



ENVIRONMENT AGENCY
Efficiency in water resource management

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EXECUTIVE SUMMARY



Introduction

1 In the 2004 Spending Review the Treasury agreed efficiency targets with all government departments, informed by the results of the Gershon review of public sector efficiency.¹ As part of the efficiency target for the Department for Environment, Food and Rural Affairs, the Environment Agency has been set a target to realise efficiency gains of £73 million by 2007-08 from an annual expenditure in 2004-05 of some £850 million. The Agency is expected to realise these savings principally through efficiencies in flood risk management expenditure, greater emphasis on online services and savings in “back office” services such as finance and information technology. More details of the Gershon Review’s approach to efficiency are set out in Appendix 1.

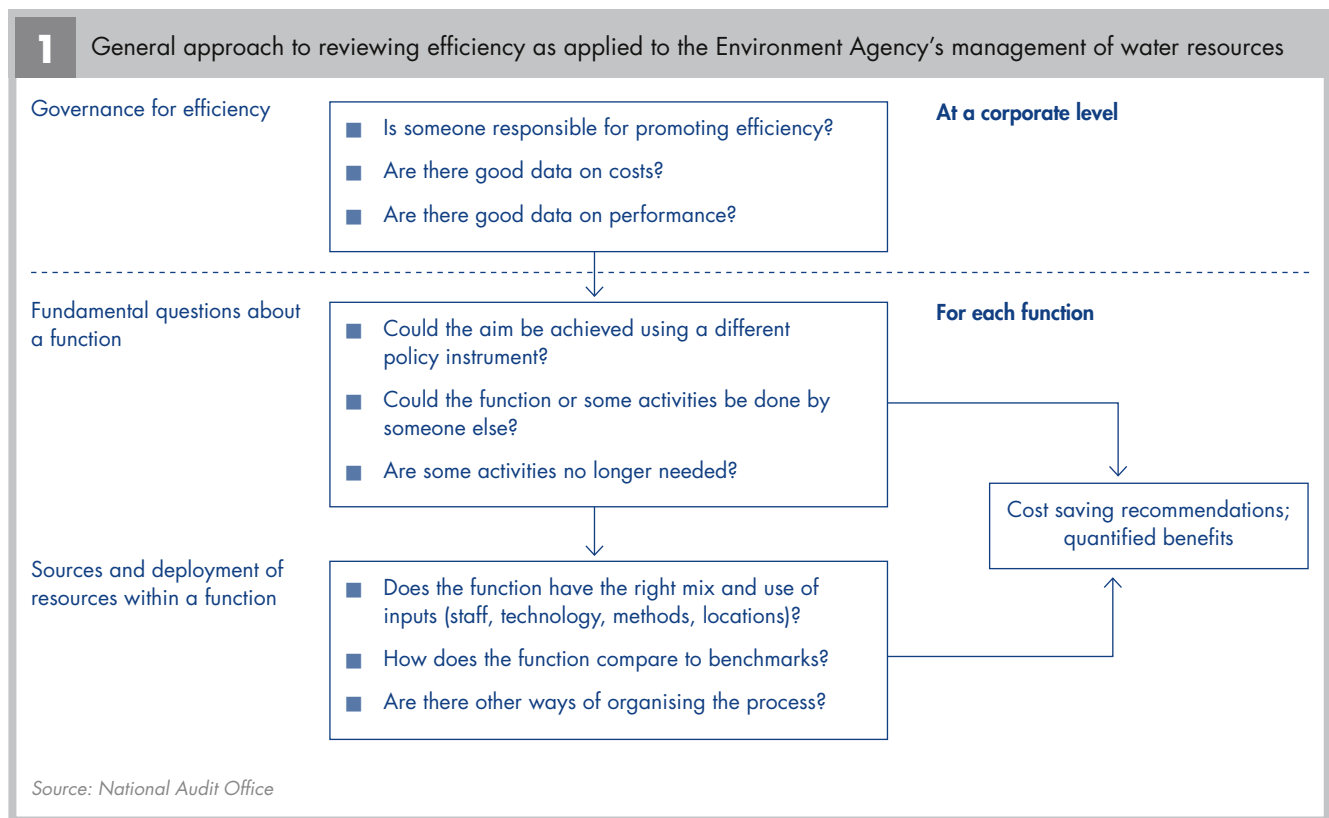
2 Prior to the Treasury and Gershon reviews, we began an examination of the scope for greater efficiency in that part of the Agency’s business known as “water resources management”, which costs some £114 million a year across England and Wales. The Agency has a duty to manage water resources to ensure that sufficient water is available to meet the needs of people and the environment. To fulfil this duty, the Agency:

- collects and monitors data from a network of some 14,300 sites across the country; the data are also used to help reduce the risk of flooding.
- regulates the use of water through a system of water abstraction licences, enforcing licence conditions where necessary.

