

# **PSA Delivery Agreement 28:** Secure a healthy natural environment for today and the future

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# VISION

**1.1** The Government's vision is to secure a diverse, healthy and resilient natural environment, which provides the basis for everyone's well-being, health and prosperity now and in the future; and where the value of the services provided by the natural environment are reflected in decision-making. It wants to see:

- the air that people breathe free from harmful levels of pollutants;
- sustainable water use which balances water quality, environment, supply and demand;
- land and soils managed sustainably;
- biodiversity valued, safeguarded and enhanced;
- sustainable, living landscapes with best features conserved;
- clean, healthy, safe, productive and biologically diverse oceans and seas; and
- people enjoying, understanding and caring for the natural environment.

**1.2** The natural environment plays a vital role in supporting a strong economy and a fairer society. It is important not only for its intrinsic value, but also for the wide range of benefits and services it provides for people. A healthy natural environment provides the basic necessities of life such as clean air, clean water and food, as well as raw materials. It also provides natural processes such as climate regulation and flood risk management, which can be taken for granted. People also value the natural environment for the cultural, spiritual and recreational benefits it provides. The beauty and wonder of the natural environment inspires people everywhere. Distinctive landscapes, rivers, coasts and seas – even urban parks and green spaces – are a cultural and natural asset which contribute to people's sense of identity and place, and make a major contribution to health and well-being.

**1.3** However, the health of the natural environment is under threat. Although there have been some real improvements in the state of the natural environment, many aspects of it are still suffering substantial degradation. The pressures of economic growth and development, including transport and new housing, along with the challenges presented by climate change, are threatening the health of natural ecosystems<sup>1</sup> upon which people depend.

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<sup>1</sup> An ecosystem can be defined as a functioning interdependent grouping of living things existing in equilibrium with their physical environment. For our purposes we consider ecosystems to be composed of air, water, land, soil and biodiversity.



# 2

## MEASUREMENT

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**2.1** Progress towards delivering this PSA will be measured using 5 key indicators:

**Indicator 1: Water quality as measured by parameters assessed by Environment Agency river water quality monitoring programmes.<sup>1</sup>**

**Indicator 2: Biodiversity as indicated by changes in wild breeding bird populations in England, as a proxy for the health of wider biodiversity.**

**Indicator 3: Air quality – meeting the Air Quality Strategy objectives for eight air pollutants as illustrated by trends in measurements of two of the more important pollutants which affect public health: particles and nitrogen dioxide.<sup>2</sup>**

**Indicator 4: Marine health – clean, healthy, safe, productive and biologically diverse oceans and seas as indicated by proxy measurements of fish stocks, sea pollution and plankton status.**

**Indicator 5: Land management – the contribution of agricultural land management to the natural environment as measured by the positive and negative impacts of farming.**

**2.2** These indicators are outcome-focused, specific, based on robust data and reflect departmental and cross-Whitehall performance. They capture the status of some of the main components of a healthy natural environment, as well as reflecting the very significant role that farmers and land managers play in protecting and enhancing the natural environment. Further details on these indicators can be found in the Measurement Annex.

**2.3** These key indicators together provide a snapshot of progress. It is not possible to capture fully the health of the natural environment in five indicators. These indicators will therefore be supported by a broader set of indicators in each of the policies and programmes which contribute to delivering the PSA, to provide a comprehensive picture of the state of our natural environment.

**2.4** This PSA focuses on the domestic natural environment. Work on the international aspects of the natural environment is captured in Defra's Departmental Strategic Objectives on delivering a 'healthy, resilient, productive and diverse natural environment' and 'championing sustainable development across government, the UK, and internationally,' as well as the PSA to *Reduce poverty in poorer countries through quicker progress towards the Millennium Development Goals* (PSA 29).

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<sup>1</sup> This is an interim indicator that will be replaced by reporting of Water Framework Directive (WFD) water body status when data become available. WFD monitoring programmes became operational in December 2006 and will not deliver meaningful results until 2009 at the earliest.

<sup>2</sup> These are two of the eight pollutants measured under the UK Air Quality Strategy.



# 3

## DELIVERY STRATEGY

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### LEVERS AND INCENTIVES

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**3.1** A range of levers and incentives will be used to deliver the PSA outcome. These will be consistent with the principles of better regulation and recommendations from the *Hampton Review*,<sup>1</sup> seeking to remove unnecessary burdens whilst securing environmental and social objectives.

#### Regulation

- EU Directives such as the Air Quality Directives, the Birds and Habitats Directives, the forthcoming Marine Strategy Directive and the Water Framework Directive, as well as other European initiatives like the European Landscape Convention;
- statutory duties and licensing/consenting activities such as those under Local Air Quality Management, Environmental Protection Act, Integrated Pollution Prevention and Control, Water Resources and Water Acts, Natural Environment and Rural Communities Act, Wildlife and Countryside Act, Forestry Act and others; and
- cross-cutting environmental legislation including the EU Directives on Environmental Impact Assessment, Strategic Environmental Assessment and Environmental Liability.

#### Incentives and funding

- The Department for Environment, Food and Rural Affairs (Defra) provides grant in aid to key delivery bodies, in particular Natural England, the Environment Agency and National Park Authorities, as well as funding for agencies such as the Marine and Fisheries Agency, the Centre for Environment, Fisheries & Aquaculture Science (CEFAS) and others, and for a number of NGOs;
- grant schemes: including Environmental Stewardship; the England Woodland Grant Scheme; the Government Air Quality Grant to local authorities; specific grant schemes run by National Park Authorities; government funding for river and coastal management; the European Fisheries Fund; the Natural Environment for all lottery grant scheme; and others;
- providing the right regulatory frameworks to facilitate private sector investment;
- the publication of performance indicators and other performance information will help to drive delivery. For example core output indicators for regional spatial strategies include the number of planning applications approved against Environment Agency advice on water quality or flood defence grounds and changes in areas and populations of biodiversity importance;

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<sup>1</sup> *Reducing administrative burdens: effective inspection and enforcement*, HMT, March 2005

- standards and awards such as the Accessible Natural Greenspace Standards; and
- potential for the use of trading schemes, similar to the carbon emissions trading scheme.

