



National Assembly for **Wales**
Cynulliad Cenedlaethol **Cymru**

Environment Strategy for Wales

Abstract

This research paper aims to give some background information on the Environment Strategy for Wales and the accompanying Action Plan. It describes the context of each environmental theme, the strategies envisaged to deal with them, and issues that may impact on achieving the desired goals.

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Environment Strategy for Wales

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Executive Summary

This paper examines the Welsh Assembly Government's Environment Strategy. It analyses the steps proposed by the Assembly Government to drive improvements in the environment, and highlights some issues that may impact on achieving the stated aim – "our distinctive Welsh environment thriving and contributing to the economic and social wellbeing and health of all of the people of Wales".

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Environment Strategy for Wales

1 Introduction

“The purpose of the Strategy is to provide the framework within which to achieve an environment which is clean, healthy, biologically diverse and valued by the people of Wales. By 2026, we want to see our distinctive Welsh environment thriving and contributing to the economic and social wellbeing and health of all of the people of Wales”¹. Environment Strategy for Wales, 2006

The Environment Strategy sets out a framework and Action Plan to deliver its goals. Current environmental issues facing Wales are described and addressed with specific outcomes and corresponding indicators.

Some of the activities causing pressure on the environment in Wales are:

- transport
- agriculture, fisheries, forestry
- industry and commerce
- energy use
- construction and development

These pressures result in challenges to the environment such as:

- climate change
- unsustainable resource use
- degraded ecosystems
- loss of biodiversity
- loss of landscape and heritage quality and distinctiveness
- poor quality local environments
- environmental hazards

The priorities in the Environment Strategy are to:

- minimise greenhouse gas emissions and adapt to the impacts of climate change
- conserve and enhance biodiversity, while respecting the dynamics of nature
- monitor and regulate known and emerging environmental hazards
- tackle unsustainable practices, like waste production and disposal
- conserve and enhance the land and sea, the built environment, the natural resources and heritage, developing and using them in a sustainable and equitable way and for the long term benefit of the people of Wales

Business groups that have in the past been accused of antagonistic behaviour towards environmental regulation² have shown support for the “basic aims and aspirations for the environment in 2025”³ which underpin the Strategy.

¹ Welsh Assembly Government, May 2006, *Environment Strategy for Wales*, p. 3, http://new.wales.gov.uk/topics/environmentcountryside/epq/Environment_strategy_for_wales/About_the_strategy/?lang=en

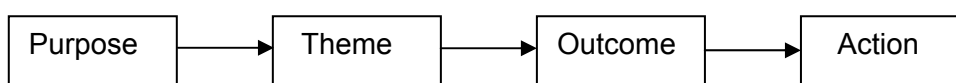
² ENDS Report, August 2005, *CBI and FOE Scrap Over Regulation*. ENDS Report 367, p.6.

³ Confederation of British Industry, October 2005, *CBI Wales Response to "Our Environment, Our Future, Your Views"* [http://www.cbi.org.uk/ndbs/positiondoc.nsf/1f08ec61711f29768025672a0055f7a8/C7196776E05D71BB8025709D00376A3B/\\$file/walesenviro1005.pdf](http://www.cbi.org.uk/ndbs/positiondoc.nsf/1f08ec61711f29768025672a0055f7a8/C7196776E05D71BB8025709D00376A3B/$file/walesenviro1005.pdf)

2 Background

The Environment Strategy builds on the strategic agenda set out in *Wales: A Better Country*⁴. The first chapters describe the background to the strategy, the challenges facing the environment, and a vision for the environment in 2026. Subsequent chapters describe particular environmental challenges with proposed outcomes, and means of enabling and monitoring change.

The Environment Strategy's Action Plan provides a framework for effecting positive change in the natural and built environment in Wales, with the aim of a healthier environment for the future.



- Purpose – the purpose of the Environment Strategy is to provide the framework within which to achieve an environment which is clean, healthy, biologically diverse and valued by the people of Wales.
- Theme – five 'key environmental themes' form the broad areas of action: addressing climate change, sustainable resource use, our local environment, environmental hazards, and distinctive biodiversity, landscapes and seascapes.
- Outcome – each theme has specific proposed outcomes that should be realized by 2026 if the Environment Strategy is successful. There are 32 outcomes for the environmental themes, and an additional seven outcomes related to leadership, mainstreaming environmental thinking, clarity about roles, and enabling people to make better choices.
- Action – most outcomes have a number of actions attached to them. The accomplishment of the actions should lead to the outcomes being achieved. Lead agencies have been allocated direct responsibility for achieving specific actions.

How was it developed?

The Minister for Environment, Planning and Countryside announced at the end of 2003 that a strategy for the environment would be developed⁵. It has undergone a consultation process involving stakeholders and the public, beginning in the summer of 2004⁶. Questionnaires were distributed at the Royal Welsh show in July 2004, and several stakeholder workshops were also held. More than 200 people attended the stakeholder workshops and approximately 80 children and young people participated in events specifically to receive input from younger people. The consultation document, *Our Environment, Our Future, Your Views*⁷, was published in June 2005. More than 200 written responses were received during the three month consultation period.

An Environment Strategy Reference Group (ESRG) was set up in 2004⁸, comprising members from academia, national parks, farming and forestry interests, as well as other governmental bodies. This group will continue to meet on an annual basis in order to assist delivery of the outcomes, and to help update the Action Plan.

⁴ Welsh Assembly Government, September 2003, *Wales: A Better Country*, http://new.wales.gov.uk/docrepos/40382/40382313/40382/403821211/walesabettercountry_-e.pdf?lang=en

⁵ Welsh Assembly Government, *Welcome to the Environment Strategy Web Pages*, <http://www.countryside.wales.gov.uk/fe/master.asp?n1=366&n2=529>

⁶ Welsh Assembly Government, *Progress and Timescales*, <http://www.countryside.wales.gov.uk/fe/master.asp?n1=366&n2=529&n3=532>

⁷ Welsh Assembly Government, June 2005, *Our Environment, Our Future, Your Views*, <http://www.countryside.wales.gov.uk/fe/master.asp?n1=366&n2=529&n3=533>

⁸ Welsh Assembly Government, *Environment Strategy Reference Group*, <http://www.countryside.wales.gov.uk/fe/master.asp?n1=366&n2=529&n3=558>

3 Environmental Themes

The Environment Strategy highlights five environmental themes:

- Climate change
- Sustainable resource use
- Distinctive biodiversity, landscapes and seascapes
- Our local environment
- Environmental hazards

This research paper takes each of these environmental themes and provides a brief summary of each, the desired outcomes explicitly linked to each theme, and issues that may have an impact on attaining them. Information boxes show some of the strategies and actions used elsewhere to tackle similar issues.

Annex A lists the entire set of desired outcomes, Annex B lists the entire set of actions, and Annex C shows which actions contribute to the achievement of specific outcomes.

3.1 Addressing climate change

The Earth's climate has demonstrably changed on both global and regional scales since the pre-industrial era, and evidence indicates that most of the warming in the last 50 years is attributable to human activities⁹. Combustion of fossil fuels for industrial or domestic usage is the principal human cause of climate change¹⁰.

The UK Government's Chief Scientific Advisor has described climate change as the most severe problem that society is facing today¹¹ and opinion polling suggests more than 60 per cent of people support 'every possible action' to limit climate change¹². Wales will be subject to increasing impacts, both direct and indirect, as a result of climate change. Predicted effects of climate change in Wales include¹³:

- Increase in temperature, with summer water shortages
- Increase in winter rainfall and more frequent intense rainfall
- Reduction in snowfall and increased growing season
- An increase in river and coastal flooding
- Further habitat and species loss
- Changes to the landscape

Outcomes

The Assembly Government's headline target is to cut greenhouse gas emissions by 20 per cent between a 2000 baseline of 14.9 Megatonnes of carbon equivalent¹⁴, and 2020. It also aims to "contribute fully to meeting UK-wide targets"¹⁵. Two Environment Strategy outcomes are explicitly related to climate change:

- Outcome 7. Greenhouse gas emissions are minimised, consistent with Wales contributing fully to meeting UK-wide targets and in line with more specific Wales targets that are under development.
- Outcome 8. Wales has improved resilience to the impacts of climate change. A clear flexible programme of measures is in place to enable Wales to respond and adapt to climate change.

Twenty-seven of the Actions in the Environment Strategy Action Plan support these outcomes¹⁶.

Issues

1. Wales has performed inconsistently in reducing greenhouse gas emissions over the past decades. In particular, emissions of CO₂ in 2004 (the most recent year for which

⁹ Dr RK Pachauri, Chairman of the Intergovernmental Panel on Climate Change, 7 December 2005, <http://www.ipcc.ch/press/sp-07122005.htm>

¹⁰ Hadley Centre for Climate Prediction and Research, *Climate Change and the Greenhouse Effect: A Briefing from the Hadley Centre*, http://www.met-office.gov.uk/research/hadleycentre/pubs/brochures/2005/climate_greenhouse.pdf

¹¹ Professor Sir David King, Chief Scientific Adviser to HM Government, *Climate Change Science: Adapt, Mitigate, or Ignore?* Science, 9 January 2004, Vol. 303, No. 5655, pp. 176-177.

¹² Lorenzoni I and Pidgeon N, 2006. Public Views on Climate Change: European and USA Perspectives, *Climate Change* 77 (1-2), pp 73-95.

¹³ Welsh Assembly Government, May 2006, *Environment Strategy for Wales*, pp. 21-22,

http://new.wales.gov.uk/topics/environmentcountryside/epq/Environment_strategy_for_wales/About_the_strategy/?lang=en

¹⁴ Baggot L et al., 2005. *Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland: 1990-2003*, http://www.airquality.co.uk/archive/reports/cat07/0509211321_Reghq_report_2003_Main_Text_Issue_1.doc

¹⁵ Welsh Assembly Government, May 2006, *Environment Strategy for Wales*, p. 21,

http://new.wales.gov.uk/topics/environmentcountryside/epq/Environment_strategy_for_wales/About_the_strategy/?lang=en

¹⁶ Actions 1-16, 23-24, 28-31, 33-34, 42-43, 60.