The whole of this cost is met by charges to two-thirds of the 47,600 licence holders. For the other third no charges are levied, where the licensed quantity falls below a de minimis level or where a statutory exemption from charge applies. In England, the Department sets policy for the Agency and provides advice in relation to implementation. The Agency’s operations also extend to Wales, reporting to the National Assembly for Wales. Our report covers England only.

3 Our approach to reviewing efficiency, carried out in collaboration with PricewaterhouseCoopers, was to assess the extent to which the management of water resources was efficient in general terms, and then identify those activities where scope for efficiency improvement was greatest. In carrying out our review, a constant key factor was the need to make sure that any proposed changes kept the same level of effectiveness. Our approach is summarised in **Figure 1 overleaf** and explained in more detail in Appendix 2. The approach is generic and could be applied to other parts of the Environment Agency’s operations, or to other government bodies.

¹ *Releasing resources to the front line, Independent Review of Public Sector Efficiency, Sir Peter Gershon, July 2004, Annex C.*



Findings

4 The legislative framework for licensing was updated in the Water Act 2003.² The Water Act should allow the Agency to manage water resources more efficiently and effectively. The changes should simplify access to water resources and will:

- Remove more than 20,000 small abstractors from regulation;
- Bring into regulatory control some 6,500 significant abstractions which are currently exempt;
- Streamline the licence application and modification process, require all new licences to be time limited, and facilitate the trading of licences.

5 The Agency has reviewed the abstraction licence charging scheme to consider a more innovative approach and recover the costs associated with environmental improvement, and the modified requirements resulting from implementation of the Water Act 2003 and European legislation.³ Proposals for a new scheme were published for initial consultation in 2004 and will be implemented from April 2006.

² Relevant legislation was previously contained in the Water Resources Act 1991, as amended, and before that the Water Resources Act 1963.

³ Habitats and Species Directive 1992 (92/43/EEC) on the conservation of natural habitats, wild fauna and flora; Water Framework Directive, 2000 (2000/60/EC) establishing a water policy framework.

6 In general, we found that the Agency provides a well-managed and professional service. Our review nevertheless found scope for greater efficiency. In addition to the £1 million of savings which are expected from the Agency's own review of licensing, we estimate our recommendations could lead to further reductions of between £1.4 million and £2.5 million in the cost of managing water resources (**Figure 2**). We also found savings of some £174,000 in other areas of the Agency, arising from improved control of the hydrometric network. Some of the savings to water resources (£1.0 million to £2.0 million) will result from reallocating costs to other parts of the Agency. The Agency does not currently have the detailed management information it needs to make a full assessment of the scope for efficiencies in its water resource activities. The Agency is seeking to collate such information and once it is available, it should be possible to make further savings. The rest of this summary sets out where we consider savings are possible.

The Environment Agency needs better information on the cost of different water resource activities

7 The first step in quantifying efficiency is an assessment of the full cost of an organisation's programmes, activities and services. The Agency is required to calculate the full costs of water resource management to calculate abstraction licence charges. However, the Agency does not have sufficient information to show in detail how these costs are spent across the different water resource management activities, such as the monitoring of sites, maintenance of sites, analysis of data or licensing. Costing data have been used in the rest of this report where they were sufficiently reliable.

8 To better identify potential efficiency savings, the Agency will need to generate more robust cost data on its activities. The Agency is developing Activity Based Costing which, once introduced, should ensure that costs can be more accurately allocated, increase the transparency of charges and provide better management information. The Agency expects it will be several years before Activity Based Costing is fully embedded into the business. In the short term, therefore, the Agency is focusing on improving its management information.

2 Our recommendations could lead to reductions of up to £2.7 million

We estimate our recommendations could lead to reductions of up to £2.5 million in the cost of managing water resources, and £174,000 for other parts of the Agency, by:

- better control over the size of the network of monitoring sites;
- improved organisation and a review of the need and frequency of visits to sites;
- the use of new technology to automate data collection and transmission; and
- better organisation of data collection teams.

The Agency does not currently have the detailed management information it needs to make a full assessment of the scope for efficiencies in its water resource activities. The Agency is seeking to collate such information. We have highlighted areas where further savings should be possible, once better activity costing data are available.

Our other main finding was that water resource monitoring sites are unintentionally subsidising the Agency's flood defence work. If the Agency adopted a nationally consistent approach to the allocation of costs it could lead to a reduction in water resources' costs of between £650,000 and £1.7 million a year – and fairer charges to holders of water abstraction licences, who are not meant to be subsidising other Agency activities.