### Information and Education

- the Environment Agency, Natural England, Forestry Commission and Marine and Fisheries Agency all operate advice and information programmes, for example the Catchment Sensitive Farming initiative; and
- networks to support delivery and share information, such as the England Biodiversity Group, Air Quality Fora, the Sustainable Food and Farming Strategy Delivery and Leadership Groups, the Cross-Whitehall Adaptation Group etc.

## ROLES AND RESPONSIBILITIES

**3.2** Defra is the lead department for this PSA and will be responsible for the development and delivery of a number of key policies and programmes which protect and enhance the natural environment.

### Department for Environment, Food and Rural Affairs

**Air quality** **3.3** Defra will take forward actions under the UK Air Quality Strategy and implement the EU Air Quality Directives. The Department will also take forward the review of the national Air Quality Strategy to identify potential new policy measures to provide further health benefits and help move closer towards the Strategy's air quality objectives. Defra will integrate environmental objectives, such as air quality targets, and sustainable development into policies and practice, and promote these across government, the UK and internationally. Defra will continue to work with partners in the EU and internationally on actions and measures to tackle national and transboundary air pollution.

**3.4** Defra will lead on the development of a new Water Strategy to achieve sustainable water management that is adaptable to the changing climatic conditions. To deliver this strategy Defra will take forward work streams to deliver improved water quality through the Water Framework Directive including diffuse water pollution; nitrates; bathing waters; and the Freshwater Fish Directive. Adequate supplies of drinking water will be provided at an acceptable cost to the environment, through the water resources planning processes that the department has put in place. Defra will also make sure water quality considerations are taken into account across all its work, especially in relation to the coastal environment, agriculture, surface water management, flood management, biodiversity, fisheries and chemicals.

**3.5** Defra will also lead on Making Space for Water, the strategy for flood and coastal erosion risk management.

**Marine environment** **3.6** Defra will improve understanding of the impact of climate change and the resilience of marine ecosystems to it; develop and implement policies which improve the sustainability of fisheries; protect rare, vulnerable and valued marine species and habitats; and develop an evidence base and tools to manage uses of the marine environment better. This will be achieved through implementation of the forthcoming

Marine Strategy Directive; ‘Safeguarding Our Seas: A Strategy for the Conservation and Sustainable Development of our Marine Environment’; taking forward the Marine Bill White Paper (including the introduction of a marine spatial planning system); streamlining the licensing system; development of a new marine policy statement and high level Marine Objectives; and delivery of Fisheries 2027.

**Biodiversity 3.7** Defra will continue to take action on biodiversity under the England Biodiversity Strategy focusing action on protecting the best wildlife sites; promoting the recovery of declining species and habitats; embedding biodiversity in all sectors of policy and decision-making; enthusing people and developing the evidence base. Defra will also continue to take action on wildlife crime and against alien invasive species. The department will also improve the impact of Defra-sponsored activities on biodiversity in areas such as farming, forestry and woodland management, fishing and flood and coastal management.

**Sustainable farming and food 3.8** Defra will also take forward the Sustainable Farming and Food Strategy policies to improve the contribution of farming to the natural environment through reducing environmentally damaging practices and encouraging activities that will maintain and enhance the environment, including measures to promote the long term viability of the farming industry. Key policies and measures include:

- Environmental Stewardship (agri-environment schemes);
- cross-compliance under the Single Payment Scheme;
- environmental protection regulation;
- Integrated Pollution Prevention Control (IPPC), policies for climate change mitigation and adaptation; and
- the Whole Farm Approach. Defra’s Farming for the Future project will also contribute to this aspect of the PSA.

**3.9** Other relevant policies to this PSA include implementation of the new England Soils Strategy and the proposed Soil Framework Directive, the European Landscape Convention and the Strategy for England’s Trees, Woods and Forests.

**3.10** To help deliver natural environment outcomes more effectively and more efficiently, Defra is also developing a more holistic and integrated framework for policy-making and delivery on the natural environment, based on an ecosystems approach. As part of this work, Defra will develop and promote improved methodologies for valuing ecosystem services, to ensure that the true value of natural assets is properly reflected in policy and decision-making across government.

## The Environment Agency

**3.11** The Environment Agency (EA) is responsible for the integrated protection and enhancement of the environment (air, land and water), including through regulation to reduce pollution and ensure sustainable use of resources, flood risk management and promoting water based recreation. It also has responsibilities for evidence and advice on the environment, to protect and enhance biodiversity, to contribute to people’s quality of life and to limit and adapt to climate change.

**3.12** The EA will work closely with Defra, to ensure that appropriate monitoring and research mechanisms are in place to adequately report on water quality. The EA will take forward implementation the Water Framework Directive through the river basin

planning process and other water quality directives. It will continue to regulate water quality, abstraction of water and discharges to water and provide advice on water resource management plans. The EA will also promote water based recreation, including navigation and fisheries. The EA will also work to deliver Catchment Sensitive Farming policy and shape the strategic planning and management of coastal flood risk and erosion.

**3.13** The EA will implement Sites of Special Scientific Interest (SSSI) remedies in the course of exercising its regulatory, coastal and flood management and land ownership responsibilities. It is responsible for protecting and enhancing wetland and water biodiversity including freshwater fish stocks, and for delivering on a number of the Biodiversity Action Plan species and habitats. It will exercise its flood and coastal management, and water abstraction responsibilities in accordance with Environment Act 1995 and Habitats Directive. It will also implement its duty to have regard to biodiversity under the Natural Environment and Rural Communities Act.

