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European Union Committee

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An Indispensable Resource: EU Freshwater Policy

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Sub-Committee Staff

The current staff of the Sub-Committee are Paul Bristow (Clerk), Alistair Dillon (Policy Analyst) and Mandeep Lally (Committee Assistant).

Contacts for the European Union Committee

Contact details for individual Sub-Committees are given on the website.

General correspondence should be addressed to the Clerk of the European Union Committee, Committee Office, House of Lords, London, SW1A 0PW

General enquiries 020 7219 5791. The Committee's email address is euclords@parliament.uk

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Evidence is published online at www.parliament.uk/hleud and available for inspection at the Parliamentary Archives (020 7219 5314)

References in footnotes to the Report are as follows:

Q refers to a question in oral evidence;

Witness names without a question reference refer to written evidence.

SUMMARY

Large parts of Europe, including England, are suffering from water stress. Increasingly, we cannot take our water resources for granted. Planning now for an uncertain future is both necessary and urgent.

In the UK and elsewhere in the EU, governments need to act decisively. They have to grasp the nettle of allowing the cost of water to rise in areas of greater water scarcity. However, if people are to be asked to pay more for their water, they need to be made aware of the value of water as a resource. They need to be able to recognise the other ecosystem service benefits that freshwater bodies provide in their local catchment area and hence play their part as stakeholders in defending the conservation of local water resources.

In 2000, the EU agreed the Water Framework Directive. It was intended to guide Member States towards an integrated approach to managing water resources, over the period to 2027. At the end of this year, after reviewing the Directive's implementation, the European Commission will publish proposals to safeguard the EU's water resources to 2020. The Commission's "Blueprint" will also take a view of challenges to 2050.

On balance, the Directive has been a force for good. We endorse its more holistic approach and we think that its ambition is sound. The momentum of implementation has built up across EU Member States. The Commission needs to ensure that this momentum intensifies, and to step up communication of the improvements achieved. The flexibility built into the Directive will need to be exploited to meet the challenges posed by population growth and climate change.

The Directive's aim—of "good status" for all water bodies by 2027—cannot effectively be pursued without action on water resource availability. In recent years, drought has affected many EU Member States, most recently many parts of England. There is little support for EU legislation on water scarcity and droughts, but the Blueprint must show the critical dependencies between quality and availability. The EU should encourage the development of national water scarcity and drought management plans.

In the UK, at the end of 2011, the Government published a Water White Paper which spoke of the need to make changes to protect the "precious resource" of water. We welcome the commitment in principle. An urgent and radical approach is needed; but setting a date in the mid to late 2020s for a new regime for water abstraction fails to demonstrate a practical application of this approach.

Governments and others must secure the effective engagement of stakeholders, including those working at catchment management levels. We welcome the UK Government's support of catchment management pilot schemes, to foster local involvement. The Commission should promote the catchment level as an important level of governance in the Blueprint. Planning for the future of our water resources must draw on the strengths of local involvement as well as the impulses of EU and national strategy.

An Indispensable Resource: EU Freshwater Policy

CHAPTER 1: INTRODUCTION

1. In continental Europe, rivers often form the boundaries between Member States, or flow out of the territory of one into that of another. They link and integrate the pressures that society places on our use of both water and land. European legislation on different aspects of freshwater quality has a history going back over several decades, and several pieces of this legislation agreed before 2000 are still in force.
2. Water stress varies significantly across the EU. The map at Appendix 6 demonstrates this variation, and shows that high stress is a feature in Member States as diverse as Cyprus and the Republic of Ireland.
3. In 2000 the EU agreed the Water Framework Directive (WFD), with the intention of taking an integrated approach to the management of water resources, setting out a longer-term framework within which Member States would be required to act. All Member States have been required to produce River Basin Management Plans (RBMPs) by 2009, and these provide the basis for protecting, improving and maintaining the environmental condition of surface and ground waters by certain milestone dates: 2015, 2021 and 2027. Member States should aim to ensure that, by the final date of 2027, all rivers and water bodies have reached, or have maintained, “good” or “high” status, and their progress towards that objective is to be reported at the earlier milestone dates (see Box 1). Infraction proceedings are triggered under the WFD after 2015 if the mechanisms for delivery are deemed to be insufficient to achieve the objectives, rather than whether all water bodies have met “good” or “high” status.
4. EU freshwater policy contains other elements, but the WFD is of overarching importance. Existing directives have already brought into force measures that are relevant to the implementation of the WFD. These include some under which the UK has previously been subject to infraction proceedings, such as the Urban Waste Water Treatment (91/271/EEC), Shellfish (79/932/EEC) and Nitrates (91/675/EEC) Directives. Other directives also clarify and co-ordinate WFD objectives to be in RBMPs, such as the Environmental Quality Standards Directive (2008/105/EC), which sets out limits on concentrations of the priority substances in surface waters; the list of priority substances is currently under revision.
5. Most (though not all) Member States have produced RBMPs. Since 2010, the European Commission has reviewed EU freshwater policy, with a particular focus on the WFD. This has included a preliminary study, or “fitness check”, of the relevance, coherence, effectiveness and efficiency of EU freshwater policy. The study’s findings were expected to be published in spring 2012.
6. This fitness check in turn underpins the Commission’s “Blueprint to Safeguard Europe’s Water Resources” to be published at the end of 2012, with the aim of ensuring good quality water in sufficient quantities for all

- authorised uses. The Commission has said that the Blueprint will be the policy response to the challenges to water resource management posed by implementation issues arising out of the current EU policy framework, and by the need to develop measures to tackle water availability and water quantity problems. While the time horizon of the Blueprint will be 2020, the underpinning analysis will cover a time-span up to 2050.¹ In March 2012, the Commission launched a consultation process on potential policy options, seeking comments by June.
7. The need to consider water protection issues extends to other EU policies. In the last two years, this committee has reported on the adaptation of EU agriculture and forestry to climate change,² and on innovation in EU agriculture.³ Both inquiries highlighted water resource management as a key policy consideration. Our report on innovation also placed these concerns in the context of proposals for the reform of the Common Agricultural Policy (CAP), and for the future approach to EU support for research and innovation.⁴
 8. We decided to conduct this inquiry in order to offer our own views on the future direction of EU freshwater policy at a time when the Commission, Member States and other interested groups were engaged in the discussions leading up to the Blueprint. We issued our call for evidence in July 2011 and we took oral evidence from a range of EU and UK witnesses between October 2011 and March 2012. Our findings are of particular relevance to the UK, and to the UK's implementation of EU water legislation. We have also drawn on the experience of other, largely Northern, EU Member States, and recognise that there are particular issues of water resource management elsewhere in the EU, for example, inter-country management issues or the extreme problems of water stress in Southern European countries, which we have not explored in this inquiry. The Commission's Blueprint will address water resources across the whole of the EU; we shall be closely interested in the way in which it shapes its proposals to reflect the variety of conditions across the EU.
 9. The members of the Agriculture, Fisheries and Environment Sub-Committee who carried out the inquiry are listed in Appendix 1, which shows their declared interests. We are grateful for the written and oral evidence that was submitted to the inquiry; the witnesses who provided it are shown in Appendix 2. We are also grateful to Professor Bob Harris, Visiting Professor of Catchment Science at the University of Sheffield, and Dr Jonny Wentworth, Environment and Energy Adviser in the Parliamentary Office of Science and Technology, who acted as specialist advisers to the inquiry.
 10. The call for evidence is shown in Appendix 3. The evidence received is published online.
 11. We make this report to the House for debate.

¹ See Annex A to European Commission's written evidence.

² 8th Report (2009–10), HL Paper 91.

³ 19th Report (2010–12), HL Paper 171.

⁴ In October 2011, the European Commission presented legislative proposals for CAP reform. See: http://ec.europa.eu/agriculture/cap-post-2013/legal-proposals/index_en.htm
In November 2011, the Commission presented its "Horizon 2020" proposals for EU funding for research and innovation between 2014 and 2020.
See: http://ec.europa.eu/research/horizon2020/index_en.cfm?pg=h2020

CHAPTER 2: IMPLEMENTATION OF EU WATER LEGISLATION

12. It is 12 years since the Water Framework Directive (WFD) was adopted, and more than two years since the deadline of December 2009 for Member States to produce their first round of River Basin Management Plans (RBMPs) under the Directive. The European Commission has judged it to be the right time to evaluate the state of implementation of the WFD and other water-related legislation, as the basis for the Blueprint which it will publish this year. Its approach was described as follows: “Our point of departure is that what can be fixed through better implementation should be fixed through better implementation rather than through grand new schemes. Also, the problems that we identified that can be fixed through better policy coherence and better integration with other policies should give priority to that way of dealing with them ... We will come to a residuum that we cannot deal with efficiently in that way, and that will be the scope for new measures.”⁵
13. We welcome this approach. We focussed much of our inquiry on experience of implementing the WFD and other EU legislation on water management, in other Member States as well as in the UK. We set out our findings below.

BOX 1

The Water Framework Directive (2000/60/EC)

Under the Water Framework Directive, the basic management units for river basin management planning are the River Basin Districts (RBDs) that may comprise one or more river basins (and include as appropriate lakes, streams, rivers, groundwater and estuaries, together with the coastal waters into which they flow).

The WFD requires that river basin management plans (RBMPs) must be developed, and reviewed on a six-yearly basis, specifying the actions required within each RBD to achieve set environmental quality objectives. RBMPs must identify discrepancies between the existing status of rivers and other water bodies, and that required by the WFD, so that a programme of measures can be put in place to achieve the desired goals. The planning process should include an economic analysis of all water uses in each RBD, as well as determining the pressures and impacts on the water environment. A key element of this process is public information and consultation.

All water bodies are assigned to one of the Directive’s five status classes: high, good, moderate, poor or bad. The WFD requires that all inland, estuarial and coastal waters within RBDs must reach at least good status by 2015. This is based on an assessment of ecological, chemical and quantitative criteria. There are more limited criteria for assessing the status of heavily modified and artificial water bodies; groundwater status is assessed on quantitative and chemical criteria alone.

There are over 30 differing criteria for assessing the status of rivers, lakes, transitional waters and coastal waters, but they all include consideration of:

- **biological quality**, including presence or absence of various algae, plants, fish and invertebrates;

- **physical and chemical quality**, including oxygenation and nutrient conditions;
- **environmental quality standards** for levels of specific pollutants, such as pesticides; and
- **physical aspects** that support the biological quality of the water body, such as the quantity and dynamics of water flow (hydro-morphological quality).

If part of a water body fails on any one of the criteria monitored, it will fail to achieve or lose good status. This is described as the “**one out all out**” approach.

There are a number of exemptions to the general objectives, including disproportionate cost, that allow for less stringent objectives, extension of the deadline beyond 2015 or the implementation of new projects. For all these exemptions, strict conditions must be met and a justification must be included in the river basin management plan.

Member States were required by the WFD to prepare RBMPs by December 2009; key subsequent deadlines are 2015, 2021 and 2027. In each case, environmental objectives set out in RBMPs should have been achieved six years after the RBMPs were prepared, and improved objectives should be specified for achievement over the next cycle of river basin planning of the following six years. Catchment Flood Management Plans, produced to meet the requirements of the Floods Directive (2007/60/EC), must be co-ordinated and synchronised with RBMPs.

Member States’ governments have to designate organisations to act as “competent authorities” within their territories for taking forward implementation of the WFD. The UK Government have designated the Environment Agency to carry out this role in England and Wales; the Scottish Environment Protection Agency in Scotland; and the Environment and Heritage Service in Northern Ireland. A map showing the UK River Basin Districts is included at Appendix 5.

Implementation in other EU Member States

14. In 2001, the Commission and Member States agreed a Common Implementation Strategy (CIS) for the WFD, to develop a shared understanding of the technical challenges posed by implementation. Water Directors from the Member States meet regularly to share knowledge and offer guidance. The Commission told us that it was one of the advantages of the CIS that Member States could draw on their experience under the WFD “to facilitate implementation in Member States that, because of lack of knowledge or resources, are less able to tackle the issues on their own.”⁶
15. Many, if not all, Member States have found implementation of the WFD challenging. Preparation of RBMPs has required major efforts. At the beginning of 2012, four Member States—Belgium, Greece, Portugal and Spain—had not yet adopted RBMPs, and the Commission had taken legal action against them. The Commission told us that Belgium, Greece and Portugal expected to adopt their RBMPs in 2012, and Spain in 2013.

⁶ Q 262

Incomplete implementation across the EU as a whole brings the risk that a proper assessment of the impact of the WFD may be hampered by the lack of evidence from Member States that have not yet put the Directive into practice, and this in turn impedes any process of identifying changes that may need to be made.

16. We heard from Mr Frédéric de Hemptinne, an environmental consultant with expertise in EU water policy, about the difficulties that Member States have encountered. He saw four key obstacles: costs that were not foreseen when the Directive was adopted; the scale of the change required, which has necessitated new approaches to co-ordination of different agencies within Member States; the innovative nature of the participative and inclusive approach to catchment management (see Chapter 4); and the extent to which the holistic approach of the WFD has brought to light previously unforeseen problems.⁷
17. The evidence which we heard from the German government chimed with this. Their representative said that Germany would have “problems achieving the objectives of the Water Framework Directive” and would extend deadlines from 2015 to 2021 and 2027: “we are living in a densely populated state, and a lot of things have been done, especially to the hydro-morphology of surface water bodies. We have a situation where quick improvements are not really possible.”⁸ In Germany, water management responsibilities rested with a three-tier administrative structure in each Federal State: the State Ministry, the district administration, and the municipality. While guidance on the implementation of the WFD was being developed at the EU level, decisions would be taken by each of the administrative tiers, but that “for the local administrations, a lot of the provisions of the Directive have not come down to them yet or are not understood yet.”⁹ The economic situation of the administrations was also relevant.
18. The Commission acknowledged that the governance provisions of the WFD—river basin management, and stakeholder involvement—amounted to a “very significant ... reform”. The WFD took a top-down and a bottom-up approach to promoting governance, setting a framework, but leaving room for local flexibility. The CIS acted as a means of offering guidance on stakeholder involvement: “The Commission is ready to continue down this road of promoting good governance, because we believe that good governance is the way to get improvements in water management.”¹⁰
19. Representatives of the WWF made the point that implementation of the WFD went beyond the preparation of RBMPs. WWF (UK) explained that the Commission was “still looking at whether countries have put plans out, not necessarily looking at the content of them”.¹¹ The WWF’s European Policy Office added that, while “about 80% of the EU’s territory and population are already covered by plans that still need to be implemented”, the RBMPs “still need to be translated into real action. So there is a bit of an

⁷ Q 205

⁸ Q 121

⁹ Q 124

¹⁰ Q 260

¹¹ Q 222

- issue that some of these Member States need to speed up to meet the deadline and invest a bit more in river basin management planning.”¹²
20. We took evidence about the methodology which underpins the classification of waters under the WFD. Monitoring of quality is based on over 30 criteria, grouped into ecological status (including biology, and “elements” such as phosphorus and pH) and chemical status (“priority substances”: see Box 2). It uses a principle of “one out, all out”: if measurement of only one of the 30 criteria falls short, that one result determines the overall assessment of the water’s quality.
 21. Mr de Hemptinne said that working towards an agreed understanding of how “good ecological status” should be defined under the WFD had taken a lot of effort; but this had produced “essential progress ... ecological systems are not simple ... so the assessment cannot be simple”.¹³ Asked about relaxing the “one out all out” principle, the German government said that “we should not relax things, and especially not change things”.¹⁴
 22. Witnesses from the water industry raised concerns about the scientific credibility of the tests, implementation in other Member States and possible cost implications, and they argued for more flexibility around whether a water course achieved good status.¹⁵ Whilst recognising that “good status” was a useful indicator of long-term sustainability in a catchment, the Environment Agency also argued that, because it can be failed in so many ways and because the public will find some aspects of it difficult to value, a more public-facing set of interim indicators and values was required.¹⁶
 23. The WWF (UK) said that the principle had been criticised on the grounds of statistical and theoretical uncertainties, namely, an increasing risk of a false negative as more and more elements were monitored; in practice, however, it was “not playing out as a problem at the moment”, and the classification was only one step in the overall process of planning for good ecological status.¹⁷ We heard from the WWF European Policy Office that there was an issue of communication; progress was being made, for example, in improving the biological status of UK waters, but “because of the chemical status and because of the ‘one out all out’ principle, some of the water bodies will remain red despite the fact that ... there is life coming back to those water bodies.”¹⁸
 24. Overall, while our witnesses recognised that there had been difficulties with aspects of implementing the Directive, they shared a consensus that the WFD had been a force for good in EU water resource management. They tended to agree that it did not need to be significantly changed at the current time, not least because of the long time period needed to secure acceptance and implementation of the Directive, filtering down from national levels to the local levels where it has to be applied.

¹² *ibid*

¹³ Q 205

¹⁴ Q 132

¹⁵ QQ 24–28

¹⁶ EA supplementary written evidence

¹⁷ Q 217

¹⁸ Q 221

25. The German Government said that it was a successful Directive, providing an EU-wide coherent and systemic approach to water management, and that its “added value” was demonstrated by the much-improved co-operation between Member States on water resources, particularly where rivers cross international boundaries.¹⁹ Its representative agreed that the WFD’s targets were very ambitious and that the target that all water bodies should have good status by 2027 was “impossible ... nevertheless, the Directive gives us the push to get better. I think there will be real improvements.”²⁰ Her own view was “no more directives, but do not change the existing system”.²¹
26. Evidence provided to us by the Environment Agency (EA) shed light on the extent to which some Member States had achieved “good status” for their water bodies in 2009, and the ambition which they had shown in planning for improvements by 2015. For France, the 2009 figure was 40%, planned to rise to 67% in 2015; for Germany, the 2009 figure was 22%, rising to 29% in 2015; for the Netherlands, the figure in 2009 was 4%, and an improvement to 20% was planned; for the UK, the 2009 figure was 24%, and a rise to 37% was planned for 2015.²² We asked the EA to comment on the reasons why France planned an increase in “good status” from 40% to 67% from 2009 to 2015, while the UK would only go from 24% to 37%. In written evidence, the EA said that some of the French data might be “skewed by uncertainty. Some 30% of their water bodies had uncertain chemical status. By 2015, the French expect the majority of these waters to turn out to have good chemical status, and where this coincides with existing good ecological status then overall status will then be classed as good.”²³
27. The Commission told us that, for the “fitness check”, it had held its final stakeholder meeting in February 2012, which had shown that stakeholders considered the WFD as the right instrument to improve water quality and as providing the right balance, “but some have said that they need more time.”²⁴

BOX 2

Priority Substances

Priority substances are those identified as presenting a significant risk to or via the aquatic environment within the EU. These are listed in Annex X to the Water Framework Directive (WFD).

Some substances are identified as *priority hazardous substances*, because they have “ubiquitous, persistent, bio-accumulative and toxic” properties. Bio-accumulation is the progressive increase in the amount of a substance in an organism or part of an organism which occurs because the rate of intake exceeds the organism’s ability to remove the substance from the body.

