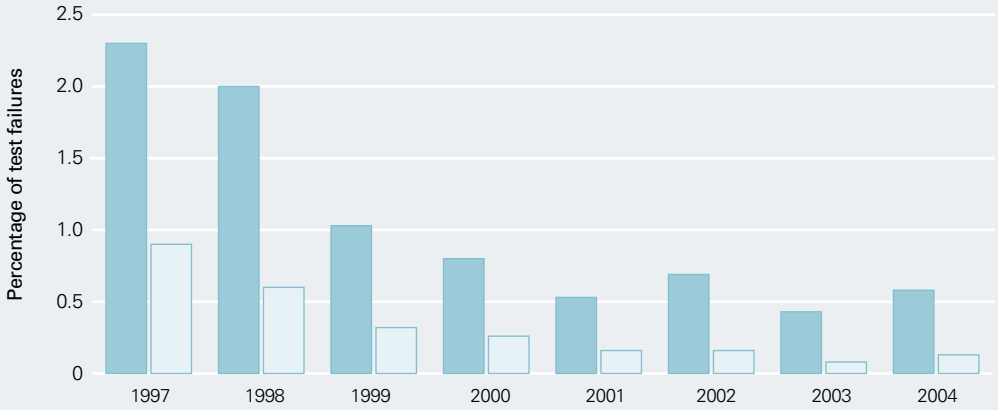
Treatment works

During the period shown, the number of tests on water samples ranged from 34,000 to 46,000 per annum.



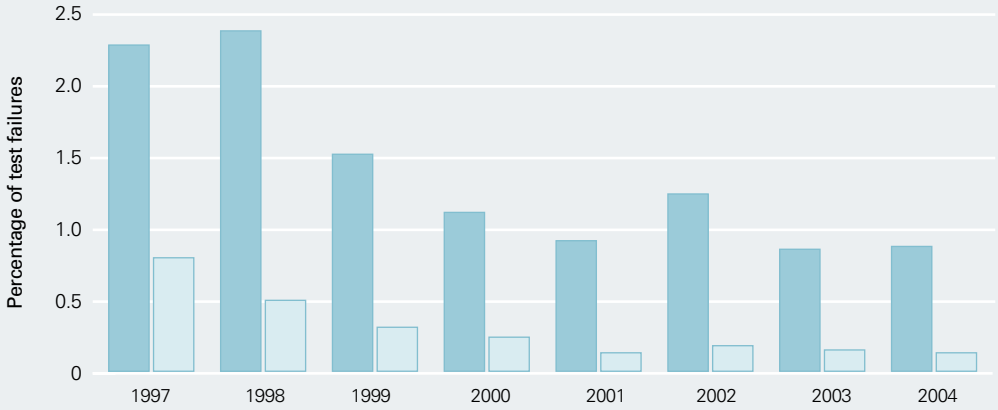
Service reservoirs

During the period shown, the number of tests on water samples ranged from 56,000 to 66,000 per annum.



Consumers' taps

During the period shown, the number of tests on water samples ranged from 14,000 to 20,000 per annum.



Note: The percentage of water samples failing for microbiological quality has fallen since the early 1990s. The DWQR reports that the failure rate during the early part of the 1990s was even higher than shown here. Improvements were made by simply ensuring that good water treatment practice was followed for rural supplies. From 1996 onwards, however, it became clear that major investment would be needed in many areas if further improvements were to be made.

Source: DWQR

Exhibit 22

The overall quality of drinking water at customers' taps 1998-2004

	Number of sample tests per annum (000)	Percentage of sample fails						
		1998	1999	2000	2001	2002	2003	2004
Total coliforms	14-20	2.40	1.53	1.12	0.92	1.25	0.86	0.88
Faecal coliforms	14-20	0.50	0.31	0.24	0.13	0.18	0.15	0.13
Colour	3-6	1.23	0.76	0.71	1.19	0.17	3.80	3.26
Turbidity	3-5	0.33	0.42	0.12	0.19	0.12	0.13	0.20
Hydrogen ion (pH)	4-9	0.35	0.25	0.25	0.14	0.08	0.22	1.58
Aluminium	3-6	1.44	1.58	1.11	0.52	0.70	1.18	0.54
Iron	4-7	3.62	3.12	2.59	2.18	1.18	5.50	2.51
Manganese	3-5	0.52	0.75	0.61	0.47	0.37	1.63	1.23
Lead	2-6	1.02	0.68	1.14	0.68	0.29	0.40	1.10
Total trihalomethanes	2-5	35.26	23.84	16.49	15.45	17.10	14.30	7.42
All others*	66-97	0.33	0.27	0.20	0.26	0.15	0.22	0.13
Total	**143-180**	**1.66**	**1.45**	**1.00**	**0.81**	**0.72**	**0.86**	**0.58**

Note: * Means all other parameters reported on for which a numerical standard exists.

Source: DWQR

taken from customers' taps and 879 (0.58%) of the tests failed to meet the relevant standard. While significant improvements have been made to the quality of drinking water in Scotland, the DWQR considers there is still room for improvement. In his 2004 annual report, the DWQR recorded that 28 incidents were reported during the year, 22 of which resulted in customers having to boil their water or being issued with bottled water. Many of these incidents were due to extreme weather conditions but the DWQR also pointed to Scottish Water's inadequate monitoring and warning systems as being factors in many of the events.

Scottish Water has acted to improve its compliance with regulatory testing requirements

4.7 In his 2003 annual report on drinking water quality, the DWQR noted that Scottish Water undertook 307,000 tests on water samples during the year which represented about 93% of its regulatory testing requirements. The DWQR considered that the missing results did not distort the overall picture of improving drinking water quality, but there was a clear expectation that Scottish Water should comply fully with the required sampling frequencies. The DWQR indicated in his annual report for 2004 that he was satisfied with Scottish Water's action to improve the organisation of its laboratory facilities and how water samples were collected and transported.