**3.14** The EA will deliver UK air quality objectives and mandatory EU limit values through their authorisations under the IPPC regime.

**3.15** Working closely with Defra, the EA will ensure that appropriate monitoring and research mechanisms are in place to adequately implement and report on the status of the marine environment. It will provide an interface between the marine, coastal and estuarine environment, including through the Water Framework Directive and regulation of discharges to the marine environment and management of inshore fisheries in some estuaries.

**3.16** The EA will contribute to delivery of the Soil Strategy and the proposed Soil Framework Directive, including regulation of spreading organic waste, advice to farmers on soil management and monitoring and reporting the condition of soils. It will also work with local authorities, land managers, developers and industry to clean up contaminated land and prevent further soil pollution or damage.

## Natural Environment

**3.17** Natural England will contribute to this PSA through its role in conserving and enhancing England's natural environment: encouraging more people to enjoy, understand and act to improve the natural environment more often; more sustainable use; and management of the natural environment. Natural England will do this by applying a mix of advice, incentives, regulation, advocacy and practical action.

### Aquatic environment

**3.18** Natural England will work to improve the aquatic environment including contributing to water quality through appropriate land management and management of wetlands and other water dependent terrestrial ecosystems. It will ensure consideration is given to water quality, water resources and air quality when developing policies and seeking to influence others - especially in relation to, and in assessing and reporting on the risks and impacts of water quality/quantity and air quality on protected sites and species.

**3.19** Natural England will work closely with Defra to facilitate the taking of appropriate measures to protect the marine environment during policy and implementation processes, and to provide scientific support as required. It will influence and shape marine spatial planning to protect the natural environment and support viable businesses. It will provide the "Conservation Objectives" for marine Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) sites and be

responsible for the management of Marine Nature Reserves. Natural England will provide advice on the protection/management of those marine species protected under the Wildlife & Countryside Act (1981). It is also statutory consultee on some marine licensing e.g. Marine Windfarms, Tidal Developments, Aggregate Extraction.

**3.20** Natural England will be lead delivery agent for the England Biodiversity Strategy. It will lead on designations of sites and secure the protection and management of landscapes and wildlife and their enjoyment by the public through effective implementation of designated areas. It will restore or create priority agricultural wetland and other habitat. It will ensure regional and local biodiversity partnerships meet service delivery standards. It will also secure environmental outcomes through the new Rural Development Programme for England (RDPE). It will also promote Accessible Natural Greenspace Standards and inclusion of Greenspace infrastructure in growth points and areas.

**3.21** Natural England will develop incentives which recognise achievement and innovation in land and sea management. It will implement the Catchment Sensitive Farming Project to increase the adoption of best practice and reduce damaging practices. It will produce coordinated programmes of funded advice to ensure implementation of basic levels of protection of the environment and increased understanding of environmental land management. It will encourage wider understanding and adoption of codes and legislation resulting in fewer breaches. Natural England will also assess the impact on the natural environment of climate change and seek to enhance the role of land managers as carbon managers.

## Marine and fisheries agency

**3.22** The Marine and Fisheries Agency (M&FA) will play a key role in delivering policies which protect the marine environment including an enforcement programme for the monitoring, control and surveillance of sea fishing activity, environmental protection measures of English and Welsh waters, managing the UK quota, fishing vessel and marine activities licensing (including dredging), undertaking biological sampling of fish and the protection of marine biodiversity. The M&FA also undertakes investigations and prosecutions when breaches of the regulations are identified. This enforcement work is crucial to ensuring compliance with regulations. The M&FA also delivers functions in relation to issue and monitoring of FEPA licences for activities at sea (including construction and dumping) and responding to marine pollution emergencies. In the course of 2007/08 it will also assume responsibilities for licensing of marine activities including dredging.

## Other Government Departments

**3.23** Achieving a healthy natural environment requires a concerted cross-government effort. Defra will work in close partnership with a number of other government departments to deliver the PSA. Other departments hold many of the policies and levers necessary to ensure delivery and they will make an important contribution to achieving the PSA outcomes.

**3.24** The **Department for Communities and Local Government (CLG)** is a formal delivery partner for this PSA and will ensure that the planning system<sup>2</sup> takes full account of the natural environment, while seeking to integrate economic, social and environmental objectives so as to promote sustainable development. In addition, key regional and local plans are required to undergo a full Sustainability Appraisal. CLG will also ensure that meeting the brownfield target does not lead to increased flood risk or, in accordance with Planning Policy Statement 9, loss of biodiversity.

**3.25** CLG will seek to reduce impacts of new housing on the natural environment by:

- working closely with Defra, the Environment Agency and Natural England to ensure that new communities at growth points are designed sustainably, with minimum impacts on the natural environment and appropriate access to green space;
- encouraging uptake of the Code for Sustainable Homes; and
- working closely with Defra on improving the water efficiency of new buildings.

**3.26** CLG will also lead delivery of better quality urban parks and green space, working in partnership with departments and their agencies, and the voluntary and community sector, to deliver a green space action plan. This will include action to develop the role of urban green spaces, and community-led action in delivering natural environment outcomes and tackling climate change.

**3.27** The **Department for Transport (DfT)** is a key formal delivery partner in this PSA, and is jointly responsible for ensuring necessary action to deliver the air quality indicator. Transport is responsible for a significant percentage of emissions of many pollutants – for example, road transport is responsible for up to 70 per cent of air pollutants in urban areas. As holders of transport policy levers for improving air quality, DfT will ensure transport policies take air quality improvements and maintenance of current levels fully into account. DfT will ensure it improves the environmental performance of transport, taking into account impacts on land, water, biodiversity, air and the marine environment.