One example of a priority hazardous substance is *perfluorooctane sulfonic acid*. The acid and its derivatives are collectively known as *PFOS*, and are widely used in a variety of consumer goods. They are man-made chemicals which

¹⁹ Q 126

²⁰ Q 141

²¹ Q 132

²² EA supplementary written evidence

²³ EA further supplementary written evidence

²⁴ Q 257

break down into perfluorooctane sulfonate, a chemical that is a persistent organic pollutant. Once such pollutants are in the environment, they are very difficult to get rid of. They can cross international boundaries by air and water currents, and bio-accumulate to toxic levels in plants and animals.

Environmental quality standards (EQS) for these priority substances are set by the Environmental Quality Standards Directive (EQSD) 2008/105/EC, which is a “daughter” Directive of the WFD. The EQSs are set at levels of concentration which are safe for the aquatic environment and for human health. Compliance with these standards forms the basis of good chemical status under the WFD.

In addition to the objective of achieving such EQSs, there is an objective of the progressive reduction of discharges of priority substances, and a requirement to stop discharges of priority hazardous substances within 20 years of appropriate measures being introduced.

The WFD requires the Commission to review the priority substances list at least every four years.

28. In January 2012, the Commission brought forward a proposal after a review of the existing 33 priority substances and their environmental quality standards (EQSs) established under the EQS Directive.²⁵ The proposal introduced nine new substances to the list of priority substances and six new substances to the list of priority hazardous substances, and changed the status of two priority substances to priority hazardous substances.
29. The Department for Environment, Food and Rural Affairs (Defra) submitted an Explanatory Memorandum²⁶ about this proposal which drew attention to the introduction of the pharmaceuticals EE2 (used in the birth control pill) and diclofenac (a non-steroidal anti-inflammatory drug) to the list of priority substances. While stating that limited data were available to assess the scale of the problem across the EU, Defra’s Memorandum also said that the EA had estimated that it could cost about £27 billion over 20 years to install the necessary wastewater treatment technology in England and Wales to achieve the EQS for EE2. For Water UK, Ms Sarah Mukherjee said that the water industry was also worried by this estimate.²⁷
30. We discussed this new proposal with the representatives of the Commission. They explained the process whereby the list of substances included in the proposal had been selected, providing scientific verification that the substances were relevant and that the limit values proposed were appropriate for the protection of public health and the environment. The Commission said that the need for substantial investment in additional wastewater treatment could be reduced if other measures were taken to control the impact of pharmaceuticals, such as take-back schemes for unused medicines. The Commission referred to the flexibility allowed to Member States under the WFD, and said: “While one should refrain from saying that the only option is the most costly option, this needs a serious examination of what preventive measures can be taken. This is the spirit of the Water Framework

²⁵ COM(2011)876

²⁶ <http://europeanmemorandum.cabinetoffice.gov.uk>

²⁷ Q 34

Directive.”²⁸ We take the point that “end-of-pipe” measures to deal with the polluting impact of chemicals in water are likely to be significantly more expensive than tackling the source of the chemicals’ input. If it is clear that a polluting impact needs remedying, all options must be identified and considered.

31. We set out our recommendations as regards the implementation of the Water Framework Directive at the end of this Chapter, after consideration of the specific experience in the UK. A central issue is the aspirational nature of the WFD, and the ambitious targets set for water quality over the period to 2027. On the one hand, this level of ambition is seen to be driving water resource management across the EU in a positive direction; on the other, the classification scheme, based on the “one out all out” principle, may serve to mask progress in water quality which secures improvements to some important criteria, but not all. The current discussion of the priority substances proposal has thrown this issue into sharp relief.
32. EU water legislation encompasses Directives which pre-date the WFD. These include the Nitrates Directive; in February 2012, for example, the Commission announced that it had referred France to the EU Court of Justice for failing to take measures to guarantee that water pollution by nitrates was addressed effectively.²⁹ They also include the Urban Waste Water Treatment Directive; the European Environment Agency has said that considerable progress has been made in its implementation, but that “full compliance is yet to be achieved, including the lack of more stringent tertiary treatment in some sensitive areas and inadequate treatment levels in wastewater treatment plants in some larger cities”.³⁰ We return to the issue of older EU water legislation later in this Chapter.
33. Drought conditions have occurred more frequently in the EU in recent years. The European Environment Agency has said that, comparing the impacts of droughts in the EU between 1976–90 and 1991–2006, there was a doubling in both area and population affected in the later period. In 2008, Cyprus suffered a fourth consecutive year of low rainfall; in the summer, with drought at a critical level, 30 water tankers sailed in from Greece; households were supplied with water for around 12 hours only three times a week.³¹ For France, 2011 was the sixth driest year in the last half-century. Across the whole country, rainfall was down by around 17% against average levels, with wide regional variations; in South West France, the shortfall reached 40%.³² According to the Met Office, while in 2011 the UK annual rainfall total was close to average, much of central, eastern and southern England had a persistent rainfall deficiency. Several Midland counties had their driest year on record.³³ In March 2012, the Environment Agency confirmed that South and East Yorkshire, East Anglia and South East England were in drought; in

²⁸ Q 272

²⁹ See:

<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/12/170&format=HTML&aged=0&language=EN&guiLanguage=en>

³⁰ See p. 10 of “The European Environment—State and Outlook 2010: Freshwater Quality”:

<http://www.eea.europa.eu/soer/europe/freshwater-quality>

³¹ “The European Environment: State and Outlook 2010: Water Resources and Flows”

³² See: http://www.developpement-durable.gouv.fr/IMG/pdf/Bilan_de_1_annee_hydrologique_2011.pdf

³³ See: <http://www.metoffice.gov.uk/climate/uk/2011/annual.html>

April, it said that drought conditions also applied in South West England and the Midlands.

34. In 2007, the Commission published a Communication on water scarcity and droughts (see Box 3 in Chapter 3) which presented an initial set of policy options to increase water efficiency and water savings.³⁴ The Commission has said that a review of EU water scarcity and drought policy will form part of the Blueprint to be published in 2012. Feedback from the “fitness check” had shown that some issues, particularly relating to quantitative water management, had not been well covered by the WFD. Stakeholders did not think that this was the right time for new legislation,³⁵ even though current projections showed that water scarcity would increase in Europe.³⁶ This is in contrast to flooding, also projected to increase in Europe, which Member States are required to plan for and manage the risks of under the Floods Directive 2007/60/EC. We deal more fully with the relationship between EU water legislation and policy on water scarcity in the next Chapter.

Implementation in the UK

35. In December 2011, the UK Government published the Water White Paper, “Water for Life”.³⁷ In the executive summary, the Government state that “we have many exquisite stretches of water ... but only 27% of our rivers and lakes are fully functioning ecosystems. Under EU law we have a legal imperative to make a substantial improvement to this figure by 2027. We also have a clear moral imperative, and an economic one.” It is clear that, in deciding on the measures to be included in the Water Bill that will follow the White Paper, the Government have the requirements of the Water Framework Directive in mind, alongside other important concerns bearing on water resource management.
36. There are important differences between conditions affecting water management in the UK and conditions in other EU Member States. Because of the UK’s island geography, the issue of trans-boundary basins is of far less significance than it is for continental countries. Moreover, as Professor Alan Jenkins, Deputy Director of the Centre for Ecology and Hydrology told us: “... we have a very big gradient of not just population but also weather within the UK. For example, the north of Scotland receives 2.5 metres of rain per year; we in London probably get 0.5 metres, or a little over. That is a pretty big discrepancy. In theory it can be coped with within the Water Framework Directive, but, because the Water Framework Directive works on those thresholds, we suffer perhaps a little more than some other countries in the interpretation of those thresholds.”³⁸
37. In his evidence to us, Mr Richard Benyon, MP, Parliamentary Under-Secretary of State at Defra, quoted the figure of 27% of rivers as fully functioning ecosystems, and added that there was “a desperate need to improve this situation”.³⁹ We pressed Mr Benyon and his officials on whether

³⁴ COM(2007)414: see Chapter 3 of this report.

³⁵ Q 258

³⁶ Q 271

³⁷ CM 8230

³⁸ Q 60

³⁹ Q 281

the UK was approaching implementation of the WFD with sufficient ambition.

38. One of his officials, Deputy Director, Water Availability and Quality Programme, Defra, said: "... what is often called our level of ambition—reaching 32% at good status, by 2015—is not really an ambition that we declared but reflects what we found we expected to achieve when we worked out what measures should be put in place and would work",⁴⁰ and he stressed that other improvements in the water environment were being achieved in parallel even if they did not result in changes to overall status classifications.
39. Both Mr Benyon and his officials made it clear that 100% of UK waters would not reach good status by 2027, and that the provisions in the WFD on disproportionate cost and technical feasibility meant that a lower level than 100% was in keeping with the Directive. According to his officials, "the impact assessment we did at the start of the first cycle said, rather tentatively, that by projecting forward and taking account of where we thought we could foresee the benefits outweighing the costs of what might emerge as needing to be done, we would probably get to something like 75% good status by 2027."⁴¹
40. Lord Smith of Finsbury, EA Chairman, also said that, given the population density of the UK and industrial and agricultural activity, it was unlikely that 100% of its waters would achieve good ecological status, though the existence of that ambition was important for the impulse that it gave.⁴² The EA added, in the results reported by the EA in 2010 and 2011, "roughly, the same number of water bodies met good status, but underneath that the individual elements—around 1,400 separate quality elements—improved in status class. So big progress is being made but that did not change the headline measure."⁴³
41. When we asked representatives of the water industry about current and planned proportions of waters in this country with good status under the WFD, their answers focussed on the classification methodology and the "one out all out" principle. Severn Trent Water queried the scientific basis for the measurement of the criteria, and the net environmental benefit if water quality were to be improved at the cost of greater energy consumption for treatment plants: "There is a lack of flexibility in the system and the way it is currently implemented in the UK. Our problem is not with the Water Framework Directive; our problem is with the way it is implemented."⁴⁴ Ofwat (the Water Services Regulation Authority) similarly spoke of the need for EU directives to allow for greater flexibility to take account of local circumstances, and of a wish to see the "one out all out" approach disappear.⁴⁵
42. Written evidence from WWF (UK) expressed a different view. Referring to the RBMPs published by Defra in December 2009, that evidence stated: "The lack of action was illustrated by the ambition set out in the plans.

⁴⁰ Q 289: the figure of 32% relates to England and Wales.

⁴¹ Q 286

⁴² Q 237

⁴³ *ibid*

⁴⁴ Q 26

⁴⁵ Q 167

These anticipated that the percentage of water bodies at good status by 2015 would rise from 27% to just 32% across England and Wales. The plans envisaged that the vast majority of improvements in water body status were anticipated as taking place between 2021 and the final 2027 deadline, but provided little to no clarity on how this sudden achievement of good status would be achieved.”⁴⁶ Its representative told us that the long timescales set out under the WFD had been “open to interpretation”, and that the WWF and other organisations had sought a judicial review of the 2009 RBMPs “because we felt that those timescales had been abused”.⁴⁷

43. Professor Alan Jenkins said that the idea of having a “standardised tool” for comparing water quality across the EU was “excellent”, though he recognised that issues remained to be resolved about settling the boundaries between the different status categories. He stressed the probability that a large proportion of surface waters in high population density countries are not going to achieve good status: “good status is a good step along the way, but we need to accept that good status will not be achieved everywhere. Therefore we need another measure”.⁴⁸
44. Some of the evidence from UK witnesses lacked an awareness of the EU context, in which we have heard no strong voices calling for change. **In our view, any expectations that changes should be made in the short term to the core elements of the Water Framework Directive, such as the objectives and timescales, are unrealistic, and unjustified. It is too soon to assess overall implementation of the Directive with any degree of certainty, though it is clear that Member States are finding it challenging to implement. While there seems to be no realistic prospect that Member States will secure the Directive’s ambition that all rivers and water bodies should have good or high status by 2027, we agree with several witnesses that the aspiration to meet the demands of the Directive has already delivered substantial improvement in the management of water resources.**
45. We urge the Government, and others responsible for implementing the Directive in the UK, to act fully in the spirit of the Directive in driving forward improvements to water quality. Given the complexities of ecological status, this includes and requires flexibility in implementation, but this is reflected in provisions of the Directive. However, we are concerned the WFD may be perceived as too rigid to take climate change sufficiently into account. **We view the “one out all out” basis for assessing status categories as a blunt and rigid method which fails to capture effectively the ecological as well as the chemical quality of water. While we do not call for regulatory change at this time, we urge the Commission to consider the “one out all out” rule specifically in its work on the Blueprint. In the short term, we see an urgent need for reporting on progress under the Directive to go beyond the “headline measure” of these categories and to show the progress made in the individual quality criteria.** Member States may already choose to do this, but **we call on the Commission to develop guidance, through the Common Implementation Strategy, to help in the communication of**

⁴⁶ WWF, para 12

⁴⁷ Q 219

⁴⁸ QQ 81, 83

the wider extent of improvements being promoted under the WFD that may not be fully reflected in the assigned status of water bodies.

46. We heard evidence, particularly from the EA, and the Westcountry Rivers Trust (WRT), about sampling and monitoring under the WFD. The WRT thought that the approach being used was flawed and amounted to continuing the traditional (chemical) ways of measuring water quality with an “ecological gloss”. The WRT said in its further evidence: “We feel that water quality objectives at present are only quasi-ecological and are based mainly on an incomplete network of ... point source samples which will detect chronic point source pollution but not diffuse acute pollution which is a primary characteristic of agricultural pollution. We feel that much more use and emphasis should be put on ... biotic indices for macro-invertebrates.”⁴⁹
47. We are very concerned that sampling methods may differ across the EU.⁵⁰ Should sampling not be consistent, data, knowledge and understanding will not be comparable. **We recommend that the Commission examine this issue in some detail with a view to ensuring comparability of monitoring regimes across the EU.**
48. We mentioned earlier the February 2012 proposal on priority substances under the EQS Directive, and the estimate supplied by Defra that the cost of treatment technology to tackle certain pharmaceutical substances in wastewater could be around £27 billion. Mr Benyon also referred to the significant further investment that might be needed, and of the possibility that the use of exemptions under the WFD might undermine the overall objectives of the legislation.⁵¹ **We see a need for the Government, and the Commission, potentially through its European Innovation Partnership (EIP) on Water, to acquire more knowledge of the risk posed, principally by the pharmaceutical substances being added to the list, and of cost-effective methods of reducing this risk before effluent containing the substances requires wastewater treatment. These considerations must include the pharmaceutical manufacturers, not least because the “polluter pays principle”⁵² means that they may be called on to contribute to mitigating the risk.**
49. Part of the background to the judicial review which the WWF and others launched in 2009 was a concern that a change was needed from the top-down process adopted for the first round of UK RBMPs, a shift away from what it called “a black-box, scientific-type exercise” and towards “putting community at the heart of river-based planning”.⁵³ In 2011, the Government initiated trials of a catchment-based approach (see Chapter 4) to embody this shift. Mr Benyon spoke of this initiative, saying that “we really want the Commission to understand that this is an effective way forward.”⁵⁴
50. We doubt that the Commission needs instruction in the benefits of community involvement, since public participation was always a key element

⁴⁹ Q 237

⁵⁰ See the EA’s comment on the uncertain chemical status of some water bodies in France, at paragraph 25.

⁵¹ Q 299

⁵² The polluter pays principle (which is incorporated into the Water Framework Directive) is intended to reflect the value of natural resources within public and private decision making and to bring private incentives in line with society’s interest, for example, through taxes on polluting activities.

⁵³ Q 219

⁵⁴ Q 290

of the WFD. We question, rather, whether those organisations responsible for implementation of the WFD in this country—the water companies, Ofwat, the EA and Defra itself—have the ability to “change their spots”, and to subordinate ingrained habits of “top-down” activity to the need to encourage “bottom-up” input to water resource management. The WRT gave us its view that “the regulator is distracted from their core duty by doing a kind of outreach role”.⁵⁵ The EA argued that the Agency had changed its approach since the legal challenge, and that it had the skills and the commitment to work collaboratively at local level.⁵⁶ Mr Benyon made clear his belief that the Agency was the right organisation for the job: “[it] is well led; it has a clear view of what the Government are trying to achieve and, despite the constraints of the spending round, it has produced a clear way forward on freshwater issues”.⁵⁷

51. We take the view, however, that the roles of the various agencies in the UK have become confused and require clarification. **We expect the Government, the Environment Agency, Ofwat and local government to act quickly on lessons learnt from the catchment management trials. We see it as incumbent upon the Government quickly to develop a more strategic approach to water resource management, with a particular view to overcoming reluctance by water companies to make capital investment.** We welcome the indications in the Water White Paper that this is the chosen direction of travel for the Government. **We note the EA’s new additional role in this as the Government’s body in England for advice on climate adaptation to organisations in key sectors on the actions needed to build resilience to the changes and impacts projected.**
52. We detected no great enthusiasm on the part of the Government for learning from experience elsewhere in the EU. **We look to the Government, and to the Commission, to ensure that Member States take as much away from Common Implementation Strategy (CIS) discussions as they bring to them.** At the same time, we fear that the CIS may be dominated by representatives of national agencies, to the exclusion of other partners—particularly the scientific community and the practitioners at local levels who are involved in day-to-day experience of managing the issues—in the implementation process. **We urge the Commission to do more to assist with implementation and enforcement, including the sharing of best practice at all levels of governance and implementation, and to enhance the CIS discussions with non-Governmental input.**
53. Most witnesses emphasised their preference for the flexible, integrated approach of the Water Framework Directive compared to the rigid approach of other pieces of EU water legislation. The Minister was critical of the costs of implementing the Urban Waste Water Treatment Directive (UWWTD) and the Nitrates Directive.⁵⁸ Some other witnesses were supportive of the UWWTD: Professor Jenkins said that it had been “hugely successful” in reducing phosphorus concentration in lowland waters;⁵⁹ and the WWF

⁵⁵ Q 191

⁵⁶ Q 249

⁵⁷ Q 296

⁵⁸ Q 299

⁵⁹ Q 67

attributed improvements in point-source pollution to measures taken under the UWWTD.⁶⁰ However, little support was voiced for the Nitrates Directive, though there was acknowledgement that addressing diffuse pollution caused by agricultural nutrient losses has led to positive initiatives such as Defra's Catchment Sensitive Farming programme. **We received no conclusive evidence to support the early withdrawal of other elements of existing EU water legislation, but expect the Commission to pay particular attention to consideration of whether these pieces of legislation are still fit for purpose. We see the case in the longer term for the integrated approach of the Water Framework Directive increasingly to supplant more narrowly focussed legislation.**

⁶⁰ Q 224

CHAPTER 3: CHALLENGES TO BE MET BY EU WATER POLICY TOWARDS 2050

54. The European Commission has said that the overarching objective of its planned Blueprint is to ensure good quality water in sufficient quantities for all authorised uses in the EU by 2020, and that, for analytical purposes, it is taking 2050 as the long-term horizon: “the question of how EU water policy should respond to potential impacts of global change and climate variability is the core of the analysis of the Blueprint.”⁶¹
55. It is right that these impacts should be centre-stage in planning future water policy: we have flagged up their importance in other reports, notably on adapting EU agriculture and forestry to climate change.⁶² It is no less important to grasp that these impacts will be complex, and will unfold in a process of interaction with other major changes, including the growth in the population and linked socio-economic activity. We cannot be certain about the scale and nature of these changes, but it is safe, and prudent, to expect that policy-makers should plan for very different risks from those that we have experienced in the past, and for a formidable requirement to re-adjust established policies and practices across the EU, possibly at short notice.
56. Keeping in mind the challenges of the long-term future should not displace a recognition of the need for urgency in the present. When the Water Framework Directive was agreed in 2000, it set out a framework extending forward 25 years. In the case of the UK’s approach to implementation, there has been concern among environmental NGOs that this allowed procrastination, with the Government putting off much effort to improve water quality into the second half of the planning period. We discussed these issues, in particular how to prepare effectively for uncertain but potentially far-reaching risks, with our witnesses.