Scotland's surface water

4.8 The Scottish Environment Protection Agency (SEPA) is an NDPB formed in 1996 with responsibility for environmental protection and improvement in Scotland. Ministers appoint SEPA's chair and non-executive directors, and may also give SEPA directions as to the exercise of its functions. SEPA's published annual reports are laid in Parliament.

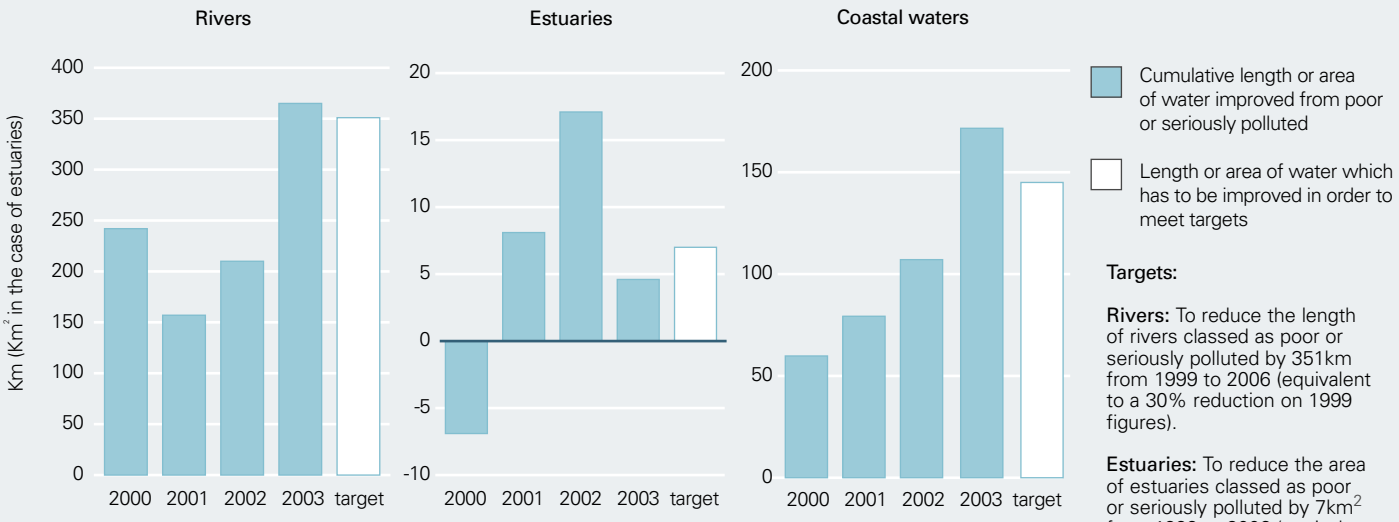
4.9 SEPA's responsibilities are wide-ranging, but those relating to water are:

- meeting targets aimed at improving the quality of rivers, estuaries and coastal waters. Areas requiring improvement are addressed through action plans often involving SEPA, Scottish Water and other parties[15]
- ensuring that Scottish Water and other dischargers comply with statutory environmental protection standards through a licensing system involving the issue of legally binding consents to discharge[16]

15 For example, 3 Dee Vision is a project part-funded by Aberdeenshire Council, SEPA, Scottish Water, Scottish Natural Heritage, the Macaulay Institute and the University of Aberdeen, with contributions from the MacRobert trust and local communities. Its purpose is to introduce more sustainable land use around Tarland Burn, Loch Davan and Elrick Burn, which all flow into the River Dee. The project is part of a wider European drive to bring together communities and landowners with public agencies and researchers, to improve the quality of the water environment.

16 Many of SEPA's discharge consents for water are based on a two-tier format whereby a limited number of samples are allowed to exceed a lower limit, provided that upper limits are not breached.

Exhibit 23
Performance against SEPA's water improvement targets



Source: SEPA

- monitoring compliance with discharge consent conditions through inspection and sampling[17]
- investigating pollution incidents, including, if necessary, reporting offenders to procurators fiscal for consideration of prosecution
- measuring river flows and providing advice to local authorities on potential flooding.

4.10 Scottish Water has a key role in contributing to the protection and improvement of Scottish rivers, estuaries and bathing waters by treating sewage and other wastewater before its discharge. If this is not done properly there may be a threat to human health.

The quality of Scotland's surface water is improving

4.11 SEPA classifies water into categories ranging from excellent to seriously polluted. In 1999, SEPA identified some 1,500 km of Scottish rivers, estuaries and coastal waters as poor or seriously polluted. SEPA's targets require a 20-45% reduction in the length of poor or seriously polluted waters to be achieved by the end of 2006 compared to 1999 (equivalent to 500 km). Based on its performance to date, SEPA considers it is on course to meet these targets (Exhibit 23).[18]

4.12 SEPA also monitors the quality of all 60 Scottish beaches which have been designated bathing waters for compliance with EC directives. The number of bathing waters classed as excellent or good has increased since 1999 (Exhibit 24, overleaf). Only one of the four bathing waters which failed to meet EC standards in 2004 was attributable to Scottish water discharges. The results for the last two years are the best ever for Scottish bathing waters.[19]

Scottish Water's investment in wastewater treatment works (WWTWs) helps to improve surface water quality