- data are available) had increased by 2.7 per cent since 1990¹⁷. Emissions in Scotland and England decreased over that time period.
2. Wales faces a disproportionate burden of CO₂ emissions relative to population, because it has a greater than proportionate share of heavy industry, the use of natural gas instead of electricity is not as widespread as elsewhere in the UK, and it is a net exporter of electricity¹⁸.
 3. Most climate predictions are based on gradual changes. Adaptation responses to possible acute shifts in climate would probably be inadequate under current planning scenarios. For instance, the cessation of the Gulf Stream would lead to an average reduction in temperature of 5°C¹⁹, whilst melting of the Greenland ice sheet would result in increases in sea level of up to seven metres²⁰.
 4. Transport is the most rapidly growing source of emissions²¹, it is the only sector in which emissions have been rising consistently since 1990, and emissions in the sector are projected to carry on rising²². Higher carbon modes of transport (air and motoring) have become cheaper than lower carbon modes (bus and rail), and highest carbon cars are taxed disproportionately lightly²². The Department for Transport's policy performance on carbon emission reduction has been described as 'not nearly good enough'²².
 5. Air transport is undergoing the most rapid increase of any transport sector: even under the Department for Transport's best case scenario for carbon emissions, aviation will account for a quarter of the UK economy's "entire capacity to emit carbon" by 2050²³. The rapid growth of air traffic throughout the world has been described by the Sustainable Development Commission as one of the most severe threats to the global environment today²⁴. Passenger growth at Cardiff International Airport in the ten years to 2002 was 9.8 per cent per annum²⁵, greater than the UK regional average.
 6. Many businesses are starting to recognise both the threats and opportunities of climate change. In January 2007 the CBI established a climate change task force comprising chief executives of some of the biggest companies in the UK²⁶.

¹⁷ Baggot L et al., 2005. *Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland: 1990-2004*, http://www.airquality.co.uk/archive/reports/cat07/0611081428-419_Reghg_report_2004_Main_Text_Issue_2.pdf

¹⁸ WWF Cymru, March 2005, *Reducing Wales' Ecological Footprint: A Resource Accounting Tool for Sustainable Consumption*, <http://www.walesfootprint.org/pdf/20048WWFAllWaleEng.pdf>

¹⁹ Welsh Assembly Government, May 2006, *Environment Strategy for Wales*, p. 22, http://new.wales.gov.uk/topics/environmentcountryside/epq/Environment_strategy_for_wales/About_the_strategy/?lang=en

²⁰ Welsh Assembly Government, June 2005, *Our Environment, Our Future, Your Views*, p. 25, <http://www.countryside.wales.gov.uk/fe/master.asp?n1=366&n2=529&n3=533>

²¹ DEFRA, *Key Facts About: Global Atmosphere*, <http://www.defra.gov.uk/environment/statistics/globalatmos/kf/gakf07.htm>

²² House of Commons Environmental Audit Committee, *Reducing Carbon Emissions from Transport*, <http://www.publications.parliament.uk/pa/cm200506/cmselect/cmenvaud/981/981-i.pdf>

²³ House of Commons Environmental Audit Committee, *Reducing Carbon Emissions from Transport*, <http://www.publications.parliament.uk/pa/cm200506/cmselect/cmenvaud/981/981-i.pdf>

²⁴ Sustainable Development Commission, *Missed Opportunity: A Critique of the Air Transport White Paper*, <http://www.sd-commission.org.uk/publications/downloads/Missed%20Opportunity-Combined.pdf>

²⁵ Department for Transport, December 2003, *The Future of Air Transport: Key Facts – Wales*, http://www.dft.gov.uk/stellent/groups/dft_aviation/documents/page/dft_aviation_031526.pdf

²⁶ Confederation of British Industry, *CBI Sets up Climate Change Task Force*, <http://www.cbi.org.uk/ndbs/content.nsf/802737aed3e3420580256706005390ae/cf18bb5e326e606a80257260003a9e12?OpenDocument>

3.2 Sustainable use of resources

Wales' impact on the natural environment has been measured by way of its 'ecological footprint'. The ecological footprint measures the total environmental burden we place on the planet, by calculating how much productive land and sea is needed to provide the energy, food and materials used in our everyday lives. It also calculates the emissions generated from the combustion of fossil fuels, and it determines how much land is required to absorb these emissions²⁷. According to WWF Cymru, if every inhabitant of the world lived as we do in Wales, we would need the resources of three 'earths' to support the human population²⁷.

The following four resource issues are highlighted in this chapter of the Environment Strategy: materials consumption and waste, water, soils, and minerals and aggregates.

3.2.1 Materials consumption and waste

One way to reduce Wales' ecological footprint is to change people's material consumption. The 'waste hierarchy'²⁸ suggests that benefits would accrue to society in Wales by:

- Reducing our consumption of unnecessary goods (many of our most commonly used goods are not strictly speaking necessary; plastic carrier bags, for example, could be replaced with reusable cotton bags)
- Decreasing the packaging used to contain goods – although some goods need a minimum amount of packaging to retain their integrity (eg electronic equipment)
- Discouraging the use of certain types of single-use packaging, where there is an environmentally superior alternative (replacing polystyrene take-away cartons with paper wrapping)
- Repairing and reusing materials instead of disposing of them when they fall into disrepair
- Composting food and garden waste, where space is available to do so, or using an indoor wormery where outdoor space is limited
- Recycling resources that cannot be repaired or reused, and encouraging this with incentives where behaviour is slow to change (deposits on bottles and cans is one example)
- Deriving all possible benefits from materials that cannot be reused or recycled (obtaining energy from waste)

Other countries are more advanced than Wales in waste management terms. For example, since 1997, it has not been permitted in Denmark to landfill waste that is suitable for incineration²⁹. In 2004, 66 per cent of Danish waste was recycled, 24 percent was incinerated, and just 8 per cent was landfilled³⁰. In Germany almost 60 per cent of municipal waste undergoes recovery. For some types of waste the recycling levels are even higher, for example, construction waste (86 per cent), packaging (81 per cent), and batteries (77 per cent)³¹.

²⁷ WWF Cymru, March 2005, *Reducing Wales' Ecological Footprint: A Resource Accounting Tool for Sustainable Consumption*, <http://www.walesfootprint.org/pdf/20048WWFAllWaleEng.pdf>

²⁸ The Waste Hierarchy places different waste management practices in order of environmental favourability. At the top of the hierarchy is reducing waste, followed by re-use, recycling and composting, energy recovery, and disposal. See http://new.wales.gov.uk/topics/environmentcountryside/epg/waste_recycling/waste_disposal_hierarchy?lang=en

²⁹ Danish Environmental Protection Agency, *Waste 21 Appendix C: Capacity*, http://gjlwww.mst.dk/udgiv/Publications/1999/87-7909-571-2/html/bilag03_eng.htm

³⁰ Danish Environmental Protection Agency, *More Waste is Being Recycled in Denmark*, <http://www.mst.dk/homepage/>

³¹ German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, *Waste Management: General Information Waste Management in Germany*,

Outcomes

The headline aspiration for materials consumption and waste is that there should be "no additional landfill for municipal waste in Wales by 2026"³². The Environment Strategy also recognises that consumption and disposal of resources should be achieved as closely to source as possible. Four Environment Strategy outcomes relate directly to the 'consumption and waste' sub-theme:

- Outcome 9. The amount of waste that is generated in Wales is minimised.
- Outcome 10. Reduce, reuse and recycle is universally accepted in government, business, industry and home life.
- Outcome 11. Appropriate waste management facilities are in place to minimise the amount of waste going to landfill.
- Outcome 12. Businesses produce well designed products that require less resources in their production, use and end of life, that create minimal waste and are easily reused or recycled.

Nine of the Actions in the Environment Strategy Action Plan support these outcomes³³.

Issues

1. The Sustainable Development Commission highlights the considerable gap that exists between people's pro-environment attitudes and their behaviour³⁴. Although some people and businesses are willing to change their waste management behaviour out of environmental concern, the National Consumer Council notes that "policy-makers have so far failed to harness this concern... people need inducement"³⁵.
2. Price is the biggest market driver: fiscal incentives for more sustainable products only work if they close the price gap between more- and less-sustainable products, or create significant tax rebates for their use³⁴. The Sustainable Development Commission comments that government and business need to focus on mainstream consumers, "rather than expecting the heroic minority of green shoppers to shop society's way out of unsustainability"³⁴.
3. Each person in Wales consumes, on average, 21 tonnes of materials and products per annum³⁶. There are many reasons for unsustainable consumption, including social factors and 'perverse incentives'³⁴ such as economic constraints, institutional barriers, or inequalities in access that actively encourage unsustainable behaviour.
4. The Landfill Directive³⁷, which will be a key driver of waste management priorities until 2013, focuses on Biodegradable Municipal Waste (the vegetable, paper and card portion). Other portions of the waste stream may become lower priorities as a result.
5. Various community groups (including on-line communities such as Freecycle) and charity shops reduce the amount of unwanted but useful goods being sent to landfill by enabling their reuse. Such organisations are growing in popularity³⁸.

http://www.bmu.de/english/waste_management/general_information/doc/4304.php

³² Welsh Assembly Government, May 2006, *Environment Strategy for Wales*, p.28,

http://new.wales.gov.uk/topics/environmentcountryside/epq/Environment_strategy_for_wales/About_the_strategy/?lang=en

³³ Actions 5, 7, 20-23, 29, 52, 60.

³⁴ Sustainable Development Commission, *I Will if You Will: Towards Sustainable Consumption*,

http://www.sd-commission.org.uk/publications/downloads/I_Will_If_You_Will.pdf

³⁵ National Consumer Council, *16 Pain-Free Ways to Help Save the Planet*,

<http://www.ncc.org.uk/responsibleconsumption/16ways.pdf>

³⁶ WWF Cymru, March 2005, *Reducing Wales' Ecological Footprint: A Resource Accounting Tool for Sustainable Consumption*,

<http://www.walesfootprint.org/pdf/20048WWFAllWaleEng.pdf>

³⁷ European Commission, *Council Directive 1999/31/EC of 26 April 1999 on the Landfill of Waste*,

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31999L0031:EN:HTML>

³⁸ The first Welsh Freecycle group started in Newport in May 2004; by 12 January 2007 there were 19,658 members of 28 groups throughout Wales.

3.2.2 Water resources

Water usage in Wales is around 150 litres per person per day³⁹, a typical consumption for Western Europe. Increased efficiency in the use of Wales' water resources helps to reduce consumption of fossil fuels (the transport, treatment, and pumping of water require energy), and can help maintain aquatic habitats.

Despite increased urbanisation, the consumption of water has fallen in most of Western Europe, as water utilities have focused on water savings, increased water metering, and the use of economic instruments. In several cities in Saxony (Germany), household water use dropped from 300 to 90 litres per person per day over five years when metering and consumption-based billing were introduced⁴⁰.

