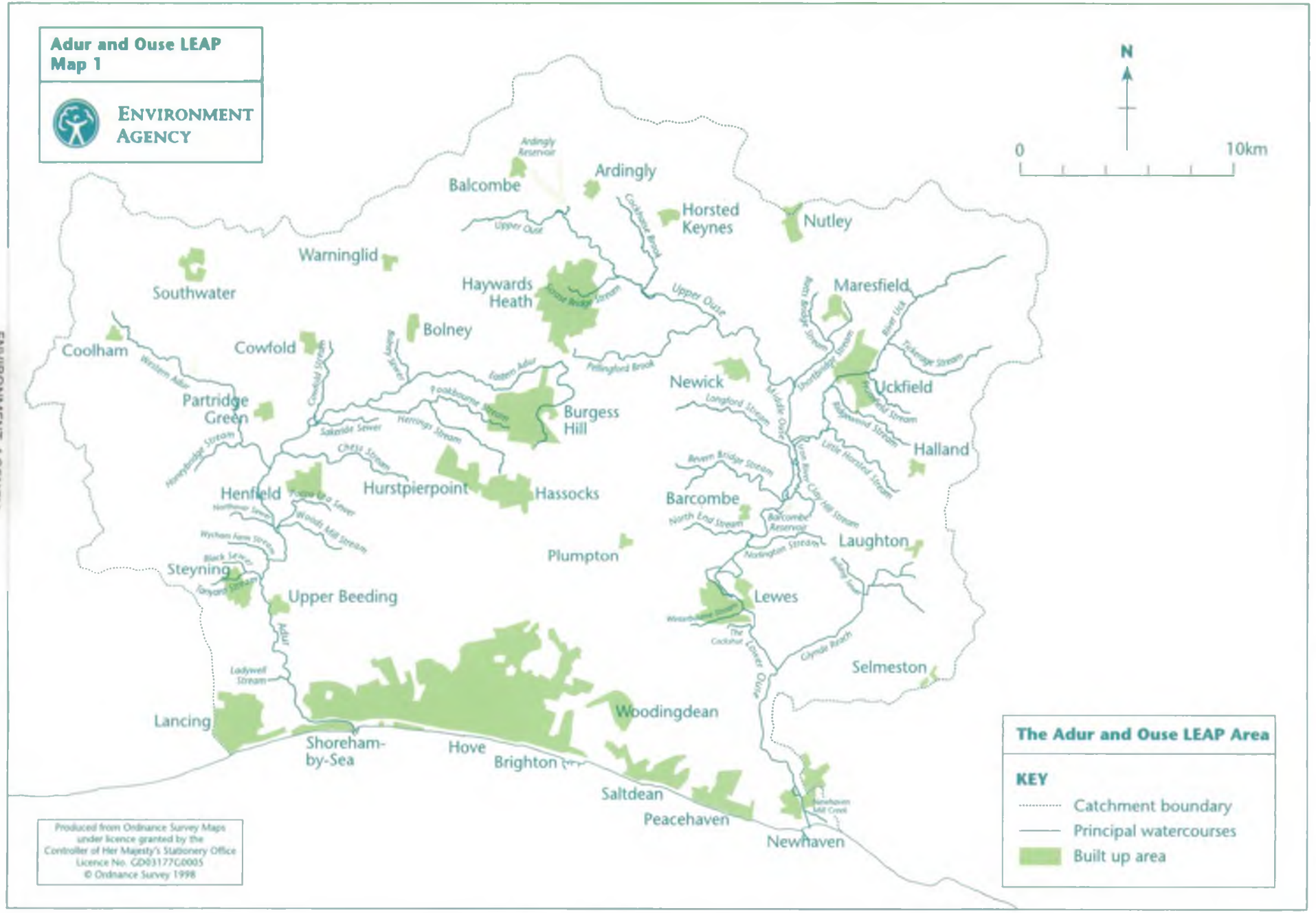
local environment agency plan

# ADUR AND OUSE

## FEBRUARY 2000


ENVIRONMENT AGENCY




Catchment Overview

# Foreword

Welcome to the Environment Agency's local action plan for the Adur and Ouse area. The plan sets out the work that the Agency plans to undertake over the next five years to address the environmental issues and concerns that have been identified and can be tackled locally.

The document has been produced after extensive public consultation following the launch of Adur and Ouse Consultation Draft in May 1999. The comments we received have enabled us to evaluate the issues raised in the original draft and refine them into this Plan. The actions in the plan will be monitored and a series of Annual Reviews will report on the progress being made as well as any new issues that arise.

The work of the Agency is increasingly being implemented through partnerships and many of the issues and actions in this plan reflect the need for co-operation, bringing together the complementary responsibilities, powers and finances of different groups.

I believe that the implementation of this Plan will lead to improvements in the environment of the area. If you have any comments, are aware of new issues or wish to become involved in addressing the issues raised we would like to hear from you.

**Peter Midgley**
**Area Manager – Sussex**

ENVIRONMENT AGENCY

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# 1.0 INTRODUCTION

## Background

1.1 This plan is the second stage in the Local Environment Agency Plan (LEAP) process for the Adur and Ouse area. The plan sets out in a series of action tables a programme of work to be undertaken by the Agency over the next 5 years to protect and enhance the local environment. It also identifies opportunities for partnership and highlights the need for a proactive role in the land use planning process. The opportunity has also been taken to inform about the Agency's duties and powers. Progress against the plan will be monitored and reported annually.

## THE ENVIRONMENT AGENCY

1.2 The Environment Agency has a wide range of duties and powers relating to different aspects of environmental management. These duties, together with those areas where the Agency has an interest but no powers in, are described in more detail in Appendix 1. The Agency is required and guided by Government to use these duties and powers in order to help achieve the objective of sustainable development. The Brundtland Commission defined sustainable development as "... *development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*"

1.3

> The Principal Aim of the Environment Agency
>
> *"... is to protect and enhance the environment, taken as a whole, so as to make a positive contribution towards achieving sustainable development ..."*
>
> Environment Act 1995

1.4 At the heart of sustainable development is the integration of human needs and the environment within which we live. Indeed the creation of the Agency itself was in part a recognition of the need to take a more integrated and longer-term view of environmental management at a national level. We therefore have to reflect this in the way we work and in the decisions we make.

1.5 Taking a long-term perspective will require the Agency to anticipate risks and encourage precaution, particularly where impacts on the environment may have long-term effects, or when the effects are not reversible. The Agency must also develop its role to educate and inform society as a whole, as well as carrying out its prevention and enforcement activities, in order to ensure continuing protection and enhancement of the environment.

1.6 Although the Agency only has duties and powers to protect some environmental resources, it will need to contribute to other aspects of environmental management even if these are, in the first instance, the responsibility of others. The Agency can only do this effectively by working in partnership with and through others in order to set common goals and to achieve agreed objectives.

1.7 The Agency also has to work in a wider international context because it is now generally accepted that environmental changes are occurring on a global scale. Individual countries contribute to these changes, and respond to them, in different ways. The Agency's long-term strategy therefore has to reflect these global issues, and it has to be delivered within the framework of international and national commitments which has been developed to address them.

1.8 Perhaps the major international issue is that of climate change. The UK is a contributor to the emission of gases, such as carbon dioxide, into the atmosphere which are believed to contribute to

long-term climate changes. The UK will also be affected in a complex way as and when the climate does change. It is therefore a signatory to the Framework Convention on Climate Change, as agreed at the Rio Summit in 1992, and subsequent agreements at the Kyoto Summit in 1997. It is taking an active part in international negotiations to obtain commitments beyond the year 2000 for credible, effective, and achievable reductions of greenhouse gas emissions.

1.9 One of the key outcomes of the United Nations "Earth Summit" held in Rio de Janeiro in 1992 was the agreement by governments that, in order to solve global environmental problems, local action is crucial. We must all therefore think globally but act locally. The Local Agenda 21 initiative sets out actions needed to achieve sustainable development, including the need to make clear the links which exist between local life-styles and the use of resources.

1.10 In the UK plans have now been formulated by local government and local communities to identify and address a wide range of environmental issues including natural resource use, pollution, health, local amenity and quality of life. These programmes set out long-term solutions that take account of global implications, such as the use of resources that affect the global environment and thus local communities in other parts of the world.

1.11 Against this background the Agency has drawn up an Environmental Strategy to deal with the major problems by an integrated approach to the management of the whole environment. This approach has led to the identification of nine environmental themes which will be used for the Agency's planning processes:


Addressing climate change


Improving air quality


Managing our water resources


Enhancing biodiversity


Managing our freshwater fisheries


Delivering integrated river-basin management


Conserving the land


Managing waste


Regulating major industries

**When to Contact Us**

1.12 The Agency has a duty to protect and improve the environment as a whole, not only through its operational and regulatory roles, but also in the general advice we give to the public. The following table outlines proposals for development, works and usage where prior consultation with us is advised:

**Table 1: Proposals where Prior Consultation with the Agency is Advised**

| Proposal | Reason |
|---|---|
| **Works within or adjacent to any watercourse** including outfalls, weirs, piping, ponds, diversions, infilling, bridges and planting. | Ensure flooding is not exacerbated, access to and along watercourses is retained, and water quality, conservation, recreation and fisheries are protected. |
| **Works in areas at risk to flooding from rivers and the sea,** including development and land raising/infilling. | Ensure flooding is not exacerbated, access to and along watercourses is retained, and water quality, conservation, recreation and fisheries are protected. |
| **Works on, under or adjacent to any floodbank, sea defence or other flood control structure.** | Ensure integrity of flood defences is retained and flood risk is not exacerbated. |
| **Works on aquatic/wetland sites.** | Ensure flooding is not exacerbated, protection of water quality and conservation. |
| **Works on contaminated or potentially contaminated land,** e.g. former landfill, gas works, industrial use, fuel/chemical storage or production or close to a landfill site or major industrial process. | Address pollution, waste disposal and gas permeation concerns. |
| **Development involving the disposal of foul sewage other than to public foul sewer** including the use of septic tanks, cesspits, private sewers and private sewage treatment plants. | Protect environment from pollution. |
| **Development greater than half a hectare in area.** | Ensure increased surface water run-off from development does not exacerbate flooding. |
| **Use, storage, transfer or disposal of radioactive material.** | Control and monitoring of radioactive material to ensure the protection of public health. |
| **Waste Management operations,** including movement of waste, landfill, waste transfer stations, incinerators, scrapyards, recycling plants. | Ensure effective disposal of waste with no unacceptable risk of pollution and harm to public health. |
| **Commercial and industrial development.** | Ensure no unacceptable risk of pollution and increased flood risk, and effective waste disposal. |

| Proposal | Reason |
|---|---|
| **Agricultural operations** including livestock and poultry units, chemical and fertiliser storage, silage making/storage and disposal of manure. | Promote effective disposal of waste and farming practices and ensure no unacceptable risk of pollution. |
| **Works involving fisheries** inc. fishing licences, fish stocking, fish farming and fish transport. | Protect health of fish within the natural environment and ensure no increased risk of pollution to water. |
| **Ponds, lakes and reservoirs.** | Protect stream flows, ensure flooding is not exacerbated and fish movement is not obstructed. Protect and enhance conservation and ensure waste disposal and pollution implications are addressed. |
| **Works within areas of environmental and archaeological designation.** | Protection of species, habitats and archaeological remains. |
| **Abstraction of water from surface water or groundwater sources.** | Protection of water resources, natural environment and existing water users. |
| **Works incorporating any infill or excavation operation.** | Ensure the protection of environment from pollution and address waste disposal and flooding concerns. |