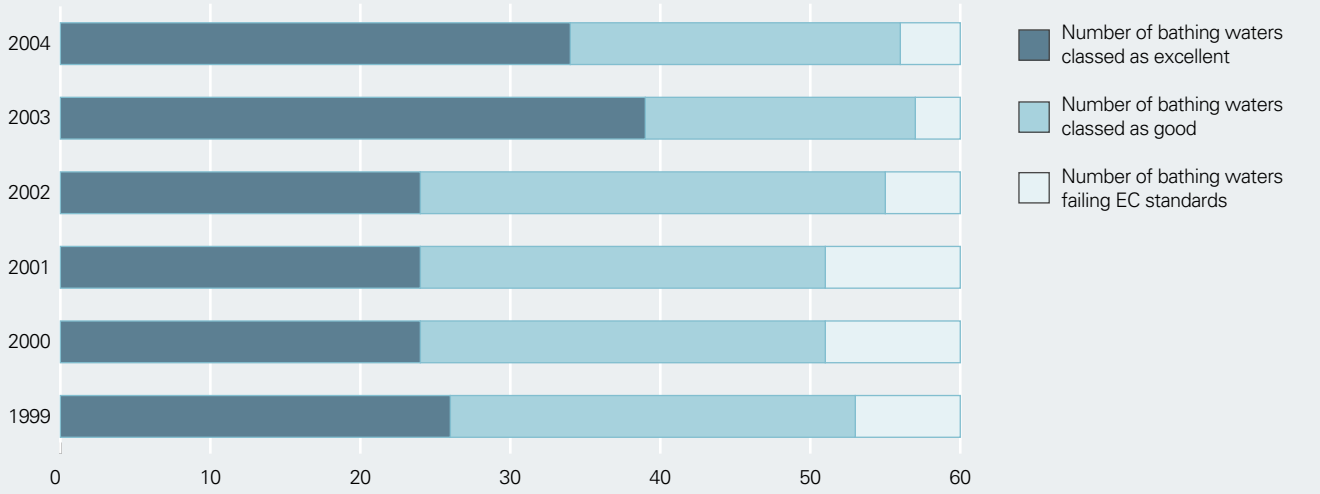
4.13 Scottish Water and SEPA see a strong correlation between recent improvements in surface water quality and the investment to upgrade and replace WWTWs and sewerage infrastructure. Scottish Water inherited 168 WWTWs which were either failing or at risk of failing their SEPA standards. It therefore aimed to reduce the number of failing works to 45 by March 2006 as part of the £480 million investment programme under Q&S II to improve sewer systems and WWTWs. Some of these projects have still to be

17 SEPA operates a risk-based approach to its inspection and sampling, resulting in about 700 of Scottish Water's consents being monitored by annual sampling. Scottish Water has more than 10,000 discharge consents but only about 2,000 of these involve continuous discharges from WWTWs. The rest apply to other discharges, for example, storm water overflows.

18 SEPA Annual Report and Accounts.

19 SEPA Annual Reports Scottish Bathing Waters.

Exhibit 24
Bathing waters' compliance with EC standards 1999-2004



Source: SEPA

completed. SEPA has assessed that Scottish Water's compliance with public sewage discharge consents has risen from a steady 88-89% in its first two years to 91% in 2004.[20] Better wastewater treatment over the last five years appears to have been a contributory factor in at least 25 bathing waters which have improved in quality.[21]

4.14 Nevertheless, sewage discharges remain the most important cause of poor water quality in Scotland. SEPA recently reported[22] that sewage discharges affect 78% of polluted rivers, 91% of polluted estuaries and 72% of polluted coastal waters. In February 2005,[23] ministers set targets to improve the water quality of a further 530km of rivers and coastal waters as part of the Q&S III investment programme 2006-14. Better surface water quality is expected to be delivered from further investment to improve the capacity and quality of sewage treatment works.

The impact of new building developments

4.15 New housing and commercial development can result in a need for investment in new water and wastewater systems. Scottish Water has limited funds to expand the capacity of the network during the Q&S II programme and this has led to some developers proposing private solutions to water and sewage supply. SEPA regulates this type of expansion but it is concerned that the cumulative effect of such developments could impose a risk to the water environment.

4.16 In February 2005, as part of the Q&S III investment programme, ministers set Scottish Water an objective to provide sufficient strategic capacity to meet the requirements of all estimated new development. Scottish Water will now publish annual information on its network capacity and plans to develop it. From March 2006, Scottish Water will also monitor sewage works at risk of overload alongside SEPA's assessment of water courses to get an optimal view of where development could be allowed without the need for additional investment in wastewater treatment systems.

20 *Annual Report and Accounts 2002/03 and 2003/04*, SEPA .

21 *Scottish Bathing Waters 2004*, SEPA, December 2004.

22 *Pressures and Impacts on Scotland's Water Environment: Report and Consultation*, SEPA, December 2004. The report is the first step in the Scottish Executive's implementation of EC Directive 60/2000/EC Water Framework Directive.

23 *Investing in Water Services: Objectives for 2006-2014, The Statement by the Scottish Executive*, Scottish Executive, February 2005.

Appendix 1. Key legislation affecting the water industry in Scotland

1. Various legislation has shaped the Scottish water industry and its regulatory framework over the past decade. National legislation has also enacted a number of European Directives controlling drinking water quality and wastewater discharges in recent years. The following summarises the main legislation.

Sewerage (Scotland) Act 1968
Gives Scottish Water the duty to provide public sewers and to treat sewage. Also allows occupiers of trade premises to discharge into sewers or sewage treatment works with the consent of Scottish Water.

Water (Scotland) Act 1980
Provides ministers with the duty to promote the conservation of water resources and Scottish Water's provision of adequate water supplies. The Act also gave water suppliers the duty to provide a supply of wholesome water for domestic purposes (drinking, washing, cooking, central heating and sanitary purposes) and to provide water on reasonable terms and conditions to non-domestic customers when requested.

Environment Act 1995
Established SEPA, with duties which include the promotion of the cleanliness of rivers, other inland waters and ground waters in Scotland.