Outcomes

The focus of the Environment Strategy is on ensuring delivery of the existing obligations under current legislation. Reducing inefficient use of water and minimising wastage are also important. Three Environment Strategy outcomes relate to water resources:

- Outcome 13. Water resources are managed sustainably meeting the needs of society without causing damage to the environment.
- Outcome 14. Water is used more efficiently across all sectors.
- Outcome 15. The high quality of our drinking water is maintained.

Eight of the Actions in the Environment Strategy Action Plan support these outcomes⁴¹.

Issues

1. The requirement of the Water Framework Directive⁴², that by 2015 all inland and coastal waters will be of 'good status' (both chemically and ecologically), is a challenge for Wales. Although 95 per cent of rivers were classified as 'good' or 'very good' for chemical quality in 2005, only 80 per cent of rivers received the same classification for biological quality. Biological quality has deteriorated since 1995⁴³.
2. Although every house built in Wales since April 2000 is required to have a water meter installed, approximately 72% of domestic customers in Wales have unmetered consumption of water⁴⁴. Water use is very hard to influence without water metering⁴⁵, and the unlimited use of a resource for a flat-rate fee is inherently inefficient⁴⁶.

³⁹ Ofwat, *Security of Supply, Leakage and Water Efficiency: 2005-06 Report*,

[http://www.ofwat.gov.uk/aptrix/ofwat/publish.nsf/AttachmentsByTitle/leakage_05-06.pdf/\\$FILE/leakage_05-06.pdf](http://www.ofwat.gov.uk/aptrix/ofwat/publish.nsf/AttachmentsByTitle/leakage_05-06.pdf/$FILE/leakage_05-06.pdf)

⁴⁰ United Nations Economic Commission for Europe, *Water and Sanitation: A Problem Even in So-Called Developed Countries*, http://www.unece.org/press/pr2004/04env_p02e.htm

⁴¹ Actions 24-25, 28-31, 34, 52.

⁴² European Commission, *Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 Establishing a Framework for Community Action in the Field of Water Policy*, http://europa.eu.int/eur-lex/en/archive/2000/l_32720001222en.html

⁴³ Environment Agency Wales, *Improved and Protected Welsh Inland and Coastal Waters*, internal document.

⁴⁴ Dŵr Cymru, personal communication, 29 December 2006.

⁴⁵ Sustainable Development Commission, *I Will if You Will: Towards Sustainable Consumption*, http://www.sd-commission.org.uk/publications/downloads/I_Will_If_You_Will.pdf

⁴⁶ Young MD, 1992. *Sustainable Investment and Resource Use: Equity, Environmental Integrity, and Economic Efficiency (Man and the Biosphere Series, Volume 9)*. Paris: UNESCO. ISBN 1-85070-381-7.



3.2.3 Soils

Soil is comprised of mineral particles, organic matter, water, air and living organisms. Soil is a non-renewable resource which is a crucial link in many biogeochemical cycles, and which performs many vital functions: food and other biomass production, storage, and filtration⁴⁷. Soil has a role as a habitat and gene pool, it acts as a provider of raw materials, and it serves as a platform for human activities, landscape and heritage. It therefore has a socio-economic as well as environmental function. Average world soil formation rates, based on the conversion of parent rock into soil, are estimated to be between 0.05 and 10mm per 100 years⁴⁸.

Outcomes

Improved soil management is foremost in the Environment Strategy's consideration of soils. One Environment Strategy outcome is dedicated to soil health:

- Outcome 16. Soil is managed to safeguard its ability to support plants and animals, store carbon and provide other important ecosystem services.

Eight of the Actions in the Environment Strategy Action Plan are stated as supporting this outcome⁴⁹. In addition, Action 42 – "We will develop a soil action plan..."⁵⁰ – is intrinsically related to soil management.

Issues

1. The increased temperatures and longer summer dry periods anticipated with climate change may have a detrimental effect on the ability of soil to retain its carbon⁵¹. As soil releases carbon, it contributes to the loading of greenhouse gas.
2. Soils in upland parts of Wales are vulnerable to acidification because they are usually intrinsically acidic⁵². Upland areas are generally subject to higher levels of atmospheric pollution; when loading of nitrogen and/or sulphur compounds exceeds the carrying capacity of the soil, acidification of waterways can occur⁵².
3. Soils are generated over a long period of time; unsustainable land practices can lead to their rapid erosion⁵².
4. The European Thematic Strategy for Soil Protection proposes a framework Directive⁵³, which will have a direct impact on the outcome. For example, the Directive will stipulate that a programme of measures be established for combating soil erosion, organic matter decline, compaction, salination, and landslides.

⁴⁷ Welsh Assembly Government, June 2005, *Our Environment, Our Future, Your Views*, p.72, <http://www.countryside.wales.gov.uk/fe/master.asp?n1=366&n2=529&n3=533>

⁴⁸ Professor Vala Ragnarsdottir, University of Bristol, *Research News*, <http://www.bris.ac.uk/researchreview/2006/11480493415.html>

⁴⁹ Actions 5, 8, 28-31, 34-35.

⁵⁰ Welsh Assembly Government, 2006, *Environment Strategy for Wales: First Action Plan*, p. 9, http://new.wales.gov.uk/docrepos/40382/4038231121/118554/Env_strat_rewrite/Action_Plan_e.pdf?lang=en

⁵¹ Welsh Assembly Government, June 2005, *Our Environment, Our Future, Your Views*, pp.37 and 76, <http://www.countryside.wales.gov.uk/fe/master.asp?n1=366&n2=529&n3=533>

⁵² Welsh Assembly Government, June 2005, *Our Environment, Our Future, Your Views*, pp.73-74, <http://www.countryside.wales.gov.uk/fe/master.asp?n1=366&n2=529&n3=533>

⁵³ European Commission, *Proposal for a Directive of the European Parliament and of the Council Establishing a Framework for the Protection of Soil and Amending Directive 2004/35/EC*, http://ec.europa.eu/environment/soil/pdf/com_2006_0232_en.pdf

3.2.4 Minerals and aggregates

Historically, minerals and aggregates have played a valuable economic role in Wales; the sustainable use of these resources is also important for the future. Minerals and aggregates are extracted from the land and from the continental shelf.

Minerals Planning Policy Wales⁵⁴ sets out the Welsh Assembly Government's land use planning policy guidance for mineral extraction. Minerals Technical Advice Note 1: Aggregates⁵⁵ sets out detailed advice on the mechanisms for delivering the policy for aggregates extraction.

Outcomes

The Environment Strategy notes the importance of using Wales' mineral and aggregates resources efficiently, and sets out to achieve a "more sustainable pattern of mineral and aggregate extraction based on environmental capacity"⁵⁶. Two Environment Strategy outcomes are concerned with reducing the impact of these extractive industries, and the overall use of the products:

- Outcome 17. The extraction of minerals and aggregates minimises the impact on the environment and local communities.
- Outcome 18. The use of alternative materials, secondary and recycled aggregates is maximised where possible in the construction industry.

Four of the Actions in the Environment Strategy Action Plan support outcome 18⁵⁷, but no Action is directly linked with outcome 17⁵⁸.

Issues

1. A Welsh Assembly Government consultation on regulation of marine dredging closed on 5 January 2007. The proposed Marine Bill may also have implications for marine dredging activities.
2. Clean coal technology has the potential to produce energy for Wales for some time, and could "play a vital role in addressing Wales' future energy needs"⁵⁹. Wales produced 1.235 million tonnes of coal from opencast sources in 2005⁶⁰. Deep-mine coal production in Wales was 431,000 tonnes in the financial year 2004/05⁶¹.

⁵⁴ Welsh Assembly Government, December 2000, *Minerals Planning Policy Wales*, <http://new.wales.gov.uk/docrepos/40382/4038231121/403821/403821/403828/MPPW.pdf?lang=en>

⁵⁵ Welsh Assembly Government, March 2004, *Minerals Technical Advice Note 1: Aggregates*, <http://new.wales.gov.uk/docrepos/40382/4038231121/403821/40382/403822/mtan1-aggregates-w.pdf?lang=en>

⁵⁶ Welsh Assembly Government, May 2006, *Environment Strategy for Wales*, p.34, http://new.wales.gov.uk/topics/environmentcountryside/epq/Environment_strategy_for_wales/About_the_strategy/?lang=en

⁵⁷ Actions 5, 7, 23, 29.

⁵⁸ The only Action that applies to outcome 17 is Action 29 (which applies to each of the 39 outcomes), regarding the use of structural funds to deliver environmental outcomes.

⁵⁹ House of Commons, *Select Committee on Welsh Affairs Third Report: Energy in Wales*, <http://www.publications.parliament.uk/pa/cm200506/cmselect/cmwelaf/876/87602.htm>

⁶⁰ British Geological Survey, *Coal: Opencast Coal Mining Statistics 2005*, <http://www.bgs.ac.uk/mineralsuk/minequar/coal/occ/home.html#wales>

⁶¹ British Geological Survey, *United Kingdom Minerals Yearbook 2005*, <http://www.mineralsuk.com/britmin/ukmy2005.pdf>

3.3 Distinctive biodiversity, landscapes and seascapes

The richness of wildlife in Wales is widely celebrated. It depends on habitats as diverse as coastal sand dunes, oak woods and upland moorlands. This biodiversity continues to be threatened by pollution, changes in agriculture, inappropriate land management, and other forms of land use⁶².

Three habitat and biodiversity issues are covered in the chapter: biodiversity, the marine environment, and landscapes and seascapes and their historic component.

3.3.1 Biodiversity

Biodiversity worldwide has come under enormous pressure since the industrial revolution. The pace of decline has accelerated: "biodiversity loss is increasing, not slowing down"⁶³. There are 16,118 species listed on IUCN's red list of organisms threatened with extinction, of which 60 are resident in the United Kingdom.

Within Wales, the UK Biodiversity Action Plan is coordinated by the Wales Biodiversity Partnership⁶⁴, and work is conducted locally by 24 local biodiversity partnerships (one for each local authority, and one each for Snowdonia and Brecon Beacons National Parks). The relevant species and habitats for Wales have been listed under Section 74 of the *Countryside and Rights of Way Act 2000*. The list of 40 habitats and 179 species "of principal importance for conservation of biodiversity" is available at <http://new.wales.gov.uk/docrepos/40382/4038231121/403825/613037/list-of-species-e.pdf?lang=en>

Outcomes

The Environment Strategy looks to address the pressures causing loss of biodiversity, in order to secure an improvement in the biodiversity of Wales. In this way, it will seek to achieve the following three outcomes:

- Outcome 19. The loss of biodiversity has been halted and we can see a definite recovery in the number, range and genetic diversity of species, including those species that need very specific conditions to survive.
- Outcome 20. The wider environment is more favourable to biodiversity through appropriate management, reduced habitat fragmentation and increased extent and interconnectivity of habitats.
- Outcome 21. Sites of international, Welsh and local importance are in favourable condition to support the species and habitats for which they have been identified.