## 2.0 LOCAL ENVIRONMENT AGENCY PLANS (LEAPS)

### The Purpose of LEAPs

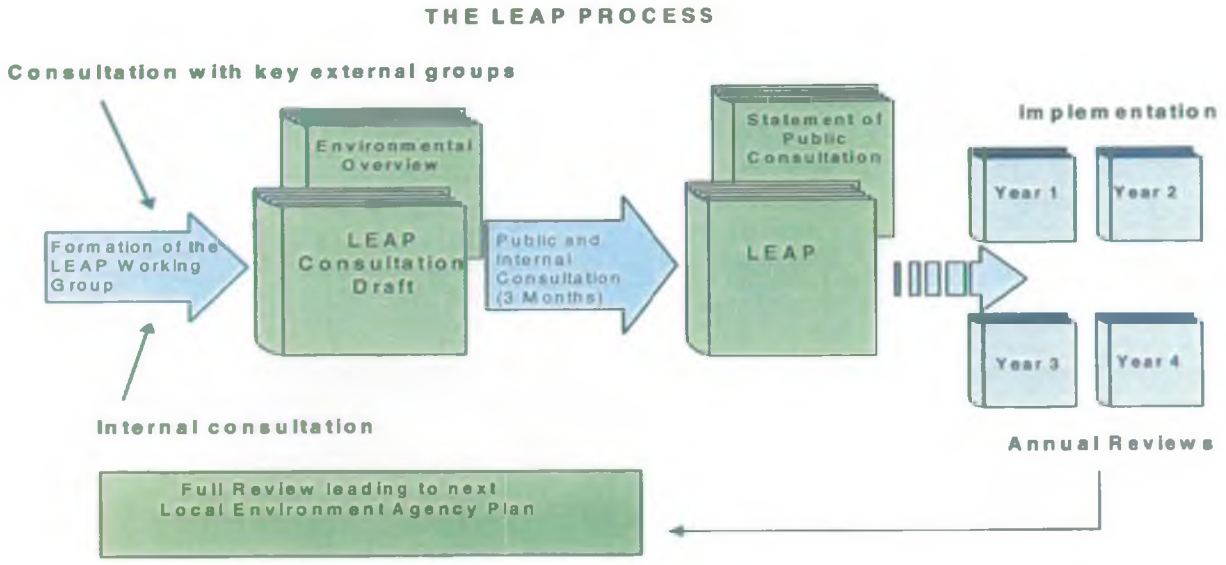
2.1 We are committed to delivering environmental improvement at the local level, and LEAPs help us deliver our policy and Environmental Strategy on the ground. First and foremost LEAPs identify work the Agency needs to do in a local area in order to address local concerns and meet our statutory obligations in line with national targets. LEAPs are public documents subject to a wide consultation in their preparation, and we believe that this process will build trust in the community, by being open when dealing with all issues.

2.2 In addition, we know that the Agency alone cannot bring about the achievement of environmental goals and targets. Through LEAPs, therefore, we hope to identify and develop partnerships with Local Authorities, representatives of local communities, regulated organisations and other bodies with similar environmental objectives and responsibilities so as to make the most effective use of limited resources. Finally LEAPs will also be a practical source of data and guidance for all those who wish to become involved in local environmental management and improvement, notably Local Authorities and environment and community groups.

### The LEAP Process

2.3 The process of producing LEAPs involves several stages as identified in Figure 1.

**Figure 1**




2.4 The Consultation Draft describes the vision for the LEAP area, identifies issues and is the focus for discussion. It is written in conjunction with an Environmental Overview which is a background document through which issues are identified by the Agency. The final LEAP document details the issues from the Consultation Draft and those which evolved from the consultation process, and identifies the actions to be taken forward to address these. It also reviews the consultation process. Progress of the actions to address local issues is assessed each year via the Annual Reviews. The whole LEAP process is fully repeated after five years.

2.5 This is the second of three LEAPs to be completed in the Sussex Area. The Cuckmere and Pevensey Levels LEAP was the first to be completed in August 1999. The Arun and Western Streams will be the final plan. We aim to complete all three by May 2000.

## LEAPs and other Plans

2.6 Whilst LEAPs are the Environment Agency's plans, their content and development will reflect the shared responsibility we all have for managing the environment. The LEAPs will compliment other organisations' plans e.g. Local Waste Plans, Biodiversity Action Plans.

2.7 Public participation in this LEAP will increase awareness of environmental issues and it is hoped this will lead to increased involvement in managing our local environment.

### Sussex Area Environment Group (AEG)

2.8 The Sussex AEG comprises local people who live or work in the area and who represent a wide spectrum of interests. The group advises the Agency on LEAPs, environmental issues and the delivery of local services. It also acts as a link between the local community, the Agency and its statutory committees.

## 3.0 THE ADUR AND OUSE AREA

### Overview

3.1 The Adur and Ouse LEAP area is characterised by a concentration of urban development along much of the coast, whereas inland the area is principally rural with a number of small and medium sized towns and villages. A large proportion of the rural area is included in the nationally designated High Weald and Sussex Downs Areas of Outstanding Natural Beauty (AONB) and the South Downs Environmentally Sensitive Area (ESA). Much of the remaining rural area is covered by local statutory and non-statutory landscape designations. The area also possesses a wealth of local, nationally and internationally designated areas of ecological importance, principally related to coastal and chalk grassland features. Settled for thousands of years, the catchment has a rich archaeological and built heritage.

3.2 The LEAP area includes large tracts of the South Downs which have been heavily developed for water supplies for the coastal towns. The chalk aquifer provides a high quality and low cost supply which has enabled the towns along the coast to expand. Large tracts of the chalk downland were formerly owned by the municipalities as a protection measure to safeguard these supplies and this has provided a legacy of open farmland which gives agricultural and recreational value to the area.

3.3 The Rivers Adur and Ouse have been heavily engineered since 1945, particularly in their lower reaches as a result of major drainage schemes to increase agricultural productivity. These have taken the form of regrading and resectioning the river and tributaries, flood bank construction and the installation of pumps to reduce surface water levels. Constructed originally to improve and protect agricultural land, opportunities now exist, given limited funds available for maintenance and improvement works and changing farming practices, to consider realigning flood embankments to provide new wetland habitats and more sustainable flood defences.

3.4 The mouths of both rivers have been diverted over the last few centuries by the constant piling up of shingle. Such shingle banks, which are a common feature of the Sussex coastline, are created by longshore drift, a process by which sand and shingle are moved continuously by the action of wind and tides. The maintenance of the shingle banks is a particular issue for coastal defences to protect low-lying coastal areas from tidal flooding. The character of the shingle beaches has contributed to the successful development of the area for amenity and tourism.

3.5 The coastline between Hove and Saltdean, which includes Brighton, is regarded as the main tourist attraction of the area and caters for a wide range of activities from commercial leisure and entertainment centres to quieter stretches used by naturalists, casual boat users and anglers.

3.6 There is limited industry in the area and most employment is associated with agriculture and tourism/recreation. Sussex has been placed under considerable pressure to accept large amounts of new development, particularly housing. West Sussex in its structure plan has resisted much of this pressure by arguing that the county has reached its environmental capacity, although this has not been accepted by government. Substantial new developments are likely north of the Downs, which represents a shift away from the traditional growth in the coastal areas. Where development is proposed, the Agency seeks to promote environmental initiatives and enhancement through the planning system.

3.7 Generally the air quality is good, except for ozone, which, in common with the rest of south-east England, can exceed the UK AQ Standard. Waste from the area is primarily taken to landfill and a few recycling facilities.

3.8 A detailed description of the area is produced in the Environmental Overview which was produced at the Consultation Draft stage and is available on CD Rom only. The general duties, powers and interests of the Agency in the LEAP area are identified in Appendix 1.

## 4.0 REVIEW OF THE CONSULTATION PROCESS

### Background

4.1 The Adur and Ouse LEAP Consultation Draft was publicly launched in May 1999 when the formal 3 months consultation period began. The launch was held at Hove Town Hall and was attended by around 80 people representing local authorities, parish councils, environmental organisations, industry and recreational clubs as well as members of the general public. The launch was publicised in the local press and on the radio prior to the event and publicity leaflets were also sent to libraries, parish councils and local authorities for public show.

4.2 Prior to the Consultation Draft being written we undertook preliminary consultations with key local organisations identified in Appendix 2. The aim of this consultation was to establish a common vision for environmental objectives and an initial consensus on future tactics, actions and priorities. Meetings were also held with the local authorities, English Nature and Southern Water Services.

4.3 The Sussex AEG also advised on the structure of the Consultation Draft and environmental issues identified. To facilitate this process working groups were set up reporting back to the AEG.

4.4 Copies of the Consultation Draft and Summary Leaflet were distributed prior to and following the launch to interested parties, libraries and other public premises to endeavour to achieve as wide a consultation within given resources. The Agency asked consultees for comments on the issues and actions identified. Had we covered them all? What had we missed? What were the priorities? Who should we work with? In all, around 350 consultations were made.

4.5 The Agency received 30 written responses from organisations and individuals. These are identified in Appendix 3.

4.6 These responses varied in their length and comments offered. Some responses commented on the text, advising on the inclusion of up to date or additional information. Development came across as a significant issue in the catchment and we have identified this as a separate issue with appropriate actions. The general points raised are included in Appendix 4.

4.7 Although not requested, errors and omissions were also highlighted to the supporting text and maps. Although the Agency welcomes such information, we must stress that the supporting text and maps within the Consultation Draft and Environmental Overview are not currently planned to be revised for five years.

### Future Action

4.8 We have considered responses made to the Consultation Draft, particularly with respect to the Issues and Actions originally raised or considered to have been omitted, and have produced the Final Plan Tables in Chapter 6. This identifies actions for the next 5 years and into the future. In developing this plan and identifying resources and timescales, careful consideration has been given to the opinions expressed and the need to deliver a workable and feasible plan.