**3.28** The **Forestry Commission** has a range of statutory duties and delivery mechanisms with which to deliver government policy and make a significant contribution to the woodland aspects of this PSA. This includes direct management of the public forest estate; delivery of woodland grants within the Rural Development Programme for England (RDPE); and regulation and provision of advice.

**3.29** A number of other departments will also contribute to this PSA. The **Department for Business Enterprise and Regulatory Reform (BERR)** will make a specific contribution to the marine environment through their responsibilities for regulating offshore oil, gas and renewables. They will also make a contribution through their wider responsibilities for negotiating product standards and planning of energy infrastructure. BERR can also contribute to securing an improved natural environment

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<sup>2</sup> Guidance to planning authorities is at present set out in key Planning Policy Statements (PPS) including PPS1, its draft supplement on climate change, PPS7, PPS 9, PPS10, PPG 17, PPG20, PPS22, PPS23, PPS25 and MPS. The Planning White Paper (published in May 2007) responded to the recommendations in the Barker Review of Land Use Planning in December 2006, including that national planning policy and guidance should be reviewed with the aim of substantially reducing it in volume. The reduced statement of core planning policy will set out required environmental outcomes, principles and actions, supplemented where necessary by guidance on delivery.

by ensuring balanced and cost-effective regulatory and other measures are considered and taken where appropriate.

**3.30** The **Department for Innovation, Universities and Skills (DIUS)** makes a specific contribution through the funding of relevant science and funding for innovation related Business Support Products. These activities will be delivered through activities underpinning the PSA to *Promote world class science and innovation in the UK* (PSA 4).

**3.31** The **Department for Children, Schools and Families** will contribute through the Learning Outside the Classroom Manifesto, Sustainable Schools and the industry-led Year of Food and Farming in Education, all of which will help to reconnect young people with the natural environment and wildlife and how and where their food is produced.

**3.32** The **Ministry of Defence (MoD)** has a range of estate management responsibilities including forestry, agriculture, designated sites and protected species obligations, in addition to its national defence and security functions. The MoD will contribute to this PSA through the sustainable management of the defence estate by integrating biodiversity issues into its estate management systems and seeking to minimise environmental impacts.

**3.33** **Department for Culture, Media and Sport (DCMS)** policy and programmes will promote good design for valued and sustainable places, and support public engagement and learning around the historic environment. One of DCMS's non-departmental public bodies, English Heritage, will continue to support Defra's development and delivery of the Rural Development Regulation, the Sustainable Farming and Food Strategy, enhanced access to the countryside and care of the landscape, particularly in National Parks and AONBs (Areas of Outstanding Natural Beauty). Money raised for good causes by the National Lottery and distributed by the Heritage Lottery Fund and the Big Lottery Fund also helps delivery of natural environmental outcomes.

**3.34** The **Water Services Regulatory Authority (Ofwat)** has important powers and duties as the non-Ministerial department responsible for the economic regulation of water and sewerage companies. In the process of its regulatory activities Ofwat will ensure that the water industry makes its contribution to improving and maintaining water quality standards and providing water sustainably.

## Regional and local government

**Government Offices** **3.35** At the regional level, Government Offices will play an active role in ensuring that natural environment considerations are taken into account in regional strategy development and implementation, Local Area Agreements (LAAs) and in regional partnership building. Regional Assemblies will ensure that natural environment considerations are taken into account in regional policies, strategies and frameworks, in particular Regional Spatial Strategies. Regional Development Agencies, in carrying out their statutory duties in promoting sustainable economic growth, including preparing Regional Economic Strategies, will ensure that impacts on, and benefits from, the natural environment are taken into account.

**Local Authorities** **3.36** Local Authorities<sup>3</sup> will be key partners in protecting and enhancing the natural environment at the local level, through Local Strategic Partnerships, Sustainable Community Strategies, LAAs and their statutory duties. They also play a role in local planning through Local Development Plans and development control decisions and will give consideration to the impact such decisions may have upon the natural environment. Local Authorities also have a duty to have regard to biodiversity under the Natural Environment and Rural Communities Act (2006) and are the main delivery agents for helping to meet national air quality objectives at the local level through Local Air Quality Management (LAQM) and their enforcement responsibilities.

**3.37** **Ports and Harbour Authorities** will manage operation of ports and harbours to minimise impacts on the marine environment and give consideration to the impact such activities have upon water quality.

**3.38** **Sea Fisheries Committees (SFCs)** regulate local sea fisheries around virtually the entire coast of England and Wales out to 6 miles. SFCs are empowered to make by-laws for the management and conservation of their districts' fisheries.

### Devolved administrations

**3.39** The devolved administrations will work together with Defra, the Environment Agency (England and Wales) and the Scottish Environment Protection Agency to deliver the Water Framework Directive in cross-border river basin districts. They will work with Defra through the UK Biodiversity Partnership on UK-wide biodiversity issues and will work towards meeting the air quality objectives as set out in the Air Quality Strategy for England, Scotland, Wales and Northern Ireland. The devolved administrations will also play a role in the development and implementation of marine and fisheries policy in UK waters. The UK has a shared vision for its oceans and seas.

### Other delivery partners

**3.40** The **Centre for Environment, Fisheries and Aquaculture Science (CEFAS)** will provide scientific knowledge and advice on issues relating to water quality in transitional and coastal waters and will maintain an evidence base and provide scientific knowledge and advice on issues relating to the marine environment.