Planning for risk and uncertainty

57. The Commission said that the WFD, as a flexible instrument, could help with the issue of planning for risk and uncertainty. The Directive had an implementation cycle of six years: “you come back every six years to review the state of your waters, to review the measures and to review whether you need to take new measures”. Its representative felt confident that short-term issues related to water resource management would be addressed: “What is really important is to ensure that we do not lose the long-term picture when defining the river basin management plans for the next six years.”⁶³
58. Professor Jenkins stated that “uncertainty is no reason for not doing anything”,⁶⁴ and that climate scientists fully understood uncertainty. He argued, however, that planning water resource policy for the future should not be based on the methodology used so far, which attempted to extrapolate impacts at catchment level from rainfall and temperature modelling done at a

⁶¹ European Commission

⁶² 8th Report (2009–10), HL Paper 91: see, for example, paragraphs 3 and 19 of that report.

⁶³ Q 267

⁶⁴ Q 53

much bigger scale: “... we have taken the uncertainty [about water resource assessment] from the climatologists, but there exists a much bigger uncertainty in the downscaling of the information we get from the climate models”.

59. In its evidence, the National Farmers’ Union (NFU) called for the Commission to ensure that freshwater policy had the capacity to deal with higher levels of uncertainty in the longer term, and pointed to the lack of knowledge about the net results of projected frequent and intense extreme weather events, and of seasonal variation in rainfall patterns. In the NFU’s view, further development of EU freshwater policy should guide Member States towards delivering a strategic objective, rather than concentrating their efforts on “managing [the] risk of EU compliance requirements.”⁶⁵
60. Uncertainty arises out of our lack of knowledge: we lack an understanding of the land-water-ecological system, and of whether action taken in one part of the system may produce unforeseen consequences somewhere else. In our view, the right response to this uncertainty is not complacency or negativism: what is needed is a twin track approach to manipulating and managing the environment, and this is the essence of an adaptive approach. Thus, **continuing research into the knowledge gaps is critical, and the science must be closely aligned to learning from practical experimentation. This means that the linkage between science, policy-development and its delivery in practice should be much closer than at present.**

Climate change, population growth and water resources

61. Water policy cannot be set in isolation from projections that, by 2050, on a global basis, water will need to provide 70% more food and 80% more primary energy, to around 9 billion people. Society’s view of the sustainable use of water will increasingly reflect the conflicting demands on water resources. The value system underpinning our choices may change according to changes in water availability: for example, that as resources diminish securing adequate water for drinking and producing food becomes more important than protecting the environment. This makes it more needful that we understand better the “value” of the ecosystem services provided to society by the water-dependent environment, so that our decisions and choices are better informed.

BOX 3

Communication on Water Scarcity and Droughts

Water scarcity is man-made and occurs where there are insufficient water resources to satisfy long-term average requirements. It refers to long-term water imbalances, combining low water availability with a level of water demand exceeding the supply capacity of the natural system. Droughts are a natural occurrence and can be considered as a temporary decrease of the average water availability due to e.g. rainfall deficiency.⁶⁶

⁶⁵ NFU, para 21

⁶⁶ See: <http://ec.europa.eu/environment/water/quantity/about.htm>; Q308

In 2007, following an assessment of water scarcity and droughts in the EU, the European Commission presented a set of policy options to increase water efficiency and water savings in a Communication (COM/2007/0414).

The Communication stated that there was huge potential for water saving across Europe, where at least 20% of its water was wasted due to inefficiency. It called for water-saving to become the priority and for all possibilities to improve water efficiency to be explored. It said that policy-making should be based on a clear “water hierarchy”: additional water supply infrastructures should only be considered as an option when other options had been exhausted, including effective water pricing policy and cost-effective alternatives.

Seven policy options were identified for tackling water scarcity and drought issues:

- putting the right price tag on water
- allocating water and water-related funding more efficiently
- improving drought risk management
- considering additional water supply infrastructures
- fostering water efficient technologies and practices
- fostering the emergence of a water-saving culture in Europe
- improving knowledge and data collection.

Based on information from the Member States, the Commission has prepared annual follow-up reports to assess the implementation of the policy options throughout the EU. In the run-up to the water policy review and preparation of the “Blueprint”, the 2010 report confirmed that water scarcity and drought was not limited to Mediterranean countries, and saw this as a growing issue across the EU, apart from some sparsely-populated northern regions with abundant water resources (see map at Appendix 6).

62. For the UK, Mr Barker from the EA spoke of the need to recognise that the environment itself would change over time with reduced flows and increasing water temperatures. Their representative referred to the commitment in the Water White Paper to continue to protect the environment, but to consider at the same time how to meet the needs of society and the economy, requiring a much more adaptive and flexible approach to water allocation than at present. As for planning for uncertainty, he said that the important thing was to understand the range of different potential futures in terms of water availability as well as demand for water: “In forecasting for secure supplies, for example, assuming an extrapolation based on current demand or some single forecast has been time and again shown to be a route to failure and catastrophe in terms of water planning, so we need an envelope of uncertainty within which to plan.”⁶⁷ We would add that changing consumer behaviour can significantly influence demand, as the example of Copenhagen shows (see Box 4).

⁶⁷ QQ 238, 239

BOX 4**Meeting the rising demand for water in Copenhagen**

Copenhagen has faced the challenge of a lack of water sources within the city, local pesticide contamination of water sources immediately around it, rising groundwater levels, leakage of treated water from the water supply pipeline network and a low uptake of grey water use and re-use.

The city has deployed a combination of solutions, including the use of new technologies to monitor and prevent leaks, pricing mechanisms to reduce wasteful consumption, and engineering solutions to reduce overall water demand and better management of storm water, with an education programme for its citizens.

Between 1987 and 2010, per capita consumption of water was reduced from 170 to 110 litres per day.⁶⁸

63. The EA commented that, while the WFD “creates a valuable framework for integrated water management ... [t]he impacts of climate change could be better handled.”⁶⁹ Ofwat acknowledged that climate change and population growth posed new challenges to the water industry. Ofwat saw its own role as removing any unnecessary barriers to action to resolve these issues, for example in water-trading between water companies in this country. It saw market mechanisms as important and wanted to see “better signals about the value of water. At the moment it is an extremely scarce resource ... but there is no real value placed on water ... It is about the economic signals and incentives where water is scarcer and people should pay more for it.”⁷⁰
64. Mr Laurence Smith, Head of the Centre for Development, Environment and Policy in the School of Oriental and African Studies (SOAS), agreed that people needed to pay more for water: “In the domestic sector ... we need to have progressive increases in prices in real terms to meet the costs of environmental improvements we want to see.” Mr Smith was also clear that, in the domestic sector, there was a necessity to move to compulsory metering. He acknowledged that, while the economic aspect of the issue was clear, it also had a political dimension.⁷¹ Others supported metering but were less trenchant. We heard from the Consumer Council for Water (CCW), on the other hand, that some consumers are reluctant to support metering due to fears that it may affect their bill dramatically. CCW reported that customers have indicated a willingness to pay up to 1% or 2% over inflation, and additionally that customers are more willing to pay if decisions on water management are local and based on an understanding of what local consumers want for their environment.⁷²
65. As regards water efficiency policy generally, Ofwat voiced concern about the possibility that a “one-size-fits-all” approach might be proposed across the

⁶⁸ See:

http://www.kk.dk/sitecore/content/Subsites/CityOfCopenhagen/~/_media/9933EE8E38A547C7B3A3C52BC4CAD89D.ashx

⁶⁹ EA supplementary written evidence.

⁷⁰ Q 173

⁷¹ Q 4

⁷² Q 144

EU: if water efficiency targets were proposed across all Member States, applicable to water-rich as well as water-scarce countries, this would not be conducive to the most economic approaches.⁷³ Conversely, in its written evidence, the WWF saw a need for more emphasis on water efficiency across the whole water supply chain, and supported the water hierarchy approach set out in the Commission's 2007 Communication on water scarcity and droughts (see Box 3), requiring efficiency measures, water resources and drought planning before the development of new resources.⁷⁴ The WWF also called for "proper implementation" of the WFD, to ensure that Member States adopted sustainable water management systems, essential in tackling scarcity and drought issues.

66. We pressed Mr Benyon on the urgency with which the Government were addressing these issues. He agreed that much more needed to be done about controlling water abstraction, as set out in the Water White Paper. In current circumstances the EA was "working well" to improve co-operation between abstractors; the Government wanted Ofwat to encourage greater use of connectivity and bulk trading of water and water companies were already putting this into practice to an extent.⁷⁵ We note that, in April 2012, Severn Trent and Anglian Water announced that they were considering a plan to transfer water from the Midlands to the East of England.⁷⁶
67. Policy on the availability of water resources, as distinct from policy on the quality of those resources, falls more extensively within the legal competence of Member States. Across the EU, management of water quality and water resources have often been organised separately, and both organisational structures and technical background have reinforced this separation: until recently there has been little interaction between engineers, chemists and biologists handling water management as a strategic issue.
68. In practice, the distinction can be non-existent: we can foresee that water scarcity, likely to be exacerbated by climate change, will pose an ever-greater challenge to managing both the quality and the quantity of water resources in many Member States, including the UK. There is a need to bring policy development on the two strands closer together. The Commission told us that the Commission's "fitness check" had shown that quantitative water management was one of the issues that had not been particularly well covered by the Water Framework Directive.⁷⁷ We heard no appetite for EU legislation on water scarcity and droughts, and we would not wish to weaken Member States' responsibilities in this area of policy. However, we recognise the need for urgent action to tackle water scarcity. **We consider that the "good status" objective of the Directive cannot meaningfully be pursued without effective action on water resource availability. We look to the Commission to demonstrate in the Blueprint the critical dependencies between the two policy areas. The EU should encourage the development of national water scarcity and drought management plans (both short- and long-term) to ensure more effective use of the EU's plentiful water supplies.**

⁷³ Q 182

⁷⁴ WWF, para 20

⁷⁵ QQ 281, 282

⁷⁶ See: <http://www.stwater.co.uk/severn-trent-could-send-water-to-east-anglia>

⁷⁷ Q 258

69. In the UK, political direction is required to the networking of water suppliers to ensure that water-rich areas are able to supply water-stressed areas, and also to promote water efficiency measures. Leakage from the supply system is also a concern; the rate of reduction in leakage has slowed for many companies because the most obvious causes of leakage have been detected and addressed. Going below current rates of 20–25% leakage⁷⁸ implies higher costs for remedial action which need to be weighed against the likely benefits.⁷⁹ The Water White Paper gives a commitment to tackling over-abstraction, promising legislation “early in the next Parliament” and implementation of a new regime “by the mid to late 2020s”. While this may indeed be a complex task, as the Government claim, it cannot be as complex as, say, reform of the National Health Service. **We call on the UK Government to accelerate their efforts to deal with the problems of water scarcity. Consumption of water, whether by industrial or domestic users, must be better adjusted to respect constraints of water availability, through abstraction controls and through economic instruments.**
70. The protection of our water environment while the population continues to grow will require the adoption of innovations, such as metering, and real-time information about domestic water consumption, and will require consumers either to pay more or to save more. **We believe that the cost of water will have to rise in areas where other measures are not enough to meet the challenges of water scarcity. We do not think that fear of higher consumer bills should in itself be a reason to avoid metering, but safeguards are required to ensure that those unable to pay higher bills are protected.**

Urban diffuse pollution

71. Diffuse pollution arises in urban areas, for example, when rainwater runs off roads or other hard surfaces and carries chemicals which seep into underground water supplies and into rivers, threatening water quality. Increasing urbanisation exacerbates the problem. Witnesses thought that urban diffuse pollution was a serious issue which could be effectively tackled only when better knowledge had been acquired. Defra stated that diffuse pollution from urban sources was a significant pressure, and a priority for the Department, which was developing a strategy to tackle the key sources of non-agricultural diffuse pollution. The strategy aimed “to facilitate the most appropriately placed stakeholders, including Local Authorities, to deliver the measures required.”⁸⁰ The EA confirmed that it was working closely with

⁷⁸ EA Q 243

⁷⁹ Economic regulation of the water industry uses the concept of the “sustainable economic level of leakage” (SELL). This is the level at which, in the long-term, the marginal cost of leakage control is equal to the marginal benefit of the water saved. This includes the costs of the various activities for controlling leakage and the impact that different leakage levels have on the costs (social, economic and environmental) of delivering water to customers. Many water companies in the UK have reduced their water loss to the agreed sustainable economic level of leakage. Water companies regularly review their SELL calculations and submit them to Ofwat who use these assessments at price reviews to set leakage targets for at least a five-year period.

⁸⁰ Defra supplementary written evidence

Defra on this strategy.⁸¹ The WWF said that the White Paper commitment to a strategy for urban diffuse pollution was welcome.⁸²

72. The Commission assured us that it had not lost sight of issues to do with the urban environment. It intended to publish a Communication on “green infrastructure” which would include relevant ideas; and urban issues would be one of the three priorities for the proposed European Innovation Partnership (EIP) on Water (alongside rural and industrial issues).⁸³ A timeline published by the Commission in February 2012 indicated the aim of establishing the EIP Steering Group by July 2012, and adoption of a strategic implementation plan by the EIP by the end of the year. **We consider that a focus on diffuse pollution from agriculture, though important in its own right, has distracted water policy from understanding and remedying urban diffuse pollution. We welcome the Government’s commitment to develop a strategy for this problem; we call on them to work urgently with the Environment Agency and local authorities to deliver the strategy once adopted. We urge the Commission to contribute to a better understanding of the issue in the Blueprint as well as through its other activities.**

Governance, and the ecosystem services approach

73. We deal more fully with governance issues in the next Chapter of this report. Engaging people and local communities, and encouraging them to take ownership of the problems when developing solutions, will be central to the further development of EU water policy. Growing urban populations, and the isolation of individuals from where their ecosystem services are derived, lead to a detachment from our responsibilities in helping manage the environment; consumption pressures (of food as well as water) lie at the heart of water supply problems and the impact on the environment.
74. The nub of the issue was expressed by the Commission, in describing the approach needed under the WFD: “a top-down framework” to guide activity, alongside “a system that has flexibility in the basins to identify the right measures and to generate support for them. It is important to realise that the legitimacy of all these different territorial and sector management bodies lies with the support that they have from their stakeholders.” This meant that stakeholders had to be involved in the development of measures to be taken to improve water quality.⁸⁴ We put great stress on the need for “flexibility in the basins”: stakeholder involvement will be most effective at the grass-roots level, far below the scale of the River Basin. The flexibility in the WFD system needs to allow this level of involvement to flourish and to influence the approach to managing water resources.
75. In Chapter 5, looking at policy integration, we also call for the ecosystem services approach to catchment management to be promoted. In providing an analytical framework for establishing the ways in which land and water are expected to contribute to environmental objectives, this approach can help to balance water resource priorities, which will vary in different geographical

⁸¹ EA supplementary written evidence

⁸² Q 223

⁸³ Q 268

⁸⁴ Q 260

areas. For example, levels of “water stress” vary widely, both within the UK and across the EU as a whole.⁸⁵

Conclusion

76. EU water legislation before the adoption of the Water Framework Directive included a number of directives targeting specific water quality issues. The WFD itself bears the imprint of this “sectoral” legacy in its reliance on measuring specific chemical concentrations as the test of success or failure. This approach helps to simplify management actions, because of a lack of understanding of what actually affects the quality of aquatic ecosystems in particular river types or habitats. The science has still to catch up with the policy approach. **We consider that the Commission’s current review needs to look at whether the WFD’s overarching strategic objectives have evolved, and whether this evolution needs to be recognised as it is implemented in future years. In particular, there is a question as to whether the current mix of chemical (water quality) and ecological monitoring targets is appropriate. The Commission should highlight this in the Blueprint as an urgent issue for discussion.**
77. Delivering a pristine water course is not in line with the wider societal demands on water. Rather than taking an historic approach to water management, a forward-looking approach is required. The freshwater environment across the EU is changing, and will continue to do so, as a result of climate change and other pressures. **Future EU policy will need to be flexible and dynamic in order to respond. As we move forward, there will be a broader need to consider, at all levels of governance, how a more integrated and inclusive land-use planning system could be developed, linking closely into water management and reflecting the needs and demands of both rural and urban areas.**

⁸⁵ See Appendix 6, we reproduce a map showing different levels of water stress across the EU.

CHAPTER 4: GOVERNANCE

78. While the European Commission described governance as “critical” to good implementation⁸⁶, the Water Framework Directive itself is silent on the precise governance structures required to implement the Directive. It requires only that administrative arrangements should be made to apply the Directive at river basin level (see Box 1) and that the active involvement of all interested parties in implementation should be encouraged.
79. The concept of “sub-Basin”,⁸⁷ a level below the river basin, is referred to, allowing river basin management plans to be supplemented by the production of more detailed programmes and management plans for sub-basin, sector, issue or water type, to deal with particular aspects.
80. Member States have applied the principle of river basin management within existing water policy governance structures, which differ dramatically across the European Union. Several Member States devolve environmental management to local levels of governance.⁸⁸ It is therefore subject to more local democratic accountability and it is easier to develop a participatory approach with close community involvement.
81. A variety of approaches are used around the UK. Scotland (Scottish Water) and Northern Ireland (Northern Ireland Water) have publicly owned water companies. In England and Wales, water services are delivered by private companies. The extent of private sector provision in England and Wales is unique in the EU, with only the Czech Republic and France providing over 50% of services through the private sector.⁸⁹
82. In this Chapter, we explore how implementation of the WFD is leading to an evolution of water policy governance and we consider what role the EU might take in promoting certain types of governance.

