



National Audit Office

**REPORT BY THE
COMPTROLLER AND
AUDITOR GENERAL**

**HC 188
SESSION 2010–2011**

8 JULY 2010

Environment Agency

Tackling diffuse water pollution in England

Summary

1 In 2000, the United Kingdom agreed to work towards new standards for water and ecological quality in all water bodies (including rivers, canals, lakes and coastal waters), as set out in the European Water Framework Directive (the Directive), by 2027 at the latest. The Environment Agency (the Agency) has lead responsibility for water quality in England.

2 Pollution imposes not only environmental costs through its effect on aquatic life, but also financial costs from the treatment of water for drinking. The cumulative cost of water pollution in England and Wales has been estimated at up to £1.3 billion per annum. Pollution derives from two sources: point source pollution, which comes from a single identifiable source such as a factory or sewage treatment works; and diffuse pollution, which comes from multiple dispersed sources, such as agricultural land and road run-off. Identifying which sources of diffuse pollution have the greatest impact on water quality can be difficult due to the variety of sources and the time-lag before improvements are visible. Although each source may have relatively little impact individually, their cumulative effect can be highly damaging.

3 Historically, the Agency has focused its expenditure on tackling point source pollution. It has been successful in addressing this pollution and thus delivering improvements to the environment. Under the Agency's previous system for classifying water quality, 79 per cent of English rivers achieved good or very good status in 2008, up from 55 per cent in 1990. However, as pollution from point sources has been reduced, the impact of diffuse pollution is becoming more evident. In 2008-09 the Agency spent over £140 million on its water quality work in England, including an estimated £8 million directly on diffuse pollution. Other environmental schemes, such as the England Catchment Sensitive Farming Initiative, also help to tackle diffuse pollution.

4 In 2009 only 26 per cent of water bodies in England met the required levels of water quality under the Directive's more demanding classification system. The Department for the Environment Food and Rural Affairs (the Department) and the Agency do not expect that all English water bodies will achieve these levels by 2027 as it may be disproportionately costly or not technically feasible for some water bodies. Although the Directive does allow for these reasons, if the European Commission does not accept the case for these particular water bodies, it could take legal action against the Government. If such action were successful and the United Kingdom did not comply with the judgement, there is a possibility that it could face considerable financial penalties.

5 The National Audit Office examined the Agency's progress in tackling diffuse pollution, focusing on three key issues, whether the Agency:

- has a good understanding of the sources of diffuse pollution and the reasons why the standards are not currently being met, so that it can target its resources at those responsible for the pollution;
- is raising awareness amongst polluters of the problem and of how changes in their behaviour and practices can tackle this; and
- is making good use of incentives and sanctions to change the behaviour and practices of farmers.

Key findings

Understanding the causes of diffuse pollution

6 Although the Agency in recent years has gathered evidence on the causes and sources of diffuse pollution, this work is not complete. It has yet to identify sufficiently the extent to which failure to meet standards is due to this pollution and which sources contribute most to this failure. As a result, we are unable to establish whether the Agency's resources are targeted effectively:

- Establishing the sources of diffuse pollution has proved difficult as these can vary from place to place. The Agency has recently developed a better understanding of the condition of England's rivers through the compilation of River Basin Management Plans in December 2009, but it has found it difficult to measure the full extent to which diffuse pollution is responsible for the failure to meet water quality standards. It believes, based on the professional judgement of its field staff, that 30 per cent are failing to achieve a good status because of diffuse pollution, with a further 34 per cent failing for unknown reasons. The Agency started an extensive programme of investigations in April 2010 to improve its understanding of the reasons behind the failure of this 34 per cent.
- The majority of the Agency's efforts to tackle diffuse pollution have focused on the agricultural sector, as it considers this to be the major contributor to diffuse pollution. However, the Agency's knowledge of other sources of pollution, particularly from urban sources, is less developed.
- The Agency has limited field evidence on the extent to which different aspects of agricultural activity (such as fertiliser spreading or livestock management) contribute to diffuse pollution, and which changes to farming practices are likely to have the greatest impact. It is therefore funding research in Catchment areas, in conjunction with the Department, to collect more evidence on this subject.

Raising awareness

7 Despite the Agency's efforts to persuade the farming sector to recognise their responsibilities for diffuse pollution, the sector's awareness of the problem remains low:

- Seventy two per cent of farmers we surveyed considered that agriculture contributed only a little or not at all to diffuse pollution, although 68 per cent stated that they consider the impact of their activities on the water environment a fair amount or a great deal when making decisions on their farm.
- We found several examples of good partnership working at the local level between the Agency and stakeholder bodies to help raise awareness in the farming sector. However, there is scope for improvement in the coordination between the Agency and its stakeholders at a national level and for greater clarity around the roles and responsibilities of various stakeholders.

Using incentives to change behaviour

8 Without the widespread commitment of farmers to tackling diffuse pollution or sufficient access to financial incentives, the impact of voluntary initiatives has been piecemeal:

- Training and advice offered under the England Catchment Sensitive Farming Delivery Initiative has led to some farmers making changes to their farming practices that are likely to reduce levels of pollution. By 2009 the number of farmers engaged in the 40 original catchment areas had increased to 25 per cent, although there was considerable variation between areas, with the number of farms engaged ranging from 36 per cent to as little as 6 per cent. This variation could, in part, be due to the targeted nature of the programme, different farm types and sizes, and the variety of methods used to engage with farmers in the different areas.
- The Department's £2.1 billion Environmental Stewardship Initiative offers the opportunity to support water quality improvements through resource protection options. Over 70 per cent of agreements under the Initiative included options that have the potential to improve water quality, but the extent of any impact is unclear. Less than two per cent of agreements under the largest scheme in the Initiative included options for which the primary objective is water quality improvement.
- A lack of flexibility in the allocation of capital grants under the England Catchment Sensitive Farming Delivery Initiative means that, in certain cases, the funding is not being spent on those measures which would deliver the maximum reductions in diffuse pollution at an individual farm level. These grants are administered by Natural England.