## 5.0 PROTECTION THROUGH PARTNERSHIP

### Introduction

5.1 Our natural environment is complex. Even where we do have a good understanding of a particular element of the environment, what is often much less clear is how it interacts with all other aspects of the local, regional, national and global environment. It is becoming clear that even local environmental impacts can have knock-on effects on other parts of the environment. It is this kind of awareness that led to the Rio Earth Summit in 1992, the adoption of Sustainable Development principles and the commitment to manage the environment in an integrated way through partnership.

5.2 The Agency actively promotes partnership initiatives at both strategic and local levels to achieve the objectives of sustainable development. Partnerships are regarded as a key mechanism for meeting the Agency's objectives. A partnership approach will achieve more towards a common purpose than the partners could achieve if acting independently. We have much to offer our partners – expertise, resources, credibility. A successful partnership will bring benefits to the environment and to each of the partners, not only in terms of consolidating information, but also turning that information into management options and actions.

5.3 Partnerships will enable the key objectives and the long term vision of this plan to be realised. Implementation of the plan will involve the joint action of a number of organisations, such as local authorities, businesses, conservation organisations and community groups, as well as actions by the Agency.

### Land Use Planning

5.4 The control of land use change is primarily the responsibility of Local Planning Authorities (LPAs), through the implementation of the Town and Country Planning Acts. Local development plans provide a framework for land use change and are the key consideration in the determination of planning applications. The Agency is a statutory or advisory consultee on development plans and certain categories of planning application. Such consultation provides relevant advice to Councils in forwarding environmental policies in development plans and allows the Agency's views to be considered by the Council prior to a planning application being decided or policies in a Development Plan being determined. Guidance regarding the applications the Agency would wish to see is contained in our publication *'Liaison with Local Planning Authorities'* (Environment Agency, March 1997) ".....an extract from which is included in Appendix 5". An annex to this document, *'The Environment Agency and Development Plans'*, identifies the basis of policies which the Agency would recommend are included in Development Plans.

5.5 Appendix 6 includes statements regarding land use/planning principles the Agency would promote through its responses to planning application and development plan consultations.

### Sustainable Development

5.6 With increasing and often conflicting demands being placed on the environment, it is now widely accepted that a sustainable approach to growth and development is required if these demands are to be balanced with the need to protect and enhance the environment for now and the future. Our principal aim is "... *to protect and enhance the environment, taken as a whole, so as to make a positive contribution towards achieving sustainable development.*" Environment Act, 1995.

5.7 Sustainability is sometimes seen as being opposed to development. However, the Agency considers that where development can be achieved in ways that are more compatible with environmental protection and enhancement. In particular it must be recognised that a high environmental quality is

crucial to achieving economic growth and regeneration and a better quality of life.. There can be opportunities to maximise environmental benefits from development schemes, particularly with creative design and the application of sustainability principles.

5.8 Government guidance on *'The Environment Agency and Sustainable Development'* (1996) sets out what the Agency should do to contribute towards achieving sustainable development. We have further developed this guidance and produced a series of documents on different aspects of our work and sustainable development. Based on this guidance, we have identified sustainability principles for the Sussex Area as follows:

**Table 2: Sustainability Principles for the Sussex Area**

- maintain and improve, where possible, the quality of air, land and water through the control and prevention of pollution
- manage areas at risk from flooding to protect people and property
- manage water resources to balance the needs of society and the environment
- manage waste safely and encourage minimisation of waste and producer responsibility
- protect and enhance biodiversity
- protect, enhance and promote the water and waterside environment for appropriate amenity, navigation and recreational uses
- educate and inform organisations and the public to increase environmental awareness

5.9 Sustainable development is a key area of shared responsibility between the Agency and local authorities. A fundamental principle of sustainable development is that action at the local level is vital. The responsibility for implementation of this Local Agenda 21 (LA21) process lies principally with the District Councils.

**Opportunities for Environmental Enhancement**

5.10 There can be many opportunities for environmental enhancement through creative and sympathetic design of proposed developments. The Agency can advise on options and demonstrate practical examples. Generally, opportunities may include the following:

- restoration of rivers and wetlands degraded by engineering and urbanisation.
- improvements to river corridors: restoration of channels; sympathetic maintenance; creation of buffer zones adjacent to headwater streams, especially in arable areas; improvements to landscape character and visual amenity.
- restoration of functioning floodplains to improve ecological value and biodiversity, store and clean floodwaters and help balance water resources.
- promotion of water demand management efficiencies: leakage control, metering, water-saving devices.
- assurance of good environmental practices through an accredited Environmental Management System (EMS) - EMAS and/or ISO 14001.
- reinstatement of flows or levels to rivers, wetlands and groundwater that have been depleted by overabstraction.

- where appropriate, initiatives for retaining surface water runoff within the catchment and using greywater; forwarding sustainable urban drainage initiatives.
- locating and phasing new development to make effective use of existing or planned infrastructure and services.
- minimisation of waste.
- initiatives to encourage development of brownfield sites.
- voluntary remediation.
- use of strategic environmental assessment (policies and geographical).
- provision of improved recreation facilities, eg disabled persons fishing platforms, riverside footpaths/cycleways, water based recreation, where appropriate.

**Education**

5.11 Environmental education is central to our aim of achieving sustainable development. We are developing an education strategy to address the need to educate young people on environmental issues, and to inform and educate the wider society, including industry, agriculture and local communities. To add value in the wide field of environmental education, it is vital that we work in partnership with other organisations. To develop this strategy at the local level we have appointed a regional education co-ordinator and created a Customer Contact team in each area office.

5.12 The production of this LEAP is one step towards increasing the accessibility of information about our local environment. The Agency has a wide range of leaflets and publications, which are available from our Customer Contact team at the Area office. Information is also available on the Internet at our web site. The web site will also provide you with links to other sources of environmental information.

**Local Partnership Initiatives**

5.13 Many local partnership initiatives have been forwarded across all the Agency's interests. These include:

- *The Ouse Valley Countryside Project* has been operating since 1997 and was set up to conserve and enhance the landscape, nature conservation and amenity value of the Ouse Valley. The project partners achieve this aim by encouraging and supporting farmers and landowners with advice on grants and schemes, by co-ordinating effective working relationships with other organisations concerned with the Ouse Valley and by promoting local community awareness and involvement in the area. We need to consider the potential for a similar countryside management and access project for the River Adur.
- *Upper Ouse Group Farm Scheme*: The Agency, in partnership with FWAG and others has helped employ advisers to focus on key areas of land on the Upper Ouse. It is hoped to secure significant areas of land in Countryside Stewardship. A number of otter holts have been constructed as part of Whole Farm Plans.
- Waste Minimisation Groups with local authorities and business.

- Sustainable water resource projects working with water companies, local authorities, business and the public to forward demand management options such as water saving devices and recycling.

- Biodiversity projects in conjunction with other organisations such as English Nature, County Councils, FWAG, RSPB and Sussex Wildlife Trust in particular to forward the Sussex Biodiversity Action Plan and progress environmental enhancement opportunities. The Agency has contributed towards a Sussex Biodiversity Records Centre where members of the public, consultants and environmental organisations can search for flora and fauna within a certain area.

- *The Sussex Air Quality Steering Group* comprising local authorities and the Agency. The Agency assists in the production and implementation of Local Air Quality Management Plans.

- *Seasearch*: The Agency has contributed to this ongoing collaborative project to evaluate the habitats lying off the Sussex coastline. As a result several sites have been designated as marine Sites of Nature Conservation Importance (mSNCIs).

- Work with fire services and other emergency services.

**External Funding**

5.14 In partnership with others, the Agency is keen to maximise the amount of external funding which is spent on the environment in general. Like other organisations, there are many worthy initiatives we would like to progress but are constrained by the ever-increasing competing priorities on our budgets. Many external funding streams, for example UK Government and European Funding, offer opportunities to help ensure sustainable improvement in the quality of the environment as a whole. With others we plan to fully explore and utilise these where appropriate. Working in partnership with those who share similar objectives should hopefully increase our and other organisations' chances of securing funding to the benefit of the environment. For example: we have been successful in helping to gain external funding towards reedbed and wetlands restoration in Sussex. Advice to business, on-site audits and seminars on waste minimisation are also taking place in collaboration with local authorities in West Sussex and a Green Business Project at Avis Way Industrial Estate in Newhaven is progressing with East Sussex County Council, Lewes District Council and Sussex Enterprise. In partnership with both the private and public sector funding was successfully awarded from the Urban European Regional Development Fund for the recruitment and training of Green Angels to help businesses with waste minimisation.

5.15 Not only are we interested in obtaining external funding but the Agency also actively seeks to influence these substantial spending programmes so as to maximise environment gain and contribute towards the achievement of sustainable development.

## 6.0 THE ACTION PLAN

### Introduction

6.1 This chapter sets out the actions needed to be undertaken to address the issues identified in the Consultation Draft and during the consultation process. The Action Plan covers the 5 year period to March 2005. It should be noted that the programme of actions is likely to be subject to change, being dependent on the availability of resources (financial and personnel), new/change in Government policy and the identification of new local issues and actions. All changes will be highlighted in the Annual Reviews.

6.2 Background information is provided to each issue. This may also provide general information on the Agency's responsibilities/ statutory requirements. A list of all the issues is included in section 6.5 and these are identified under the Agency's nine environmental themes.

6.3 The action table includes outline costs, where known, over the plan period. These do not necessarily reflect the total cost of the schemes and is sometimes a projected estimate to be more accurately costed later. Costs shown are Agency costs unless indicated otherwise. Organisations and other parties we would need to liaise/work with to achieve the objectives are identified. This document is produced in good faith, recognising current priorities within the Agency.