Towards catchment management

83. In setting out to explore the issue of governance, we noted towards the beginning of our inquiry the theory of polycentric governance (see Box 5). Under this model, different issues require resolution at distinct levels. Whereas the Member States, supported where appropriate by the EU through legislation such as the WFD, can set out an overall strategic approach to water management, much of the detail of tackling agricultural diffuse pollution in particular requires more local action. The latter point is significant as agriculture occupies a large part of UK catchments.⁹⁰

⁸⁶ Q 260

⁸⁷ Defined as “the area of land from which all surface run-off flows through a series of streams, rivers, and, possible lakes to a particular point in a water course”

⁸⁸ See example of Germany as explained in Chapter 2

⁸⁹ Severn Trent Water, para 20

⁹⁰ NFU, para 12

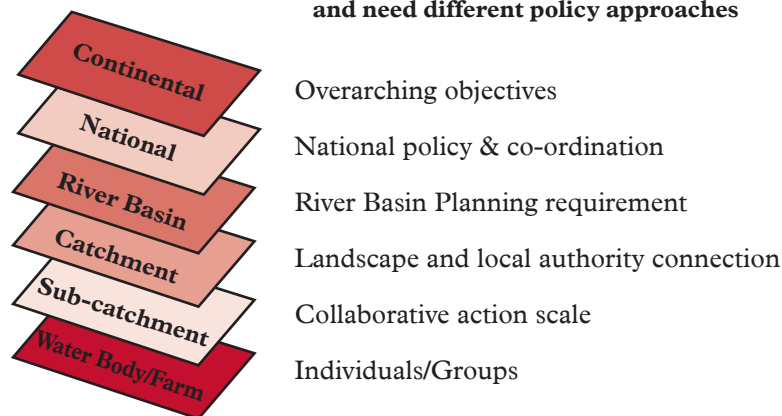
BOX 5**Multi-level governance of water resources**

A key challenge for catchment⁹¹ management is to develop institutional structures that match hydrological, ecological, social and economic processes operating at different spatial and temporal scales and to address the linkages between those scales. This polycentric approach to governance provides for greater experimentation, learning, and cross-influence among different levels and units of government, which are both independent and interdependent, to develop flexible institutional arrangements

Such arrangements are difficult to implement, as they require ways of ensuring local organisations interact with each other and with organisations at different levels. It requires public participation across a diverse set of interest groups operating at different scales, from local beneficiaries, to local government, to regional and national organisations and to the international EU level.

Key Challenges

Understanding how the different scales of governance and activity perform and interact

Different scales relate to different activities and need different policy approaches

Source: Professor Robert Harris, SOAS conference, 11 January 2012

84. In their joint evidence, David Benson, Andrew Jordan, Laurence Smith, Hadrian Cook, Dylan Bright and Alex Inman argued that the WFD fails to consider local level management activities.⁹² They therefore advocated “an integrated approach to land and water management in catchments that can deliver benefits for water quality, environmental flows in dry periods and mitigation of flood risk (as well as other potential gains for recreation and tourism, biodiversity conservation and carbon sequestration).”⁹³ This approach, they argued, requires effective partnership at the local level between relevant agencies, local government, water companies and interest

⁹¹ A catchment is an area with several, often inter-connected, water bodies (rivers, lakes, groundwater and coastal waters).

⁹² Benson et al para 5. The evidence was based on research into the management of UK freshwater resources at a local catchment scale, funded under the Rural Economy and Land Use (RELU) programme, a joint initiative between the Economic and Social Research Council, the Biotechnology and Biological Sciences Research Council and the Natural Environment Research Council.

⁹³ Benson et al para 1

groups.⁹⁴ It should also be set within a framework of multi-level governance facilitating linkage to national level enablers and delivery tools.

85. The Scottish Universities Insight Institute has undertaken research⁹⁵ that highlights the increasing role of Participatory Catchment Organisations, such as the Westcountry Rivers Trust (see Box 6), in the delivery of water legislation. The Institute pointed out that such organisations are in a good position to engage with stakeholders as they are seen to be “trusted intermediaries”. This was a perspective shared by the WRT, which described itself as “an ethical broker” between the market force and the provider of the service, the farmer.⁹⁶

BOX 6

Westcountry Rivers Trust⁹⁷

The Westcountry Rivers Trust (WRT) is one of a number of rivers trusts which have been set up across the country as independent organisations. It is an environmental charity established in 1995 to secure the preservation, protection, development and improvement of the rivers, streams, watercourses and water impoundments in the West Country and to advance the education of the public in the management of water.

The WRT works in partnership with external individuals and organisations to share expertise and facilitate better information transfer. By collaborating with a whole range of stakeholders—ranging from individual businesses through to academic institutions, NGOs and government departments—the Trust aims to circumvent sectoral interests and encourages joint solutions to the complex environmental problems our society currently faces.

The WRT operates the ecosystem services approach, which allows environmental change to be implemented at the appropriate level and empowers individuals and communities to take ownership, and thus responsibility, for the work, creating sustainable change. For example, a farmer could be paid to undertake a soil test, which might establish that the soil had sufficient, or excessive, levels of phosphate. In that instance, the farmer might be advised to shift to using fertiliser without phosphate, thus reducing the farmer’s costs and those to the river.

86. As highlighted in their Water White Paper, the Government have embraced a Catchment Based Approach (CaBA), for the second round of RBMPs, along the lines of participatory and community-led schemes in countries such as Australia, New Zealand, South Africa and the United States. In England and Wales, one hundred catchments⁹⁸ have been identified by the EA⁹⁹ for the purpose of the catchment based approach.⁹⁹

⁹⁴ Such as Healthy Waterway Partnership, Queensland, Australia (Q 21)

⁹⁵ [http://www.scottishinsight.ac.uk/Portals/50/Water%20Management%20-%20Policy%20Brief%20\(2012\).pdf](http://www.scottishinsight.ac.uk/Portals/50/Water%20Management%20-%20Policy%20Brief%20(2012).pdf)

⁹⁶ WRT Q 188; EA Q 251

⁹⁷ <http://www.wrt.org.uk/mission.html>

⁹⁸ <http://www.environment-agency.gov.uk/research/planning/131506.aspx>

⁹⁹ Technically, a catchment can be any size but the Environment Agency has described 100 of roughly similar size as a category below that of river basin districts. The catchment based approach being trialled in 2012

87. Most of our witnesses accepted the advantages of a water management model that includes local level participation.¹⁰⁰ For example, Wessex Water has been working with farmers in their catchments where nitrates have been a particular issue.¹⁰¹ One witness, though, cautioned against blanket support for catchment management: “for some companies, a catchment management solution is obviously the best way forward ... Other companies would not want to go down that path, because it would not make sense. For others, a treatment works is the best solution in terms of value for money.”¹⁰²
88. Elsewhere in the EU, processes akin to catchment management have emerged, but this may be more related to existing governance structures than to a decision to apply a new type of management.¹⁰³ By way of example, we heard from the French government that, when there is a drought or threat of water scarcity, the local authorities can make their own provisions to tackle the problem, acting within the river basin management plans (of which there are eight on the French mainland).
89. Sub-river basin management will differ according to the scale of the river basin. The Commission cited the example of the Danube, which is a basin covering 800,000km². An overall plan is set out under the Danube Convention and then each of the States (EU and non-EU) has its own plan, and there are local plans beneath that level.¹⁰⁴ The German government confirmed this in principle, although noted that some municipalities are more engaged than others.¹⁰⁵
90. **The development of catchment management reflects our evolving understanding of the interactions between land and water. In many instances, the appropriate scale at which to tackle issues will be specific to a field or a farm but will also require broader local co-ordination and participation.**
91. **It offers a particular opportunity to engage with local communities. This, we emphasise, is key. Behaviour will only change by linking communities back into their rivers, the surrounding catchments and the ecosystem services that the catchment supplies, such as water. This will help to address issues such as water consumption and the impact of food production on water.**
92. **We consider that a smaller scale than river basins is necessary for effective governance. With few cross-boundary issues to address and no corresponding political administrative level, the river basin scale in the UK is essentially a reporting device. In order to engage local stakeholders in water and land management, the scale has to reflect their sense of place. We therefore welcome the evolution of local level management solutions. Such novel governance approaches are despite, rather than because of, EU policy and we are interested to**

will consider some of these 100 catchments, but is also evaluating the community-led approach and the development of catchment plans at lower (sub-catchment) levels of varying sizes.

¹⁰⁰ FDF para 3; NFU paras 16 & 32; WICS, para 7; Severn Trent Water, para 18

¹⁰¹ NFU, Q 100

¹⁰² Water UK Q 28

¹⁰³ Q 13

¹⁰⁴ Q 264

¹⁰⁵ Q 124

observe that a more local approach happens to a degree elsewhere in Europe, but mostly because environmental policy is devolved to lower levels of governance.

93. As we noted in Chapter 3, Defra told us that the Government are developing a strategy to tackle urban diffuse pollution, and that local authorities have a particular role to play. They referred us to the National Planning Policy Framework (NPPF) which was subsequently published on 27 March, and requires local plans to take account of water management issues, including when considering new housing and commercial development. In so doing, local planning authorities should work with water providers.
94. According to the EA, there is some engagement with local authorities, although this varies dramatically between authorities.¹⁰⁶ The WWF agreed and noted that a fundamental flaw with river basin management is that there can be “hundreds of local authorities, potentially, in one river basin area” and management, therefore, needs to be done on a scale where a local authority can engage meaningfully in the process. A specific example offered by the EA of working with local authorities to make sustainable improvements to urban water quality through urban regeneration projects was that of the River Lee and its close association with the London Olympics. **We welcome the requirement in the National Policy Planning Framework for local plans to take account of water management issues, but we call on the Government to keep under review whether it goes far enough to engage local authorities adequately in implementation of the Water Framework Directive and whether a duty to co-operate with local authorities needs to be placed on water companies to this end.**

The role of the EU in promoting a new form of governance

95. The Commission acknowledged that “dialogue at local and regional level between stakeholders about the benefits and disadvantages of different measures” was important. It argued that the Common Implementation Strategy (see paragraph 13) was a useful method through which to share best practice.¹⁰⁷ Others, though, thought that the Commission itself could “do much more to promote innovative catchment management at the sub-River Basin District scale in support of the regional scale approach adopted under the WFD.”¹⁰⁸
96. Mr Benyon considered catchment management to be a form of governance with a great deal of merit and he was keen that the Commission took note of its success in the UK.¹⁰⁹ However, he did not want the Commission to take any further involvement.
97. The NFU cautioned against legislative action to promote catchment management: “There is a role for legislation as a fall-back, but experience in other countries such as Australia illustrates that voluntary approaches which achieve stakeholder buy-in endure and succeed.”¹¹⁰

¹⁰⁶ Q 251

¹⁰⁷ Q 260

¹⁰⁸ Benson et al para 10

¹⁰⁹ Q 290

¹¹⁰ NFU para 16

98. **The EU should recognise that different activities to deliver ecosystem services need to be carried out at different geographical scales. It should work to develop an understanding around the EU of the emerging concept of integrated catchment management, which brings into play a much wider set of issues, leads to integration and encourages the development of win-wins and (acceptable) trade-offs.**
99. **The EU is in a good position to assist communication between those involved in catchment management, identifying and aiding the sharing of best practice. While work through the Common Implementation Strategy is welcome, facilitation of links between practitioners could be much improved. We recommend that the Commission examines this issue and gives consideration to support for remote networking.**
100. **In its Blueprint, the Commission should promote the catchment level, already included in the Water Framework Directive in the form of the sub-river basin district, as an important level of governance.**

Governance requirements

101. We heard that a catchment management model will not, in itself, deliver benefits. David Benson and his colleagues pointed to supporting requirements such as accountability, technical capacity and financial resources.¹¹¹ Their vision for a catchment management model is set out in an attachment to their evidence, which we have annexed to this report.
102. The Westcountry Rivers Trust (see Box 6) is an example of a successful, well-resourced voluntary organisation in this sector. However, there are many other organisations attempting similar work but struggling for funding. Throughout England and Wales, 75 full-time and 28 part-time staff are supported by 1500 volunteers.¹¹² The WRT urged the Government to put in place “the economics that cause this local flow of money into the approved and adopted catchment plan”.¹¹³ Various sources of funding were suggested: the water companies themselves; regional carbon offsetting; and visitor payback schemes. Regional carbon offsetting would allow organisations or companies that are unable to reduce their carbon emissions to pay a contribution towards carbon reduction projects elsewhere. These might include, for example, the planting of trees along a riverbank or the restoration of peatbogs.
103. Laurence Smith described catchment management projects as “a spontaneous community response to the problems”, and concluded that government needed to build on that early work.¹¹⁴ As an example of good practice, he cited the Healthy Waterways Partnership in south-east Queensland, which covers 17 catchments. It has taken 20 years to evolve their catchment management approach. The Partnership has a secretariat which provides the “glue”, the horizontal co-ordination and the communication, while most of the implementation is done by industry working groups, community-based working groups and local government. A

¹¹¹ Benson et al, para 5

¹¹² Q 18

¹¹³ Q 191

¹¹⁴ Laurence Smith Q18

regional spatial and strategic plan is drawn up, followed by annual management plans with actions.¹¹⁵

104. Water UK expressed concern that catchment management might be a cheap management solution in challenging economic times, which will leave water companies, and ultimately consumers, to pick up the costs.¹¹⁶
105. **Local catchment management schemes have evolved organically as a response to a local need. Their success cannot be taken for granted. For them to work properly, not only does there need to be a change of philosophy in central and local government but, in particular, their leadership, technical capacity and sustainable financing must also be considered. We are concerned that, where even one of these is insufficient, success will be impossible. We therefore urge the Government to focus on these areas and we look to see progress on them in the forthcoming Water Bill. We agree that Government should not see catchment management as a cheap solution but, equally, we consider that consumers may need to pick up some of the costs.**
106. **Innovative financing mechanisms, such as regional carbon offsetting, might be explored. At the EU level, financing from the European Investment Bank should be explored in addition to rural and regional development funding.**

¹¹⁵ Q 22

¹¹⁶ Q 42

CHAPTER 5: POLICY INTEGRATION

107. The European Commission has indicated that better integration of water policy with other policies will be a priority for the Blueprint.¹¹⁷ This aim was supported by many of our witnesses, pointing to EU policies on: agriculture; regional development; transport; energy; and other environmental areas.¹¹⁸
108. In this Chapter, we look at some of the options presented to us for better integration of policies and we seek to do so by building on our recommendations as regards governance set out in the previous Chapter.

Integration and governance

109. There is a widely accepted view that EU policies that relate to water need to be integrated more effectively. A compelling case for doing so is the danger that policies conflict with each other. The Association of Electricity Producers (AEP) warned that further development of carbon capture and storage will increase the cooling demand of power plant to which it is fitted and hence may result in additional water requirements. They insisted that “a holistic view of the various policies is required”.¹¹⁹ We heard similarly that the various policies “end up being integrated in a field on a farm. If they are all asking different things, there is absolute chaos in terms of policy ask, and it is not a clever way of working.”¹²⁰ Mr Benyon confirmed the need “to integrate what we are asking of farmers to help them to deliver multiple environmental benefits”.¹²¹ In terms of the Common Agricultural Policy (CAP) specifically, we heard that the scale at which it works does not correlate to local water governance.¹²²
110. **In recognising the benefits of catchment management as a model of governance, the Commission should also appreciate its potential for more effective integration of EU policies at the local level. Such integration is essential and requires consistency at EU level.**
111. There was some criticism that there may be institutional obstacles to policy integration. The AEP observed that “policy integration across EU Directorates and government departments in Member States [...] needs to be a key theme in any further policy development.”¹²³
112. A further issue which may both cause problems for integration but, equally, highlight the need for it, is that of competing policy philosophies.¹²⁴ Mr de Hemptinne explained that the CAP has tended to be more focused on the market and competitiveness while water policy concerns are less about the market and more about environmental quality and long-term investment in infrastructure.¹²⁵

¹¹⁷ Q 257

¹¹⁸ Benson et al para 13; SLE para 5.1.1; AEP para 6; CIWEM para 24.

¹¹⁹ AEP, para 20

¹²⁰ NFU Q 103; Scottish Land and Estates, para 5.1.1

¹²¹ Q 302

¹²² Professor Jenkins Q 59

¹²³ AEP para 6

¹²⁴ CIWEM para 24

¹²⁵ Q 213

113. **Close co-operation between administrative units at EU, national and regional levels is necessary, and is the only way to overcome competing policy objectives which will prevent effective policy integration at a local level. As a prerequisite, the Common Agricultural Policy must be more responsive to local needs.**

BOX 7

Reform of the Common Agricultural Policy

The Common Agricultural Policy (CAP) has a two-pillar structure:

- Pillar 1 provides direct income support to farmers and applies the same rules across the EU. Payments are subject to compliance with certain rules, a system known as cross-compliance (see Box 8). It is 100% funded from the EU budget;
- Pillar 2 (the Rural Development Fund) provides additional payments for farmers to undertake specific additional forms of management, make certain investments and pursue other action (including for environmental protection). It is part-financed by the EU budget and part by Member States and works on a multi-annual planning cycle.

In October 2011, the Commission proposed a reform of the CAP, which maintained the current structure but sought to improve the environmental credentials of Pillar 1 and re-distribute payments more equitably amongst farmers and amongst Member States. Key proposals included:

- a compulsory basic payment, making up 70% of a farmer's payment;
- a compulsory "greening" payment, making up the remaining 30% of a farmer's payment, requiring farmers to maintain existing permanent grassland, to have 7% "ecological focus area" (fallow land, terraces, landscape features, buffer strips and afforested areas) and to cultivate three different arable crops (under certain conditions); and
- simplification of the cross-compliance system.

Pillar 1 of the CAP

114. In our earlier report on innovation in EU agriculture, we were clear that direct payments under the CAP should be made in return for the delivery of public goods, responding to climate change, protecting biodiversity and encouraging environmental innovation.¹²⁶ Witnesses agreed on the importance of incorporating environmental considerations, including water policy, into the CAP.¹²⁷ One specific recommendation made by the NFU was to require farmers to have soil conservation plans, nutrient management plans and water management plans, and, better still, an integrated resource protection plan for the farm.¹²⁸
115. The Commission has sought to integrate environmental protection considerations into Pillar 1 in two ways under its proposals for reform: first, through continued (but simplified) application of the principle of cross-compliance; and, second, through so-called "greening" measures (see Box

¹²⁶ 19th Report of Session (2010–12), HL Paper 171.

¹²⁷ SEPA, IEEP

¹²⁸ Q 118

- 7). In response to the proposals, we expressed concern that the Commission's proposals for greening the CAP were too rigid and argued for greater flexibility. The WWF acknowledged that it was difficult to see how a centrally established greening scheme could fit the diversity of water and geography across the EU. If necessary, though, the proposed ecological focus areas could be amended to deliver greater benefit for water protection, a view also held by the Minister.¹²⁹ The need for better local targeting of CAP payments was emphasised by David Benson and his colleagues.¹³⁰
116. **We re-iterate our view that payments should be made to farmers and landowners in support of environmental goods, including new forestry where appropriate. While we acknowledge that the Commission has sought to adopt this approach in its proposals on greening the CAP, we consider the proposals to be too rigid. Greater flexibility for the establishment of greening rules at the national or regional level would give administrations the ability to place a greater emphasis on water management in the context of agricultural payments and their own water management needs.**
117. **Should such a de-centralised approach to the greening of the CAP not be possible, we recommend that, in negotiations on the future of the CAP, water management considerations be further integrated into the greening provisions, such as the ecological focus areas. We see value in a requirement that farmers adopt an integrated resource management plan.**

BOX 8

Cross-compliance

Under the principle of cross-compliance, direct payments made to farmers under Pillar I are conditional on meeting specified requirements of two varieties:

- Statutory Management Requirements (SMR)—these are embedded in EU Directives.¹³¹ It is proposed under the CAP reform that these be reduced from 18 to 13, increasing eventually to include the Water Framework Directive and Pesticides Directive¹³² once these have been implemented in all Member States.
- Good Agricultural and Environmental Condition (GAEC)—to be reduced from 15 to 8 under the CAP reform, these include measures in relation to water protection, soil management and landscape, with precise standards set by Member States.