Source: National Audit Office

9 The Agency has devolved water resource management functions to its regions, in England and Wales, and we found a range of different practices in use. Activity Based Costing should also help the Agency focus on variations in regional performance and the practices which underlie that performance, identify and promote more widespread application of best practice, and thereby encourage efficiency and bring further savings. At the same time, the Agency might usefully review the value of allowing some areas of regional discretion, for example on the negotiation or calculation of different charge-out rates, where the exercise of this discretion brings costs without commensurate benefits.

There could be better control over the development of the monitoring network

10 The number of water monitoring sites in England has grown by 12 per cent in the last three years. The additional 1,500 sites, mainly for precipitation and level recording, have been added primarily as a result of the Bye Report on flooding.⁴ Further growth is expected as the Agency further improves its flood warning services and responds to the needs of the Water Framework Directive. Despite the network's importance, however, no one group within the Agency is responsible for control of the network as a whole. The Agency could achieve efficiency savings if it looked more critically at the present and future need for sites. The Agency is reviewing its data collection requirements, including the number of monitoring sites. Clearer responsibility for network costs, allowing greater challenge on the need for sites, could realise the potential to reduce the number of new or existing sites needed. Reducing existing site numbers by 5 per cent for example could yield efficiency savings of up to £435,000 a year, of which £261,000 would be related to water resources.⁵

Regional charges for the Operations Delivery Workforce could be more consistent

11 Day-to-day responsibility for keeping data monitoring sites in good condition rests with the Agency's hydrometric teams. For routine maintenance, the Agency uses its Operations Delivery Workforce and contractors to maintain sites. The internal charging rates for the Operations Delivery Workforce in each region are determined and negotiated locally. Therefore, some variation in rates is to be expected, even though the Agency has national pay scales for the Workforce's staff. In practice, however, the rates range from £13 an hour in North East Region to £27 an hour in Thames Region. If all regions were charged at the lowest rate, total costs born by water resources could be reduced by some £330,000. The amount would, however, need to be reallocated to other functions within the Agency.

Visits to water monitoring sites could be prioritised more consistently

12 For those roughly 12,000 sites where data must be collected or equipment checked most often, the Agency makes around 150,000 visits each year – an average of 13 visits a site. However, the Agency does not consistently prioritise its site visits according to risk, importance or its own good practice. It needs to develop a nationally consistent approach to the prioritisation of site visits to challenge the need to visit so frequently. Nor does the Agency have reliable, consistent and comparable data across all regions setting out the cost of visits. We estimate that the organisation and carrying out of site visits costs approximately £3.8 million each year. A 5 per cent reduction in the number of site visits could release savings of £190,000 a year.

Use of new technology allows more efficient methods of data collection

13 The Agency uses various methods for collecting data on water levels and flows from its fixed installations:

- some collect and transmit data automatically (known as "telemetry");
- some collect data electronically on-site, which then needs to be collected periodically and transmitted manually; and
- others require data to be collected and transmitted manually.

14 Technical advances in collection methods allow the Agency to gather data more cost-efficiently. The Agency has introduced continuous electronic data recording where it would be cost-effective and such technology is used at around 35 per cent of monitoring sites. The introduction of new technology has also reduced the frequency of data collection visits and most sites are now visited monthly rather than fortnightly. The Agency has limited information on the costs of its technology and potential alternatives, or the scope for wider deployment of new technology. It needs to obtain such information, and review the options for using more cost-efficient technology, if it is to obtain the potential benefits of greater automation. To address these issues, the Agency established a Technology Evaluation Group in 2004. One of the tasks of the Group is to review the options for rolling out more cost-efficient technology.

⁴ An independent report by Peter Bye on flooding, and lessons to be learned, published September 1998.

⁵ The actual saving possible would depend on: the type of site being closed, as different sites have different associated costs; the geographic distribution of those closures; and the proportion of activity attributable to management overheads.

Cross-subsidy with flood risk management needs to be remedied

15 The Agency's network of 14,300 water monitoring sites in England provides data on water flows, levels and precipitation. The network costs some £13.7 million a year to operate. Most monitoring sites within the network serve water resources and flood risk management functions but some support one or the other. However, the cost of these joint sites is not allocated appropriately between the two functions. In most regions, water abstraction licence fees subsidise flood risk management costs. This reduces accountability for costs and the incentive to manage sites effectively. Better arrangements to allocate costs are already in place in two of the Agency's seven English regions, and two more regions are developing similar arrangements. The Agency needs, however, to adopt a nationally consistent approach to the allocation of costs between flood risk management and water resources. This should result in a reduction in water resources' costs of between £650,000 and £1.7 million a year across the Agency. In turn, this should lead to lower charges to licence holders and, where relevant, their customers. However, although total abstraction charges would decrease, the amount would need to be reallocated to the Agency's flood risk management function, the costs of which are largely funded by the taxpayer generally.