Sixteen of the Actions in the Environment Strategy Action Plan support these outcomes⁶⁵.

Issues

1. The UK has an international commitment to halt the loss of biodiversity by 2010. The results of the last UK Biodiversity Action Plan reporting for Wales showed that 46 per cent of priority habitats were declining, 7 per cent of priority species had been lost,

⁶² Countryside Council for Wales, *Habitats and Species*,

<http://www.ccw.gov.uk/generalinfo/index.cfm?Subject=Habitats&lang=en>

⁶³ Achim Steiner, Director-General of IUCN, News Release, *Release of the 2006 IUCN Red List of Threatened Species Reveals Ongoing Decline of the Status of Plants and Animals*,

http://www.iucn.org/places/medoffice/documentos/press_release_red_list.pdf

⁶⁴ Wales Biodiversity Partnership, *Who Are We?*,

<http://biodiversitywales.org.uk/english/Wales%20Biodiversity%20Partnership/who.asp>

⁶⁵ Actions 5, 28-40, 48, 60.

3.3.2 Marine environment

The seas around Wales have been of historic importance for trade, fishing, and transport. The marine environment is not only a habitat for biodiversity and commercially important fisheries, it is also of importance to Wales' tourism industry.

Outcomes

The Environment Strategy aspires to a marine environment that will be valued by all, understood and respected for what it contains and provides. By 2026, the seas should be clean, should support vibrant economies, and should contain healthy and functioning ecosystems that are biologically diverse, productive and resilient⁷⁰.

The Environment Strategy alludes to the need for an integrated marine management regime in order to address issues of habitat deterioration. One outcome is proposed for the marine environment:

- Outcome 22. Our seas will be clean and support healthy ecosystems that are biologically diverse, productive and managed sustainably.

Eleven of the Actions in the Environment Strategy Action Plan support this outcome⁷¹.

Issues

1. Around 70 per cent of Wales' coastline is protected⁷², and approximately 30 per cent of Wales' territorial waters are covered by marine Natura 2000 designation⁷³, but there is no protected area coverage outside the territorial seas of Wales⁷⁴.
2. Overfishing and the use of indiscriminate fishing methods over a period of decades have led to a decline in many marine ecosystems⁷⁵. Current trends are projected to lead to a collapse of all currently fished seafoods before 2050⁷⁶. Fish are not just a food item; they are crucial components of most Welsh marine ecosystems.
3. The estimated net sea level change for Wales varies from 14cm to 74cm by 2080, depending on the emission scenario used⁷⁷. Sea level rise in the upper end of this scale will have major implications for coastal habitats.
4. Climate change is already having a "significant effect" on the seas around Britain⁷⁸, including increasing sea surface temperatures, a greater incidence of severe winds and greater wave heights, a rise in sea level of 3mm per year since 1993, increasing acidity in the sea, and changes in biological communities.
5. The proposed Marine Bill will have wide implications for the management of the marine environment in Wales.

⁷⁰ Welsh Assembly Government, May 2006, *Environment Strategy for Wales*, p. 37,

http://new.wales.gov.uk/topics/environmentcountryside/epq/Environment_strategy_for_wales/About_the_strategy/?lang=en

⁷¹ Actions 28-32, 34, 36-37, 46-48.

⁷² Countryside Council for Wales, *Protected Areas*,

<http://www.ccw.gov.uk/generalinfo/index.cfm?Subject=ProtectedSites&lang=en>

⁷³ CCW, June 2006, *Response to the Marine Bill Consultation*, unpublished document.

⁷⁴ Joint Nature Conservancy Council, *SACs in UK Offshore Waters*,

http://www.jncc.gov.uk/protectedsites/sacselection/SAC_list.asp?Country=OF

⁷⁵ Royal Commission on Environmental Pollution, 2004. *Turning the Tide: Addressing the Impact of Fisheries on the Marine Environment*,

<http://www.rcep.org.uk/fisheries/Turningthetide.pdf>

⁷⁶ Worm *et al.*, 2006. *Impacts of Biodiversity Loss on Ocean Ecosystem Services*, Science, 3 November 2006, 787-790.

⁷⁷ UK Climate Impacts Programme, *Updates to Regional Net Sea-Level Change Estimates for Great Britain*,

<http://www.ukcip.org.uk/resources/publications/documents/124.pdf>

⁷⁸ Marine Climate Change Impacts Partnership, *Marine Climate Change Impacts: Annual Report Card 2006*,

<http://www.mccip.org.uk/arc/>

3.3.3 Landscapes and seascapes and their historic character

The landscapes and seascapes of Wales are not only part of the natural environment; they are part of Wales' cultural and historical heritage. They make an important contribution to the identity of Wales, its people, and its communities.

Outcomes

The Environment Strategy recognises the contribution that the landscapes and seascapes make to life in Wales. The outcome it aims to achieve is:

- Outcome 23. The quality and diversity of the natural and historic character of our landscape and seascape is maintained and enhanced.

Ten of the Actions in the Environment Strategy Action Plan support this outcome⁷⁹.

Issues

1. The estimated net sea level change for Wales varies from 14cm to 74cm by 2080, depending on the emission scenario used⁸⁰. Sea level rise in the upper end of this scale will have major implications for coastal communities and buildings. In addition, the anticipated climate change impacts of greater winter rainfall and more severe acute weather incidents will increase the risk of flooding for communities on flood plains and in valleys alike.
2. Some groups oppose measures which can contribute to a renewable energy strategy, such as wind turbines, on the grounds of aesthetic appeal.

⁷⁹ Actions 5, 28-31, 34, 43-45, 47.

⁸⁰ UK Climate Impacts Programme, *Updates to Regional Net Sea-Level Change Estimates for Great Britain*, <http://www.ukcip.org.uk/resources/publications/documents/124.pdf>

3.4 Our local environment

Few aspects of life are as crucial to the enjoyment of daily life as the environment where people live, work, or study. Deprived parts of Wales suffer disproportionately from poor local environmental quality⁸¹.

3.4.1 The built environment and access to green space

The settlements in which the people of Wales spend time are extremely important to their well-being. The availability of natural environmental features can likewise be of major benefit to the quality of life of people who are able to access it.

On 13 December 2006, the UK government published a consultation document⁸² on proposals that all new housing in England and Wales should be zero-carbon by 2016. Zero carbon means that, over a year, the net carbon emissions from energy use in the home would be zero.

Outcomes

The Environment Strategy has an aspiration that "every community in Wales should have a high quality, vibrant, well planned and well maintained built environment"⁸³. It envisages the following four outcomes:

- Outcome 24. The built environment is high quality and vibrant, reflecting local distinctiveness and supporting strong communities, which are actively engaged in the management of their local environment.
- Outcome 25. New buildings in Wales meet high environmental quality standards and the environmental quality standards of existing building stock is improving.
- Outcome 26. The historic building stock and character is maintained to a high standard.
- Outcome 27. There is easy, equitable access to ample high quality green space.

Sixteen of the Actions in the Environment Strategy Action Plan support these outcomes⁸⁴.

Issues

1. The last national survey of housing condition (2004) indicated that 4.8 per cent of the Welsh housing stock was not suitable for occupation⁸⁵.
2. In 1997-98, 31 per cent of all households in Wales lived in 'fuel poverty' (needing to spend 10 per cent or more of their net income to cover fuel and heating costs)⁸⁶.
3. Domestic carbon emissions could be reduced by 17 per cent if all houses included standard energy efficiency measures⁸⁷. Eco-Homes standards produce a 31 per cent saving in energy use over the 2002 building regulations⁸⁸.

⁸¹ Welsh Assembly Government, May 2006, *Environment Strategy for Wales*, p. 41,

http://new.wales.gov.uk/topics/environmentcountryside/epq/Environment_strategy_for_wales/About_the_strategy/?lang=en

⁸² Department for Communities and Local Government, *Building a Greener Future: Towards Zero Carbon Development*, http://www.communities.gov.uk/pub/173/BuildingaGreenerFutureTowardsZeroCarbonDevelopment_id1505173.pdf

⁸³ Welsh Assembly Government, May 2006, *Environment Strategy for Wales*, p. 41,

http://new.wales.gov.uk/topics/environmentcountryside/epq/Environment_strategy_for_wales/About_the_strategy/?lang=en

⁸⁴ Actions 5-6, 9, 12-19, 29, 44-45, 47, 60.

⁸⁵ National Statistics, *Living in Wales 2004 – Report on Unfitness and Repairs*,

http://new.wales.gov.uk/legacy_en/keypubstatisticsforwales/content/publication/housing/2005/sdr126-2005/sdr126-2005.pdf

⁸⁶ Welsh Assembly Government 2005, *Fuel Poverty in Wales*,

<http://new.wales.gov.uk/docrepos/40382/sjr/research/hnr0305e?lang=en>

⁸⁷ WWF Cymru, March 2005, *Reducing Wales' Ecological Footprint: A Resource Accounting Tool for Sustainable Consumption*,

<http://www.walesfootprint.org/pdf/20048WWFAllWaleEng.pdf>

3.4.2 Environmental nuisances

Litter, dog fouling and fly-tipping consistently feature in people's reasons for disliking particular locations. Street cleansing has been seen by many local authorities in Wales as of lesser importance than recycling and refuse collection⁸⁹.

Outcomes

The Environment Strategy recognises that a failure to tackle these environmental quality issues leads to "disengagement and more serious social problems"⁹⁰. It foresees the following outcome:

- Outcome 28. Environmental nuisances such as litter, flytipping, graffiti, dog fouling, fly-posting, noise pollution and light pollution are minimised.

Four of the Actions in the Environment Strategy Action Plan support this outcome⁹¹.

Issues

1. Some significant contributors to the litter problem in Wales could be reduced using financial instruments: applying deposits to cans and bottles is one example⁹².
2. International experience indicates that variable charging for household waste – a potentially valuable tool for reducing waste arisings – has led to increased flytipping, although such increases tend to be short-lived where schemes are well managed and enforcement is effective⁹³.