118. As the Institute for European Environmental Policy (IEEP) reminded us, cross-compliance is an opportunity to make more explicit the links between farmers' obligations under EU law and the support they receive from the EU budget (see Box 8). No witnesses disputed the proposal that the WFD

¹²⁹ QQ 225, 302

¹³⁰ Benson et al para 13

¹³¹ Such as Directives and Regulations on nitrates (91/676/EEC), wild birds (2009/147/EC), habitats (92/43/EEC), traceability of beef, pigs, sheep and goats (1760/2000, 2008/71/EC, 21/2004) and animal welfare legislation

¹³² Directive 2009/128/EC

should be included in the cross-compliance requirements, but many noted that the policy could only move at the pace of the slowest Member State as it will apply only once all Member States have implemented the Directive.¹³³

119. It was suggested that some key aspects of the WFD could become part of cross-compliance immediately, such as no unauthorised abstraction of water for irrigation.¹³⁴ Other possible WFD obligations which may be applicable as SMRs were: unauthorised discharge of waste water into water courses and illegal application of pesticides. The Commission reminded us that much of the detail will be set out in implementing regulations once the key Regulations have been agreed.¹³⁵
120. We heard suggestions that the contribution of Pillar 1 to the provision of public goods could also be improved through the strengthening of Good Agricultural and Environmental Condition (GAEC) requirements.¹³⁶ We note, though, that the GAEC requirements already include measures in relation to water protection.
121. **We welcome the inclusion of the Water Framework Directive within the cross-compliance requirements but, as the policy can only move at the pace of the slowest Member State, we consider it unlikely that this will have a significant impact in the short to medium term. We recommend that the Commission, Council and European Parliament consider whether there are aspects of the Water Framework Directive that could be brought within cross-compliance already, such as no unauthorised abstraction or discharge. Such changes are of sufficient importance to be included in the basic Regulations for CAP reform, and not left to be resolved in implementing legislation.**

Risk management

122. The French government highlighted how difficult it is for farmers faced with water scarcity.¹³⁷ This uncertainty faced by the agricultural industry was reflected in the CAP reform proposals, including their risk management toolkit (support for insurance premia for example). The Committee has supported this in correspondence with the UK Government and Commission but has suggested that any public support for risk management measures should be time limited, ending once greater take-up by farmers has occurred. **Water scarcity and droughts are a cause of considerable uncertainty for farmers. One way in which that uncertainty can be addressed is through risk management measures. We support the proposed risk management toolkit under reform of the CAP, but note that more action needs to be taken, through farm advice, to encourage take-up of risk management within the agricultural industry.**

¹³³ Q 266

¹³⁴ WWF; IEEP

¹³⁵ Q 266

¹³⁶ SEPA; IEEP

¹³⁷ Q 319

Farm advice and knowledge exchange

123. We concluded last year in our report on innovation in EU agriculture that advice to farmers was crucial, and that real improvements were required to knowledge transfer systems. In its proposals for a reformed rural development policy, the Commission has substantially strengthened this element of the CAP: the Farm Advisory System should be extended beyond cross-compliance measures; and support for farm advice under Pillar II is eligible for higher EU financing than other measures.
124. In Germany, for example, advisory services (at the more local level) are being used to make the link between farming and water management and the NFU similarly emphasised the importance of advice. The Scottish Environment Protection Agency (SEPA) added that CAP payments should include support for knowledge exchange¹³⁸ to help deliver the WFD environmental targets. In our innovation report, we also considered knowledge exchange as crucial, and we explore this further in Chapter 6.
125. **If farmers are to be asked to take a greater role in managing water resources, we consider it essential to strengthen the advice available to farmers. We welcome the suggestions made to this effect by the Commission in its proposal for the new Rural Development Fund and urge Member States, including the UK, to ensure that appropriate funding is targeted at this area of Pillar 2. Agricultural advice is welcomed by farmers from advisers who are trusted, and are often local and familiar.**

Rural and regional development

126. The proposed new Pillar 2 allows for funding to compensate beneficiaries for costs incurred and income foregone resulting from implementation of the WFD. It can also support water management infrastructure and agri-environment-climate payments.
127. We heard general support for the role of Pillar 2 in supporting water management activities.¹³⁹ The Government, for example, pointed to options under agri-environment schemes that protect natural resources and “competitiveness” measures that promote better resource efficiency.¹⁴⁰
128. Others thought that there was room for improvement. Mr de Hemptinne suggested that Pillar 2 measures for water management could be strengthened.¹⁴¹ WWF and the NFU emphasised the need for better targeting of agri-environment measures at water and were critical of the failure of current rural development plans to do so.¹⁴²
129. **Pillar 2 (the rural development Regulation) provides scope to support water management and water efficiency in agriculture, including making funds available specifically to compensate for costs incurred and income foregone as a result of implementation of the Water Framework Directive. We urge Member States to support these**

¹³⁸ Two-way interaction between researchers and users

¹³⁹ QQ 19, 189, 225, 255, IEEP, NFUS, para 11, CCW para 2.21

¹⁴⁰ Defra para 22

¹⁴¹ Q213

¹⁴² QQ 111, 224

strands of work as appropriate according to regional need, using them ambitiously.

130. The Commission has proposed that structural funds, the rural development fund and the fisheries fund be strategically linked through a Common Strategic Framework (CSF), which would aim to ensure that the Funds are deployed in a complementary fashion at the local level. The precise details of this methodology will take some time to be worked out, but further information emerged from the Commission in March 2012. In terms of water management, it explained that the European Regional Development Fund might support investment in water supply, treatment and re-use, including leakage reduction, while the rural development fund could support agriculture-specific water efficiency measures and advice.¹⁴³
131. Witnesses recognised that regional funding is already available to support water-related projects. Defra observed, for example, that the current (2007–13) Structural Funds priority theme list includes management and distribution of water (drinking water), water treatment (waste water), integrated prevention and pollution control, and mitigation and adaptation to climate change, under all of which freshwater management projects could be undertaken.¹⁴⁴
132. We also heard, however, that regional policy could be “better integrated with water policies”.¹⁴⁵ The IEEP criticised the EU’s regional policy for its continued focus on economic growth and social development and argued that it does little to account for important inter-linkages between project-related impacts, such as increased water and air pollution and their link to protected and natural areas. The mainstreaming of environmental considerations throughout regional policy had yet to be realised.¹⁴⁶
133. The importance of local, regional and national flexibility in programming of funds was emphasised by others. David Benson and his colleagues suggested that it “presents a significant opportunity to support regional or local scale initiatives, thereby enhancing subsidiarity in water management.”¹⁴⁷ Similarly, Defra emphasised the importance of flexibility, allowing Member States to determine how to spend regional funding most effectively.¹⁴⁸
134. In the previous Chapter, we highlighted a failure to consider urban policy in the context of water management. We were interested to hear from the Commission that the urban environment is a specific priority in the new proposals for regional policy.¹⁴⁹
135. **In the next programming period (2014–20), a new opportunity for integrated use of EU funds will be introduced through the Common Strategic Framework (CSF). We urge the Government to engage proactively with the Commission, and to work across relevant Departments and the UK Administrations to identify how the CSF could be designed most effectively. This must include consideration of**

¹⁴³ SWD(2012)61

¹⁴⁴ Defra, para 23

¹⁴⁵ Benson et al, para 13

¹⁴⁶ IEEP

¹⁴⁷ Benson et al para 13

¹⁴⁸ Defra

¹⁴⁹ Q 268

how it can assist effective delivery at the local level of water management solutions.

136. **We believe that deployment of the funds strategically, as intended by the CSF, could be of particular benefit in supporting the catchment-based approach to water management, both in rural and urban areas.**

Other policy areas

137. Various witnesses drew our attention to the need to ensure synergies between water policy and energy policy. The International Commission on Irrigation and Drainage observed that policy on renewable energy sources and targets for biofuels production have implications for water use and water quality, an observation shared by the Chartered Institution of Water and Environmental Management (CIWEM) and the Centre for Ecology and Hydrology (CEH).¹⁵⁰ We are aware that successful local collaborative work in Lower Saxony to reduce nitrate leaching to groundwater was undermined by German federal subsidies and priorities to grow more biofuels.¹⁵¹ According to the Commission, work is being undertaken on the sustainability of biofuels. We also heard from the Commission that guidance had been issued on how to deal with hydropower installations.¹⁵²
138. Various other pieces of environmental legislation are relevant to work on the WFD, particularly when considering the tackling of pollution at source. These include chemical regulation, pesticides legislation, medicines legislation, biotechnology, biodiversity policy and, importantly, floods policy. The NFU supports “holistic policies to water resource management, rather than having policies in boxes marked ‘flood’, ‘drought’ and ‘pollution’”.¹⁵³
139. It may be, as suggested by the WRT, that a radical simplification of approach to land management could replace complex rules that are not currently delivering and would assist compliance with a number of older Directives in addition to the WFD.¹⁵⁴
140. As regards links between water policy and transport policy, the Commission explained how its Environment Directorate General was working, for example, to develop guidelines for the Danube and inland navigation.¹⁵⁵
141. Urban policy falls largely to Member States to define, but various aspects of EU policy, including water policy, are pertinent to urban areas. The Common Implementation Strategy includes an agricultural working group, but no such group exists for urban matters. **We therefore recommend an urban dimension working group as part of the Common Implementation Strategy.**
142. **It is clear that water policy needs to be integrated across a range of policy areas. We note in particular the links between energy policy and water policy, particularly in the context of the increased demand for energy by 2050. There are clearly broader links to food policy and**

¹⁵⁰ ICID, CIWEM, CEH

¹⁵¹ Professor Robert Harris, SOAS conference, 11 January 2012

¹⁵² Q 263

¹⁵³ NFU para 32

¹⁵⁴ WRT supplementary written evidence

¹⁵⁵ Q 263

land use policy and we consider that this web of policy points to the need for a reflection on how the European Union directs, manages and coordinates these policies. In the interim, we see room to ensure greater coordination between the Water Framework Directive and flooding policy.

143. **We were pleased to learn of some of the work being done across the Commission on integration of policy but consider that a systematic approach is required. As a first step, we recommend that, when undertaking impact assessments on new legislation, the Commission consider the implications for water management.**

Ecosystem services

144. One way in which policies can be coordinated at the local scale is, as we described in the previous Chapter, through catchment-based water management. The concept of the ecosystem services approach is already being developed at that level, although not as a direct result of the Water Framework Directive. **Although the WFD is “ecosystem centred”, it was developed before the concept received the exposure it has gained today and hence does not especially promote the ecosystem services concept. This is a gap that should be addressed.**
145. The approach of “payment for ecosystem services” (PES: see Appendix 7) is relevant here. In the UK, Defra has classified a number of projects to improve water quality as PES. These include the United Utilities Sustainable Catchment Management Plan (SCaMP) in the catchment of the River Hodder in the Forest of Bowland and the South West Water “Upstream Thinking” programme in all their key river catchments, in conjunction with the Westcountry Rivers Trust, Devon Wildlife Trust and Dartmoor National Park Authority.
146. Mr Benyon confirmed that “payment for ecosystem services is a direction of travel that we are very keen on”, and that the Government are keen to promote it with water companies, who can pay land managers for ecosystem services delivered, and through agricultural policies and agri-environment programmes.¹⁵⁶ The National Farmers Union of Scotland was favourable towards such an approach.¹⁵⁷ As the IEEP explained, certain actions by farmers, such as active management or river margins, can have beneficial effects, but may not be adequately rewarded.¹⁵⁸
147. One example of this approach was offered by the German government: in Germany, farmers are paid not to use manure or fertilisers in water-protection zones, so they get paid as compensation for not using the soil in these zones as they would like.¹⁵⁹
148. In the UK, there was a Nitrate Sensitive Area scheme in the 1990s, which made a basic payment to farmers in certain areas for reducing fertiliser inputs and a further payment for reverting arable land to grass or trees. The areas identified were those close to drinking water sources and where nitrate levels were high and rising. This scheme was replaced by Nitrate Vulnerable Zones,

¹⁵⁶ Q 302

¹⁵⁷ NFUS, para 12

¹⁵⁸ IEEP

¹⁵⁹ Q 132

involving no compensatory payment and little subsequent impact on nitrate levels in water.

149. The Scottish Agricultural College noted that building the ecosystem approach into the policy framework from the start should allow the policy sufficient flexibility to adapt to any new challenges and the scale at which they need to be addressed.¹⁶⁰ Mr de Hemptinne argued that it could be the answer to the competing objectives of the CAP and water policy.¹⁶¹ More specifically, Water UK suggested that a revised CAP could link sustainable food production to water resources and water quality as well as land environments and habitats.¹⁶²
150. Analysis¹⁶³ suggests that PES is not a panacea and that a number of challenges remain to enhancing the effectiveness of PES in relation to water management. These include: packaging multiple ecosystem services, such as water quality, carbon storage and biodiversity into PES schemes; and trading off the risk that paying farmers to provide certain ecosystem services could lead to higher market prices for other services such as food.
151. The complexity of a PES approach was also illustrated by Laurence Smith, who emphasised the need to develop a rural spatial planning process for each catchment. Such a process should aim to identify “which are the most vulnerable areas that will need protection measures and mitigation measures, that will need farmers to adopt less intensive farming methods, and identify those areas that are less at risk, where we can concentrate intensive production and so have the food production that we need”. Some such assessments are already being carried out, as we explain in the next Chapter, but on a limited scale. Mr Smith argued that EU policy could support this process through flexible and local funding arrangements that can assist with those sorts of assessments.¹⁶⁴
152. The PES approach of paying subsidies not to undertake polluting activities could be construed as rewarding land managers for adopting management practices they should undertake as part of good practice or stewardship, conflicting with the “polluter pays” principle. However, if the provision of ecosystem service benefits cannot be assured through regulation, then it is in society’s interest for landowners to be paid to provide these by governments or other brokers, such as River Trusts. **We consider that the “polluter pays” principle is not always reflected in the modern practice of local water management. While it may have merit in some instances, such as avoidance of illegal abstraction for the purposes of irrigation, there are times when there is a need to give greater consideration to the principle of the “provider is paid”.**
153. **Adoption of that principle could lead to further development of payment for delivery of ecosystem services. This concept should, we argue, assist as a tool to helping communication with the wider public and understand the priorities in any given catchment or river basin.**

¹⁶⁰ SAC

¹⁶¹ Q 213

¹⁶² Water UK, para 2.3

¹⁶³ Parliamentary Office of Science and Technology, *Living with Environmental Limits*, POST Report 370, January 2011, pp 83–84

¹⁶⁴ Q 21

154. **The EU is in a position to provide a framework for promoting the concept of payments for ecosystem services: at one level by strongly linking the CAP to the environment and on a higher plane by adopting, developing and promoting the ecosystem services concept within a strategic framework. This may ultimately require a re-orientation of the CAP towards a land use policy, which incorporates a food production strategy and recognises the suite of ecosystem services provided by the land.**

CHAPTER 6: INNOVATION AND RESEARCH

155. In this Chapter, we examine ideas for boosting innovation, disseminating knowledge and promoting existing innovations, before exploring some of the gaps in knowledge that have been identified in the course of the inquiry.

Innovation

156. The European Commission took the view that innovation is about not just technology but also management, public involvement and providing information to the public.¹⁶⁵ We agree. When considering innovation, innovation in process is as important as innovation in engineering. Innovation can of course arise through science and technology. However, in looking at how people interact with their environment, innovation can also be promoted through understanding the socio-economic context of, and engagement between, communities which have most influence over a particular catchment.

European Innovation Partnership

157. Our inquiry showed that activity to implement the WFD is in reality a large number of experiments being carried out across Europe, particularly at the grass-roots level. This is understandable given the novel approach of the Directive and our lack of understanding of how ecosystems work in relation to the water and the land. Management solutions therefore need largely to be adaptive—learning by doing.¹⁶⁶ The extent to which the learning gained is being co-ordinated or collated effectively was far from clear to us. The German government summarised the dilemma: “we must not be lonely warriors not talking to each other”. **We see ample opportunity for the EU to assist with knowledge exchange in relation to water management.**
158. The Commission is alive to this need. As part of its Europe 2020 Strategy on growth, it proposed an Innovation Union,¹⁶⁷ with several relevant initiatives. First, the new European Institute of Innovation and Technology (EIT) has set up several Knowledge and Innovation Communities (KICs), including a KIC focused on climate change. This “Climate-KIC” will work on four themes, one of which is water management and adaptation. Second, European Innovation Partnerships (EIPs) are being established, one of which will address Agricultural Productivity and Sustainability and another of which will address Water. According to the Commission, the agricultural EIP will address water management and pollution reduction at farm level and the water EIP will cover water infrastructure and water allocation in rural areas.

¹⁶⁵ Q 277

¹⁶⁶ This adaptive management approach assumes that abnormal events are inevitable, knowledge of systems and their interactions will always be incomplete and that human interactions with ecosystems will always be evolving. It requires uncertainties to be identified and then to ‘test’ possible management measures to see if they help to achieve desired levels of ecosystem service benefits.

¹⁶⁷ COM(2010)546

BOX 9**European Innovation Partnership on Water**

The Commission has said that the strategic objective of the EIP on Water is to position Europe as a world leader in water technology and services by boosting innovation, based on three aims: through innovation, to develop solutions for the many water quality and quantity challenges Europe (and the world) is facing; through boosting innovation, to create a global leadership position for European water technology and services; and through mobilisation of all relevant actors at EU, national and regional levels, to remove any regulatory and market barriers, promote the integration of various policy and finance instruments and increase the demand for innovation, across all sectors and users of water.