6.4 The following key and abbreviations is relevant to the use of the table.

**Key**

**R** Recurring cost – covered by annual budgetary provision for our general management activities

**U** Unknown costs at this time

• Action in the year indicated

**K** £1000

**Abbreviations**

| | |
|---|---|
| **AMP** | Asset Management Plan |
| **BCU** | British Canoe Union |
| **CC** | County Council |
| **CEFAS** | Centre for Environment, Fisheries and Aquaculture Science |
| **DC** | District Council |
| **DETR** | Department of Environment, Transport and the Regions |
| **EH** | English Heritage |
| **EN** | English Nature |
| **FWAG** | Farming and Wildlife Advisory Group |
| **GOSE** | Government Office for the South East |
| **IWA** | Inland Waterways Association |
| **LA** | Local Authority |
| **LPA** | Local Planning Authority |
| **MAFF** | Ministry of Agriculture, Fisheries and Food |
| **NFU** | National Farmers Union |
| **RSPB** | Royal Society for the Protection of Birds |
| **RYA** | Royal Yachting Association |
| **STW** | Sewage Treatment Works |
| **SWS** | Southern Water Services |
| **SWT** | Sussex Wildlife Trust |

**(Environment Agency Departments)**

**CS** - Customer Services
**EPl** - Environmental Planning
**EPr** - Environmental Protection
**FD** - Flood Defence
**FER** - Fisheries, Ecology and Recreation
**WR** - Water Resources

**List of Issues**

6.5 The challenge of managing the environment is to balance the many social, economic and environmental demands. The following list summarises the issues identified following an assessment of the state of the local environment and the pressures upon it and responses to the Consultation Draft:

1. Climate change may reduce the protection provided by Sea and Tidal Defences.
2. There is a need to continue to raise awareness of and improve air quality.
3. Sustainable Water Resources Management must be forwarded.
4. There is concern about the use of water in the River Ouse.
5. Opportunities to further the protection and enhancement of biodiversity need to be identified and forwarded.
6. Loss and degradation of wetland and riverine habitats and opportunities for enhancement.
7. Sustainable fisheries management must be forwarded.
8. The free passage of sea trout and coarse fish is restricted by obstructions in the rivers.
9. Lack of water level control due to the deterioration of land drainage structures and equipment can impact on conservation, fisheries and navigation.
10. Compliance with EU Standards and Agency Objectives for water quality.
11. Intermittent pollution of watercourses.
12. There is a lack of knowledge of headwater streams.
13. There is a lack of sustainable access to the water environment for recreation.
14. Erosion of banks, disturbance of wildlife and danger to river users caused by speeding and large water craft.
15. The effect of oestrogenic hormones (endocrine disrupters) on the aquatic environment.
16. Opportunities to conserve heritage in river areas.
17. Standards of protection afforded by sea defences.
18. Standards and maintenance of tidal embankments.
19. Sustainable Urban Drainage Systems (SUDs) should be utilised in New Development.
20. The need to protect floodplains.
21. New development will pose increased pressure on the environment in the LEAP area.
22. The impact of the new contaminated land regulations.

23. The sustainable management of waste must be forwarded to reduce impacts on the environment.

24. The capacity of landfills for the disposal of wastes will be utilised within six years.

25. Illegal waste disposal (fly tipping) is of concern.

26. Potential increase in land application of wastes.

27. Licensed waste management sites are not meeting environmental targets.

28. There is a potential risk of water pollution from closed landfills.

29. Methane from landfill sites is contributing to greenhouse effect.

30. Management of port wastes.

**Linking Local and National Themes**

The Environment Agency published *An Environmental Strategy for the Millennium and Beyond (September 1997)* which sets out nine environmental themes:


addessing the causes and effects of climate change;


helping to improve air quality;


managing our water resources


enhancing biodiversity;


managing our freshwater fisheries;


delivering integrated river-basin management;


conserving the land;


managing waste; and


regulating major industries effectively

These cover our principal and immediate environmental concerns.

In the Plan we have identified up to 3 key environmental themes for each Action. Although some of the Actions may overlap many environmental themes, we have limited it to what we consider to be the three key themes.

* Total cost for the Sussex area, not the catchment.

## ISSUE 1: CLIMATE CHANGE MAY REDUCE THE PROTECTION PROVIDED BY SEA AND TIDAL DEFENCES

***Background:*** There is concern that the impacts of climate change will reduce the standard of protection provided by sea and tidal defences to land and property from flooding. In particular shingle embankments will be susceptible to sea level rise and increased impact of waves. This is particularly relevant in areas of intensive development along the coast.

| ACTION | TOTAL COST (£K) | FUNDING (£K) | | | | | | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| | | 00/01 | 00/02 | 02/03 | 03/04 | 04/05 | FUTURE | | |
| Review standards of Sea Defence | 100 | 20 | 20 | 20 | 20 | 20 | Ongoing | FD, LAs, MAFF |  |
| Monitor climate change impacts | 25 | 5 | 5 | 5 | 5 | 5 | Ongoing | FD, LAs, MAFF |  |
| Forward schemes to improve standard of defences | U | | | | | | Ongoing | FD/FER, LAs, MAFF |  |

## ISSUE 2: THERE IS A NEED TO CONTINUE TO RAISE AWARENESS OF AND IMPROVE AIR QUALITY

***Background:*** The Agency is committed to helping the Government deliver the National Air Quality Strategy (1997) which sets statutory Air Quality Standards (AQSs) for eight key pollutants and objectives to be achieved by 2005. We do this primarily through the regulation and authorisation of emissions to air (and to water and land) from major industrial processes through Process Industries Regulation (PIR) under EPA 90. There are no breaches of AQSs known to be caused by authorised PIR processes in the LEAP area.

90% of air quality problems are due to traffic and many of the ozone problems come from Europe. Road traffic-related pollution is thought to be causing breaches of the AQS for ground-level ozone ($O_3$) in urban areas in the summer on a regional scale, and high concentrations of nitrogen dioxide ($NO_2$) in excess of the AQS near major roads in Brighton, Hove, Shoreham and Lewes. Air quality will be an important local issue in new proposals for an incinerator in East Sussex , which is being promoted through the East Sussex Waste Local Plan (1999) and for the new Shoreham power station which has received authorisation from the Agency.

Part 4 of the Environment Act places responsibility for local air quality management with the local authorities, which includes pollution arising from traffic. However, the local authorities and the Agency in Sussex co-ordinate local air quality monitoring and information provision through the Sussex Air Quality Steering Group. The need to improve air quality is a particular concern of our Sussex Area Environment Group.

The Agency has recently issued a Pollution Inventory which can be viewed on the Agency web site.

| ACTION | TOTAL COST (£K) | FUNDING (£K) | | | | | | Agency lead dept & potential partners | Additional Comments/ Environmental Themes |
|---|---|---|---|---|---|---|---|---|---|
| | | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | | |
| Continue to work with the Sussex Air Quality Steering group to forward AQ improvement | *50 | *10 | *10 | *10 | *10 | *10 | on-going | EPI, LAs |  |
| Continue to use and extend the Pollution Inventory to cover details on landfill sites, Sewage Treatment Works (STWs) and industries covered by the new IPPC Directive | R | • | • | • | • | • | • | EPI |  |

## ISSUE 3: SUSTAINABLE WATER RESOURCES MANAGEMENT MUST BE FORWARDED

***Background:*** There is a perceived concern by the public and various organisations that there are insufficient water resources in the south to meet future demands. The greatest pressure on water resources is from public water supplies and this is a particular issue for the south-east due to the rising per capita household consumption, development pressures and the predicted effects of climate change. Reliable yields are being reassessed throughout England and Wales to consider climate change predictions and sustainability of our environmental resources. Successive investigations have shown that at a regional level there are sufficient resources available or capable of development to meet needs now and in the future. This depends on resources being managed according to sustainable principles and on it being shared between different companies. In 1997, the Water Resources in the south-east Forum was created with all the water companies in the south-east, the Agency, Ofwat and DETR. Together, we are working to develop a sustainable water resource strategy for the next 30 years. The potential impact of development scenarios upon water resources in the south east region has been presented to SERPLAN for consideration in the revision of Regional Planning Guidance (RPG9).

Within the Southern Region our strategy for sustainable water resources continues to be founded on promoting demand management; transferring supplies from areas of surplus to areas of deficit; protecting existing resources; ensuring sufficient water resources for environmental needs and new resource development.

*Demand Management:* Demand management promotes policies and measures to reduce the consumption and waste of water. These can include leakage control, metering, use of water efficient devices and equipment (e.g low volume washing machines and reduced–flush WC's) and water/waste minimisation initiatives by business and industry. The Agency will continue to promote the implementation of demand management options, water conservation and reuse measures, where appropriate, into local development plans.

*Protection of Existing Resources:* The need to protect existing groundwater resources from pollution is vital. New regulations, which came into force in April 1999, require further pollution prevention measures for certain activities to ensure protection of groundwater. A proactive input to local development planning is undertaken to ensure no unsuitable development takes place in sensitive groundwater protection areas.

*Supply Transfers:* The shortfall in resources anticipated by South-East Water (SEW) in the short-term are to be resolved by bulk transfer of treated water supplies between Barcombe and Arlington. In the medium to longer term, the company favours strategic transfers, which would be dependent upon additional resources being available from increasing the size of Southern Water's Darwell reservoir to the east in the Rother catchment. The company is also considering the possibility of raising Ardingly reservoir by 0.5 m.

*Environmental Needs:* The Agency has presented its National Environment Plan (NEP) which includes those environmental improvements considered necessary as part of the water companies' investment commitments for this Periodic Review (AMP3).

*New Strategy for Water Resources:* The Agency began the process of updating its National and Regional Water Resources Strategies with the publication of its consultation document "Sustainable Water Resources for the Future" in October 1999. This sets out a number of issues in general terms for consideration and poses questions around 13 main issues for which comments are sought. The final document is to be published in December 2000. A Southern Region consultation document is to be published in May 2000 and will deal with issues in the specific context of Southern Region. It will be open for consultation until July 2000 and the final strategy will be published in December 2000, at the same time as the National document.

*Climate Change:* We are continuing to evaluate the possible effects of climate change regionally and nationally and with the water companies, as an essential component of our strategic water resource planning. We are not yet in a position to assess the potential impact on this catchment, but as further information becomes available we will apply it to these local resources.

*Abstractions Management:* The vast majority of abstractions for both surface and groundwaters are controlled by licences issued by the Agency under the Water Resources Act 1991. The provisions of this Act are largely unchanged from the original legislation introduced in the Water Resources Act of 1963. These have now been reviewed by the DETR and the Government's way forward was published in March 1999. Titled "Taking Water Responsibly", the report marks the most significant change in water abstraction law for over 30 years and among the measures to be implemented is the introduction of time limits for the majority of licences, the requirement for the Agency to produce catchment based Local Abstraction Management Strategies and a proposal to abolish compensation for revoked licences after the year 2012. It is also proposed to bring trickle irrigation within the licensing system. At present this form of irrigation is exempt from control and is

therefore has the potential to derogate from existing lawful abstractors and result in adverse environmental impact on habitats. It is, however, an efficient form of irrigation from the viewpoint of water conservation and hence the principle of such use is not discouraged by the Agency in the longer term.

The Agency will be progressing Local Abstraction Management Strategies from April 2000 onwards and there will be an extensive consultation process before the Strategy for each catchment is finalised. It is too early to say whether the Adur and Ouse catchments will be the subjects of the first documents to be produced, but there will be coverage of at least one Sussex catchment early on in the process. The Strategies will deal with resource availability, any requirements for reductions in licences to achieve sustainability and future licensing policy for the catchment. They will be subject to six yearly reviews.