⁸⁸ ENDS Report, March 2006, *ODPM Beefs up Code on Sustainable Homes*, http://www.endsreport.com/index.cfm?action=report.article&articleID=15487&q=housing%20construction%20standards&boolean_mode=all

⁸⁹ Audit Commission in Wales, February 2005, *Waste Management: A Challenging Agenda for the Welsh Public Sector*, http://www.wao.gov.uk/assets/englishdocuments/Waste_Management_Themed_Paper_9.pdf

⁹⁰ Welsh Assembly Government, May 2006, *Environment Strategy for Wales*, p. 44, http://new.wales.gov.uk/topics/environmentcountryside/epq/Environment_strategy_for_wales/About_the_strategy/?lang=en

⁹¹ Actions 5, 18, 29, 60.

⁹² Keep Wales Tidy, 2006, *Papur Datgan Sbwriel Caniau a Photeli/Can and Bottle Position Paper*, <http://www.keepwalestidy.org/english/images/cansandbottles.pdf>

⁹³ HC Deb 28 June 2006 C394W, <http://www.publications.parliament.uk/pa/cm200506/cmhansrd/cm060628/text/60628w1277.htm>



3.4.3 Walkability in urban areas and access to the countryside and coast

An increase in the number of people walking and cycling would do much more than decrease emissions from vehicles; it would improve the health of the people of Wales substantially. Regular cyclists live, on average, seven years longer than non-cyclists⁹⁴. Walking and cycling are also good means of reaching the five weekly occasions of 30-minute exercise that experts say is necessary for health benefits⁹⁵.

The Welsh Assembly Government's Walking and Cycling Strategy for Wales consultation document⁹⁶ is designed to inform a strategy and action plans for increasing these modes of transport.

Outcomes

The Environment Strategy states a commitment to "increasing the number of people walking and cycling, and using the natural environment for physical activity and enjoyment"⁹⁷. It also states a determination to make walking and cycling safe and convenient alternatives to private transport. The following two outcomes are desired:

- Outcome 29. There will be sustainable, widespread and equitable access to the countryside and coast, which recognises the need for a balance between tranquil areas and areas supporting larger numbers of people and a range of activities. Damaging access will be discouraged.
- Outcome 30. The number of people choosing to walk or cycle as a means of transport is increasing.

Thirteen of the Actions in the Environment Strategy Action Plan support these outcomes⁹⁸.

Issues

1. One of the barriers to increased participation in cycling is a perception of increased risk from collision⁹⁹. The life-extending health benefits of cycling compensate this increased risk up to 20-fold¹⁰⁰. Increased levels of cycling would "almost certainly" reduce road deaths¹⁰⁰. Most studies also indicate that drivers and passengers in motor vehicles are exposed to higher levels of air pollutants than pedestrians and cyclists¹⁰¹.
2. The 'school run' increases rush hour traffic by 20 per cent¹⁰²; the proportion of children walking to school is in serial decline (a reduction of one third between 1993 and

⁹⁴ Welsh Assembly Government, January 2003, *Road Safety Strategy for Wales*, <http://new.wales.gov.uk/topics/transport/roadsafety/?lang=en#>

⁹⁵ Welsh Assembly Government, *Fitness*, <http://new.wales.gov.uk/topics/health/improvement/hcw/themes/food-fitness/fitness/?lang=en>

⁹⁶ Welsh Assembly Government, June 2002, *Walking and Cycling Strategy for Wales Consultation Document*, <http://new.wales.gov.uk/docrepos/40382/4038231141/403821125/403821125/639095/640937/document.pdf?lang=en>

⁹⁷ Welsh Assembly Government, May 2006, *Environment Strategy for Wales*, p. 46, http://new.wales.gov.uk/topics/environmentcountryside/epq/Environment_strategy_for_wales/About_the_strategy/?lang=en

⁹⁸ Actions 5-6, 26-31, 34, 50-52, 60.

⁹⁹ SERA Cycling Seminar, 28 February 2006, *Putting Cycling at the Heart of Transport Policy*, http://www.sera.org.uk/events/cycling_seminar_feb06.htm

¹⁰⁰ Wardlaw M, 2002, *Assessing the Actual Risks Faced by Cyclists*, Traffic Engineering and Control, October 2002, Vol. 43, No. 9, [http://www.cyclinginstructor.com/cyclinginstructor.nsf/\(\\$Category1\)/E0A4E09F5D74812F80257177004D9A87/\\$FILE/c2014.pdf?OpenElement](http://www.cyclinginstructor.com/cyclinginstructor.nsf/($Category1)/E0A4E09F5D74812F80257177004D9A87/$FILE/c2014.pdf?OpenElement)

¹⁰¹ Taylor D and Ferguson M, 1998, *The Comparative Pollution Exposure of Road Users – A Summary*, World Transport Policy and Practice Vol. 4, No. 2, 22-26.

http://www.eco-logica.co.uk/wtpp04_2.pdf

¹⁰² Institute of Advanced Motorists, *School Run*, <http://www.iam.org.uk/pressroom/drivingtips/drivingtip32.htm>



- 2003¹⁰³). Encouraging children to use safe alternative means to get to school could have the multiple benefits of increasing the efficiency of the road network, improving the health of children, increasing the likelihood that children will continue to walk and cycle as adults, and increasing the use of public transport.
3. With regard to increasing use of the countryside, "insufficient attention" is given to the requirements of people in Wales who are from ethnic minorities, who are disabled, and who come from deprived backgrounds¹⁰⁴. This is a barrier to achieving equitable access.

¹⁰³ Welsh Assembly Government, May 2006, *Environment Strategy for Wales*, p. 47, reduction in walking trips to school from 48 per cent to 32 per cent,

http://new.wales.gov.uk/topics/environmentcountryside/epg/Environment_strategy_for_wales/About_the_strategy/?lang=en

¹⁰⁴ Wales Audit Office, November 2006, *Public Access to the Countryside*,

http://www.wao.gov.uk/assets/englishdocuments/WAO_Public_Acc_Eng_web.pdf

3.4.4 Flood and coastal erosion risk management

Flood and coastal erosion pose a threat to people's quality of life. The Environment Strategy recognises the necessity for a change in flood planning from flood defence to flood risk management.

Outcomes

The main thrust of this sub-theme is in providing information about the risk of flooding, advice on how to cope with flooding, and adequate warning about flooding before it occurs. Two Environment Strategy outcomes are desired:

- Outcome 31. Appropriate measures will be in place to manage the risk of flooding from rivers and the sea and help adapt to climate change impacts.
- Outcome 32. Everyone who lives in a flood risk area will understand the flood risk they are subject to, the consequences of that risk and how to live with that risk.

Twelve of the Actions in the Environment Strategy Action Plan support these outcomes¹⁰⁵.

Issues

1. In Wales it is estimated that over 0.5 million people live and work on flood plains, and approximately £8 billion of assets are at risk from flooding¹⁰⁶.
2. The estimated net sea level change for Wales varies from 14cm to 74cm by 2080, depending on the emission scenario used¹⁰⁷. Sea level rise in the upper end of this scale will cause increased risk of flooding for coastal communities. In addition, the anticipated climate change impacts of greater winter rainfall and more severe acute weather incidents will increase the risk of flooding for those living on flood plains and in valleys.

¹⁰⁵ Actions 5, 12-16, 28-31, 34, 60.

¹⁰⁶ Welsh Assembly Government, *Water and Flooding*,

http://new.wales.gov.uk/topics/environmentcountryside/epq/water_flooding/?lang=en

¹⁰⁷ UK Climate Impacts Programme, *Updates to Regional Net Sea-Level Change Estimates for Great Britain*, <http://www.ukcip.org.uk/resources/publications/documents/124.pdf>

3.5 Environmental Hazards

Pollution and other environmental hazards can be detrimental to both the environment and human health. Those on low incomes are the most likely to live near polluting roads or factories and to endure poor quality housing and amenities¹⁰⁸.

3.5.1 Pollution

Pollution comes from different sources: 'point' pollution comes from a single source, and is often easier to detect and remedy than 'diffuse' pollution, which comes from a variety of sources, and thus tends to be more difficult to control. European legislation, with which the Welsh Assembly Government has a duty to comply, regulates air and water quality.

Outcomes

The Environment Strategy elucidates a desire to "minimise pollution and reduce its impact on the environment and on our health"¹⁰⁹. Four desired outcomes are noted:

- Outcome 33. A reduction in air pollution leads to increased life expectancy and ecological protection.
- Outcome 34. The extent of contaminated land is better understood and actions are being taken to remediate contaminated land for beneficial use where appropriate.
- Outcome 35. The quality of our groundwater, rivers, lakes and coastal waters is maintained and enhanced.
- Outcome 36. Diffuse pollution is better understood and action is being taken to reduce and manage diffuse pollution.

Eleven of the Actions in the Environment Strategy Action Plan support these outcomes¹¹⁰.

Issues

1. Ozone – the principal cause of air pollution in rural areas¹¹¹ – is more abundant during hotter, sunnier weather¹¹², conditions which climate change may make more likely.
2. The major threat to clean air (particularly in urban areas) is now posed by traffic emissions¹¹³. The average annual distance travelled by car increased by around three per cent between 1995-97 and 2005¹¹⁴. Total road traffic was forecast to grow by 17 per cent between 2000 and 2010¹¹⁵.
3. The Water Framework Directive's requirement, that by 2015 all inland and coastal waters will be of 'good status' (both chemically and ecologically), is a challenge for Wales. Although 95 per cent of rivers were classified as 'good' or 'very good' for chemical quality in 2005, only 80 per cent of rivers received the same classification for biological quality. Biological quality has deteriorated since 1995¹¹⁶.

¹⁰⁸ Joseph Rowntree Foundation, 2001, *The Environmental Concerns of Disadvantaged Groups*, <http://www.jrf.org.uk/knowledge/findings/housing/911.asp>

¹⁰⁹ Welsh Assembly Government, May 2006, *Environment Strategy for Wales*, p. 52, http://new.wales.gov.uk/topics/environmentcountryside/epq/Environment_strategy_for_wales/About_the_strategy/?lang=en

¹¹⁰ Actions 5-6, 8, 17, 25, 28-31, 34, 41.

¹¹¹ Welsh Assembly Government, May 2006, *Environment Strategy for Wales*, p. 53, http://new.wales.gov.uk/topics/environmentcountryside/epq/Environment_strategy_for_wales/About_the_strategy/?lang=en

¹¹² Intergovernmental Panel on Climate Change, *Land Use, Land-Use Change, and Forestry*, http://www.grida.no/climate/ipcc/land_use/203.htm

¹¹³ UK National Air Quality Information Archive, *What Causes Air Pollution?*, http://www.airquality.co.uk/archive/what_causes.php

¹¹⁴ Department for Transport, *National Travel Survey 2005*, http://www.dft.gov.uk/stellent/groups/dft_transstats/documents/downloadable/dft_transstats_612469.pdf

¹¹⁵ Department for Environment, Transport and the Regions, *Transport Ten Year Plan 2000: Background Analysis*, http://www.dft.gov.uk/stellent/groups/dft_about/documents/pdf/dft_about_pdf_503943.pdf

¹¹⁶ Environment Agency Wales, *Improved and Protected Welsh Inland and Coastal Waters*, internal document.