The Commission says that at the operational heart of the EIP will be the “Innovation Activities,” organized in three work packages: urban water management; rural water management; and industrial water management. The Innovation Activities will be large-scale projects, focussed on finding solutions for identified challenges by putting into practice the multi-disciplinary approach of bringing together actors from technological, financial, organizational and management perspectives, and testing the solutions.¹⁶⁸

159. The Commission told us that stakeholders have expressed “a very positive view” about the idea of a water EIP and of the contribution that an EIP could bring both to the implementation of water policy and to the development of commercialised solutions and European business and jobs in the area of water solutions.¹⁶⁹
160. We also heard support for the idea from others. Mr de Hemptinne considered that the EIP could help in keeping the momentum going after 2012: “today we are giving a lot of attention to the past and to the present, but the future is also knocking at the door because the first step of the second planning cycle is approaching”.¹⁷⁰ Professor Jenkins welcomed the idea of an innovation partnership, noting that what was needed in the EU was “a more efficient partnership on water innovation”. He observed that the privatised model of water management in the UK acted as an obstacle to innovation.¹⁷¹ On the other hand, we are aware that, in the UK, the Technology Strategy Board, Defra and Research Councils have invested up to £4m in feasibility studies and collaborative research and development projects to stimulate innovation in the UK water industry. It is important that these are linked into the EIP.
161. Last year, we gave qualified support to an EIP on Agricultural Productivity and Sustainability on the understanding that it would be founded on effective, action-based co-operation.¹⁷² **Similarly, we support the**

¹⁶⁸ See: <http://ec.europa.eu/environment/water/innovationpartnership/>

¹⁶⁹ Q 257

¹⁷⁰ Q 206

¹⁷¹ Q 86

¹⁷² 19th Report (2010–12), HL Paper 171

principle of the European Innovation Partnership on Water. We consider that clarity is required as to how the various initiatives in this area—Agricultural and Water European Innovation Partnerships and the Climate Change Knowledge and Innovation Community—will work together, drawing on relevant funding sources. How this work then feeds in to the Common Implementation Strategy on the Water Framework Directive, and on down to practitioners, as well as into rural development plans also needs clarification. It is vital that best practice developed through these initiatives is not only shared amongst but put into practice by Member States.

162. The Commission told us that it has three priorities in the innovation partnership: rural issues, industrial issues and urban issues. As regards the latter, particular focus would be applied to sewage systems.¹⁷³ Similarly, Laurence Smith considered that sustainable urban drainage systems would be a useful subject for the work of the EIP.¹⁷⁴ **We agree that the Water EIP should place strong emphasis on urban issues.**
163. In supporting the agricultural EIP, we emphasised that a twin-track approach must be followed—involving networking across borders and local delivery. Local engagement as regards innovation was also emphasised to us by David Benson and his colleagues: “local engagement of stakeholders and improved planning and decision making requires the ‘twin-track’ of deliberation supported by analysis and credible ‘first class’ science.”¹⁷⁵
164. **Emphasis must be placed on effective engagement of stakeholders, including those working at catchment management levels. We re-iterate our view that local delivery of innovations is as important as networking at the EU level. As with all innovation, the challenge is in the integration and appliance of scientific knowledge in close partnership with practitioners in the field.**

Innovation in Public Engagement

165. Mr de Hemptinne expressed his view that the public will be more involved in water “the day that they are given a way to act and when they are really able to do something for water.”¹⁷⁶ The Commission agreed that public information is a key element of water policy. It cited the example of Spain, where campaigns have been run that have managed to bring down household water consumption from the order of 150 litres per person per day to 100 litres per person per day.¹⁷⁷
166. A particularly innovative public engagement tool about which we were told was a system of report cards developed by the Healthy Waterways Partnership in Queensland, Australia.¹⁷⁸ Catchments are graded according

¹⁷³ Q 268

¹⁷⁴ Q 23

¹⁷⁵ Benson et al para 12

¹⁷⁶ Q 215

¹⁷⁷ Q 269

¹⁷⁸ www.healthywaterways.org

to the health of their ecosystems,¹⁷⁹ and “report cards” are generated electronically. Laurence Smith told us that these are much more understandable by a wider range of people than more traditional ways of reporting. In the Australian example, one result of this easier comprehension has been that local politicians are held to account for the results. The report card is now also available as an electronic application for mobile phones (iphone app).¹⁸⁰ On a more conventional level, we were also told that, in Baden-Württemberg in Germany, there was public participation over a series of evenings with external facilitation in getting the local community together, trying to work out appropriate measures to take and using local knowledge of where those measures would be most applicable.¹⁸¹

167. **Connecting people back into their environment and their place in the landscape will be important if we are to reduce water consumption. Innovative methods, such as a report card or iphone app, can be used to engage the public in their environment. Public information campaigns have been shown to be successful and we therefore consider that national administrations, including the UK Government, have a responsibility to boost public engagement.**
168. **We see the proposed European Innovation Partnership as potentially a very useful forum for sharing ideas on public engagement. We note too that sharing of experience and ideas beyond the European Union is of great value.**

Innovation in water efficiency

169. We heard various examples of how innovative ideas are already being used to boost water efficiency, one of which as regards efforts made in Copenhagen we set out in Box 4 in Chapter 3. As we were told by SEPA, the use of such cost-effective and water efficient practices and technologies is likely to become more important as water users face greater difficulties in securing water, particularly as other resource costs are likely to increase.¹⁸²
170. In the UK, one widely discussed innovation in relation to water efficiency is water metering. As we discuss in Chapter 3, most of our witnesses supported the metering of domestic water supplies, which is not compulsory in most of the UK¹⁸³ but is widely used throughout the EU. It has been compulsory in France since the 1930s. More recently, it has been credited with helping to drive down water consumption in both Romania and Copenhagen, as prices have risen accordingly.¹⁸⁴

¹⁷⁹ Indices used are: physical/chemical, nutrient cycling, ecosystem processes, invertebrates and fish

¹⁸⁰ Q 23

¹⁸¹ Q 231

¹⁸² SEPA

¹⁸³ Southern Water, Folkestone Water and South East Water have introduced compulsory metering, and all serve water-stressed areas.

¹⁸⁴ Pinsent Masons Water Yearbook 2011–12

BOX 10**Water embodied in Products¹⁸⁵**

The water associated with production, known as “virtual” water, constitutes 95% of human water use: 9% is associated with industrial production and 86% is used in food production. It has been calculated, for example, that, as a global average, 70 litres of water are used in the production of one apple and 15,500 litres for one kilogram of beef.

As pressure on water supplies rises, recognition of the amount of water used within each step of production could be important to managing water use. With projected increases in global population size, meat consumption and economic growth, demand for water is forecast to outstrip supply by 40% over the next 20 years. This situation may worsen due to changes in hydrological cycles and precipitation patterns due to climate change.

Individuals, businesses and governments can improve their awareness of virtual water use by calculating the amount of water they consume and determining the location of their water sources. However, this is complicated, as water consumption may vary in time and space depending on a range of variables, such as climatic conditions and the techniques used for withdrawal and irrigation.

Water use can be assessed at two levels: at the inventory level, through “water footprinting” methodologies which assesses the volume of both direct and indirect water use; or at the impact level, through Life-Cycle Impact Assessment approaches which attribute environmental impacts to the water consumed over a product’s lifecycle.

Both approaches can be limited by the accuracy of spatial and temporal data. A primary concern is the need to standardise methodologies required to attribute the environmental impact of water use. Potential solutions for managing virtual water include a range of options, such as better measurement and accounting, increased supply chain cooperation and implementing water pricing for agriculture.

171. A great deal of water is used in the production of goods (see Box 11) but assessment of it is far from simple. There is general support for the principle of water footprinting, but concern about the practicality of developing a scheme that recognises the increased value of water taken from a water-stressed region compared to others.¹⁸⁶ One of those that indicated support, the Food and Drink Federation, told us that it is contributing to the work currently being undertaken by the International Standards Organisation¹⁸⁷ on requirements for water accounting and impact assessment.¹⁸⁸ Scottish Land and Estates cautioned against adding more labelling to products “as it would be at great expense and it would be unlikely to have a significant impact on

¹⁸⁵ Parliamentary Office of Science and Technology, *Water in Production and Products* (PostNote 385, Aug 2011)

¹⁸⁶ Defra written evidence; IEEP; Commission Q 277

¹⁸⁷ http://www.iso.org/iso/iso-focus-plus/index/iso-focusplus_online-bonus-articles/isofocusplus_bonus_water-footprint.htm

¹⁸⁸ FDF, para 12

the choice of consumers”.¹⁸⁹ Defra suggested that this was an area for further research.¹⁹⁰

172. **We agree that greater recognition of the amount of water used in the products that we consume will be increasingly necessary and urge the Commission to consider the role of “virtual” water in EU policy, particularly in terms of achieving the objectives of the EU Resource Efficiency Roadmap. We acknowledge the difficulties in establishing a methodology and agree that further research is required, research which clearly needs to be cross-disciplinary, but also recommend that Defra consider policy options for ensuring businesses measure their water impact and develop specific water strategies to ensure security of their supply chains. Work by the Commission and Government must also be linked in to the work of the International Standards Organisation to avoid duplication.**
173. Another issue that we examined in relation to water efficiency was that of rain water harvesting. In the UK, the Code for Sustainable Homes encourages the installation of rainwater harvesting in new-build homes and there is an emerging regulatory approach in support of enhanced rainwater harvesting. Thus far, no incentives through the taxation system have been introduced. In France, by contrast, consumers can claim tax credits on 25% of rainwater equipment costs (extended until 31 December 2012).¹⁹¹ The Commission confirmed that it is considering the issues of rain water harvesting and of the reuse of wastewater, particularly in the context of building design.
174. **In order to boost the use of rainwater harvesting, we urge the UK Government to consider tax incentives in addition to regulatory and voluntary approaches. The Commission could assist by sharing best practice on this issue, possibly through the Common Implementation Strategy or as a strand of work of the water EIP. Water-efficient building design should certainly feature in the Blueprint, although we would not favour a legislative approach to this issue by the Commission.**

Research

175. The Commission has proposed a new research funding instrument over the period 2014–20 (Horizon 2020) with a total budget of €80bn. It recognises the importance of water-related research throughout various research strands, but there is a specific area of activity focused on the management of natural resources, including water. This should include: furthering our understanding of the functioning of ecosystems, their interactions with social systems and their role in sustaining the economy and human wellbeing, and providing knowledge and tools for effective decision making and public engagement. In addition, the EU has a budget for demonstration projects in the area of Environment and Climate Change, which it is proposed should receive funding of €3.6bn over the period 2014–20.¹⁹²

¹⁸⁹ Scottish Land and Estates, para 3.2.1

¹⁹⁰ Defra, para 18

¹⁹¹ <http://www.ifep.info/syndicat/credit-impot.php#a1>

¹⁹² COM(2011)874

176. **We support the increased budgetary provision on innovation and research as a larger proportion of a smaller overall EU budget; we consider there to be a strong case for the proposed Environment and Climate Change budget. We welcome the recognition in the proposed Horizon 2020 Programme of water-related research. Deployment of this funding must be dovetailed with spending under the Environment and Climate Change Programme.**
177. SEPA emphasised that greater knowledge and understanding of our environment will lead to better informed decision making by Member States at all levels of decision making. Consequently, research into cost effective monitoring techniques would be extremely useful.¹⁹³ Defra called for further work into: climate change impacts on the water environment; better integration of water resource assessments; and development of a common integrated land use and hydrological modelling platform.¹⁹⁴
178. **Our knowledge of water-related ecosystems remains inadequate and we agree that emphasis must be placed on boosting this knowledge. Collecting the right data, from the right places, using the right techniques, is essential. Effective monitoring programmes and techniques are clearly pivotal to that. Given the pressures of climate change, and the important local impacts that climate change can have, we see it as crucial to build climate change impact into our work on developing a better understanding of local ecosystems. This must include the impact of societal response to climate change, such as alternative crop development, water demand and population change.**
179. In Chapter 4, we outlined an emerging catchment level of water management. We were keen to understand how research could assist at this level. One innovative activity that the WRT has undertaken is to map where ecosystem services can be delivered. Within the catchments that they have studied, it demonstrates that the area of land where other ecosystem services conflict with intensive agriculture unduly (and therefore where farmers would need to be compensated for reducing food production) is limited—in their case, less than 10%.¹⁹⁵ Linked to this, Defra called for further research into practical methods for ecosystem service assessments.¹⁹⁶
180. **We consider that development of methods for ecosystem service assessments at a local scale, tied into an emerging methodology for mapping of ecosystem services, would be useful areas for future research. Such mapping should inform the choices of technological solutions to be applied, avoiding a “one size fits all” approach to adoption of particular innovations.**
181. David Benson and his colleagues suggested that the EU’s research programmes could do more to support investigations into how new forms of local level collaboration and institutional arrangements might help address the twin challenges of climate change and non-point source pollution.¹⁹⁷ **We agree that further research into how new forms of local level**

¹⁹³ SEPA

¹⁹⁴ Defra, para 18

¹⁹⁵ Q 189

¹⁹⁶ Defra

¹⁹⁷ Benson et al para 11

collaboration can most effectively support water management throughout the European Union would be helpful in moving towards an institutionalisation of the emerging catchment management model.

182. Many witnesses were clear that there is insufficient understanding about the impact of urban diffuse pollution on watercourses. The EA has identified that the largest impacts on quality of waters in urban environments are from: run-off from roads, other hard surfaces and industrial estates; misconnected drainage; and contaminated sediments that continue to release pollutants.¹⁹⁸
183. Professor Jenkins told us that innovation in wastewater treatment technology was required, but he also assured us that major breakthroughs are close: “A lot of new techniques are being tested that should enable us to make more use of wastewater through better treatment, and with no excessive carbon emission or power usage cost.”¹⁹⁹ The Commission confirmed that the management of urban water was a priority.²⁰⁰
184. **It is evident that further research is required into the management of urban diffuse pollution. We note in particular that further work is required on run-off, sediment and wastewater treatment. The pressure on urban systems would be reduced if the discharge or discard of chemicals into the sewerage system in the first place were to be reduced, and thus greater work on this is required. The use of sewers as treatment systems rather than just for conveyance might also be explored.**
185. Various other suggestions were made to us by witnesses. The English Golf Union would support research to assist the undertaking of tailored research programmes to deal with future irrigation product development/design techniques in the leisure and sports turf sectors.²⁰¹ Thames Water favoured more research to improve understanding of the true value of water in the environment.²⁰²
186. **We accept that leisure industries, such as golf, must not be ignored in the push for greater understanding of new technologies that could reduce their water footprint. The Commission should consider such industries in the context of its Blueprint. Ultimately, a greater understanding of the true value of water could take us a long way in establishing a long term sustainable water resource and related knowledge base.**

¹⁹⁸ EA supplementary written evidence

¹⁹⁹ Q 86

²⁰⁰ Q 268

²⁰¹ English Golf Union

²⁰² Thames Water, para 5.1

CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

Chapter 2: Implementation of EU water legislation

187. In our view, any expectations that changes should be made in the short term to the core elements of the Water Framework Directive, such as the objectives and timescales, are unrealistic, and unjustified. It is too soon to assess overall implementation of the Directive with any degree of certainty, though it is clear that Member States are finding it challenging to implement. While there seems to be no realistic prospect that Member States will secure the Directive's ambition that all rivers and water bodies should have good or high status by 2027, we agree with several witnesses that the aspiration to meet the demands of the Directive has already delivered substantial improvement in the management of water resources. (paragraph 44)
188. We view the "one out all out" basis for assessing status categories as a blunt and rigid method which fails to capture effectively the ecological as well as the chemical quality of water. While we do not call for regulatory change at this time, we urge the Commission to consider the "one out all out" rule specifically in its work on the Blueprint. In the short term, we see an urgent need for reporting on progress under the Directive to go beyond the "headline measure" of these categories and to show the progress made in the individual quality criteria. We call on the Commission to develop guidance, through the Common Implementation Strategy, to help in the communication of the wider extent of improvements being promoted under the WFD that may not be fully reflected in the assigned status of water bodies. (paragraph 45)
189. We recommend that the Commission examine the issue of sampling methods in some detail with a view to ensuring comparability of monitoring regimes across the EU. (paragraph 47)
190. As regards the February 2012 proposal on priority substances, we see a need for the UK Government and the Commission to acquire more knowledge of the risk posed, principally by the pharmaceutical substances being added to the list, and of cost-effective methods of reducing this risk before effluent containing the substances requires wastewater treatment. These considerations must include the pharmaceutical manufacturers, not least because the "polluter pays principle" means that they may be called on to contribute to mitigating the risk. (paragraph 48)
191. We expect the Government, the Environment Agency, Ofwat and local government to act quickly on lessons learnt from the catchment management trials, but we see it as incumbent upon the Government quickly to develop a more strategic approach to water resource management, with a particular view to overcoming reluctance by water companies to make capital investment. We note the EA's new additional role in this as the Government's body in England for advice on climate adaptation to organisations in key sectors on the actions needed to build resilience to the changes and impacts projected. (paragraph 51)
192. We look to the UK Government, and to the Commission, to ensure that Member States take as much away from Common Implementation Strategy (CIS) discussions as they bring to them. We urge the Commission to do more to assist with implementation and enforcement, including the sharing

of best practice at all levels of governance and implementation, and to enhance the CIS discussions with non-Governmental input. (paragraph 52)

193. We received no conclusive evidence to support the early withdrawal of other elements of existing EU water legislation, but expect the Commission to pay particular attention to consideration of whether these pieces of legislation are still fit for purpose. We see the case in the longer term for the integrated approach of the Water Framework Directive increasingly to supplant more narrowly focussed legislation. (paragraph 53)

Chapter 3: Challenges to be met by EU water policy towards 2050

194. We consider that the “good status” objective of the Directive cannot meaningfully be pursued without effective action on water resource availability. We look to the Commission to demonstrate in the Blueprint the critical dependencies between the two policy areas. The EU should encourage the development of national water scarcity and drought management plans (both short- and long-term) to ensure more effective use of the EU’s plentiful water supplies. (paragraph 68)
195. We call on the UK Government to accelerate their efforts to deal with the problems of water scarcity. Consumption of water, whether by industrial or domestic users, must be better adjusted to respect constraints of water availability, through abstraction controls and through economic instruments. (paragraph 69)
196. We believe that the cost of water will have to rise in areas where other measures are not enough to meet the challenges of water scarcity. We do not think that fear of higher consumer bills should in itself be a reason to avoid metering, but safeguards are required to ensure that those unable to pay higher bills are protected. (paragraph 70)
197. We consider that a focus on diffuse pollution from agriculture, though important in its own right, has distracted water policy from understanding and remedying urban diffuse pollution. We welcome the Government’s commitment to develop a strategy for this problem; we call on them to work urgently with the Environment Agency and local authorities to deliver the strategy once adopted. We urge the Commission to contribute to a better understanding of the issue in the Blueprint as well as through its other activities. (paragraph 72)
198. We consider that the Commission’s current review needs to look at whether the WFD’s overarching strategic objectives have evolved, and whether this evolution needs to be recognised as it is implemented in future years. In particular, there is a question as to whether the current mix of chemical (water quality) and ecological monitoring targets is appropriate. The Commission should highlight this in the Blueprint as an urgent issue for discussion. (paragraph 76)
199. Future EU policy will need to be flexible and dynamic in order to respond to changing environmental pressures. As we move forward, there will be a broader need to consider, at all levels of governance, how a more integrated and inclusive land-use planning system could be developed, linking closely into water management and reflecting the needs and demands of both rural and urban areas. (paragraph 77)