Using sanctions to change behaviour

9 Sanctions have previously proved relatively ineffective in changing behaviours. The Department and Agency have instigated changes aimed at improving how sanctions can be used, but it has taken a long time for the shortcomings to be identified and addressed:

- The European Nitrates Directive sets strict limits on the quantity and timing of farmers' nitrate fertiliser applications within Nitrate Vulnerable Zones. In 2008 the Agency found breaches in the Directive's requirements in three per cent (69) of the 2,300 farms inspected under the Directive, mainly due to poor record-keeping.
- Although not designed to tackle diffuse pollution specifically, the Agency can issue anti-pollution works notices to prevent, remedy or prohibit activities that contribute to water pollution. It issued seven such notices in 2008-09. Agency staff considered that the complexity of the issuing process, the disproportionate level of evidence required to support the notice, and a lack of management and legal support prevented their wider use. In recognition of the notices' limitations, in 2009 the Agency reviewed how these could be adapted for use for diffuse pollution and has drawn up a plan to streamline their use in 2010.
- The Department has had the power since 1991 to designate areas as Water Protection Zones, where polluters can be forced to change activities. Whilst the original power was designed to tackle point source pollution, the Department amended this power from December 2009 to allow it to be used to tackle diffuse pollution.
- There are weaknesses in the information systems the Agency uses for its regulatory work. Data on its inspection activities are held across multiple databases and are incomplete. The Agency is therefore unable to determine the effectiveness of its inspections or the optimal level of its inspection activity.

Conclusion on value for money

10 The Environment Agency's annual expenditure of £8 million has had little impact in reducing diffuse pollution and therefore in mitigating the environmental impacts and financial costs of poor water quality in England. Accordingly we have concluded that the Agency's work to date has not proved value for money because:

- the Agency has lacked sufficient information on the causes of diffuse pollution, and on why some rivers and water bodies are failing quality standards, to target its resources effectively;

- little progress has been made in persuading those causing most diffuse pollution to acknowledge their responsibility, undermining the effectiveness of the Agency's voluntary initiatives to change behaviours;
- it has limited evidence of the effectiveness of its inspection activity; and
- the Agency has been slow to recognise the ineffectiveness of some of the existing sanctions and regulations to tackle diffuse pollution.

11 Looking forward, the development of River Basin Management Plans by the Agency has generated a better understanding of the challenge in meeting the EU targets and the substantial work still to be done. These plans now offer the Agency an opportunity to achieve value for money going forward through a set of co-ordinated activities to target actions by itself and others to raise awareness and change behaviour.

Recommendations

On understanding diffuse pollution

- a** **There are currently gaps in the Agency's knowledge on diffuse pollution.** The Agency should improve its evidence base on the extent to which the different sources of diffuse pollution impact on water quality through targeted local level monitoring, with information used to direct and support the Agency's future interventions. (Paragraphs 1.14-1.15)

On raising awareness

- b** **While the England Catchment Sensitive Farming Delivery Initiative has had some positive impact on changing behaviours, many farmers remain unconvinced of their contribution to the problem.** The Agency should intensify its efforts to raise awareness and change behaviours amongst the farming community by:
- developing a greater understanding of how best to influence farmers, including who is best placed to deliver the required messages; and
 - providing a more compelling case for farmers by building on the evidence base linking farming to diffuse pollution and clearly demonstrating the benefits of mitigation measures. (Paragraph 2.3)
- c** **There is scope for improving how the Agency coordinates its activities with stakeholders.** It should consider developing more formalised agreements with stakeholders for tackling diffuse pollution at a River Basin level. (Paragraphs 2.4-2.6)

On providing incentives to encourage changes in farming practices

- d** **The impact of incentive schemes on diffuse pollution has been piecemeal.** The Department should improve the targeting of options under Environmental Stewardship schemes to increase their contribution towards reducing the impact of diffuse pollution. The Department should also consider introducing more flexibility in the method used for assessing applications for grants under the England Catchment Sensitive Farming Initiative to ensure that it funds activities on individual farms that will prove to have the greatest impact on diffuse pollution. (Paragraphs 2.21-2.23)

On enforcing the legal responsibilities of farmers

- e** **The Agency has a number of databases to record information on its inspection activities and is unable to provide a complete record of all inspection activity.** The Agency should ensure that information is consistently managed and recorded across these databases, and properly integrated. (Paragraph 3.10)
- f** **The Agency does not consistently follow up on inspections and has not determined the value of the outcomes achieved by its regulatory inspection activity.** In view of the recent changes to the rules governing Nitrate Vulnerable Zones, the Agency should assess the value of its regulatory visits and determine the optimum number of inspections required to achieve desired outcomes. (Paragraphs 3.13-3.14)
- g** **It has taken a long time for the shortcomings identified in the sanctions available to the Agency to be addressed.** The Agency should act quickly to adapt the use of anti-pollution works notices to diffuse pollution, streamlining the issuing process, developing clear guidance, and providing staff with training and greater management support. (Paragraphs 3.20-3.21)