3.5.2 Chemicals and radioactivity

Despite the benefits society has gained from many man-made chemicals, some of them may also have as-yet unknown effects on the environment. The final disposal of Wales' radioactive waste from Trawsfynydd and Wylfa is still to be determined.

Outcomes

The Environment Strategy focuses activity on effective implementation of the regulatory framework for chemicals and radioactivity. Public protection is central to the Strategy. The following three outcomes are desired:

- Outcome 37. The risks posed by exposure to chemicals will be minimised with emphasis on protecting vulnerable members of society.
- Outcome 38. Those at risk from radon will be aware of the risk that they face and what they can do to minimise that risk.
- Outcome 39. Radioactive discharges in Wales and doses to the public will be minimised. Discharges to the marine environment will be minimised to the extent that additional concentrations in the marine environment above historic levels are close to zero.

Eight of the Actions in the Environment Strategy Action Plan support outcome 37¹¹⁷, but no Action is directly linked with outcomes 38 or 39¹¹⁸.

Issues

1. European REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) legislation will have an impact on industry's use of chemicals.
2. Only about 10 per cent of the Welsh homes estimated to be above the radon Action Level have been identified¹¹⁹.
3. Wales' high- and intermediate-level radioactive waste will need long-term disposal. Even with early action, it has been estimated that the UK's existing stockpile of nuclear waste will take at least a century to be fully entombed in a deep repository¹²⁰. The repositories for this waste are currently thought unlikely to be in Wales¹²¹.

¹¹⁷ Actions 28-31, 34, 39-41.

¹¹⁸ The only Action that applies to outcomes 38 and 39 is Action 29 (which applies to each of the 39 outcomes), regarding the use of structural funds to deliver environmental outcomes.

¹¹⁹ Welsh Assembly Government, May 2006, *Environment Strategy for Wales*, p. 56.

http://new.wales.gov.uk/topics/environmentcountryside/epg/Environment_strategy_for_wales/About_the_strategy/?lang=en

¹²⁰ Committee on Radioactive Waste Management, July 2006, *Managing our Radioactive Waste Safely: CoRWM's Recommendations to Government*,

<http://www.corwm.org.uk/pdf/FullReport.pdf>

¹²¹ Carwyn Jones, Oral Evidence [98], *Environment, Planning and Countryside Committee*, 15 November 2006,

<http://www.wales.gov.uk/cms/2/CommitteeMeeting/N000000000000000000000000000047/9434617e11bf47d5b21b6bab773610e7.htm>

4 Action Plan

The Action Plan¹²² is an accompanying document for the Environment Strategy. It shows the actions that will be taken to deliver the outcomes in the Environment Strategy. It will be reviewed and updated annually: the milestones will be monitored, and replaced with new ones when complete.

How does it fit in with the Environment Strategy?

The Action Plan is not meant to be the only form of delivery for the Environment Strategy – although it corresponds to the outcomes listed in the Environment Strategy, not all outcomes are represented directly in it. The Plan clarifies the roles of other organisations and sectors in implementing the actions. Local and regional organisations (Local Authorities and National Park Authorities) are also tasked with contributions to the strategy. Statutory organisations, such as the Environment Agency and the Countryside Council for Wales are also responsible for delivering some outcomes, as they have an environmental remit. Some outcomes are led by business, land managers, the voluntary sector and various other partnerships.

The Action Plan requires the government to achieve its goals by supporting the outcomes listed throughout the Environment Strategy. Some outcomes are supported by multiple Actions, whereas others have none.

A complete listing of the outcomes, actions, and a table connecting them both with the corresponding environmental themes is available in the Annexes.



Figure 1 Interaction between the Environment Strategy Action Plan and other policy instruments

¹²² Welsh Assembly Government, *Environment Strategy for Wales: First Action Plan*, http://new.wales.gov.uk/docrepos/40382/4038231121/118554/Env_strat_rewrite/Action_Plan_e.pdf?lang=en



5 Welsh, UK, EU, and International Regulations

The Environment Strategy interacts with local, national, UK, European, and international regulations and policy. Devolved policy informs much of the strategy, and it is anticipated that new powers derived from the *Government of Wales Act 2006* will further increase Wales' ability to manage the environment within its borders. This chapter contains links to many of the policies and regulations relating to the Environment Strategy.

Welsh policy

Minerals Planning Policy Wales (2000)¹²³

Rural Development Plan for Wales 2000-2006¹²⁴

Planning Policy Wales (2002)¹²⁵

Wise About Waste: The National Waste Strategy for Wales (2002)¹²⁶

Walking and Cycling Strategy for Wales Consultation Document (2002)¹²⁷

Wales: A Better Country (2003)¹²⁸

Mineral Technical Advice Note 1: Aggregates (2004)¹²⁹

People, Places, Futures: Wales Spatial Plan (2004)¹³⁰

Climbing Higher: Strategy for Sport and Physical Activity (2005)¹³¹

Wales: A Vibrant Economy (2005)¹³²

Connecting Wales: Wales Transport Strategy Consultation (2006)¹³³

Sustainable Development Scheme, Starting to Live Differently¹³⁴

UK legislation, policy and programmes

*Water Resources Act 1991*¹³⁵

*Environmental Protection Act 1990*¹³⁶

*Environment Act 1995*¹³⁷

*Countryside and Rights of Way Act 2000*¹³⁸

*Water Act 2003*¹³⁹

¹²³ Welsh Assembly Government, December 2000, *Minerals Planning Policy Wales*,

<http://new.wales.gov.uk/docrepos/40382/4038231121/403821/403821/403828/MPPW.pdf?lang=en>

¹²⁴ Welsh Assembly Government, undated, *Rural Development Plan for Wales 2000-2006*,

http://www.wefo.wales.gov.uk/resource/ruraldevplan_e.pdf

¹²⁵ Welsh Assembly Government, March 2002, *Planning Policy Wales*,

<http://new.wales.gov.uk/docrepos/40382/4038231121/403821/403821/403828/planningpolicy-e.pdf?lang=en>

¹²⁶ Welsh Assembly Government, June 2002, *Wise About Waste: The National Waste Strategy for Wales*,

<http://www.countryside.wales.gov.uk/fe/master.asp?n1=366&n2=213&n3=368>

¹²⁷ Welsh Assembly Government, June 2002, *Walking and Cycling Strategy for Wales Consultation Document*,

<http://new.wales.gov.uk/docrepos/40382/4038231141/403821125/403821125/639095/640937/document.pdf?lang=en>

¹²⁸ Welsh Assembly Government, September 2003, *Wales: A Better Country*,

http://new.wales.gov.uk/docrepos/40382/40382313/40382/403821211/walesabettercountry_e.pdf?lang=en

¹²⁹ Welsh Assembly Government, March 2004, *Minerals Technical Advice Note 1: Aggregates*,

<http://new.wales.gov.uk/docrepos/40382/4038231121/403821/40382/403822/mtan1-aggregates-w.pdf?lang=en>

¹³⁰ Welsh Assembly Government, November 2004, *People, Places, Futures: Wales Spatial Plan*,

<http://new.wales.gov.uk/about/strategy/strategypubs/walesspatialplan?lang=en>

¹³¹ Welsh Assembly Government, January 2005, *Climbing Higher: Strategy for Sport and Physical Activity*,

http://new.wales.gov.uk/about/departments/dlcc/localgovculturepubs/cwlspublications/climbing_higher?lang=en

¹³² Welsh Assembly Government, November 2005, *Wales: A Vibrant Economy*,

http://new.wales.gov.uk/docrepos/40382/4038231141/403821124153/wave_en.pdf?lang=en

¹³³ Welsh Assembly Government, July 2006, *Connecting Wales: Wales Transport Strategy Consultation Document*,

[http://new.wales.gov.uk/docrepos/40382/4038231141/4038211251/4038211252/WTS_\(English\).pdf;jsessionid=A42331A2376CFD1E1563474B493DDACF.www2?lang=en](http://new.wales.gov.uk/docrepos/40382/4038231141/4038211251/4038211252/WTS_(English).pdf;jsessionid=A42331A2376CFD1E1563474B493DDACF.www2?lang=en)

¹³⁴ Welsh Assembly Government, undated, *Starting to Live Differently*,

<http://new.wales.gov.uk/about/strategy/strategypubs/sustainscheme;jsessionid=FF7D2C45ECE708BF3A579DA164BF8D9C.www2?lang=en>

¹³⁵ OPSI, *Water Resources Act 1991*,

http://www.opsi.gov.uk/acts/acts1991/Ukpga_19910057_en_1.htm

¹³⁶ OPSI, *Environmental Protection Act 1990*,

http://www.opsi.gov.uk/acts/acts1990/Ukpga_19900043_en_1.htm

¹³⁷ OPSI, *Environment Act 1995*,

http://www.opsi.gov.uk/acts/acts1995/Ukpga_19950025_en_1.htm

¹³⁸ OPSI, *Countryside and Rights of Way Act 2000*,

<http://www.opsi.gov.uk/acts/acts2000/20000037.htm>

¹³⁹ OPSI, *Water Act 2003*,

*Clean Neighbourhoods and Environment Act 2005*¹⁴⁰
Climate Change: The UK Programme 2006¹⁴¹
UK Climate Impacts Programme¹⁴²
DEFRA Adaptation Policy Framework Consultation¹⁴³
The UK Biodiversity Action Plan¹⁴⁴
Proposed Marine Bill¹⁴⁵
The UK Energy Review, The Energy Challenge¹⁴⁶

EU Directives and policy

European Birds Directive (1979)¹⁴⁷
Habitats Directive (1992)¹⁴⁸
Water Framework Directive (2000)¹⁴⁹
Strategic Environmental Assessment Directive (2001)¹⁵⁰
Waste Electrical and Electronic Equipment Directive (2002)¹⁵¹
Waste Framework Directive (2006)¹⁵²
Common Agricultural Policy and reforms¹⁵³
Registration, Evaluation and Authorisation of Chemicals (REACH)¹⁵⁴

International legislation and policy

Kyoto Protocol¹⁵⁵
UN Convention on Biological Diversity¹⁵⁶
UN Convention on the Law of the Sea¹⁵⁷
OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic¹⁵⁸