Chapter 4: Governance

200. Catchment management offers a particular opportunity to engage with local communities. This, we emphasise, is key. Behaviour will only change by linking communities back into their rivers, the surrounding catchments and the ecosystem services that the catchment supplies, such as water. This will help to address issues such as water consumption and the impact of food production on water. We consider that a smaller scale than river basins is necessary for effective governance. With few cross-boundary issues to address and no corresponding political administrative level, the river basin scale in the UK is essentially a reporting device. In order to engage local stakeholders in water and land management, the scale has to reflect their sense of place. We therefore welcome the evolution of local level management solutions. Such novel governance approaches are despite, rather than because of, EU policy and we are interested to observe that a more local approach happens to a degree elsewhere in Europe, but mostly because environmental policy is devolved to lower levels of governance. (paragraphs 91 and 92)
201. We welcome the requirement in the National Policy Planning Framework for local plans to take account of water management issues, but we call on the UK Government to keep under review whether it goes far enough to engage local authorities adequately in implementation of the Water Framework Directive and whether a duty to co-operate with local authorities needs to be placed on water companies to this end. (paragraph 94)
202. The EU should recognise that different activities to deliver ecosystem services need to be carried out at different geographical scales. It should work to develop an understanding around the EU of the emerging concept of integrated catchment management, which brings into play a much wider set of issues, leads to integration and encourages the development of win-wins and (acceptable) trade-offs. The EU is in a good position to assist communication between those involved in catchment management, identifying and aiding the sharing of best practice. While work through the Common Implementation Strategy is welcome, facilitation of links between practitioners could be much improved. We recommend that the Commission examines this issue and gives consideration to support for remote networking. In its Blueprint, the Commission should promote the catchment level, already included in the Water Framework Directive in the form of the sub-river basin district, as an important level of governance. (paragraphs 98 to 100)
203. Local catchment management schemes have evolved organically as a response to a local need. Their success cannot be taken for granted. In particular, their leadership, technical capacity and sustainable financing must be considered. We are concerned that, where even one of these is insufficient, success will be impossible. We therefore urge the Government to focus on these areas and we look to see progress on them in the forthcoming Water Bill. We agree that Government should not see catchment management as a cheap solution but, equally, we consider that consumers may need to pick up some of the costs. Innovative financing mechanisms, such as regional carbon offsetting, might be explored. At the EU level, financing from the European Investment Bank should be explored in addition to rural and regional development funding. (paragraphs 105 and 106)

Chapter 5: Policy integration

204. Close co-operation between administrative units at EU, national and regional levels is necessary, and is the only way to overcome competing policy objectives which will prevent effective policy integration at a local level. As a prerequisite, the Common Agricultural Policy must be more responsive to local needs. (paragraph 113)
205. We re-iterate our view that payments should be made to farmers in support of environmental goods including new forestry where appropriate. While we acknowledge that the Commission has sought to adopt this approach in its proposals on greening the CAP, we consider the proposals to be too rigid. Greater flexibility for the establishment of greening rules at the national or regional level would give administrations the ability to place a greater emphasis on water management in the context of agricultural payments and their own water management needs. Should such a de-centralised approach to the greening of the CAP not be possible, we recommend that, in negotiations on the future of the CAP, water management considerations be further integrated into the greening provisions, such as the ecological focus areas. We see value in a requirement that farmers adopt an integrated resource management plan. (paragraphs 116 and 117)
206. We welcome the inclusion of the Water Framework Directive within the cross-compliance requirements but, as the policy can only move at the pace of the slowest Member State, we consider it unlikely that this will have a significant impact in the short to medium term. We recommend that the Commission, Council and European Parliament consider whether there are aspects of the Water Framework Directive that could be brought within cross-compliance already, such as no unauthorised water abstraction or discharge. Such changes are of sufficient importance to be included in the basic Regulations for CAP reform, and not left to be resolved in implementing legislation. (paragraph 121)
207. We support the proposed risk management toolkit under reform of the CAP, but note that more action needs to be taken, through farm advice, to encourage take-up of risk management within the agricultural industry. (paragraph 122)
208. If farmers are to be asked to take a greater role in managing water resources, we consider it essential to strengthen the advice available to farmers. We welcome the suggestions made to this effect by the Commission in its proposal for the new Rural Development Fund and urge Member States, including the UK, to ensure that appropriate funding is targeted at this area of Pillar 2. Agricultural advice is welcomed by farmers from advisers who are trusted, and are often local and familiar. (paragraph 125)
209. Pillar 2 (the rural development Regulation) provides scope to support water management and water efficiency in agriculture, including making funds available specifically to compensate for costs incurred and income foregone as a result of implementation of the Water Framework Directive. We urge Member States to support these strands of work as appropriate according to regional need, using them ambitiously. (paragraph 129)
210. In the next programming period (2014–20), a new opportunity for integrated use of EU funds will be introduced through the Common Strategic Framework (CSF). We urge the Government to engage pro-actively with the Commission, and to work across relevant Departments and the UK

Administrations to identify how the CSF could be designed most effectively. This must include consideration of how it can assist effective delivery at the local level of water management solutions. We believe that deployment of the funds strategically, as intended by the CSF, could be of particular benefit in supporting the catchment-based approach to water management, both in rural and urban areas. (paragraphs 135 and 136)

211. We recommend an urban dimension working group as part of the Common Implementation Strategy. (paragraph 141)
212. We were pleased to learn of some of the work being done across the Commission on integration of policy but consider that a systematic approach is required. As a first step, we recommend that, when undertaking impact assessments on new legislation, the Commission consider the implications for water management (paragraph 143)
213. We consider that the “polluter pays” principle is not always reflected in the modern practice of local water management. While it may have merit in some instances, such as avoidance of illegal abstraction for the purposes of irrigation, there are times when there is a need to give greater consideration to the principle of the “provider is paid”. Adoption of that principle could lead to further development of payment for delivery of ecosystem services. This concept should, we argue, assist as a tool to helping communication with the wider public and understand the priorities in any given catchment or river basin. The EU is in a position to provide a framework for promoting the concept of payments for ecosystem services: at one level by strongly linking the CAP to the environment and on a higher plane by adopting, developing and promoting the ecosystem services concept within a strategic framework. This may ultimately require a re-orientation of the CAP towards a land use policy, which incorporates a food production strategy and recognises the suite of ecosystem services provided by the land. (paragraphs 152 to 154)

Chapter 6: Innovation and Research

214. We support the principle of the European Innovation Partnership on Water. We consider that clarity is required as to how the various initiatives in this area—Agricultural and Water European Innovation Partnerships and the Climate Change Knowledge and Innovation Community—will work together, drawing on relevant funding sources. How this work then feeds in to the Common Implementation Strategy on the Water Framework Directive, and on down to practitioners, as well as into rural development plans also needs clarification. It is vital that best practice developed through these initiatives is not only shared amongst but put into practice by Member States. We agree that the Water EIP should place strong emphasis on urban issues. (paragraphs 161 and 162)
215. Emphasis must be placed on effective engagement of stakeholders, including those working at catchment management levels. We re-iterate our view that local delivery of innovations is as important as networking at the EU level. As with all innovation, the challenge is in the integration and appliance of scientific knowledge in close partnership with practitioners in the field. (paragraph 164)
216. Connecting people back into their environment and their place in the landscape will be important if we are to reduce water consumption. Innovative methods, such as a report card or iphone app, can be used to

engage the public in their environment. Public information campaigns have been shown to be successful and we therefore consider that national administrations, including the UK Government, have a responsibility to boost public engagement. We see the proposed European Innovation Partnership as potentially a very useful forum for sharing such ideas on public engagement. (paragraphs 167 and 168)

217. We agree that greater recognition of the amount of water used in the products that we consume will be increasingly necessary and urge the Commission to consider the role of “virtual” water in EU policy, particularly in terms of achieving the objectives of the EU Resource Efficiency Roadmap. We acknowledge the difficulties in establishing a methodology and agree that further research is required, research which clearly needs to be cross-disciplinary, but also recommend that Defra consider policy options for ensuring businesses measure their water impact and develop specific water strategies to ensure security of their supply chains. Work by the Commission and Government must also be linked in to the work of the International Standards Organisation to avoid duplication. (paragraph 172)
218. In order to boost the use of rainwater harvesting, we urge the UK Government to consider tax incentives in addition to regulatory and voluntary approaches. The Commission could assist by sharing best practice on this issue, possibly through the Common Implementation Strategy or as a strand of work of the water EIP. (paragraph 174)
219. We support the increased budgetary provision on innovation and research as a larger proportion of a smaller overall EU budget; we consider there to be a strong case for the proposed Environment and Climate Change budget. We welcome the recognition in the proposed Horizon 2020 Programme of water-related research. Deployment of this funding must be dovetailed with spending under the Environment and Climate Change Programme. (paragraph 176)
220. Our knowledge of water-related ecosystems remains inadequate and we agree that emphasis must be placed on boosting this knowledge. Collecting the right data, from the right places, using the right techniques, is essential. This must include the impact of societal response to climate change, such as alternative crop development, water demand and population change. (paragraph 178)
221. We consider that development of methods for ecosystem service assessments at a local scale, tied into an emerging methodology for mapping of ecosystem services, would be useful areas for future research. Such mapping should inform the choices of technological solutions to be applied, avoiding a “one size fits all” approach to adoption of particular innovations. (paragraph 180)
222. We agree that further research into how new forms of local level collaboration can most effectively support water management throughout the European Union would be helpful in moving towards an institutionalisation of the emerging catchment management model. (paragraph 181)
223. It is evident that further research is required into the management of urban diffuse pollution. We note in particular that further work is required on run-off, sediment and wastewater treatment. The pressure on urban systems would be reduced if the discharge or discard of chemicals into the sewerage system in the first place were to be reduced, and thus greater work on this is required. (paragraph 184)

224. We accept that leisure industries, such as golf, must not be ignored in the push for greater understanding of new technologies that could reduce their water footprint. The Commission should consider such industries in the context of its Blueprint. (paragraph 186)

APPENDIX 1: SUB-COMMITTEE ON AGRICULTURE, FISHERIES AND ENVIRONMENT

The Members of the Sub-Committee which conducted this inquiry were:

The Earl of Arran
 Baroness Byford
 The Earl of Caithness
 Lord Cameron of Dillington
 Lord Carter of Coles (Chairman)
 The Earl of Dundee
 Lord Giddens
 Baroness Howarth of Breckland
 Lord Lewis of Newnham
 Baroness Parminter
 Baroness Sharp of Guildford

Declarations of Interests

The Earl of Arran

Married to farmer and landowner in Devon

Baroness Byford

*Family farming interests in Suffolk
 Member, NFU, CLA, National Trust
 Member, Royal Agricultural Society of England
 Patron/President of several rural charities
 President 2010 The Royal Smithfield Club
 Hon Ass. Member RCVS and BVA
 President, Leaf
 Patron, Womens Farming Union*

The Earl of Caithness

*Trustee of Queen Elizabeth Castle of Mey Trust which owns agricultural land
 Chairman of a salmon fishing time-share and on the Caithness District
 Salmon Fishery Board*

Lord Cameron of Dillington

*Farmer and landowner in Somerset
 Trustee of Lawes Agricultural Trust at Rothamsted
 Director of Royal Bath and West Agricultural Society
 President of the Guild of Agricultural Journalists
 Chairman of the Strategic Advisory Board of the Government's
 Global Food Security Programme
 A Member of: CLA, NFU, RSPB, CPRE and National Trust*

Lord Carter of Coles

Farms and farmland in Hertfordshire

The Earl of Dundee

*Farmer, landowner and forester in Scotland
 Director of farming company in Scotland
 In receipt of Single Farm Payments*

Lord Giddens

No relevant interests

Baroness Howarth of Breckland

A Member of: RSPB, National Trust, WWT AND WWF

Lord Lewis of Newnham

Chair of Advisory Board, Veolia Environmental Services

Baroness Parminter

Charity Consultant (non-practising)

Trustee, Institute for Public Policy Research

Baroness Sharp of Guildford

Visiting Fellow to Science Policy Research Unit, University of Sussex

The following Members of the European Union Committee attended the meeting at which the report was approved:

Lord Bowness

Lord Carter of Coles

Lord Dykes

Lord Foulkes of Cumnock

Lord Hannay of Chiswick

Lord Harrison

Baroness Howarth of Breckland

Baroness O’Cathain

Lord Plumb

Lord Roper

The Earl of Sandwich

Baroness Young of Hornsey

During consideration of the report, no relevant interests were declared.

A full list of registered interests of Members of the House of Lords can be found at <http://www.parliament.uk/mps-lords-and-offices/standards-and-interests/register-of-lords-interests/>

Professor Robert Harris and Dr Jonny Wentworth acted as Specialist Advisers for this Inquiry and declared the following relevant interests:

Professor Robert Harris

Visiting Professor, Catchment Science, University of Sheffield

Contracted to Defra as Secretariat of their Demonstration Test Catchments Programme

Dr Jonny Wentworth

Environmental Partner, Chartered Institute of Water and Environmental Management

Member of the Institute of Ecology and Environmental Management

APPENDIX 2: LIST OF WITNESSES

Evidence is published online at www.parliament.uk/hleud and available for inspection at the Parliamentary Archives (020 7219 5314)

Evidence received by the Committee is listed below in chronological order of oral evidence session and in alphabetical order. Those witnesses with * gave both oral evidence and written evidence. All other witnesses submitted written evidence only.

Oral evidence in chronological order

- * (QQ 1–23) Laurence Smith, Head of the Centre for Development, Environment and Policy, School of Oriental and African Studies, University of London (SOAS)
- * (QQ 24–51) Severn Trent Water
Thames Water
Water UK
- * (QQ 52–97) Natural Environment Research Council (NERC)
Centre for Ecology and Hydrology
- * (QQ 98–118) National Farmers' Union (NFU)
- * (QQ 119–142) German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
- * (QQ 143–166) Consumer Council for Water
- * (QQ 167–182) Ofwat
- * (QQ 183–203) Westcountry Rivers Trust (WRT)
- * (QQ 204–215) Frédéric de Hemptinne, The Sustainable Synergies Group
- * (QQ 216–232) World Wildlife Fund (WWF)
- * (QQ 233–256) Environment Agency (EA)
- * (QQ 257–278) European Commission
- * (QQ 279–307) Department for Environment, Food and Rural Affairs (Defra)
- * (QQ 308–323) French Ministry of Ecology and Sustainable Development

Alphabetical list of all witnesses

- Association of Electricity Producers (AEP)
- Dr David Benson
- Dr Dylan Bright
- The Chartered Institution of Water and Environmental Management (CIWEM)
- * Consumer Council for Water
- Dr Hadrian Cook

- * Department for Environment, Food and Rural Affairs (Defra)
English Golf Union (EGU)
- * Environment Agency (EA)
- * European Commission
European Golf Association Golf Course Committee
Food and Drink Federation
- * French Ministry of Ecology and Sustainable Development
- * German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
- * Frédéric de Hemptinne, The Sustainable Synergies Group
Alex Inman
Institute for European Environmental Policy (IEEP)
International Commission on Irrigation and Drainage (ICID)
Professor Andrew Jordan
- * National Farmers' Union (NFU)
National Farmers' Union Scotland (NFU Scotland)
- * Natural Environment Research Council (NERC) Centre for Ecology and Hydrology
- * Ofwat
Scottish Agricultural College (SAC)
Scottish Environment Protection Agency (SEPA)
Scottish Land and Estates
- * Severn Trent Water
- * Laurence Smith, Head of the Centre for Development, Environment and Policy, School of Oriental and African Studies, University of London (SOAS)
- * Thames Water
Water Industry Commission for Scotland
- * Water UK
- * Westcountry Rivers Trust (WRT)
- * World Wildlife Fund (WWF)

APPENDIX 3: CALL FOR EVIDENCE

Introduction

The House of Lords European Union Committee will conduct an inquiry, through its Agriculture, Fisheries and Environment Sub-Committee (Sub-Committee D), into the future direction of EU freshwater policy. The European Commission plans a “Blueprint to Safeguard Europe’s Water” for publication towards the end of 2012. This has a twofold purpose: to assess the implementation and achievements of the current policy²⁰³ while identifying gaps and shortcomings; and to look forward at the evolving vulnerability of the freshwater environment to identify measures and tools that may be needed in several EU policy areas in order to ensure a sustainable use of good quality water in the long term.

Water is a finite resource. Recent reports by the Committee have highlighted the importance of water sustainability to meeting new challenges, not least climate change and boosting agricultural productivity in order to respond to a growing global population (“*Adapting to Climate Change: EU agriculture and forestry*”, March 2010, and “*Innovation in EU Agriculture*”, July 2011).

Our recent work and the Commission’s current review of the policy, alongside current discussions on the future of the Common Agricultural Policy and cohesion policy make this a critical time to examine what is wanted from future EU freshwater policy.

The issues

The Committee is seeking evidence from interested parties on the issues outlined below. On the basis of that evidence, the Committee will formulate conclusions and recommendations to inform the House of Lords, and to contribute to the development of EU policy on freshwater by the UK Government and the EU institutions over the next few years.

The Committee invites you to submit written evidence, by **5 September 2011**. The Committee would find it helpful if you would focus on a number of specific issues, listed below. You may also wish to draw our attention to additional issues not addressed by the questions below. It is recognised that those submitting evidence will not necessarily have an interest in all the questions and may therefore wish to be selective.

Views are sought on the following:

Strategic objectives of EU freshwater policy

- (1) The Commission states that the aim of future policy should be to ensure a “sustainable use of good quality water in the long term”. Would you agree that this should be the overarching goal of EU freshwater policy? What particular challenges should seek to be addressed by the policy? In the light of existing information on population and climate change trends, how long should the Commission’s “long term” be?

²⁰³ Water Framework Directive (2000/60/EC), Groundwater Directive (2006/118/EC), Environmental Quality Standards Directive (2008/105/EC), Urban Waste Water Directive (91/271/EEC as amended by 98/15/EEC), Nitrates Directive (91/676/EEC) and the Floods Directive (2007/60/EC)

- (2) How adaptable to emerging new challenges is the current policy framework likely to be?

Adding value

- (3) How, and where, can the EU add value to the efforts of Member States in freshwater policy, including issues relating to financing? What aspects of the policy are best dealt with at Member State, or regional, level?

Future policy

- (4) In the light of the challenges that need to be addressed, the importance of flexibility and the possibilities offered by the EU to add value, how do you think EU freshwater policy should change?
- (5) What particular EU initiatives would be helpful in tackling water scarcity and droughts? Should the EU promote awareness, assessment, and labelling of the water footprint of products?

Research and innovation

- (6) How can the EU's future research programme support freshwater policy and innovation in sustainable freshwater management most effectively?

Other policy areas: agriculture and cohesion

- (7) How should other EU policy areas, notably the Common Agricultural Policy and cohesion policy, be used and adapted to the needs of sustainable freshwater management?