Water Industry Act 1999
Established the Water Industry Commissioner for Scotland (WIC), replacing the Customers Council. The Act gave the WIC the function of advising ministers about water and sewerage charges.

Established three Water Industry Consultative Committees.

Water Industry (Scotland) Act 2002
Established Scottish Water, replacing the three previous water authorities. The Act required Scottish Water to prepare annual reports, a customer standards code and a consultation code. Scottish Water's charges scheme was to be subject to approval by the WIC. Ministers were required to give Scottish Water directions as to both the exercise of its powers and how its affairs were to be managed and conducted. Scottish Water was also allowed to borrow from the Scottish ministers.

Broadened the WIC's functions to allow him to investigate complaints by customers about Scottish Water. Ministers were enabled to give the WIC directions.

Established the DWQR with the general function of ensuring that Scottish Water fulfils its drinking water quality duties. The DWQR was given powers to issue enforcement and emergency notices and must produce an annual report. Ministers were enabled to give the DWQR directions.

Established the WCCPs to represent the views and interests of customers of Scottish Water. The Act enabled the WCCPs to publish reports and make recommendations to the WIC.

Water Environment and Water Services (Scotland) Act 2003
Provides for Directive 2000/60/EC of the European Parliament to be implemented, establishing a framework for water policy. The main points of the Directive were to prevent deterioration of surface and ground water, to achieve good surface and ground water status by 2015, to prevent or limit ground water pollutants, to comply with measures against hazardous substances and to achieve compliance with relevant standards for protected areas. Member states were required to put in place systems for managing their water environments. The Directive repealed and replaced older EC Directives and incorporated the Bathing Water, Nitrates and Urban Waste Water Treatment Directives (see below).

Defined the water environment and set out the duties of Scottish ministers and SEPA for protecting it. River basin areas were established and SEPA were required to produce management plans for each one by the end of 2004.

Clarified Scottish Water's role in new connections to the water and sewerage infrastructure.

Water Services etc (Scotland) Act 2005
Replaced the WIC with a body corporate, the Water Industry Commission for Scotland. The Commission is accountable to Scottish ministers. It is responsible for determining Scottish Water's charges based on objectives set by ministers and for setting its revenue cap.

Broadened the role of the WCCPs to include investigating complaints by customers of Scottish Water and to give them the power to make recommendations to Scottish Water, the Water Industry Commission, the DWQR, SEPA and Scottish ministers.

Made a series of provisions regarding water and sewerage services including the prohibition of common carriage and retail competition for households and the establishment of a licensing regime for retail competition for non-household premises.

2. The following provides the key legislative framework for measures designed to control the quality of the water environment and drinking water quality.

Control of Pollution Act 1974
Established controls over discharges of poisonous, noxious or polluting substances to controlled waters in Scotland. Discharges can only be made after authorisation from SEPA specifying the quality and quantity of effluent permitted.

Water (Scotland) Act 1980
Requires Scottish Water to supply wholesome water to any premises for domestic or food production purposes. Wholesomeness is defined by standards and other requirements set out in the Water Supply (Water Quality) (Scotland) Regulations 1990, implementing EC Directive 80/778/EEC. The Water Supply (Water Quality) (Scotland) Regulations 2001, implementing EC Directive 98/83/EEC replaced the 1990 Regulations with effect from 25 December 2003.

Bathing Water Quality Directive (76/160/EEC)
To protect the environment and public health by reducing the pollution of bathing water and to protect such water against further deterioration.

Dangerous Substances Directive (76/464/EEC)
Makes provisions for controlling substances which have a harmful effect on the acquatic environment.

Fresh Water Fisheries Directive (78/659/EEC)
Makes provisions for protecting and improving the quality of fresh water in order to support fish life.

Shellfish Water Directive (79/923/EEC)
To protect the quality of coastal and brackish waters which are designated for protection or improvement to support particular shellfish populations.

Drinking Water Quality Directives (80/778/EEC and 98/83/EEC)
Sets standards and sampling requirements for drinking water quality.

Urban Wastewater Treatment Directive (91/271/EEC)
To ensure that pollution levels in urban wastewater are kept below certain thresholds for discharges into controlled waters. Discharge consents issued by SEPA under the Control of Pollution Act must satisfy the requirements of the Directive.

Nitrates Directive (91/676/EEC)
To reduce water pollution caused or induced by nitrates from agricultural sources and to prevent further such pollution.

Appendix 2. Scottish Water's Transformation Programme

1. Scottish Water established its Transformation Programme when it was formed in 2002. The initial Programme consisted of 50 individual projects grouped under six categories:

Category	Project
Asset management	• Performance Improvement Project – delivering change in productivity and performance in workflow management, customer experience, risk-based maintenance and a new asset operations structure. • Performance Improvement Implementation (four operational areas). • Asset Delivery – identifying suitable delivery partners, the development of a contract strategy and the handover of the capital programme. • Asset Data Improvement – developing asset management performance indicators and development of asset performance data. • Asset Planning – developing processes and standards, eg life cycle asset costing, risk management and network planning. • Asset Risk Management – developing a range of risk management tools. • Strategic Asset Planning – developing and implementing asset strategies for the main categories of assets. • Engineering Services – developing a strategy and business plan for the future role of engineering services in the capital programme. • Strategy for Developer Services – consolidating service levels to be provided by developer services. • Investment Programme Review – reviewing the current capital programme and alignment with performance indicators and business objectives. • Asset Specifications and Standards – developing standard specifications for equipment and materials.
Customer service	• Customer Management Centre – rationalising three customer service centres to a single location. • Business Debt Management and Collection – improving internal processes for business billing and collection, including data cleansing. • Revenue Maximisation – identifying opportunities to maximise business revenue. • Household Billing and Collection – encouraging local authorities to improve debt collection levels. • Business Billing System Rationalisation – examining existing billing systems with a view to moving to a common billing platform. • Web Development – enabling customers to use the internet for enquiries, meter reading and paying bills. • Develop Scottish Water Customer Database – developing the database to enhance customer knowledge so that accurate segmentation and profiling can take place. • Rationalisation of Customer Information for Emergencies – electronic collection of all information on customers required during emergencies for use by emergency teams. • Retail Partnering – did not proceed. • Implementation of Scottish Water Code of Practice – harmonising service levels to be provided across Scotland through the development of the Code of practice for customers. This includes internal arrangements to ensure delivery against revised standards agreed with the WIC.