**3.41** The **Joint Nature Conservation Committee (JNCC)** will work with Defra, the devolved administrations and the statutory nature conservation organisations in England, Scotland, Wales and Northern Ireland to take a strategic overview of UK nature conservation and ensure, where appropriate, that a consistent approach is adopted across the UK. It will develop UK-wide standards for the selection and monitoring of protected sites and advise on the development and implementation of UK and international policies, legislation and initiatives that affect the natural environment. It will also support the development of monitoring programmes and indicators

**Third sector** **3.42** A wide range of third sector organisations play a vital role in helping protect and enhance the natural environment. These include the National Trust, Wildlife Trusts, Woodland Trust, Groundwork, Royal Society for the Protection of Birds (RSPB), British Trust for Conservation Volunteers (BTCV), Worldwide Fund for Nature (WWF) and

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<sup>3</sup> Defra are working with CLG to ensure that appropriate indicators are included within the new local government performance framework, reflecting the key elements of this PSA, so that Local Authorities can most effectively influence and measure their performance.

Community Forests. Voluntary and community organisations actively engage local communities in protecting and enhancing the natural environment through a variety of mechanisms such as volunteering, community groups, partnership working and memberships. These organisations also play a particularly important role in providing education and raising awareness on natural environment issues. Many also directly own and/or manage land to deliver natural environment outcomes.

**3.43** England's nine National Park Authorities (NPAs) will continue to develop policies and programmes aimed at retaining local character, landscape features and tranquillity, and promote landscape restoration and encourage sustainable tourism initiatives. They will also support implementation of the Water Framework Directive, help delivery of Agri-Environment scheme outcomes and support the delivery of biodiversity outcomes. NPAs also support initiatives to equip young people with land management skills and provide opportunities for people to get actively involved in conservation.

**3.44** The Rural Payments Agency will implement the Single Payment Scheme, ensuring that cross-compliance standards are met by claimants / farmers.

**3.45** Farmers, other land managers and the fisheries sector play a major role in the sustainable use and management of natural resources. Farmers are responsible for managing over 70 per cent of the land area of England.

## GOVERNANCE AND ACCOUNTABILITY

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**3.46** The Secretary of State for Environment, Food and Rural Affairs is the lead minister for this PSA. Delivery will be shared across government with a Programme Board overseeing delivery of this PSA and the policies and programmes which deliver it. This Board will be comprised of key senior Defra officials, representatives from the key departments CLG, DfT and the Forestry Commission; as well as other contributing departments such as DBERR. Non-departmental public bodies such as Natural England and Environment Agency will also sit on the board. The Senior Responsible Officer for the PSA will be the Director General of Defra's Natural Environment Group and they will chair the Board. In addition the relevant Cabinet Committee/s will drive performance by regularly monitoring progress, holding departments and programmes to account and resolving inter-departmental disputes where they arise.

## CLIMATE CHANGE

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**3.47** Climate change will impact on many aspects of the natural environment, and the natural environment can also make a very significant contribution to mitigating climate change. To ensure a healthy and resilient natural environment, it is vital to take into account the impacts of climate change. The natural environment must be able to cope with a changing climate and this will require both specific adaptation measures, as well as reducing other non-climate change threats.

**3.48** Climate change adaptation is a cross-cutting theme throughout this delivery plan and adaptation measures will be a key part of the implementation required to deliver the PSA outcome. Defra is developing a cross-government framework on adaptation to be published at the end of 2007. This will set out priority areas for action. The Government will engage with other sectors to ensure that their adaptation actions do not adversely impact on the health of the natural environment. In many areas, healthy and resilient ecosystems will support adaptation activities; for example green space in the urban environment can provide shading and cool areas and can also

provide water management functions. Therefore it is vital that these benefits are taken into account when adaptation decisions are being made.

## PUBLIC ENGAGEMENT

**3.49** Individuals have a key role to play in this PSA: everyone can contribute to protecting and enhancing the natural environment. There is a growing interest in environmental protection at individual and community level and the Government will seek to promote this further.

**3.50** Defra has a strong track record of public engagement and was commended for its innovative approach in its recent Capability Review. Over the CSR period, Defra and its partners will build on this success, to ensure that people are given the opportunity to fully engage with the natural environment and to help shape the policies and programmes designed to protect it. The Government will work to improve, enhance and increase people's engagement with the natural environment through the programmes and initiatives of organisations such as Natural England, the Forestry Commission and the English National Park Authorities.

**3.51** The Government will seek to increase the number and diversity of people volunteering and getting involved in helping protect the natural environment through supporting volunteering and recording networks, including initiatives such as the National Biodiversity Network.

**3.52** In addition to the more traditional formal consultation mechanisms, delivery of this PSA will also utilise innovative approaches to ensure individuals are given opportunities to input to the design and delivery of our policies and programmes. These initiatives include:

- 'coastal surgeries' run by the Marine and Fisheries Agency which enable fishermen to give feedback on fisheries policy;
- the Air Quality Forum which involves the public and stakeholders in the development of air quality policy;
- local Biodiversity and Local Sites Partnerships which work to achieve locally defined biodiversity objectives and involve the local community in specific projects; and
- River Basin District Liaison Panels, set up under the Water Framework Directive, which represent local user interests and allow local users to take joint responsibility for delivery.
- Defra engages business stakeholders on the quality of its regulations through membership of its Ministerial Challenge Panel and via the Better Regulation Executive's Better Regulation Portal through which businesses can submit ideas for regulatory simplification.

**3.53** Initiatives such as Defra's Public Attitude Survey, public opinion polls and the Defra 'wiki' webpage will also be used to ensure that public opinions and attitudes on the natural environment are captured and used to help shape related policies.