APPENDIX 4: LIST OF ACRONYMS AND ABBREVIATIONS

AEP	Association of Electricity Producers
CAP	Common Agricultural Policy
CIS	Common Implementation Strategy (for the WFD)
CSF	Common Strategic Framework for EU funds
Defra	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EIP	European Innovation Partnership
EQSD	Environmental Quality Standards Directive (2008/105/EC)
KICs	Knowledge and Innovation Communities
NFU	National Farmers' Union
Ofwat	The Water Services Regulation Authority (in England and Wales)
PES	Payment for ecosystem services
RBD	River Basin District
RBMP	River Basin Management Plan
SEPA	Scottish Environmental Protection Agency
SOAS	School of Oriental and African Studies
UWWTD	Urban Waste Water Treatment Directive (91/271/EEC)
WFD	Water Framework Directive (2000/60/EC)
WRT	Westcountry Rivers Trust

APPENDIX 5: RIVER BASIN DISTRICTS IN THE UK AND IRELAND



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LEGEND: IRBD International River Basin Districts RBD River Basin Districts

Northern Ireland(UK) and Ireland

	IRBD Name: North Western (IRBD)
	IRBD Name: Neagh Bann (IRBD)
	RBD Name: North Eastern
	RBD Name: Western
	IRBD Name: Shannon (IRBD)
	RBD Name: Eastern
	RBD Name: South Eastern
	RBD Name: South Western

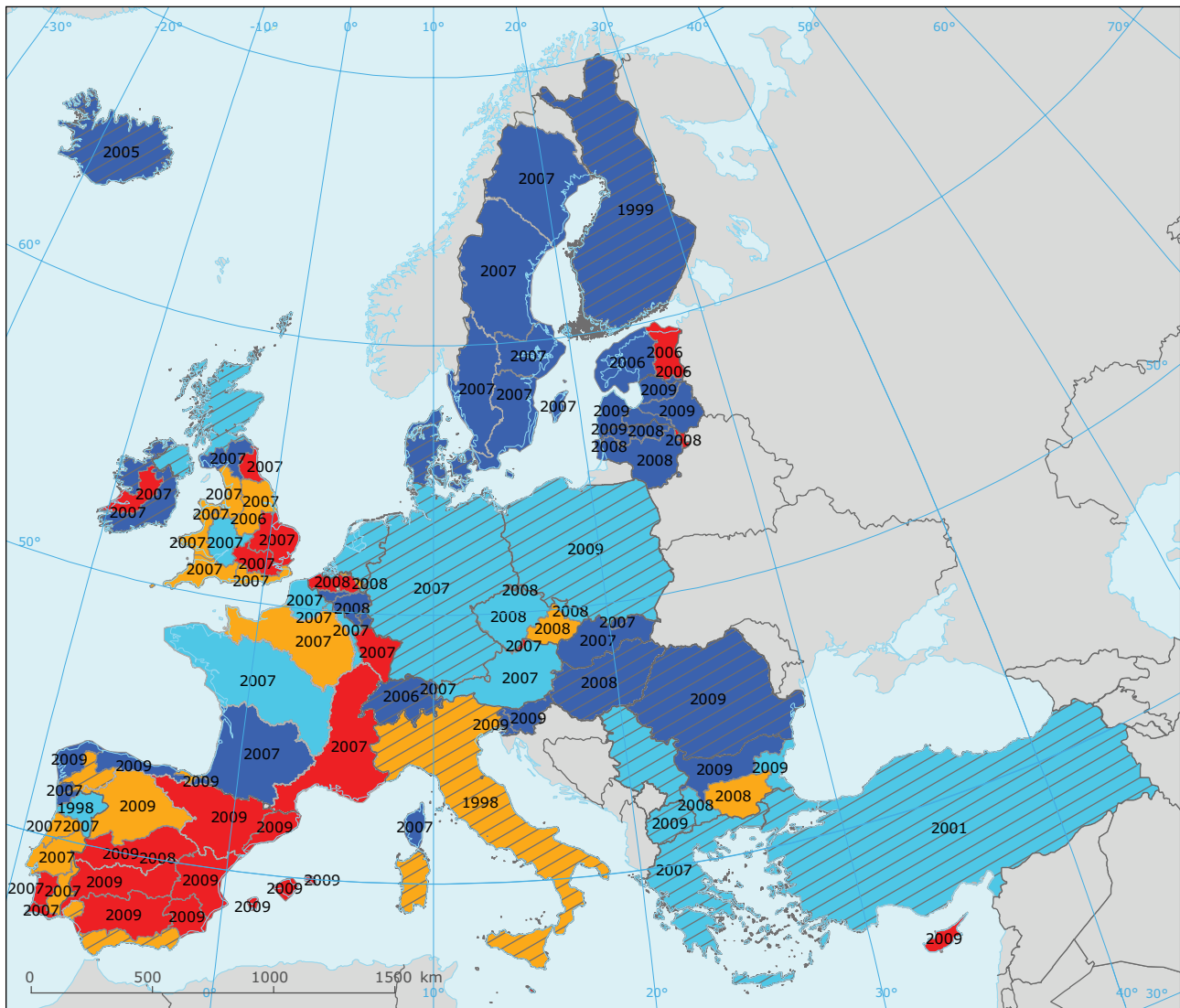
Scotland, England and Wales

	RBD Name: Scotland		RBD Name: Western Wales
	RBD Name: Solway Tweed (Cross Border)		RBD Name: Dee (Cross Border)
	RBD Name: Northumbria (Cross Border)		RBD Name: Severn (Cross Border)
	RBD Name: North West		RBD Name: Thames
	RBD Name: Humber		RBD Name: South East
	RBD Name: Anglian		RBD Name: South West

National and International Borders
 Rivers
 ★ Capital Cities
 Coastal and Transitional Waters
 Areas are shown as a tint of the RBD.

Source: Sniffer

APPENDIX 6: WATER STRESS ACROSS THE EU



Water exploitation index (%)



Note: The map shows the maximum current disaggregation with data available from different sources. Further refinement and gap filling for all RBDs are in progress.

Legend: full colour: RBD-level data; shaded: country-level data.

Source: Data come from multiple sources as follows:

Combination of WISE-SoE#3 and WFD: AT2000-Rhine, AT5000-Elbe, BG1000-Danube Region, BG2000-Black Sea Basin, BG3000-East Aegean, BG4000-West Aegean, SK30000-Vistula, SK40000-Danube.

Combination of WISE-SoE#3 and websources: IEGBNISH-Shannon.

Websources: ES014-Galician Coast, ES016-Cantabrian, ES020-Duero, ES030-Tagus, ES040-Guardiana, ES050-Guadalquivir, ES07-Segura, ES080-Jucar, ES091-Ebro, ES100-Internal Basins of Catalonia, ES110-Balearic Islands, ES120-Gran Canaria. http://servicios2.marm.es/sia/visualizacion/lda/recursos/superficiales_escorrentia.jsp (Total water resources in the natural system (hm³/year) Average value for the period between 1941-2009). Reported to DG ENV for the Interim Report: PTRH3, PTRH4, PTRH5, PTRH6, PTRH7, PTRH8.

WISE-SoE#3: All other RBDs.

Eurostat JQ IWA: All country-level data.

Source: European Environment Agency (EEA)

APPENDIX 7: PAYMENT FOR ECOSYSTEM SERVICES (PES)

Ecosystems are composed of physical, biological and chemical components such as soils, water, organisms and nutrients. Interactions among and within these living and non-living elements, which may be physical (such as infiltration of water), chemical (such as oxidation) or biological (such as photosynthesis) give rise to ecosystem functions, intrinsic characteristics of the ecosystem, such as nutrient cycling, which are fundamental to maintaining its integrity. These functions determine the capacity of ecosystems to sustain ecosystem services, those aspects of ecosystems used (actively or passively) to maintain human wellbeing. The UN Millennium Ecosystem Assessment separated ecosystem services into four categories:

- cultural services (such as recreation, walking and fishing);
- provisioning services (drinking water and food);
- regulating services (flood and drought attenuation,); and,
- supporting services (soil formation and photosynthesis).

At present, the provisioning services are paid for by the markets, but most other ecosystem services are public benefits for which land managers (farmer) are not paid for providing. The 2011 UK National Ecosystem Assessment found that for freshwater habitats (openwaters, wetlands and floodplains) although the chemical quality of rivers and lakes has been steadily improving, many of the services from freshwater habitats have been poorly valued or completely overlooked. Consequently many have been degraded or lost through wetland drainage, flow modification for flood defences, toxic pollution and acidification, habitat degradation and loss, exploitation and introduction of invasive alien species.²⁰⁴

The aim of PES is to protect ecosystem services by providing an incentive to land managers to adopt land use or management practices favourable to the protection or enhancement of desired ecosystem service benefits.²⁰⁵ The UK government committed to encouraging and facilitating greater use of PES in the future in the 2011 Natural Environment White Paper, and will to publish an action plan in 2012 to expand PES schemes. However, this approach of paying subsidies not to undertake polluting activities could be construed as conflicting with the “polluter pays” principle, which is enshrined in the WFD.

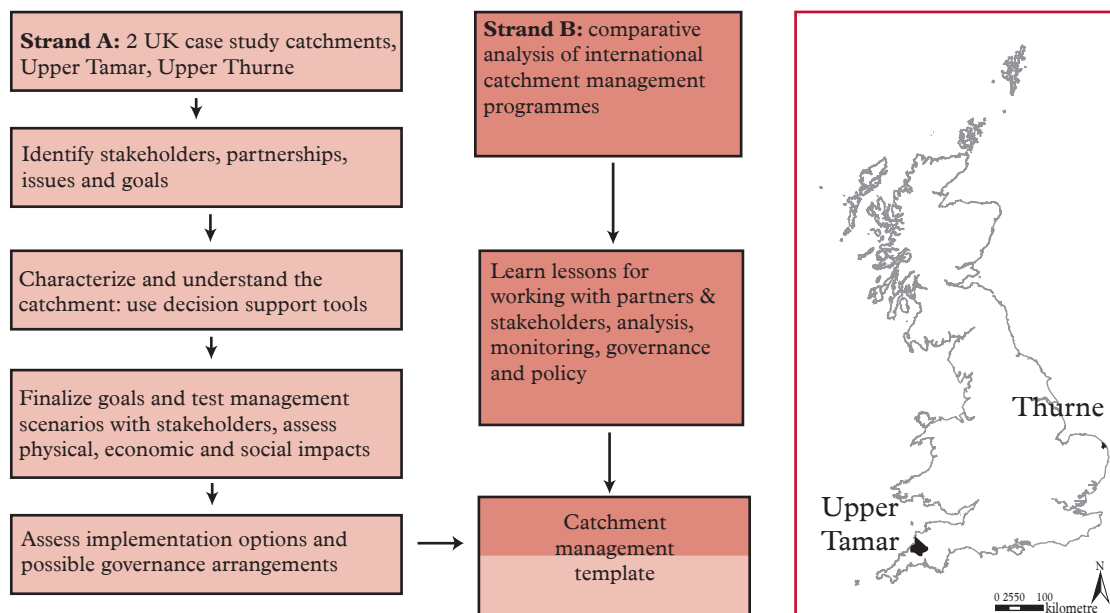
²⁰⁴ UK National Ecosystem Assessment (2011), *The UK National Ecosystem Assessment: Synthesis of the Key Findings*. UNEP-WCMC, Cambridge.

²⁰⁵ Defra Evidence and Analysis Series (2011), Paper 4, *Payments for Ecosystem Services*

APPENDIX 8: A 'TEMPLATE' FOR CATCHMENT MANAGEMENT²⁰⁶

The term 'catchment' refers to the sub-basins of tributaries or the whole river basin itself, as defined by the watersheds that divide drainage areas. In some countries 'watershed' also refers to this basin or catchment land area. The need to manage water from its source to its sink, and the inter-dependence of our water uses with each other and natural processes, require holistic and catchment-based management. Technical capability, leadership and coordination of actions are required for catchments that rarely correspond to administrative boundaries.

Our Project Structure and Activities



Source: Dr Dylan Bright, Dr Hadrian Cook, Alex Inman, Laurence Smith, Dr David Benson and Professor Andrew Jordan

Over abstraction, flood risk and water quality are common concerns. Water pollution comprises point and non point source contamination including discharges from water treatment and industry, surface run off from fields, seepage of nutrients from soil into ground water, stream bank erosion and discharges from dispersed and numerous minor point sources such as field, farmyard and urban drains.

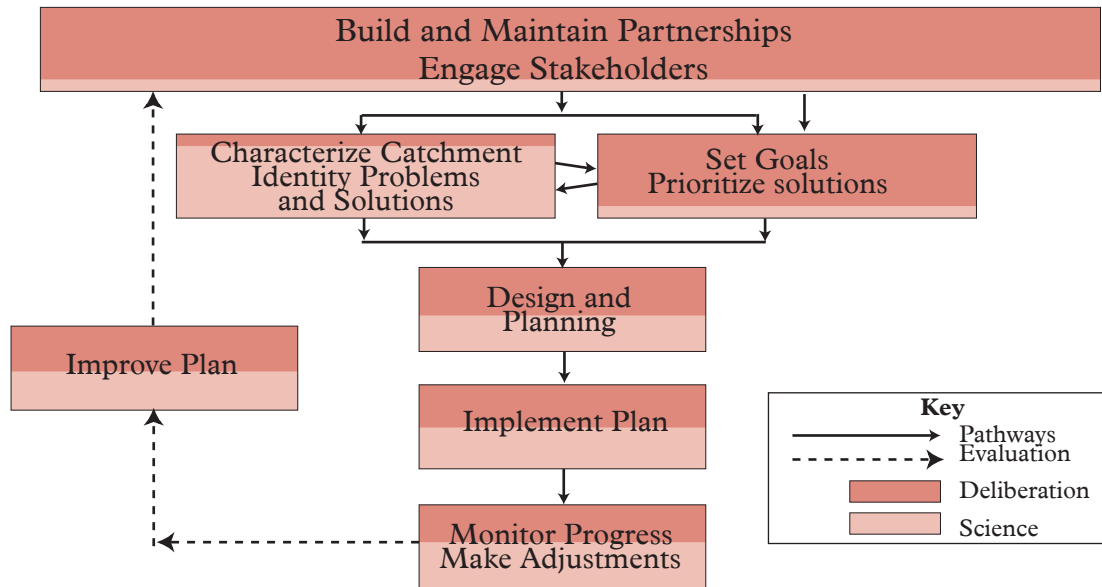
Based on the achievements of innovative catchment management programmes in the USA, Australia and north west Europe, and on piloting of approaches in England, this project has derived a 'template' to guide integrated catchment governance through:

- the use of science and communication tools to guide policy, decision making, and management measures;
- collaborative partnerships and stakeholder participation that direct and enhance decision making;
- and decision making and implementation at the level which is most effective and accepted within catchments.

Key Components of the Template

An Adaptive Management Cycle

The complexity, temporal and spatial scales, dynamics and inevitable trade-offs of catchment management necessitate an adaptive management cycle, collaboration between agencies and levels of government and a ‘twin-track’ of deliberative partner and stakeholder engagement supported by targeted scientific research.



Source: Adapted by Dr Dylan Bright, Dr Hadrian Cook, Alex Inman, Laurence Smith, Dr David Benson and Professor Andrew Jordan from Environmental Protection Agency (EPA)

Aims and Outcome Criteria

Delivery of Long Term Water Quality Improvements and Sustainable Management of Water Resources

Ultimate goals are to sustain designated uses of land and water in a catchment with a functioning ecology, accounting for inter-generational needs and guarding the future against present uses.

Cost Effectiveness and Efficiency in the Delivery of Outcomes

Achieved through the prioritization of needs and targeting of resources based on catchment assessments, with flexibility in policy and delivery for well adapted local solutions. Monitoring and reporting should also demonstrate cost effective delivery compared to alternative approaches.

Assurance and Acceptance of the Burden of Costs and Distribution of Benefits

Allocation of catchment resources based on all legitimate interests and values that is accepted as fair and equitable, and an equitable allocation of financial and other costs to sustain catchment management.

Governance Components

Meaningful and Sustained Opportunities for Public Participation

Deliberation with partner organizations and other stakeholders can integrate environmental and public health criteria with economic and social goals. Stakeholders can contribute to catchment assessments and programme design, and implementation will be enhanced by local knowledge, acceptance and ownership.

Cooperative Partnerships Within and Between Levels of Government, Sectoral and Area Responsibilities, the Private Sector and Non-Governmental Organizations

Catchment programmes should be built from existing organisations and partnerships, centred on those with current management responsibilities, and working within the framework of prevailing law. The building of partnerships must establish shared goals and recognize differentiated interests and responsibilities. Catchment management requires technical capability, leadership and capacity for coordination covering at least agriculture, water supply, wastewater and waste management, highway and other storm runoff, stream corridor restoration, and development and spatial planning. Laws are needed that facilitate rather than prohibit partnership arrangements and appropriate delegation.

Legitimacy and Institutionalization of Programme Status

Integrated land and water management involves local responsibilities and requires inclusive deliberation at the local level under the framework of existing multi-level government. Thus locally acceptable responsibilities and rights must be translated from higher level regulation, with provision for inter-locality cooperation and coordination. Informal partnerships with effective leadership are often a starting point but growth in funds, capacity and authority usually necessitate standing, legitimacy and a formalised legal status.

Transparency and Accountability

All data, synthesized information and decision making should be available to the public and open to scrutiny. Key actors must assume and be accountable for their delegated responsibilities and outcomes. Accountability through elected officials is preferred, implying that at least an oversight role for local government is important.

Funding

Successful catchment management programmes access diverse funding sources including the private sector. However, continuity in institutional development and capacity building can be expected to require core public funding, and thus appropriate mechanisms for funding from higher levels of government.

Capacity Components

Mobilization of Locally Accepted Technical Providers

Trusted individuals, agencies or groups are needed for capacity building and advisory work, not least with farming communities. Their essential functions include convening and mediating to foster trust, participation, collaboration and co-production of knowledge.

Capacity to Conduct Comprehensive Condition and Threat Assessments, and Strategic and Action Planning, Based on Sound Science and Best Available Knowledge

Programmes must be able to make assessments of the condition of and all threats to water resources and prepare comprehensive and integrated plans. Ideally all partners will agree and refer to one integrated plan for the catchment. Planning and implementation must be based on credible science, and there must also be the capacity to commission external expertise and scientific peer review.

Capacity for Monitoring of Performance and Outcomes

Monitoring and evaluation of the processes and outcomes of catchment management is essential to the learning and responsiveness inherent in an adaptive management cycle, and for determination of the effectiveness and efficiency of outcomes. Reporting on governance, achievements and outcomes is also inherent to sustaining stakeholder and partner engagement, and to demonstrating the benefits of collaborative and integrated catchment management.

Capacity for Knowledge Exchange

Programme technical providers need to act as brokers to compile, synthesize and communicate information, enabling decision makers to consider and use diverse data sources. Education about water resources for children, parents and communities can be a facilitator for commitment and action and a two-way process. Gaining the benefits of partner and stakeholder participation in terms of enhanced diagnosis, planning and implementation requires an accessible knowledge base, skilled intermediaries, and high quality communication and decision-support tools.