Human resources	• Compensation and Benefits – developing and implementing strategies for retention, pensions, attendance, disciplinary issues and grievances. Also the definition of terms and conditions. • Training Strategy — implementing competency framework and cost-effective training programmes for managers. • Values – how employees are expected to behave and should be treated. • Internal Communications Strategy – activities to deliver internal communications to support the change programme. • Organisation Design – managing the voluntary severance programme, career counselling, outplacement and retraining support and the resource pool. • Digital Media – developing and implementing a digital media strategy to support internal communications, e-business and knowledge management. • Quality Systems – developing and implementing quality systems for key business areas, eg process mapping through to full ISO accreditation. • Health and Safety Scoping Project – developing a strategy and action plans for health and safety initiatives.
Finance	• Procurement: Sourcing Teams – establishing sourcing teams for the main spend groups, eg pipes, energy and chemicals. • Business Critical Data – validating and developing a hierarchy for performance indicators to enable them to be cascaded to functional and team levels. • Tariff Review – establishing the most appropriate tariff structures by reviewing existing tariff and cost structures. • Activity-Based Management – developing an understanding of costs of asset activities. • Finance Systems – identifying the most appropriate systems for finance. • Accounting Services – defining the most appropriate accounting services for the business. • Procurement: Management Information Systems – developing an e-market trial for procurement and the integration of management information and systems to support the procurement strategy. • Internal Service Level Agreements – implementing service level agreements between key providers and customers across the business. • Principles, Policies and Procedures – preparing corporate policies and procedures for the Scottish Executive as required by Ministerial Directions.

Business services	• Rationalisation to a Single Platform – rationalising inherited technology to a single system. • Fleet Utilisation – improving vehicle utilisation through better planning and control. • Property Services – rationalising the use of property. • Laboratory Rationalisation – considering the potential for laboratory rationalisation. • Business Intelligence – creating an information environment to satisfy the needs of internal and external stakeholders. • Business Continuity – developing a plan to ensure all key elements of the business continue to run during an emergency. • Internal Consultancy: Efficiency – developing cross-business efficiency opportunities. Establishment of internal consultancy team. • Information Strategy – defining the Information Strategy model. • Dealing with the Euro – understanding the implications of a possible change of currency.
Commercial services	• Performance Improvement Implementation – for contracting. • Contracting. • Developing the Scottish Water Waste Management Business.

2. By September 2004, many of the original projects had been completed. Some new projects had been added to the Programme and there were 31 still to be completed:

Category	Project
Asset management	• Operations Best Practice – scheduling of network tasks. • Energy – identifying energy-efficient initiatives to reduce costs. • Implementation South East – implementing the results of the Performance Improvement Project in assets operation area. • Implementation South West – implementing the results of the Performance Improvement Project in assets operation area. • Implementation North East – implementing the results of the Performance Improvement Project in assets operation area. • Implementation North West – implementing the results of the Performance Improvement Project in assets operation area. • Asset Data Improvement/Asset Information Management – developing asset management performance indicators and development of asset performance data. • Single-Man Choke Squads – changing from two to one-man operation of vehicles to clear choked drains, where appropriate. • Works Operating Manuals – extending works operating manuals across the business. • Standby Generation – improving processes and practices associated with standby electricity generation equipment. • Operations Management Centre – implementing planning and control of asset work requests. • Asset Risk Management – developing a range of risk management tools.

Customer service	• Cost of Service – redesigning processes and systems for the customer contact centre. • Household Billing and Collection – encouraging local authorities to improve debt collection levels. • Code of Practice – harmonising service levels to be provided across Scotland through the development of the Code of practice for customers. This includes internal arrangements to ensure delivery against revised standards agreed with the WIC. • Revenue Maximisation Phase 2 – programme to raise revenue from customers not currently being charged. • Billing Service Improvements – delivering significant improvements to business billing services, eg statement billing and credit card payments. • Customer Information for Emergencies – electronically collecting all information on customers required during emergencies for use by emergency teams. • Web Development Phase 2 – integrating all websites onto a single portal framework.
Human resources	• Training Strategy – implementing competency framework and cost-effective training programmes for managers. • Health and Safety Compliance – improving compliance rate by 5-10%, reducing accidents and introducing a behavioural safety programme.
Finance	• Finance Systems – identifying the most appropriate systems for Finance. • Activity-Based Management – developing an understanding of costs of asset activities. • Financial Control – defining the most appropriate accounting services for the business.
Business services	• IT – developing an IT model to meet future needs. • Logistics – improving vehicle utilisation through better planning and control. • Property Services – rationalising the use of property. • Business Continuity – developing a plan to ensure all key elements of the business continue to run during an emergency. • Freedom of Information (FOI) – establishing processes to support the FOI Act.
Cross business	• Promise to Resolution Phase 2 – focusing on improving business debt recovery, network recovery and establishing a centralised Developer Services Unit. • Business Process Analysis and Optimisation – identifying process improvements and cross-business efficiencies.