**Real-time data 3.54** To support bottom-up accountability users will have access to up-to-date information on the natural environment. This information can be found through initiatives such as:

- Natural England’s planned website called ‘Outdoors Online’, to provide information on the full spectrum of opportunities and activities available for people to experience and enjoy the urban and rural natural environment;
- the Air Quality Bulletin,<sup>4</sup> which provides information on air quality from around 125 monitoring sites across the UK, and also provides information on forecast levels of air pollution, the causes of air pollution and policies to tackle it. Further up to date information is also available via Teletext and through a freephone helpline;
- Defra, Natural England and English Heritage provide information on landscape quality and features through the Countryside Quality Counts initiative;<sup>5</sup>
- the development and implementation of electronic logbooks for fishermen, planned over the next few years, should enable real-time data to be collected and acted upon. This will contribute to improved marketing and enforcement and could lead to the development of real-time fisheries management;
- The Environment Agency’s “What’s in your backyard” website,<sup>6</sup> which gives local information such as pollution, air quality, flood risk and river quality;
- The National Biodiversity Network, which provides biodiversity monitoring information to the public<sup>7</sup>.
- ‘Nature on the Map’ run by Natural England which provides information on designated sites in local areas.<sup>8</sup>

**Consultation 3.55** Defra has worked closely with key delivery partners and has involved wider stakeholders in developing this PSA, including bilateral discussions with a number of other government departments who play a crucial role in delivering this PSA. The devolved administrations were also consulted through correspondence. As key delivery bodies, Natural England, The Environment Agency and the Forestry Commission have been closely involved in developing the PSA, the indicators and the Delivery Agreement. Other agencies including the Marine and Fisheries Agency, CEFAS, the English National Park Authorities Association and JNCC have also been consulted.

**3.56** Defra regularly consults external partners, including non-governmental organisations (NGOs), industry groups and the public on the development of the policies which support this PSA and this will continue throughout the CSR period. On the specific development of the PSA and indicators, a workshop with key delivery partners and stakeholders, including the Defra ‘family’, NGOs, and industry representatives, was held at the Defra Innovation Centre in Reading on 12th February 2007. Partners were invited to feed in further comments and suggestions to help shape the PSA and the delivery agreement. Policy leads within Defra also discussed individual indicators with key stakeholders through their existing networks.

<sup>4</sup> <http://www.airquality.co.uk>

<sup>5</sup> <http://www.cqc.org.uk>.

<sup>6</sup> [www.environment-agency.gov.uk/maps](http://www.environment-agency.gov.uk/maps).

<sup>7</sup> [www.nbn.org.uk](http://www.nbn.org.uk).

<sup>8</sup> [www.natureonthemap.org.uk](http://www.natureonthemap.org.uk).



# A

## MEASUREMENT ANNEXES

Indicator I	Water quality as measured by parameters assessed by Environment Agency river water quality monitoring programmes
Data provider	Environment Agency.
Data set used	River water biological quality: derived from data from two samples taken at each sampling site once in three years. This is a three year rolling programme with results updated annually. Biological monitoring looks at a range of invertebrates selected for their sensitivity to pollution and habitat damage.  River water chemistry (dissolved oxygen (DO), biochemical oxygen demand (BOD) and total ammonia): based on three year's data from 12 samples at each site each year.
Baseline	Environment Agency monitoring results for biological and chemical river water quality, and from the Agency's Water Resources Strategy.
Frequency of reporting	River water quality Defra e-digest statistics updated annually, approximately 8 months after the end of the reference year.
95 per cent confidence interval at last outturn	N/A.
Data Quality Officer	Head of Environmental Statistics and Indicators Division, Defra.
Minimum movement required for performance appraisal	Any movement is sufficient for a performance assessment. The desired trends are no deterioration in monitored waters and/or an improvement in water quality.

### DEFINITIONS OF KEY TERMS

- Biology:**  
 Measures populations of aquatic species which are selected for their sensitivity to pollutant pressures acting on the water body
- Chemistry:**  
 Measures a range of parameters, which are essential to support aquatic life, such as dissolved oxygen, biochemical oxygen demand and ammonia

**A.1** These parameters are used as a proxy for river water quality in England and give the best currently available indication. They will go towards meeting Water Framework Directive requirements once in place in 2009.

<b>Indicator 2</b>	<b>Biodiversity as indicated by changes in wild breeding bird populations in England, as a proxy for the health of wider biodiversity</b>
Data provider	British Trust for Ornithology (BTO), Royal Society for the Protection of Birds (RSPB), Joint Nature Conservation Committee (JNCC).
Data set used	Breeding Bird Survey, Common Bird Census, Statutory Conservation Agency and RSPB Annual Breeding Bird Scheme, Rare Breeding Birds Panel, Waterways Bird Survey, County Bird Report Index, Rook Census, Heronries Census.
Baseline	1970 (1975 for water and wetland breeding birds and for the aggregate index). Baseline was set to 100 in 2000. Confidence intervals and assessments of change will be based on a smoothed series indexed to 2000 to reduce the effect of random fluctuations in climate etc.
Proxy?	Yes. Bird populations are considered to be a good indicator of the broad state of wildlife and countryside because they occupy a wide range of habitats, they tend to be near or at the top of the food chain, and considerable long-term data on bird populations have been collected.
Frequency of reporting	Annual.
95 per cent confidence interval at last outturn	Research by the BTO in 2004 suggested that the confidence range over the period for the UK farmland birds index was +/- 9 per cent, and for UK woodland birds +/- 6 per cent. Further research is being undertaken.
Data Quality Officer	Head of Environmental Statistics and Indicators Division, Defra
Minimum movement required for performance assessment	The health of biodiversity, and the aggregate index, respond to government activities only over the longer term, but may respond to outside influences (such as a harsh winter) more immediately. The figures will therefore require some interpretation. Defra will be looking for results during the CSR07 period which are consistent with increases in the aggregate index and its three components in the longer term.