<http://www.opsi.gov.uk/acts/acts2003/20030037.htm>

¹⁴⁰ OPSI, *Clean Neighbourhoods and Environment Act 2005*,

<http://www.opsi.gov.uk/acts/acts2005/20050016.htm>

¹⁴¹ DEFRA, March 2006, *Climate Change: The UK Programme 2006*,

<http://www.defra.gov.uk/environment/climatechange/uk/ukccp/pdf/ukccp06-all.pdf>

¹⁴² UK Climate Impacts Programme,

<http://www.ukcip.org.uk/>

¹⁴³ DEFRA, *Adapting to Climate Change: Adaptation Policy Framework*,

<http://www.defra.gov.uk/environment/climatechange/uk/adapt/policyframe.htm>

¹⁴⁴ DEFRA, *The UK Biodiversity Action Plan*,

<http://www.defra.gov.uk/wildlife-countryside/biodiversity/ukbap/index.htm>

¹⁴⁵ DEFRA, *Marine Bill*, Latest News,

<http://www.defra.gov.uk/environment/water/marine/uk/policy/marine-bill/index.htm>

¹⁴⁶ DTI, July 2006, *The Energy Challenge*,

<http://www.dti.gov.uk/files/file31890.pdf>

¹⁴⁷ Official Journal L103, *Directive 79/409/EEC*,

http://europa.eu.int/eur-lex/en/consleg/pdf/1979/en_1979L0409_do_001.pdf

¹⁴⁸ Official Journal L206, *Directive 92/43/EEC*,

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31992L0043:EN:HTML>

¹⁴⁹ Official Journal L327, *Directive 2000/60/EC*,

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32000L0060:EN:HTML>

¹⁵⁰ Official Journal L197, *Directive 2001/42/EC*,

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32001L0042:EN:HTML>

¹⁵¹ Official Journal L371/24, *Directive 2002/96/EC*,

http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/l_037/l_03720030213en00240038.pdf

¹⁵² Official Journal L114/9, *Directive 2006/12/EC*,

http://eur-lex.europa.eu/LexUriServ/site/en/oj/2006/l_114/l_11420060427en00090021.pdf

¹⁵³ Common Agricultural Policy, information available on

http://europa.eu/pol/agr/overview_en.htm

¹⁵⁴ REACH, information available on

http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm

¹⁵⁵ Kyoto Protocol,

<http://untreaty.un.org/English/notpubl/kyoto-en.htm>

¹⁵⁶ Convention on Biological Diversity,

<http://www.biodiv.org/default.shtml>

¹⁵⁷ United Nations Convention on the Law of the Sea,

http://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm

¹⁵⁸ OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic,

<http://www.ospar.org/eng/html/welcome.html>

6 Annexes

Annex A

Complete list of outcomes

1. The Assembly Government provides clear leadership on environmental issues through its policies, programmes and the way that it conducts its business
2. Wales demonstrates the contribution that a small developed nation can make to global sustainable development and environmental improvement
3. Environmental considerations are integrated in all policies, programmes and service delivery and that high quality and consistent environmental evidence is available to inform the decision making processes
4. The roles and responsibilities of organisations are understood, leading to better integration for the delivery of environmental protection and enhancement
5. Appropriate education about our environmental impacts is in place and good quality information is available at the point where people make decisions
6. Individuals understand and are enabled to take responsibility for their environmental impact; changes in behaviour are apparent that help reduce negative environmental impacts
7. Greenhouse gas emissions are minimised, consistent with Wales contributing fully to meeting UK-wide targets and in line with more specific Wales targets that are under development
8. Wales has improved resilience to the impacts of climate change. A clear flexible programme of measures is in place to enable Wales to respond and adapt to climate change
9. The amount of waste that is generated in Wales is minimised
10. Reduce, reuse and recycle is universally accepted in government, business, industry and home life
11. Appropriate waste management facilities are in place to minimise the amount of waste going to landfill
12. Businesses produce well designed products that require less resources in their production, use and end of life, that create minimal waste and are easily reused or recycled
13. Water resources are managed sustainably meeting the needs of society without causing damage to the environment
14. Water is used more efficiently across all sectors
15. The high quality of our drinking water is maintained

16. Soil is managed to safeguard its ability to support plants and animals, store carbon and provide other important ecosystem services
17. The extraction of minerals and aggregates minimises the impact on the environment and local communities
18. The use of alternative materials, secondary and recycled aggregates is maximised where possible in the construction industry
19. The loss of biodiversity has been halted and we can see a definite recovery in the number, range and genetic diversity of species, including those species that need very specific conditions to survive
20. The wider environment is more favourable to biodiversity through appropriate management, reduced habitat fragmentation and increased extent and interconnectivity of habitats
21. Sites of international, Welsh and local importance are in favourable condition to support the species and habitats for which they have been identified
22. Our seas are clean and support healthy ecosystems that are biologically diverse, productive and managed sustainably
23. The quality and diversity of the natural and historic character of our landscape and seascape is maintained and enhanced
24. The built environment is high quality and vibrant, reflecting local distinctiveness and supporting strong communities, which are actively engaged in the management of their local environment
25. New buildings in Wales meet high environmental quality standards and the environmental quality standards of existing building stock is improving
26. The historic building stock and character is maintained to a high standard
27. There is easy, equitable access to ample high quality green space
28. Environmental nuisances such as litter, graffiti, dog fouling, fly-posting, noise pollution and light pollution are minimised
29. There is sustainable, widespread and equitable access to the countryside and coast, which recognises the need for a balance between tranquil areas and areas supporting larger numbers of people and a range of activities. Damaging access will be discouraged
30. The number of people choosing to walk or cycle as a means of transport is increasing
31. Appropriate measures are in place to manage the risk of flooding from rivers and the sea and help adapt to climate change impacts
32. Everyone who lives in a flood risk area understands the flood risk they are subject to, the consequences of that risk and how to live with that risk
33. A reduction in air pollution leads to increased life expectancy and ecological protection



34. The extent of contaminated land is better understood and actions are being taken to remediate contaminated land for beneficial use where appropriate
35. The quality of our groundwater, rivers, lakes and coastal waters is maintained and enhanced
36. Diffuse pollution is better understood and action is being taken to reduce and manage diffuse pollution
37. The risks posed by exposure to chemicals is minimised with emphasis on protecting vulnerable members of society
38. Those at risk from radon are aware of the risk that they face and what they can do to minimise that risk
39. Radioactive discharges in Wales and doses to the public will be minimised. Discharges to the marine environment will be minimised to the extent that additional concentrations in the marine environment above historic levels are close to zero

Annex B

Complete list of actions

1. We will carry out research to establish the level of greenhouse gas emissions in Wales, by sector, which the Assembly Government has powers to address. Ambitious targets for emission reduction, based on this work, will be set.
2. We will calculate the carbon emissions, which current and proposed policies generate and use this information to adjust policies to deliver carbon savings.
3. We will produce a climate change adaptation action plan, which sets out what actions will be taken to adapt to the impacts of climate change in Wales.
4. We will inform our work on climate change by establishing a cross-sector group, which will provide advice on climate change action for Wales.
5. We will produce a new Wales Transport Strategy, which will be subject to a full SEA, that will help to deliver outcomes relating to:
 - Reducing the impact of transport on greenhouse gas emissions; air pollution; water pollution; noise pollution; land contamination, light pollution and habitat fragmentation
 - conserving and enhancing biodiversity, soils, landscape, heritage
 - addressing the impacts of climate change including managing flood risk
6. We will carry out a review of technical guidance on planning and transport, including the need to locate development to minimise the need to travel, especially by car.
7. We will review the effectiveness of Transport Wales' sustainable construction requirements.
8. We will set out in our Energy Routemap an energy mix, where renewable and low carbon sources will have growing importance and which will deliver secure energy supplies that minimise carbon emissions and negative impacts on the environment.
9. We will undertake a mid-term report on Energy Saving Wales, assess the recommendations that emerge from the Expert Panel on Resource Management and use the results to help develop phase two of Energy Saving Wales.
10. We will consider how the installation of micro - renewable energy generation systems can be encouraged through using the planning system.
11. We will examine how land use planning can contribute to addressing climate change.
12. We will take forward a public awareness programme to ensure that those who are at risk of flooding are aware of the risk, its consequences and the action they need to take to address it.
13. We will identify a comprehensive list of measures designed to reduce flood and coast erosion risk and raise awareness amongst bodies with relevant flood and coast erosion risk interest. These measures will relate to infrastructure, catchment and shoreline management, education and awareness raising, modification of developments at risk (enhanced resilience) and flood warning and response.
14. We will implement programmes of flood and coastal erosion risk management activities, to include those measures identified in action 13, to address increasing risk,

these programme will be subject to regular review. All existing plans and programmes of flood and coast erosion risk activities in Wales will be reviewed and revised in the light of the measures identified in action 13.

15. We will increase Wales' resilience to emergencies by ensuring that the needs and interests of vulnerable groups are fully reflected in emergency planning. We will carry out a pilot project in a specific locality, which will establish where vulnerable groups are located relative to flood risk, the information and support they need to minimise the risk they are subject to and their specific requirements in the event of an emergency.

16. We will evaluate the contribution of TAN 15 to climate change adaptation.

17. We will take action to remove structural barriers to the uptake of SUDs.

18. We will develop a strategic approach to local environmental quality and invest in improvements. This will include addressing: litter and dog fouling, flytipping, abandoned cars, graffiti, noise green space and landscape.

19. Rollout CCW's green space toolkit to increase the quality and quantity of public green space in Wales.

20. We will scope the introduction of charging for residual waste collection. Subject to the findings of the scoping work, we will consult prior to seeking powers to introduce charging under the new Government of Wales Bill.

21. We will continue to support Waste Awareness Wales including extending the message onto stopping waste generation and a programme of public risk communication aimed at explaining the range of waste management options, including energy from waste, that will be required to improve the management of waste, increase recycling and composting and to deal with residual waste.

22. We will support a regional capital access fund to facilitate the provision of waste management facilities.

23. a) We will continue to encourage improved standards of environmental performance in Assembly Government funded construction.

b) We will carry out a review of policy for Assembly investment in construction, including guidance and standards for environmental performance of buildings.

24. We will strengthen water resource planning in Wales by requiring Environment Agency Wales to undertake a complete revision of its Water Resources Strategy for Wales. We will also require Water Companies to prepare water resource plans in line with new statutory requirements. These plans and strategies should take account of the latest information and advice on climate change and housing growth, leakage performance, metering, water consumption, and implementation of efficiency plans.