Source: Scottish Water

Appendix 3. Issues arising from the *Overview of the 2001/02 water authority audits* report

1. The Auditor General's report, *Overview of the 2001/02 water authority audits* raised a number of specific issues, which are detailed below. The responses to the issues were recorded in the auditors' annual audit report to the board for 2002/03.

Issues	Action taken by Scottish Water
Financial control issues	
Scottish Water should compile a consolidated fixed asset register.	Scottish Water transferred all fixed assets on to one fixed asset register during 2002/03.
Fixed assets should be reviewed in terms of their deployment and carrying values.	As part of the creation of the Scottish Water fixed asset register, reviews of asset lives and classification were carried out and adjustments made to reflect the most appropriate asset classifications and economic lives. Further impairment reviews together with full fixed asset existence checks were carried out in 2003/04.
Scottish Water should formulate a combined infrastructure asset maintenance plan.	Scottish Water is developing, with the assistance of independent engineers, the technical aspects of a comprehensive infrastructure asset management plan.
The practice of regular visits to local authorities to check domestic income systems and calculations should continue.	A dedicated household income team is now in place at Scottish Water, whose main objective is to review local authority billing and collection performance. Periodic checks are carried out to ensure the accuracy of calculation of ABCD formulas. A full-scale review is currently ongoing with regard to 31 March statements.
Further progress is required in developing and harmonising non-domestic income systems and controls.	There is a transformation project in place which is tasked with looking at all areas of customer service with a view to defining and implementing best practice in Scottish Water. Particular areas of focus during 2002/03 included customer data cleansing on existing billing systems, developing a new Scottish Water billing system which will be implemented during 2003/04, and improving debt recovery and credit management.
An overall review of debt management arrangements should be considered. Levels of domestic and non-domestic debts should be monitored closely – particular action is required to improve domestic collection rates.	See points above. The domestic income team are in the process of developing new Service Level Agreements with the local authorities. This will ensure that the contracts are structured such that the local authorities will be incentivised to improve collection performance.
As financial systems are harmonised, steps should be taken to ensure that the transfer process is planned and controlled.	There are formal project plans in place for each financial system implementation. This ensures that the implementation processes are well-planned and controlled to avoid disruption. Each implementation project also has a steering group in place with cross-business representation, which meets regularly to review progress to date and to consider risks and controls. During 2002/03 Scottish Water successfully implemented a single payroll system which went live on 1 April 2003.

General control issues	
As operational systems are standardised, steps should be taken to ensure that changes are adequately planned and costs controlled.	There are formal project plans in place for each system implementation. This ensures that the implementation processes are well-planned and controlled to avoid disruption. Each implementation project also has a steering group in place with cross-business representation, which meets regularly to review progress to date and to consider risks and controls.
The Audit Committee should review points arising from the 2001/02 audits of the previous authorities to ensure that all issues which are relevant to the new authority are addressed.	The Audit Committee was updated on the progress of all key matters which were raised during 2001/02 and presented to the various audit committees.
Steps should be taken to ensure that internal audit is adequately resourced and that the status of internal audit as a key element of the control environment is confirmed.	The Audit Committee view internal audit as an integral part of the control environment. The Committee reviews the internal audit plan and audit findings. In addition, the Head of Internal Audit also has direct access to the Audit Committee and to the Board Chair. The resource requirements of internal audit are reviewed annually in line with business needs.
Internal audit should develop a long-term, risk-based audit plan. The Audit Committee should review the plan to ensure that the programme of work will provide the assurance required by the Board, in terms of its corporate governance responsibilities.	Scottish Water's systems of internal control are based on an ongoing process designed to identify those risks material to the achievement of Scottish Water's policies, aims and objectives, to evaluate those risks and to manage them effectively in accordance with good risk management practices. Internal audit plays a major role in this process. A three-year audit plan has been prepared from the Strategic Business Plan, which focuses on areas of key risk to Scottish Water. The annual audit plan is reviewed and approved by the Audit Committee in advance and the results and findings of internal audit are presented to the Audit Committee at each meeting.
Scottish Water should take forward the work carried out in the three previous water authorities to develop a comprehensive risk management framework. Attention should be given to areas where the loss of experienced key personnel may indicate increased risk.	At the outset of Scottish Water a risk register was prepared. This register will be updated and reviewed annually by the Audit Committee and board. A risk management policy was in place throughout the year. A revised risk policy was approved by the Board following the preparation of the Strategic Business Plan which identified key risks material to the achievement of Scottish Water's aims and objectives. The Plan will continue to be reviewed and updated as factors change.
Scottish Water should consider developing authority-wide policies on fraud and whistle-blowing.	A fraud management and response policy was produced by Internal Audit during 2002/03. This policy is available to all staff via the intranet and forms part of a suite of financial control policies.

Other matters	
Harmonisation and standardisation will include a need for a human resource focus on developments.	During the year a steering group was set up to look at harmonising compensation and benefits across Scottish Water. Work continues in this important area with the completion date scheduled for mid to late 2003.
There is a need to improve the standard of personnel data and files.	The new combined payroll and HR system, which was implemented on 1 April 2003, greatly improves the standard and quality of personnel files and also provides a consistent format across Scottish Water.
Steps should be taken to conclude the outstanding tax affairs of the previous water authorities.	There is an ongoing process of communication with the Inspector of Taxes to agree all outstanding computations as soon as practical. All computations for the year ended 31 March 2002 have been submitted for the previous three authorities.
Steps should be taken to develop procedures for recording, reporting and monitoring key performance indicators.	Key performance indicator (KPI) reporting has been in place since April 2002 in the form of Performance At A Glance statistics, which are monitored by the Board and Business Management Team, and circulated to all employees on a monthly basis. A hierarchy of indicators is currently being rolled out which takes these headline KPIs and breaks them down into lower level indicators. This will enable management to home in on the key business drivers.
The arrangements for attaining efficiency savings should be monitored to ensure that agreed targets are achieved.	Scottish Water's performance is measured against efficiency targets agreed by the Scottish Executive. Performance against these targets is reported monthly to the Board, the Business Management Team and to the Scottish Executive and the WIC through the monthly regulatory returns and associated financial commentary. Financial forecasts are revised quarterly.