## DEFINITIONS OF KEY TERMS

- *Aggregate index of wild bird populations:*  
Native species breeding in England, excluding rare species. The indicator portrays the annual changes in abundance of three groups of species since 1970. Within each index, each species is given equal weighting, and the annual indicator figure is the geometric mean of the species indices for that year.
- *Farmland birds index:*  
19 species which have been identified by experts as being associated mainly with farmland.
- *Woodland birds index:*  
33 species which have been identified by experts as being associated mainly with woodland.

- *Water and wetland breeding birds index:*  
21 species which have been identified by experts as being mainly associated with water or wet meadows. Some of the species included in this indicator are also included in other indicators but the latter are based on different sources not specific to water or wetlands.

**A.2** This indicator represents an aggregate index of wild bird populations, constructed from the unweighted average of three existing indices, namely:

- the farmland birds index;
- the woodland birds index; and
- the water and wetland breeding birds index.

**A.3** Each of these is in turn constructed from the indices for individual species associated with the relevant habitat. There is a 15 month lag between collection and availability.

<b>Indicator 3</b>	<b>Air quality – meeting the Air Quality Strategy objectives for eight air pollutants as illustrated by trends in measurements of two of the more important pollutants which affect public health; particles (PM10) and nitrogen dioxide (NO2)<sup>1</sup></b>
Data provider	Defra contractors who operate the air quality monitoring networks.
Data set used	<p>Annual concentrations of two key air pollutants (particles (PM10) and nitrogen dioxide (NO2)) recorded by the Government’s national air quality monitoring network and averaged over 24 long running sites across the country representing different types of locations - cities, urban and rural areas and busy roadsides.</p> <p>Annual PM10 and NO2 will be added together at each site then averaged across the 24 sites for each year. The indicator will also show the highest and lowest sites each year.</p> <p>Data is collected hourly and disseminated via the air quality public information service via internet,<sup>2</sup> freephone and Teletext.</p> <p>Data on all air pollutants in the Air Quality Strategy are also available from the public information service and reported by Defra and devolved administrations.</p>
Baseline	Annual validated data from national Automatic Urban and Rural monitoring Network (AURN) since 1998. At 1998 the average was 73.
Frequency of reporting	PSA indicator will be reported twice a year: provisional in January and final in May. Provisional and final annual data will also be reported in Defra departmental and Autumn Performance Reports.
95 per cent confidence interval at last outturn	The level of accuracy complies with mandatory monitoring and modelling requirements in European air quality Directives. These provide uncertainties for measured individual data points of between less than 15 per cent to less than 25 per cent depending on the pollutant. The most recent calculations for pollutants recorded at sites in the UK national monitoring network gave an accuracy range of 8 per cent – 11 per cent.
Data Quality Officer	Head of Air and Environment Quality Division, Defra.
Minimum movement required for performance assessment	Any movement in annual measured/recorded reduction in concentrations in air against the standards and target dates for the air pollution objectives is sufficient to make a performance assessment.

## DEFINITION OF KEY TERMS

- *Air Quality Strategy:* Government’s Strategy, (published in 2000) contains policies for improving air quality and sets standards and objectives for main pollutants in air.

<sup>1</sup> These two pollutants are key for public health, and are good indicators for the other six air pollutant objectives in the Air Quality Strategy as most come from vehicle sources.

<sup>2</sup> [www.airquality.co.uk](http://www.airquality.co.uk)

- *Air quality standards:*  
Concentrations of pollutants which should achieve a certain level of environmental quality.
- *Air quality objectives:*  
Policy targets expressed as a maximum level of concentration of a pollutant to be met by a particular date.
- *Air quality monitoring network:*  
Consisting of currently around 300 sites comprising automatic and non-automatic networks.
- *Air Quality Information Service:*  
Provided hourly updates of levels of air pollution and forecasts for each region and major towns and cities.
- *Air pollutants in the indicator:*  
Nitrogen dioxide (NO<sub>2</sub>), and particles (PM<sub>10</sub>).

Indicator 4	<b>Marine health – clean, healthy, safe, productive and biologically diverse oceans and seas as indicated by proxy measurements of fish stocks, sea pollution and plankton status</b>
Data provider	<p>1. Number of fish stocks around the UK at full reproductive capacity and harvested sustainability. Defra, CEFAS, International Council for Exploration of the Sea (ICES).</p> <p>2. Riverine and direct inputs of metals from the UK to marine waters around the UK. Defra, Environment Agency, Scottish Environment Protection Agency (SEPA) &amp; Department of Agriculture and Rural Development for Northern Ireland (DARDNI).</p> <p>3. Plankton status. Sir Alister Hardy Foundation for Ocean Science (SAHFOS).</p>
Data set used	<p>1. A time series of data on the status of finfish stocks around the UK, as identified by ICES. The data are derived from annual Advisory Committee on Fisheries Management (ACFM) reports from May and October ACFM meetings, and are categorized according to the ICES definition of the state of the stock. Since 1998, the status of stocks has been defined by ICES using new biological reference points based on the precautionary approach.</p> <p>2. Sampling data from points just upstream of the zone of tidal influence (riverine inputs) and those reaching the marine environment via discharges downstream of the riverine monitoring points (direct inputs) which measure all point sources and diffuse losses conveyed by rivers into the marine environment.</p> <p>3. The Continuous Plankton Recorder (CPR) survey. A long-term marine plankton monitoring programme consisting of a network of transects towed each month across European shelf seas and in major geographical regions of the North Atlantic. It is the longest (starting in 1931), most geographically extensive (pan-Atlantic) marine biological survey in the world. The CPR contains a unique dataset of marine biodiversity (~500 taxa) and provides a wide range of marine environmental (e.g. water quality, biodiversity, ecosystem health) and climatic indicators.</p>
Baseline	<p>1. 1990.</p> <p>2. 1990.</p> <p>3. 50 year mean.</p> <p>Defra has commissioned advice on the overall weighted index. Details will be confirmed prior to the 2007 CSR period.</p>
Frequency of reporting	Annual.