*Groundwater:* A model to measure transient groundwater flow on the Brighton/Worthing Chalk Block in order to obtain a better understanding of flow, is being developed in partnership with Southern Water Services. Preliminary investigations are taking place and the Agency is currently reviewing groundwater boreholes and undertaking flow measurements of streams. Costs to cover this work have been set aside for the next 2 years.

| ACTION | TOTAL COST (£K) | FUNDING (£K) | | | | | | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| | | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | | |
| Continue long term water resource planning for the south-east, including implications of climate change | R | • | • | • | • | • | • | WR, Water Companies, Ofwat, DETR, SERPLAN, GOSE | |
| Promote proactive role in development planning | R | • | • | • | • | • | • | CS/WR, LAs, Water Companies | |
| Promote and encourage further demand management and water conservation | 3 | 1.5 | 1.5 | | | | | WR/CS, Water Companies, Ofwat, LAs, Developers, Public, Industry Agriculture | |
| Promote wastewater recycling and reuse | R | • | • | • | • | • | • | WR/CS, Water Companies, Industry | |

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Develop and implement strategy for targeting activities which pose particular risk to groundwater | R | • | • | • | • | • | • | WR/EPI EPr/CS, LAs, Industry |  |
| Promote winter storage where appropriate for summer abstraction | R | • | • | • | • | • | • | WR/CS, Abstractors Landowners Local business |  |
| Implement outcome of abstraction licence review (mandatory) | U | | | | | | | WR, Water Companies |  |
| Develop model of groundwater flow on the Brighton/ Worthing Chalk Block | 120 | 40 | 40 | 40 | | | | WR |  |
| Produce Local Abstraction Management Strategies | R | • | • | • | • | • | • | WR |  |

## ISSUE 4: THERE IS CONCERN ABOUT USE OF WATER IN THE RIVER OUSE

***Background:*** There are many pressures on the use of water in the River Ouse catchment and balancing these requires careful management. The river has a rich history of navigation and supports many uses including leisure boating, fisheries, flood defence for agricultural interests, and, more recently, abstraction for public water supply. This has resulted in a legacy of complex arrangements of structures, such as weirs and pumping stations, to regulate the flow and levels in the river. Considerable refurbishment works have been carried out both to improve the performance of the Anchor Gates at Barcombe Mills in order to achieve a more natural flow, and also to ensure that the flood banks are maintained to the correct level. There is also a need to ensure sufficient water resources to support the protection and enhancement of wetland and riverine species and habitats.

Water is abstracted at Barcombe by South East Water (SEW) for public water supply. The Ardingly reservoir was constructed in the late 1970s and impounds the headwaters of the Ouse north of Haywards Heath. Stored water is released to regulate river flow and support the abstraction at Barcombe which is controlled by a complicated licensing arrangement between the water company and the Agency. The licence relies on flow measurement at Shellbrook and Ardingly, which is complicated due to the number of structures and the requirements to maintain river water levels for other uses. The situation is made even more complex by the water retaining weirs and sluices between the reservoir and Barcombe, and these affect the times and rates at which water reaches Barcombe. The Agency has now carried out improvements to the flow measurement. We are reviewing the Ardingly/Ouse Operating System in dialogue with SE Water in order to improve the efficiency of the system and the licensing while ensuring that the river is protected for other uses. SE Water are considering raising the water level at Ardingly reservoir to increase storage in the system.

| ACTION | TOAL COST (£K) | FUNDING (£K) | | | | | | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| | | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | | |
| Continue review of Ardingly/Ouse operating system | 45 | 15 | 15 | 15 | | | | WR/FER<br>SE Water |  |
| Review the operation of water level management structures | U | | | | | | | WR/FD/ FER, Water Companies, Landowners, farmers, EN,SWT, Fisheries, Recreation interest |    |

## ISSUE 5: OPPORTUNITIES TO PROTECT AND ENHANCE BIODIVERSITY NEED TO BE IDENTIFIED AND FORWARDED

***Background:*** The Agency is the one of the lead partners in the conservation of biodiversity in the UK and the responsible organisation for a number of water-related species. There are various actions which need to be undertaken in order to achieve the commitments in the UK Biodiversity Action Plan and these are further detailed for Sussex in the Sussex Biodiversity Action Plan (BAP).

We must work with others to develop targets for Habitats and Species Action Plans and ensure their implementation across the Adur and Ouse LEAP area. This issue deals with Species Action Plans in Sussex, while Issue 6 covers Habitats Actions Plans.

Produced by the Sussex Biodiversity Partnership, the Sussex BAP will contain Species Action Plans (SAPs) for which the Agency is responsible in Sussex. In the Adur LEAP area Action Plans are being developed for the Native Black Poplar, the Water Vole, Otter and Barn Owl. We must develop targets for each Species Action Plan and ensure their implementation across the Adur and Ouse LEAP area. Working Groups have been formed to assist in achieving these aims. Barn owl boxes near Sheffield Park and otter holts on the Ouse are being constructed.

*Rare Species:* The Adur and Ouse catchments contain a number of rare and local species. However, continued loss and degradation of wetland and riverine habitats and will continue to lead to decreases in biodiversity and the loss of these species. Further ecological monitoring in both catchments will increase the understanding of the distribution of these species and identify areas which they might be able to recolonise. They will also allow an enhanced understanding of the environment upon which future management decisions can be based, which is imperative in resolving the increasing stresses and strains upon the natural environment.

*Alien Species:* Several animal and plant species have been introduced into the Adur and Ouse LEAP area and compete directly with our native species. Plants species such as Giant Hogweed, Himalayan Balsam, Japanese Knotweed, Parrots Feather and Australian Stonecrop flourish to the detriment of wetland and riverine species. The very invasive Floating Pennywort has also recently colonised the Piltdown pond at the top of the Ouse catchment. Control of this species has been recently undertaken to prevent its spread downstream. Spraying with Diquat has taken place in other parts of Sussex and appears to be effective. The issue was raised nationally at MAFF Engineers Conference in June 1999. The alien water fern (*Azolla* spp) in the Western Adur is also of particular concern. Alien fauna such as the mink prey upon native species, including water voles and wildfowl. Thus, management programmes are needed to control the spread of these species.

Alder trees occur along the banks of rivers and streams in both the Adur and Ouse catchments. However, as in many areas of Britain, these tree species are currently under threat from the root disease *Phytophthora*. The distribution of the disease in the LEAP area is not fully understood and this needs to be determined in order that a management programme for the species can be established.

| ACTION | TOTAL COST (£K) | FUNDING (£K) | | | | | | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| | | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | | |
| Forward opportunities to improve the environmental value of existing river corridors and create new corridors in urban and suburban areas | U | | | | | | | FER, Landowners, LAs, Conservation groups |   |

| ACTION | TOTAL COST (£K) | FUNDING (£K) | | | | | | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| | | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | | |
| Forward opportunities for protection and enhancement of biodiversity through land use planning | R | • | • | • | • | • | • | FER, LAs, Landowners, Water Cos, Developers | |
| Encourage recolonisation of otter, water vole and barn owl with provision of improved habitat | U | | | | | | | FER, SWT, EN, LA's, Landowners, farmers | |
| Promote the protection and spread of rare species | R | • | • | • | • | • | • | FER, EN, MAFF, Landowners, farmers, LAs, SWT, Conservation groups & organisations | |
| Establish management programmes for alien species | 35 | 10 | 10 | 10 | 5 | | Depends on success of prog. review in year 4 | FER, MAFF, Landowners, EN, LAs other Government Agencies, Railtrack and Highways | |
| Continue project to control/eradicate Floating Pennywort on the Piltdown Pond | 1 | .5 | .5 | | | | | FER, Ouse Valley Project Group | |
| Assess distribution of alder root disease *(phytophthora)* and monitor spread | 13 | 10 | 1 | 1 | 1 | | Re-assess distribution in 2005 | FER, EN, Forestry Authority, Landowners | |

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Identify opportunities for partnerships and external funding | R | ● | ● | ● | ● | ● | ● | FER/CS | Cost of implementation of projects unknown |
| Continue to forward our work with the Sussex Biodiversity Partnership | R | ● | ● | ● | ● | ● | ● | FER/CS, Sussex Biodiversity Partnership | Cost of implementation of actions unknown |

## ISSUE 6: LOSS AND DEGRADATION OF WETLAND AND RIVERINE HABITATS AND OPPORTUNITIES FOR ENHANCEMENT

***Background:*** Under the commitments of the UK Biodiversity Action Plan (BAP), a number of specific habitats are listed under the responsibility of the Agency for protection, enhancement and creation. In the Sussex BAP, a focus has been placed on habitats specific to this area through local Habitat Action Plans (HAPs), five of which are relevant to the Adur and Ouse LEAP area. The Agency has produced a HAP for reedbeds and will produce further HAPs for coastal and floodplain grazing marsh, lakes (other than hammer ponds), canals, and rivers and streams.

Agricultural improvements, previous river engineering practices, and lack of, or poor, maintenance have all contributed to the destruction and degradation of wetland and riverine habitats. For example, agricultural drainage has lead to the decline of a number of wetland habitats, including the once common grazing marshland; water quality has declined due to pollution from agricultural run-off; bankside vegetation has been removed due to agricultural and flood defence activities. Action is now required by the Agency to prevent further damage to, or loss of, remnant habitats, and to improve existing and create new habitats.

The heavily engineered stretches of the lower Adur and Ouse are of particular concern in terms of river habitat degradation. The restoration of functioning floodplain habitats not only improves the ecological value and biodiversity of an area, but also acts as a store and filter for floodwaters. In channel natural structures such as riffles and pools have been lost through channelisation for flood defence purposes. This process needs to be reversed where appropriate and the construction of meanders, riffles and pools will bring about increases in biodiversity and habitat quality and elevate the status of fisheries. Saltmarsh in the lower Adur Estuary

designated as an SSSI has also been under threat over recent years. Such habitats need to be protected from further decline and opportunities for restoring to their previous state should be forwarded.

It is important that buffer strips of vegetation are protected or developed along all watercourses in the LEAP area to help improve water quality and reduce the impact of agriculture. Buffer strips also have further benefits of wildlife habitat creation, improving fisheries and river bank stabilisation. Although the long-term aim would be to create buffer strips throughout the two catchments, initial plans should be focused upon priority areas in need of restoration. This could be achieved using results of River Corridor and River Habitat Surveys. Furthermore, the installation of buffer strips could run together with a tree planting (especially alder) and management programme, where appropriate.