Appendix 4. Scottish Parliament Finance Committee report on the water industry, April 2004

1. One of the most important issues considered by the Scottish Parliament Finance Committee's review of the water industry in 2003 and 2004 was the extent to which Scottish Water's investment programme should be financed from borrowing or from increased charges. The Committee's report of April 2004 considered the way in which previous decisions regarding Scottish Water's borrowing provision were made. It concluded that there needed to be greater transparency in the process but rejected the hypothesis, advanced by economists who provided evidence to it, that there had been errors made by the Scottish Executive and the WIC in the financial settlement for Scottish Water. The economists considered this had led ministers to set Scottish Water borrowing limits which were too low, with the effect that a higher than desirable proportion of capital investment during April 2002 to March 2006 would be financed from increased customers' charges.

2. Three members, however, dissented from the Finance Committee's report in this respect. They produced their own report which concluded that, as a result of the revenue caps which were set, Scottish Water's customers were likely to have to pay £300 million more than they needed to between April 2002 and March 2006.

3. The economists considered that the WIC's *Strategic Review of Charges 2002-06* had used higher estimates for the depreciation of Scottish Water's assets than the Scottish Executive had used to determine Scottish Water's borrowing limits set out in annual budget documents. The consultants' main hypothesis was that the WIC had erroneously double counted infrastructure renewal expenditure – the amount Scottish Water annually spends on maintaining the operational capacity of the network which is both capitalised and charged as depreciation. The result was that the WIC's recommendations on revenue caps did not use all the borrowing allowed for by the Scottish Executive and hence water charges were higher than necessary.

4. The Scottish Executive, in its evidence to the Finance Committee, contended that there was no error in the financial settlement for Scottish Water. It contended that both it and the WIC had treated correctly infrastructure renewal expenditure. While the WIC did not use all the borrowing that was available, this was because of concerns that Scottish Water's assets may have been in a worse condition than its information indicated. That is, if the revenue caps had already been set for the four years to 2005/06 and more expenditure than expected was necessary to bring the assets up to a suitable condition, it was prudent to have a borrowing reserve available to finance the increased expenditure.

5. The Scottish Executive also maintained that ministers had, with the approval of the Scottish Parliament, made greater provision for borrowing than the WIC recommended because of doubts as to whether Scottish Water could achieve efficiency targets as quickly as expected by the WIC.

6. Since the Finance Committee reported, the economists have restated their concerns about Scottish Water's borrowing limits. In its meeting of 28 June 2005, in response to an e-mail provided by the economists, the Finance Committee discussed whether it wished to reconsider the issue. The Committee decided to note the correspondence and view it as a matter colleagues on the Audit Committee can address, should they wish to do so.

Appendix 5. Quality and Standards investment programme

1. The Quality and Standards (Q&S) process is designed to set standards that the water industry is required to meet to protect the environment and to safeguard public health, allowing the WIC to assess the revenue requirements to fulfil this. The investment programme is necessary to improve and replace ageing assets to meet tighter standards for drinking water quality and wastewater treatment, much of which is driven by EC regulations. The process has so far consisted of two investment programmes with a third being planned.

Q&S I

2. The first Q&S programme was drawn up to assist the WIC in setting his interim *Strategic Review of Charges* and covered the period April 2000 to March 2002. The programme set out the relevant standards of water quality and environmental protection expected of the previous water authorities, and anticipated how much expenditure would be required to meet those standards. Ministers set the initial programme at £740 million, excluding PFI schemes. The profile of that expenditure is shown below:

	2000/01 (£ million)	2001/02 (£ million)	Total (£ million)
Investment in drinking water	185	235	420
Investment in sewerage	165	155	320
Total	**350**	**390**	**740**

3. The WIC's interim *Strategic Review of Charges* recommended that a higher level of investment should be applied. Ministers therefore increased the investment programme by £150 million to £890 million. The WIC's *Investment and Asset Management Report 2000-02* concluded that the previous three water authorities had spent £888 million on the Q&S I Programme during the period and it was therefore reasonable to assume that all of the obligations described in the Q&S I document had been delivered.

Q&S II

4. The second set of priorities for the Q&S programme were set out in August 2001 to inform the WIC's *Strategic Review of Charges* covering the period April 2002 to March 2006. Again, the required water standards and the estimated cost of meeting those standards were set out in the document. Following a consultation exercise, which presented three options on the level of investment, the Scottish Executive chose the central option to meet statutory deadlines for improving drinking water quality and sewage treatment, and to make some enhancements to assets, although only investing enough in the underground infrastructure to prevent further deterioration. Ministers considered the central option represented the best balance between environmental and public health needs and affordability for customers.

5. The Q&S II programme set out an estimated £2.3 billion worth of investment over the four years. This was later reduced to £1.8 billion by the WIC, who decided in his *Strategic Review of Charges* that Scottish Water could deliver the same outputs for less through improved efficiency. The Q&S II programme forecast that £1 billion investment would be incurred in the former West of Scotland Water Authority area, £530 million in the East and £810 million in the North. The table below shows how the original investment was split by type of service.