25. We will establish a Water Framework Directive stakeholder group to support the implementation of the Directive in Wales.

26. We will seek to manage increased access to the countryside effectively and develop best practice through supporting pilot projects on sustainable public recreation which can be replicated elsewhere.

27. We will work with key partners – including CCW, National Parks and local government – to increase public access to the coast of Wales.

28. We will ensure that delivering environmental outcomes is a key component of the new Rural Development Plan (RDP) and the provision of good quality advice on environmental issues will be a key priority of the Farm Advisory Service.

29. We will seek to ensure that European structural funds are used to deliver environmental outcomes that are compatible with the outcomes in the Environment Strategy.

30. We will assess changes in livestock production and land usage, together with environmental and landscape impacts arising from the implementation of CAP reform in 2005.

31. We will use the opportunity of the revised Rural Development Plan to refocus and ensure greater targeting of our agri-environment and land management schemes to deliver our environmental priorities, in particular adaptation to climate change, tackling diffuse pollution from agriculture and enhancing biodiversity.

32. We will bring designated sites into favourable or recovering condition through a suite of measures aimed at delivering more sympathetic management. Measures will include:

- Identifying land owned by the public sector, conservation charities and other organisations
- management agreements
- sharing best practice
- targeting of agri-environment schemes

33. We will set priorities for landscape scale projects in order to build up the resilience of biodiversity to adapt to climate change, including habitat restoration and review the mechanisms that support this.

34. We will assess Woodlands for Wales, the Assembly strategy for woodlands and trees, against the Environment Strategy and prepare an action plan setting out how we will address the issues.

35. We will review the application of the EIA (Semi-Natural areas and Uncultivated Land) regulations, seeking to ensure that they effectively deal with environmental issues relating to agricultural intensification.

36. The Wales Biodiversity Partnership will be reconfigured to provide a leadership role and an expert steer on priorities for action on biodiversity in Wales.

37. We will develop a Biodiversity Framework for Wales explaining the roles, remits and processes essential to biodiversity protection and enhancement in Wales.

38. We will bring together standardised guidance to the development of local wildlife site systems.

39. We will develop GM crop coexistence arrangements, which will take account of the potential impact of GM crops and associated herbicide regimes on biodiversity.

40. We will reduce the environmental impacts of pesticides on farm biodiversity and promote the sustainable use of pesticides through regulatory and voluntary measures.

41. We will actively contribute to the implementation of the Sheep Dip Pollution Reduction Programme drawn up by the Veterinary Medicines Directorate and the Environment

Agency, through the Welsh Sheep Dip Pollution Group (SDGP). The group will provide a Welsh focus for the development of initiatives, raise awareness of sheep dip use, the environmental impact and animal welfare concerns and review progress on actions from the Pollution Reduction Programme.

42. We will develop a soil action plan focused on:

- good soil management in agriculture and forestry
- integration of soil protection into guidance on land-use planning policy and its implementation
- developing an appropriate set of indicators for soils in Wales
- working with CCW and the Environment Agency to ensure wastes and pollutants deposited on land historically or currently do not impair long-term soil functions
- a risk-based approach to managing soil resources
- promoting education and access to information on soil

43. We will use CCW's landscape characterisation work as the potential basis for assessing the impacts of different land management choices on our landscape. This information will be used to develop broad visions and priorities for different landscapes in Wales and will inform our priorities particularly for agri-environment and forestry.

44. We shall enhance the overall protection afforded to the historic environment by

- a) publishing a White Paper with UK Government on heritage protection, with subsequent legislation, to safeguard heritage assets
- b) assessing new monuments for statutory protection
- c) producing revised guidance for the management of historic landscapes

45. We shall improve the overall state of the historic environment by:

- a) producing annual reports on the state of the historic environment
- b) reviewing grant programmes to target funding at buildings and monuments at risk
- c) introducing measures to improve traditional building skills

46. We will seek broadly defined powers within the proposed Marine Bill so that Wales can develop a distinct approach to marine issues. We will develop proposals for, and consult widely on, a detailed framework for the management of sea around Wales based on an ecosystem approach following publication of the Bill.

47. Integrated Coastal Zone Management - we will publish a new Wales strategy on ICZM in the Spring of 2006 and report annually on progress against the key targets it contains.

48. We will develop a Fisheries Strategy to support a viable and sustainable fishing industry in Wales, which minimises its impact on the environment.

49. Targeted action as part of Health Challenge Wales to highlight the relevance of the environment to people's health and well being.

50. Health and the Environment - the development and funding of initiatives that showcase, signpost and demonstrate the links between health & the environment by commissioning work thereby ensuring increased sustainability.

51. To implement a Wales wide exercise referral scheme which will include opportunities for outdoor activities.



52. We will carry out focused research to establish the most effective methods for achieving behaviour change on environment issues. The results will be used to develop effective, targeted communications on positive behaviour change actions.

53. We will support the development of green volunteering. We will:

- encourage more green volunteering by young people as part of our programme to implement the recommendations of the Russell Commission on youth volunteering.
- continue to facilitate access to green and all other volunteering opportunities by providing core funding to the volunteer bureaux in every local authority area.

54. We will invest to increase the number of registered Eco Schools and those achieving a green flag award.

55. We will ensure that the Education for Sustainable Development and Global Citizenship action plan, which is being developed following last year's consultation, will address the priority issues identified in the Environment Strategy for Wales.

56. We will explore with sector skills councils, employers and trade unions how environmental awareness can be included in employee training.

57. We will ensure that our policies and programmes consider how they can help deliver the outcomes proposed in this Strategy – this will be done systematically as each policy or programme is introduced or reviewed.

58. We will ensure that good quality, consistent environmental data is readily available to inform policy making and will revise State of the Environment Reporting to deliver this.

59. We will provide guidance to enable community strategy partnerships to address the issues in the Environment Strategy.

60. We will develop performance indicators to demonstrate the progress each local authority makes in delivering relevant outcomes of this Strategy.

61. We will ensure each Spatial Plan Area Group to address the issues in the Environment Strategy in their local area and report on progress.

62. We will strengthen or add to the national environmental actions in the Spatial Plan, building on the progress to date and to reflect the vision and outcomes set out in the Environment Strategy, when we refresh the Spatial Plan in 2007-8.



Annex C

Actions with supported outcomes and corresponding environmental theme (Enabling Change is included as an environmental theme where it is the only theme affected by an action).

Number	Outcome(s) supported	Environmental Theme(s)
1	1, 2, 7	Climate Change
2	1, 2, 7	Climate Change
3	1, 2, 8	Climate Change
4	4, 7, 8	Climate Change
5	1, 3, 7, 8, 12, 16, 18, 19, 20, 21, 23, 24, 28, 30, 31, 33, 34, 36	All
6	3, 7, 24, 30, 33	Climate Change, Our Local Environment, Environmental Hazards
7	8, 12, 18	Climate Change, Sustainable Resource Use,
8	3, 7, 16, 33	Climate Change, Sustainable Resource Use, Environmental Hazards
9	3, 7, 24, 25	Climate Change, Our Local Environment
10	7	Climate Change
11	7, 8	Climate Change
12	5, 6, 8, 25, 31-32	Climate Change, Our Local Environment
13	8, 25, 31-32	Climate Change, Our Local Environment
14	8, 25, 31-32	Climate Change, Our Local Environment
15	8, 25, 31-32	Climate Change, Our Local Environment
16	8, 25, 31-32	Climate Change, Our Local Environment
17	25, 35 - 36	Our Local Environment, Environmental Hazards
18	3-4, 24, 27-28	Our Local Environment
19	27	Our Local Environment
20	9 - 10, 12	Sustainable Resource Use
21	5 - 6, 9 - 10, 12	Sustainable Resource Use
22	11	Sustainable Resource Use
23	1, 3, 8, 10, 12, 18	Climate Change, Sustainable Resource Use
24	1, 3, 8, 13	Climate Change, Sustainable Resource Use
25	4, 13, 35 - 36	Sustainable Resource Use, Environmental Hazards
26	29	Our Local Environment
27	29	Our Local Environment
28	7 - 8, 13 - 14, 16, 19 - 23, 29, 31, 35 - 37	All
29	All	All



30	7 - 8, 13 - 14, 16, 19 - 23, 29, 31, 35 - 37	All
31	7 - 8, 13 - 14, 16, 19 - 23, 29, 31, 35 - 37	All
32	19 - 22	Distinctive Biodiversity, Landscapes and Seascapes
33	8, 19 - 20	Climate Change, Distinctive Biodiversity, Landscapes and Seascapes
34	7 - 8, 13 - 14, 16, 19 - 23, 29, 31, 35 - 37	All
35	16, 19 - 20	Sustainable Resource Use, Distinctive Biodiversity, Landscapes and Seascapes
36	19 - 22	Distinctive Biodiversity, Landscape and Seascapes
37	19 - 22	Distinctive Biodiversity, Landscapes and Seascapes
38	19 - 21	Distinctive Biodiversity, Landscapes and Seascapes
39	20, 37	Distinctive Biodiversity, Landscapes and Seascapes, Environmental Hazards
40	19 -21, 37	Distinctive Biodiversity, Landscapes and Seascapes, Environmental Hazards
41	35, 36, 37	Environmental Hazards
42	8	Climate Change
43	8, 23	Climate Change Distinctive Biodiversity, Landscapes and Seascapes
44	23, 26	Distinctive Biodiversity, Landscapes and Seascapes, Our Local Environment
45	23, 26	Distinctive Biodiversity, Landscapes and Seascapes, Our Local Environment
46	22	Distinctive Biodiversity, Landscapes and Seascapes
47	22 - 23, 24	Distinctive Biodiversity, Landscapes and Seascapes, Our Local Environment
48	19 - 20, 22	Distinctive Biodiversity, Landscapes and Seascapes
49	1,3	Enabling Change
50	1, 3, 29, 30	Our Local Environment
51	1, 3, 29, 30	Our Local Environment
52	5 - 6, 9, 10, 14, 30	Sustainable Resource Use, Our Local Environment
53	4, 6	Enabling Change
54	5 - 6	Enabling Change
55	5 - 6	Enabling Change
56	5 - 6	Enabling Change
57	1, 3	Enabling Change
58		Enabling Change
59	3 - 4	Enabling Change
60	7-9, 11, 19, 21, 24, 27, 28, 29, 31	Climate Change, Sustainable Resource Use, Distinctive Biodiversity, Landscapes and Seascapes, Our Local Environment
61	3 - 4	Enabling Change
62	3 - 4	Enabling Change