95 per cent confidence interval at last outturn	<p>1. Not applicable.<sup>3</sup></p> <p>2. Not applicable.<sup>3</sup></p> <p>3. We have commissioned advice from SAHFOS. Details will be confirmed prior to the 2007 CSR period.</p> <p>We have commissioned advice on the overall weighted index. Details will be confirmed prior to the 2007 CSR period.</p>
Data Quality Officer	Head of Environmental Statistics and Indicators Division, Defra.
Minimum movement required for performance assessment	<p>1. Any change in number of fish stocks at full reproductive capacity and harvested sustainability.</p> <p>2. Any change in current levels of metal inputs to marine waters around the UK.</p> <p>3. Percentage change. It is not possible to state the minimum level of change at this time. Defra has commissioned advice from SAHFOS. Details will be confirmed prior to the 2007 CSR period..</p> <p>Defra has commissioned advice on the weighted index. Details will be confirmed prior to the 2007 CSR period.</p>

## DEFINITIONS OF KEY TERMS

- Clean, safe, healthy, productive and biologically diverse oceans and sea:* Ensuring we optimise the use of resources and opportunities offered by our oceans and seas whilst protecting the integrity of ecological processes, ecosystems and the component species & habitats.
- Sea pollution:* Metal inputs conveyed by rivers into the marine environment, based on sampling points just upstream of the zone of tidal influence. They reflect all point sources and diffuse losses upstream of these points and those inputs reaching the marine environment via discharges downstream of the riverine monitoring points. Inputs measured are lead, copper, zinc, mercury and cadmium.
- Fish stock:* A fish stock is defined by a combination of location<sup>4</sup> and species. The ICES sea area code for the North West coast of Scotland is VIa so VIa Cod – refers to the stock of cod in the North West coast of Scotland.
- Full reproductive capacity:* Stocks which have spawning levels which were sufficient to allow a good probability of stock replenishment.

<sup>3</sup> There are a number of rigorous quality assurance procedures in place to show that the data methodology and results are fit for purpose, and that the results from year to year are correct, the 95 per cent confidence statistic is not applicable.

<sup>4</sup> In terms of ICES sea areas.

- *Harvested sustainability:*  
Harvested at a rate that does not compromise a stock's reproductive capacity.
- *Plankton status:*  
The desired trend is an improvement to the overall productivity and biological diversity of plankton. Measured through:
  - *Climate change:*  
Numbers of warm water/sub-tropical, temperate, sub-arctic and arctic species; and ratios between the warm and cold temperate species by geographic locations.
  - *Water quality:*  
Percentage frequency of exceptional and harmful algal blooms; and spatial distribution
  - *Ecosystem Health:*  
Plankton community structure; and biodiversity.

**A.4** For the first data set there is a lag between collection and availability of 12 months for the second 12 months and the third 8 months.

**A.5** Due to the vast nature of the marine environment this indicator uses three proxy measurements which will be weighted to give a single index of marine environmental quality.

Indicator 5	<b>Land Management – the contribution of agricultural land management to the natural environment as measured by the positive and negative impacts of farming</b>
Data provider	<p>ASA (Defra) – overall Informed by:</p> <p>Environment Agency – nitrate and phosphate levels in river water, water abstraction by agriculture; Netcen – ammonia emissions from agriculture; ESI (Defra) – agriculture’s impact on biodiversity; Natural England – agriculture’s impact on high value landscape and priority habitats; Rural Payments Agency – agriculture’s impact on “standard” farmed landscapes; and SSFE (Defra) – positive environmental impact of farmed woodland.</p>
Data set used	<p>Environmental accounts for agriculture –</p> <p>Drawing on a wide range of evidence data including:</p> <p>Nitrate levels in river water; Phosphate levels in river water; Estimated licensed and actual water abstractions from all sources; Emissions inventory for ammonia; Farmland birds index; Condition of SSSIs; Status of farmland UK Biodiversity Action Plan (UKBAP) priority habitats in England; Extent of cross-compliance and relevant options in entry-levels stewardship schemes; June agriculture survey; and Areas of semi-natural habitat.</p>
Baseline	Index set at 2000 = 100 for both positive and negative indices.
Frequency of reporting	<p>Annual – overall Informed by:</p> <p>Annual data – nitrate and phosphate levels in river water, estimated licensed and actual abstractions from all sources, ammonia emissions from agriculture, agriculture’s impact on biodiversity, agriculture’s impact on high value landscape, agriculture’s impact on “standard” farmed landscapes and positive environmental impacts of farmed woodland; and Every 3 years – agriculture’s impact on priority habitats.</p>
95% confidence interval at last outturn	N/A.
Data Quality Officer	ASA, Defra.
Minimum movement required for performance appraisal	+/- 10 per cent - overall.

## DEFINITION OF KEY TERMS

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- *Land management:*  
70 per cent of land in England is agriculturally managed. How this land is managed and the farming practices have a significant impact on the natural environment.
- *Positive environmental impacts:*  
Farming has an almost unique role in shaping and maintaining the countryside. In doing so it can increase the value of the countryside to the public and other sectors, making a positive contribution to landscapes, habitats and biodiversity.
- *Negative environmental impacts:*  
Farm practices can damage the environment by polluting water, air and soils. This can have a negative impact on wildlife and the environment and impose costs on other sectors such as water companies (removal of pesticides).

**A.6** The indicator is not a proxy overall but certain components are. These are:

- farmland birds as a proxy for all biodiversity;
- total concentrations of N and P in rivers are a proxy for the costs of the environmental impacts of N and P from agricultural sources;
- agriculture's impact on "standard" farmed landscapes;
- area of farm woodland used as a proxy for extent and quality.