The Agency is obliged by MAFF to produce Water Level Management Plans (WLMPs) for Sites of Special Scientific Interest (SSSIs) and plans have been produced for Lewes Brooks and Offham Marshes in the Ouse area. A key objective of these WLMPs is to return or maintain the SSSIs to their condition at the time of notification with the further long-term view of enhancing their habitat quality and value.

| ACTION | TOTAL COST | FUNDING (£K) | | | | | | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| | | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | | |
| Establish targets for all future HAPs and ensure their implementation in accordance with the local BAP | U | | | | | | | FER, Sussex Biodiversity Partnership, Landowners, Conservation groups and organisations, River Valley project groups |  |
| Identify and prioritise areas for habitat enhancement | R | • | • | • | | | | FER/FD/CS, SWT, EN, Conservation Groups & Organisations, LAs |  |

| ACTION | TOTAL COST | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Identify and forward opportunities for environmental enhancement through external funding and planning obligations/ agreements | U | | | | | | | FER/FD/ CS Biodiversity Partnership, EN, Landowners, LAs, SWT, Ouse Estuary Project, River Valley Project Groups, Conservation groups & organisations Water Companies |  |
| Seek to reinstate meanders and pool/riffle sequences, especially in the lower stretches of the Adur and Ouse | 160 | 10 | 50 | 50 | 50 | | | FER/FD/CS, MAFF LAs, Landowners, conservation groups & organisations |  |
| Develop a tree planting and management programme | 20 | 5 | 5 | 5 | 5 | | | FER/FD, EN, Forestry Authority, MAFF, River Valley Project Groups, Conservation groups & organisations |  |

| ACTION | TOTAL COST | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Promotion of buffer strips along watercourses | 20 | 5 | 5 | 5 | 5 | | | FER/CS/FD, MAFF, Landowners, SWT, River Valley Project Groups, Conservation groups & organisations |  |
| Ensure implementation of habitat-focused WLMPs for Lewes Brooks and Offham Marshes SSSIs | 30 | | 10 | 10 | 10 | | | FD/FER, MAFF Landowners, EN |  |
| Identify opportunities for managed retreat of tidal defences | R | • | • | • | • | • | • | FD/FER, MAFF Landowners, EN, Conservation groups & organisations |  |

## ISSUE 7: SUSTAINABLE FISHERIES MANAGEMENT MUST BE FORWARDED

***Background:*** In the Adur and Ouse LEAP area, there are a number of issues relating to the sustainable management of fisheries. These include the maintenance of riverine habitats for fish, the control of fish stocking procedures, the control of alien fish species, angling regulation for both coarse and game fish and the prevention of poaching. Such issues are important from both ecological and commercial viewpoints.

The status of the fishery in the Western Adur is currently very poor, showing limited numbers and diversity of fish and low recruitment. The cause of this decline is not fully understood and thus needs to be resolved through further assessment. A potential factor is the effect of the luxuriant growth of the alien Water Fern, but this has yet to be confirmed.

There is a limited understanding of the status of the sea trout population within the LEAP area. The Agency is currently dependent upon limited rod-catch return data to determine changes in the population and most assessments are made upon anecdotal evidence. A proactive approach is necessary to increase the understanding of this species. To this extent, a smolt-tagging programme has been proposed, focusing on the juvenile stage of the species.

Furthermore, the need has arisen to further designate stretches of the Adur and Ouse under the EU Freshwater Fisheries Directive, mainly to protect salmonids. Current "Cyprinid" designated stretches should also be reviewed with the aim of upgrading them to "Salmonid" designations.

There is some concern about the potential adverse impact of abstraction intakes on the status of fisheries in the Ouse. Abstractions at Cockhaise and Barcombe could lead to the mortality of fish, particularly fry, which are drawn into abstraction pipes. In January 1999, the amended section 14 of the Salmon and Freshwater Fisheries Act 1975 was implemented which will make it compulsory for screens to be placed across such intakes. The Agency must ensure full compliance with the Act at all abstraction points in both catchments. South East Water, following discussions with the Agency, have submitted proposals for funding new fish screens at all of its river intakes as part of the "Cost of Quality" submission under AMP 3.

Illegal practices such as netting and the introduction of alien fish species give some cause for concern within the LEAP area. Illegal netting in the lower stretches in both the Adur and Ouse require increased levels of enforcement to protect important fish stocks, such as sea trout, and to preserve existing legal fisheries in these areas. The uncontrolled introduction of alien fish species such as Catfish and Zander threaten native species through competition, predation and the spread of disease. The fish parasite, *Ergasilus*, is present at specific locations within each catchment and has the potential to spread. The parasite has a debilitating effect upon coarse fish and is also likely to have a similar adverse effect upon salmonids.

| ACTION | TOTAL COST (£K) | FUNDING (£K) | | | | | | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| | | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | | |
| Determine reasons for the decline of the fishery in the Western Adur and seek a long term solution | 20 | | | 10 | 10 | | | FER/EPL, Angling clubs | |
| Determine the status of the sea trout populations in both catchments | 23 | 13 | 10 | | | | | FER, Angling clubs, South Coast Power, CEFAS, SE Water | |
| Ensure abstraction intakes are appropriately screened | R | • | • | | | | | FER, SEW | |

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Assess the scale of netting (licensed and illegal) in the estuaries of both the Adur and Ouse | 35 | 25 | 5 | 5 | 5 | | | FER, MAFF, Sussex Sea Fisheries Committee | |
| Maintain and improve, where possible, levels of Fisheries enforcement | R | • | • | • | • | • | • | FER, Police, MAFF | |
| Regulation and management of introduced fish species | R | • | • | • | • | • | • | FER, MAFF, Angling clubs, EN | |
| Investigate the spread of *Ergasilus* within both catchments | 10 | | | 10 | | | | FER, Angling clubs | |

## ISSUE 8: THE FREE PASSAGE OF SEA TROUT AND COARSE FISH IS RESTRICTED BY OBSTRUCTIONS IN THE RIVERS

***Background:*** The Agency is committed to maintaining, improving and developing fisheries in accordance with section 114 of the Water Resources Act 1991. Through this commitment, the Agency seeks to ensure the free passage of native fish species throughout the Adur and Ouse rivers and streams, including access to spawning areas. Weirs and sluices can act as barriers to the movement of fish, particularly migratory salmonids. There are a number of these structures in both the Adur and Ouse catchments, especially the latter, constructed generally by mill owners, navigations etc many years ago. Such structures can prevent fish from reaching the breeding areas in the upper catchments which can thus lead to a decline in the status of fisheries. The access of sea trout to North End Stream in the Ouse catchment, for example, is of particular concern as tidal gates limit the access of sea trout into what is potentially high quality habitat for the species.

In high flows under flood events, fish may be displaced downstream or "washed-out" in the absence of suitable refuges and this is exacerbated in the heavily engineered lower stretches of the Adur and Ouse. Displacement of fish may occur through the opening of bottom-opening gates, of which there are a number on the River Ouse. The impact of in-river structures such as weirs and sluices (including bottom-opening gates) should be reviewed and the potential examined for their removal through a phased approach. Where appropriate, fish passes should be installed which allow the passage of both salmonid and cyprinid fish.

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Review the status and function of all in-river structures and potential for removal | 140 | 20 | 20 | 50 | 50 | | | FD/FER/WR/ EPl, LAs, MAFF, Landowners, EN, SWT, Angling clubs |  |
| Review the operation of sluices and evaluate option for replacement of bottom-opening gates with top-opening gates | U | | | | | | | FD/FER/WR, MAFF, Landowners, angling clubs |  |
| Construction of viable fish passes for both salmonids and cyprinids, and modify existing passes where necessary | U | | | | | | | FER/CS/FD/ WR Angling clubs |  |

## ISSUE 9: LACK OF WATER LEVEL CONTROL DUE TO THE DETERIORATION OF LAND DRAINAGE STRUCTURES AND EQUIPMENT CAN IMPACT ON CONSERVATION, FISHERIES AND NAVIGATION

***Background:*** The land drainage of the low lying Adur and Ouse valleys primarily serves agricultural interests. These two systems are managed through a number of key structures including pumping stations (5 on the Adur and 7 on the Ouse) and river level control structures. Many of these and other associated structures, particularly on the Ouse, are in excess of 40 years old, and are at or beyond their design life. A number of these structures are maintained for conservation/fisheries/navigation purposes and serve very little or no flood defence purpose.

Considerable costs are associated with maintenance and operation of these structures and there may be no direct cost benefit in replacing the structures. The Internal Drainage Board (ie the Agency in the LEAP area) is also unlikely to have the financial resources to repair or replace these structures within the IDB area when this becomes necessary. Water Level Management Plans (WLMPs) for the whole of Sussex are in the final stages of drafting. The extent to which these plans will rely on the various structures needs to be assessed, so that those which are vital to the success of the plans can be assessed and repaired or replaced as one of the first priorities.

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Carry out asset survey and correlate with WLMPs | 8 | 2 | 2 | 2 | 2 | | | FD/FER, Landowners, Farmers, EN, MAFF |  |
| Repair of sluices | R | • | • | • | • | • | • | FD/FER, Landowners, Farmers, MAFF |  |

## ISSUE 10: COMPLIANCE WITH EU STANDARDS AND AGENCY OBJECTIVES FOR WATER QUALITY

***Background:*** Although the majority of watercourses in the LEAP area currently comply with EU Directives and the Agency's River Ecosystem (RE) targets there are some concerns which require investigation by the Agency.

Detailed biological and chemical surveys are required to identify the causes of the poor water quality of some watercourses in the Adur and Ouse LEAP area. Compliance assessment based on data for 1993-95 showed that seven streams/brooks in the Ouse catchment (Longford Stream, Ridgewood Stream, North End Stream, Pellingford Brook, Bevern Stream, Shell Brook, Cockhaise Brook) and three streams/brooks in the Adur catchment (Chess Stream, Cowfold Stream, Woodsmill Stream) did not achieve their River Ecosystem objectives.

There is a need to review the current biological monitoring network and dependent on successful trialling, to introduce biological quality objectives for rivers in the LEAP area.

The AMP 2 Scheme proposed for Lewes Sewage Treatment Works (STW) is now under construction and includes pumping waste water flows to Newhaven together with provision for storm tank settlement before any storm discharge to the tidal Ouse.

The quality of discharges to the marine environment is of particular concern within the LEAP area. Portobello sewage treatment works was identified for improvement under AMP2; Newhaven, Portobello and Shoreham WWTWs discharge into the English Channel and they have high natural dispersion area (HNDA) status within UWWTD. "Raising the Quality" (September 1998) sets out Government thinking on future requirements for achieving environmental improvements

for the period 2000 - 2005. Government has indicated the intention to remove all HNDAs and to adopt a precautionary approach by ensuring that secondary treatment should always be applied to all significant coastal discharges. In the LEAP area this will affect Newhaven/Seaford, Portobello and Shoreham WWTWs.