The Kielder reservoir agreement reflects the decisions taken at the time of privatisation

16 Under Section 20(1) of the Water Resources Act 1991, the Agency has a duty to enter into arrangements with water companies to secure the proper management or operation of reservoirs and other works related to the supply of water. In England, the agreements, with two water companies, Northumbrian Water and Severn Trent Water, cost £15 million in 2003-04. The agreement for the Kielder reservoir scheme, which costs some £12 million a year, is the largest of the agreements.

17 In line with the statutory aim to secure the proper management or operation of reservoirs, the Agency's Section 20 agreements provide annual payments linked to the value of the assets and, in some cases, payments towards operational and maintenance costs of the reservoir schemes. Kielder is unique among the agreements in that it makes an additional provision for a return on the capital investment incurred in the reservoir. Under the agreement, the Agency is required to pay Northumbrian Water £7.35 million a year in perpetuity, and to increase this amount in line with the Retail Price Index. In accordance with this increase, the Agency paid £11.4 million in 2003-04. Although the return on investment provision in the Kielder agreement is unusual compared to the other Section 20 agreements, it reflects what was needed, as part of the financial structure at the time of privatisation, to ensure the successful sale of the water company.



RECOMMENDATIONS

18 The recommendations below summarise the opportunities for the Agency to reduce the costs of water resource management.

- a** Assessing the full cost of water resource management activities, to help better identify potential efficiency savings. The Agency is developing Activity Based Costing which, once introduced, should ensure that costs can be more accurately allocated, increase the transparency of charges and provide better management information. (*paragraphs 2.6 to 2.7*)
- b** Adopting consistent cost allocation between flood risk management work and water resources – this could result in a reduction in water resources costs of between £650,000 and £1.7 million a year across the Agency. Total abstraction charges would decrease by this amount, and the Agency would need to reallocate the amount to its flood risk management function. Better allocation of costs will also result in fairer charges to licence holders. (*paragraphs 2.9 to 2.12*)
- c** Clarifying responsibility for network costs - this could lead to a reduction in the cost of operating the network of monitoring sites of some £435,000, of which £261,000 is related to water resources. (*paragraphs 3.4 to 3.11*)
- d** Adopting a risk based approach to site visits – this could reduce the number of visits needed to monitoring sites. The Agency does not consistently prioritise site visits according to risk, importance or its own good practice. It needs to develop a nationally consistent approach to the prioritisation of site visits to challenge the need to visit so frequently. A 5 per cent reduction in site visits could release around £190,000 a year. (*paragraphs 3.12 to 3.20*)
- e** Improving the information on the costs of technology and potential alternatives, and reviewing the options for using more cost-efficient technology – this could help obtain the potential benefits of greater automation. To address this gap, the Agency established a Technology Evaluation Group in 2004. One of the tasks of the Group is to review the options for rolling out more cost-efficient technology. (*paragraphs 3.21 to 3.25*)
- f** Reducing the regional variation in hourly charges for site maintenance by the Operations Delivery Workforce - this could lead to the reduction of some £330,000 in water resource costs, although this amount would need to be reallocated to other functions within the Agency. (*paragraphs 3.26 to 3.28*)



19 Our work at the Agency, and the general approach to seeking efficiency which we have set out in Figure 1 and Appendix 2, suggest that there a number of ways in which the Agency and other Government bodies might pursue efficiency, as set out in **Figure 3**.

3 Key steps to efficiency

Establish a corporate framework

- Allocate corporate responsibility for reviewing efficiency, with review mechanisms to match
- Develop sufficient and reliable accounting information on the costs of activities, through Activity Based Costing
- Ensure the availability of performance data on efficiency and not just effectiveness

Look at the need for and scale of each function or activity

- Review whether there is a continuing need for a function, and that the need justifies the resources applied
- Ask whether a different policy instrument would be a more efficient way to deliver the same aim
- Consider whether the responsibility and cost might be transferred to someone better suited to carry it (and similarly, whether there is scope to share costs with others doing similar work)

Examine the sources and deployment of resources within a function

- Examine regional or sub-organisational variations, in costs, performance and working practices
- Review performance against external benchmarks and trends over time
- Review the mix of inputs (number and type of staff; application of technology), how inputs are procured, and how they are deployed (organisation, processes and location)

Source: National Audit Office