	£ million
Water treatment	600
Water distribution	460
Wastewater treatment	510
Wastewater distribution	440
Miscellaneous	280
New developments and first-time sewerage	50
Total for Scotland	**2,340**

6. The Q&S II document gave broad details of the improvements in drinking water quality and environmental protection expected of the investment over the four-year period. The outputs were as follows:

Percentage population receiving secondary sewage treatment						
	East		**West**		**North**	
Year	2000	2006	2000	2006	2000	2006
Percentage population	39%	97%	62%	95%	34%	85%

Drinking water quality 1000 index						
	East		**West**		**North**	
Year	2000	2006	2000	2006	2000	2006
DWQ 1000 index	990	991	965	980	948	991

Indicative lengths of water main to be relined/replaced						
	East		**West**		**North**	
	km	%	km	%	km	%
Length of main relined/replaced	820	7	1,811	11	875	5

Indicative lengths of sewers to be rehabilitated						
	East		**West**		**North**	
	km	%	km	%	km	%
Length of sewer rehabilitated	97	1.0	129	1.1	220	3.0

7. In addition, the Q&S II investment was expected to reduce the number of properties across Scotland affected by low pressure and the number having potential to flood.

Q&S III

8. The Scottish Executive undertook consultation in 2004 on the nature and scale of the third part of the Q&S covering the period 2006-14. It is partly driven by legislative standards, as for the previous two parts of the programme, but the consultation paper also made it clear that there is, equally, a need to ensure that current assets continue to operate effectively and to ensure that water and wastewater networks can cope with new development in Scotland. Proposals on future investment needs were developed by a number of working groups involving different industry stakeholders under direction of a Project Board. Those involved included the DWQR and representatives from Scottish Water, the WIC's office, SEPA and the WCCPs, but also included bodies such as Communities Scotland, CoSLA and the Confederation of British Industry (Scotland).

9. In February 2005, the Deputy Minister for Environment and Rural Development announced the results of the consultation and the investment priorities. The essential objectives of Q&S III are to:

- improve the quality of 530km of rivers and coastal waters
- improve the drinking water quality for 1.5 million people in Scotland
- tackle development constraints by allowing an estimated 120,000 new homes and 4,000 hectares of land for commercial development to be connected to the public water networks
- take action on odour from 35 wastewater treatment works
- remove more than 1,100 homes from the risk of sewage flooding.

10. The Deputy Minister also announced objectives which he considered desirable to achieve, although with a lower priority than the objectives listed above. The new Water Industry Commission will decide the extent to which these objectives can be satisfied without compromising efficiency and charging objectives. The desirable objectives are to:

- improve the water quality of more Scottish rivers and coastal waters
- further reduce the risk associated with lead in drinking water
- improve water pressure for 6,000 properties
- improve standards of service in areas where assets do not perform as well.

Appendix 6. How customer service is regulated

1. The WIC calculated Scottish Water's overall customer service performance score using 11 key performance measures. The WIC excluded some of those used by Ofwat because they are not relevant to Scotland.

2. Six of the performance measures were the same as those used by Scottish Water as customer service targets (Exhibit 16, page 20), but others, such as the percentage of tap water samples complying with water quality parameters, were also used. Each of these performance measures fell into one of four categories: water supply, sewerage service, customer service and environmental performance.

3. Calculating how Scottish Water is performing overall entailed converting how it has performed against each measure into a score out of 50. This used information based on the historical performance of water companies in England and Wales. If a company performed below the range minimum it received the lowest score of five out of 50. The overall score was then calculated by adding the weighted score for each key performance measure. The weightings were 12:6:6:11 for water supply, sewerage service, customer service and environmental performance measures respectively. Ofwat assigned these weightings based on the importance that customers placed on each service.

4. The WIC considered that his approach enabled Scottish Water's customer service performance to be compared with that of water companies in England and Wales on the same basis.

Appendix 7. Key sources

1. Throughout this report, references are made to publications by Scottish Water, its regulators and other stakeholders in the water industry. The following table gives a list of the key sources that are used. The reports should be available from the bodies concerned, usually via their websites.

Scottish Water
- Annual Reports and Accounts
- Strategic Business Plan – 2003-06
- Delivery Plan – 2004-06
- Developing Strategy – 2006-10
- Draft Business Plan – October 2004
- Water Quality Report 2003

Scottish Executive Environment and Rural Affairs Department
- SE Consultation: Quality and Services II
- SE Consultation: Investing in Water Services – 2006-14 The Quality & Standards III Project: A Consultation Paper
- SE Consultation: Paying for Water Services 2006-2010: A Consultation on the Principles of Charging for Water Services
- Statement by the Scottish Executive on Investing in Water Services: Objectives for 2006-14

Water Industry Commissioner for Scotland
- Annual Reports and Accounts
- Strategic Review of Charges 2002-06
- Our Work in Regulating the Scottish water industry – Volumes 1-6
- Costs and Performance Report – 2001/02
- Costs and Performance Report – 2002/03
- Investment and Asset Management Report – 2000-02
- Investment and Asset Management Report – 2002/03
- Customer Service Report 2001/02
- Customer Service Report 2002/03
- Cryptosporidium Report 2002
- Strategic Review of Charges 2006-10: The draft determination

Scottish Environment Protection Agency
- Annual Reports
- Scottish Bathing Waters Reports
- Corporate Plans
- The Future for Scotland's Water – Guiding Principles on the Technical Requirements of the Water Framework Directive

Drinking Water Quality Regulator
- Drinking Water Quality in Scotland 2002
- Drinking Water Quality in Scotland 2003
- Drinking Water Quality in Scotland 2004
- Drinking Water Quality Regulator's Report to the Minister for Environment and Rural Development Following the Alerts in Glasgow and Edinburgh in August 2002

Water Customer Consultation Panels
- Annual Reports and Accounts
- Affordability of water charges for low-income households
- Panels' comments and responses to documents issued by Scottish Water and to legislation
- Principles of charging for water and wastewater

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