Under the EU Freshwater Fisheries Directive, two sets of water quality standards based upon water chemistry are set out to protect cyprinids and salmonids. The Agency is seeking to move towards achieving guideline standards at both cyprinid and salmonid designated stretches by setting operational standards.

Potential pollution of surfacewaters and groundwaters from landfills within the LEAP area is also an issue for the Agency in relation to water quality standards and objectives.

If river flows are reduced in summer and early autumn, there are implications for the water quality of rivers and the standards of treatment necessary at STWs to meet River Quality Objectives (RQOs). A national Agency study has suggested that climate change could be a reason for the overall trends in the decline of water quality in the Southern Region. Potential reasons for such a trend include a decrease in rainfall and increase in temperature, leading to lower flows in rivers and streams, decreases in dissolved oxygen and increases in water temperature. However, the overall effects of climate change are confusing and it is difficult to make comment yet at a local level.

| ACTION | TOTAL COST (£K) | FUNDING (£K) | | | | | | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| | | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | | |
| Complete AMP2 commitments at Lewes STW | R | • | • | • | • | • | • | EPr/EPl SWS |  |
| Identify biological and chemical water quality problems and prioritise appropriate remedial actions through the development of improvement plans | 12.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | • | EPl/FER/EPr |  |
| Introduction of secondary treatment at Shoreham, Portobello and Newhaven STWs | 60m | • | • | • | • | • | • | EPl, SWS |  Southern Water Servies expenditure |

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Achieve guideline standards under the Freshwater Fisheries Directive | R | • | • | • | • | • | • | EPI, SWS |  |
| Monitor implications of climate change | R | • | • | • | • | • | • | |  |

## ISSUE 11: INTERMITTENT POLLUTION OF WATERCOURSES

***Background:*** Leakage and accidental spillage of oils and other polluting liquids can cause intermittent pollution of both surface and ground waters. In the LEAP area, pollution from certain industrial estates is of particular concern due to their proximity to surface waters. Examples include sites at Avis Way in Newhaven, Bell Lane in Lewes, Burrall Road in Haywards Heath, and those adjacent to the Pookbourne stream in Burgess Hill. We propose to undertake a scoping study to identify the scale of the problem and prioritise areas for action. We will increase environmental understanding amongst businesses operating on industrial estates through the creation of partnership opportunities, such as the "Green Business Partnership" with ESCC at Avis Way Industrial Estate, Newhaven.

Sewage and pump-out discharges from houseboats within the Adur Estuary can cause pollution. We will increase the awareness of boat users within the estuary to reduce this source of intermittent pollution.

Occasional discharges from breakages in electric power cables supplying the rail network occur in the area. Oil is used for insulation of such cables and breakages can result in releases of substantial volumes of oil into the environment. Through liaison with Railtrack, and implementation of the Memorandum of Understanding signed by the Agency, we will seek to reduce this type of intermittent pollution.

Ruptures of domestic heating oil tanks are frequent causes of intermittent pollution which may impact on watercourses. These tanks are often poorly maintained and rarely bunded, making them a high risk source of oil pollution. A campaign aimed at raising awareness of the potential problems caused by these tanks will be undertaken by the Agency.

Many sewerage systems in the country are designed to collect both foul sewage and storm water; these are known as combined systems. As the sewerage systems have a limited capacity, release points for storm sewage are required within the system to avoid flooding of land and properties. These release points are known as

Combined Sewer Overflows (CSOs) and typically discharge to inland surface water systems or direct to rivers, estuaries and coastal waters. These are consented by the Agency. The overflow comprises very dilute discharging to a stream or river which would normally be in flood. Although pollution implications are minimal, care must be taken in setting the correct level of overflow. Of particular concern to the Agency are some 15 CSOs in Lewes, discharging both to the Winterbourne Stream and the tidal River Ouse. These are known to cause water quality problems and they have been identified as a high priority for improvement; the Agency has advised Southern Water Services that we would wish to see the problems addressed at an early stage in the AMP 3 process.

There are concerns that current intensive agricultural practices are resulting in nutrient enrichment and pesticide input to water courses and wetland habitats.

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Carry out scoping exercise to prioritise risk of pollution in all industrial estates in the LEAP area | 5 | 5 | | | | | | EPr, Industry |  |
| Explore potential to control discharges from houseboats in the Adur Estuary | 2 | 2 | | | | | | EPr, Boat users, LAs, *Port Authority* |  |
| Further liaise with Railtrack to prevent oil pollution from electric power lines | R | • | • | • | • | • | • | EPr, Railtrack |  |
| Promote environmental awareness throughout business and the community | U | | | | | | | EPl/EPr, Industry Business, LA's | **  |
| Raise awareness of high pollution risks associated with domestic heating oil tanks | 7 | 7 | | | | | | EPr, Heating oil suppliers & customers |  |
| Implement improvements for Lewes CSO | 17m | • | • | • | • | • | • | EPl/EPr, SWS |  SWS expenditure |

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Continue a farm inspection programme to detect poor waste management practices and advise on best practice | R | ● | ● | ● | ● | ● | ● | EPr, MAFF/ ADAS, Agricultural industry |  |

** Note: Resources/money available will be dependent on degree of partnerships and/or external funding obtained

## ISSUE 12: THERE IS A LACK OF KNOWLEDGE OF HEADWATER STREAMS

***Background*:** The Environment Agency R & D Report "The Faunal Richness of Headwater Streams - Stages 1 and 2" highlighted the conservation importance of headwater streams on a national scale. Not only were headwater streams shown to support a large variety of rare macro-invertebrate species, but such streams play a major role in maintaining catchment biodiversity. However, headwater streams are also extremely vulnerable, especially with regard to changes in land use, channelisation and pollution.

Despite their importance and vulnerability, headwater streams are currently greatly under-represented in Agency sampling programmes. This is currently being addressed through research sponsorship to assess both the conservation value and quality of Sussex headwater streams.

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Continue with opportunities for partnership investigation with universities to improve knowledge of headwater streams | 25 | 5 | 5 | 5 | 5 | 5 | on-going | FER, universities |  |
| Undertake additional sampling programmes | 25 | 5 | 5 | 5 | 5 | 5 | on-going | FER |  |

## ISSUE 13: THERE IS A LACK OF SUSTAINABLE ACCESS TO THE WATER ENVIRONMENT FOR RECREATION

***Background:*** The Agency has a duty to provide for and promote water recreation having regard to other environmental factors. This is particularly relevant in areas where the Agency owns or has control of land or water. Improvements for access can be achieved in association with the Agency's other activities, such as flood defence schemes. We need to identify the areas which can absorb increased activity in the future and those which are environmentally sensitive to existing or increased recreational activity. We are concerned at the potential risk of erosion and loss of integrity of tidal floodbanks with increased use of embankments, particularly for cycleways and horseriding.. The Agency also needs access to watercourses to maintain the sea defences under our control and for beach management purposes. Issues such as access for the disabled and public safety must also be taken into account. We will use the outcome of our own research into the recreational use of floodbanks to guide us on the appropriate use of different types of floodbanks. We need to establish and maintain liaison with organisations in relation to waterside access and recreation.

The needs of conservation, flood defence and recreation have to be carefully balanced with each other and those of other users.

The Agency has issued a Recreation Strategy for the Southern Region, which was the result of a collaborative project between the Agency and the English Sports Council, with additional support from the Countryside Commission. The Strategy focuses on recreation activities which relate to the water environment and includes access and facilities for recreation.

The Adur and Ouse are extensively used for coarse angling and trout fishing. There are often disputes between different recreational users and the needs and considerations of all parties should be carefully considered when drawing up proposals. Any commitments to increase recreational use should take into account the need to protect and enhance local wildlife habitats.

The majority of river waters available for canoeists nationally are tidal waters which have a public right of navigation. Elsewhere water courses are in private ownership and permission must be obtained from the riparian owners. There are few launching opportunities and a demand exists for greater canoe access.

There is also a demand for increased amenity and recreational facilities associated with the water environment in the urbanised areas of the catchment. In particular there is a lack of provision for disabled anglers and the facilities for angling on river, canals and stillwaters could be increased.

The development of a management strategy for the port of Shoreham should also help to reduce conflicts between the desire to increase recreational access to the harbour with other considerations.

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Prepare management strategy for Shoreham Harbour in conjunction with Shoreham Maritime Proposals | R | • | • | • | • | • | • | FER/FD/CS, Port Authority | |
| Prepare access strategy for Rivers Adur and Ouse to include opportunities for waterside recreation and recreation on the water | 5 | | 5 | | | | | FER/CS/FD, LAs, SDCB, Ouse Valley Project, EN, SWT, BCU, RYA | |
| Promote access to water in planning conditions for waterside development (where compatible with other uses) | R | • | • | • | • | • | • | CS/FER, Developers, LPAs, Landowners | |
| Prepare and implement Management Plans for Agency sites | 10 | 2.5 | 2.5 | 2.5 | 2.5 | | | FER/FD/WR, SDCB, River Valley Project Groups | |

## ISSUE 14: EROSION OF BANKS, DISTURBANCE OF WILDLIFE AND DANGER TO RIVER USERS CAUSED BY SPEEDING AND LARGE WATER CRAFT

***Background:*** There is a public right of navigation on the tidal sections of both the rivers Adur and Ouse and the Agency has land drainage byelaws to control speed limits on the tidal stretches. There is a particular concern that wash from speeding boats may be accelerating erosion of the banks of the River Ouse between Lewes and Newhaven. Therefore, there is a need to further enforce speed limits to protect river banks.

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Enforce speed limits for boats on affected sections through bylaws | 5 | 1 | 1 | 1 | 1 | 1 | | FD, LAs |  |
| Promote education and awareness to river | 5 | 1 | 1 | 1 | 1 | 1 | | FD/CS, Boat users |  |

## ISSUE 15: THE EFFECT OF OESTROGENIC HORMONES (ENDOCRINE DISRUPTERS) ON THE AQUATIC ENVIRONMENT

***Background:*** Endocrine disrupters are substances which interfere with the hormonal system of animals, causing physiological effects such as the impairment of reproduction. Invertebrates, fish, birds and mammals (including humans) may all be affected.

Laboratory tests indicate that many substances have hormone disrupting properties. These include naturally occurring substances such as the female sex hormone, 17 - α oestradiol and oestrone as well as man-made substances including DDT (insecticides), tributyltin (anti-fouling on boats and wood preservatives( and ethinyl oestradiol (contraceptives and hormone replacement therapy).

The most widely reported effect from endocrine disruption is a feminising (oestrogenic) response to these substances, although other effects have also been identified, for example, masculinising.

Research carried out by the Agency nationally on selected rivers has indicated that an oestrogenic effect could be caused in fish when exposed to sewage effluent downstream of outfalls from sewage treatment works. The level of hormones in the aquatic environment is not certain and the results of the survey must be considered against a background of improving water quality, achieved through better sewage effluent quality. Results from an initial national Research and Development project "R & D Technical Report W119", *"The identification of oestrogenic effects in wild fish"* have led to further initiatives to look at endocrine disrupters within the River Ouse by means of a collaborative project with Sussex University. Following the release of a consultation document, *"Endocrine disrupting substances in the environment. What should be done?"*, the Agency has now formulated and published a strategy entitled *"Endocrine disrupting substances in the environment: Environment Agency Strategy"*.

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environ-mental themes |
|---|---|---|---|---|---|---|---|---|---|
| Continue with environmental and effluent monitoring to determine the concentrations, fate and behaviour of hormones in the aquatic environment | U | | | | | | | EPI/FER, Water Companies | |

## ISSUE 16: OPPORTUNITIES TO CONSERVE HERITAGE IN RIVER AREAS

***Background:*** The Agency has a duty to protect and conserve heritage in areas under our responsibility and there may be partnership opportunities to conserve the rich history of the two rivers. The Ouse, for example, contains a number of historic structures in the Barcombe area from the period when the river was navigable. Barges brought building materials up to Balcombe Ridge to build the railways viaduct. A number of mills also once existed in this Area. An assessment of the status of these structures of heritage value would focus strategy and resources on sites of high priority.

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Identify and assess sites of heritage value, particularly in the Ouse, to prioritise areas of con-servation importance | 5 | | | | 5 | | | FER, EH, LAs, Ouse Valley Project | |
| Increase awareness of heritage sites through education and interpretation | R | • | • | • | • | • | • | FER/CS, EH, LAs, Public, Ouse Valley Project | |

## ISSUE 17: STANDARDS OF PROTECTION AFFORDED BY SEA DEFENCES

***Background:*** The South Downs Shoreline Management Plan which was published in 1996, encompassed *inter alia* the sea defences of the Adur and Ouse. The Plan considered Strategic Defence Options for identified lengths of coastline known as management units, namely: hold the line, managed retreat, advance the line or do nothing. More detailed management assessments of the coastline are now being undertaken within Coastal Strategy Plans. The Coastal Defence Strategy for the Adur/Ouse catchment covers defences within an area bounded by the River Arun upstream as far as Ford railway bridge, the River Adur upstream as far as the A27 flyover and the coastline between the two rivers. This plan is presently out for consultation. The principal aims of the strategy are:

- to manage the frontage in sympathy with natural processes;
- to provide appropriate coastal defences which are technically sound, economically justified and environmentally acceptable;
- to formulate a programme of priority works to be carried out over the next 5 years.

Standards of protection are continually reviewed, and where agreed with MAFF to be cost effective and offer value for money, capital schemes are undertaken, subject to Agency expenditure constraints and priorities. Such schemes are undertaken to provide improved standards of protection from flooding from the sea. The Agency has recently completed a sea defence scheme for Shoreham and Lancing to provide protection up to a 1 in 200 year standard. In considering any new flood defence scheme, opportunities for environmental enhancement will be forwarded.

It must be ensured that ability to undertake maintenance and improvement works is not impeded by new development including fences, boat access ramps and storage.

| ACTION | TOTAL COST (£K) | FUNDING (£K) | | | | | | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| | | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | | |
| Complete coastal strategies for sustainable sea defence management | 70 | 10 | | | | | | FD/FER, MAFF LA's |  £60K in 99/00 |
| Identify long term maintenance arrangements and access requirements | Inclusive within above | | | | | | | FD/FER, LAs, MAFF |  |

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Improve liaison and awareness of maintenance with other beach users, property owners and local authorities | R | • | • | • | • | • | • | FD/CS, Property owners, fishermen, boat users & jet skiers, LAs | |

## ISSUE 18: STANDARDS AND MAINTENANCE OF TIDAL EMBANKMENTS

***Background:*** The current standard of land drainage and tidal protection to the low lying areas of the Adur and Ouse valleys rely as much on the existing tidal embankments as on the pumping stations and other control structures.

Maintenance dredging in these lower reaches has been carried out in the past and the silt was traditionally used for making up the embankments. This no longer takes place. Current levels of revenue expenditure are insufficient to maintain these defences in this way. Based on the Agency's system for prioritisation of capital and maintenance works, it is unlikely that significant maintenance works can be economically justified where these provide protection primarily to agricultural land. Similarly, capital schemes for the upgrading or replacement of these defences are unlikely to be economically viable unless domestic or commercial properties are protected. Many embankments are reaching the end of their useful life and options including repair, replacement and managed retreat need to be considered. The Agency has already commissioned a strategy study for the lower Ouse, and a number of these options and implications have been considered.

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Undertake review of all tidal embankments in accordance with FDMM | 6 | 2 | 1 | 1 | 1 | 1 | | FD/FER, LAs, MAFF | |
| Forward strategy to improve tidal embankments where applicable/ relevant | U# | | | | | | | FD, MAFF, Landowners | |

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Identify opportunities for managed realignment | U# | | | | | | | FD/FER, MAFF, EN, Landowners |  |

# costs unknown at present and will be estimated on completion of the coastal and river strategies

## ISSUE 19: SUSTAINABLE URBAN DRAINAGE (SUDs) SHOULD BE UTILISED IN NEW DEVELOPMENT

***Background:*** The construction of new development and consequent impermeable areas has the potential to:

- increase the rate and volume of surface water run-off into a watercourse thus increasing flood risk
- increase diffuse pollution discharging to surface waters and groundwaters
- reduce recharge of groundwaters

To date it has been practice, where flood concerns are identified, to store water run-off during heavy rainfall in flood attenuation ponds. This ensures flood risk is not increased by limiting the rate of surface water run-off to a watercourse to that prior to development taking place.

Further opportunities exist however, for creative design appropriate to urban, suburban and rural environments which will not only address flood concerns, but will substantially reduce diffuse pollution to watercourses and enhance the conservation and recreational value of flood attenuation ponds. The use of permeable pavement construction where appropriate and swales would also reduce the rate of discharge of surface water to watercourses and help maintain recharge of groundwater.

The storage and re-use of surface water in individual properties would also contribute to demand management for water.

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Ensure effective management for future maintenance of flood attenuation ponds | R | • | • | • | • | • | • | CS/FD/FER, LAs, Public, Developers |  |
| Promote use of SUDs in new development | 4 | 2 | 2 | | | | | CS, LAs, Developers, Public, Water companies |  |
| Promote wet ponds for surface water attenuation and environmental enhancement | R | • | • | • | • | • | • | CS, LAs, Developers, Public, Water companies |  |
| Forward the use of rain water harvesting techniques in new development | R | • | • | • | • | • | • | CS, LAs, Developers, Industry, Water Companies |  |
| Forward innovative design and encourage best practice through publicity, seminars and workshops | 10 | 2 | 2 | 2 | 2 | 2 | | FD/FER, LAs, Developers, Public, Water Companies |  |

## ISSUE 20: THE NEED TO PROTECT FLOODPLAINS

***Background:*** Development and landraising in river floodplains must be resisted to ensure both their natural functioning and that there is no increased flood risk to both new and existing property and land. The coastal plains of the catchment are generally at or below sea level and this low-lying land behind sea defences must be considered at risk to tidal flooding in the event of a breach or overwhelming of the defence. New development in such areas along the existing undeveloped coast should be resisted and restrictions placed on types of development in built-up areas so as to minimise the risk and property in the event of a severe breach or overwhelming of defences.

The zoning of areas at risk to flooding from the sea must be forwarded to help resist inappropriate development in such areas. Effective liaison with Local Authorities is essential if floodplains are to be protected.

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Further promote floodplain protection to local authorities including zoning of tidal risk areas | R | ● | ● | ● | ● | ● | ● | CS, LAs | |
| Complete and provide more detailed flood risk information to local authorities | R | ● | ● | ● | ● | ● | ● | CS/FD, LAs | |
| Ensure floodplain protection is identified in development plans and forwarded through planning application responses | R | ● | ● | ● | ● | ● | ● | CS, LAs, EN, SWT | |
| Promote natural functioning of floodplains | R | ● | ● | ● | ● | ● | ● | CS/FD, LAs | |
| Educate and encourage best practice through publicity, seminars and workshops | *10 | *2 | *2 | *2 | *2 | *2 | | CS/FD, LAs, Developers | |

## ISSUE 21: NEW DEVELOPMENT WILL POSE INCREASED PRESSURE ON THE ENVIRONMENT IN THE LEAP AREA

***Background:*** The Agency is a statutory or advisory consultee on Development Plans and certain types of planning applications. It has also a duty to contribute to the objective of sustainable development. With increasing pressures for development there is an even greater need for the Agency to work closely with local authorities (LAs) to identify opportunities and forward initiatives and planning policies for the protection and enhancement of the environment.

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 01/02 | 02/03 | 03/04 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Promote and Forward effective liaison with LAs | R | ● | ● | ● | ● | ● | ● | CS, LA's | |

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 01/02 | 02/03 | 03/04 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Provide relevant advice to LAs to ensure environmental policies are forwarded in Development Plans | R | • | • | • | • | • | • | CS, LAs |  |
| Identify opportunities for environmental enhancement in the area | U | | | | | | | CS/FER, LAs, EN, SWT, Other Env. bodies |  |
| Identify and forward opportunities for environmental protection and enhancement in planning application responses | R | • | • | • | • | • | • | CS/FER, LAs, |  |
| Forward environmental capital initiatives with West Sussex County Council | U | | | | | | | CS, LAs |  |
| Identify / recommend possible planning obligations to forward opportunities for environmental enhancement | R | • | • | • | • | • | • | CS/FER, LAs |  |
| Provide evidence to support LAs at Development Plan or Planning Appeal inquiries to back Agency objections / recommendations | U | | | | | | | Agency functions, LAs Cost dependent on number and scale of inquiries |  |

## ISSUE 22: THE IMPACT OF THE NEW CONTAMINATED LAND REGULATIONS

***Background:*** Land contamination may be present in many sites as a result of waste disposal, for example, closed landfill sites, or industrial use, such as gas works, petrol stations, scrapyards. Such sites may present a risk of harm to the environment as a result of their former contaminative uses and will require consideration when the new Contaminated Land Regulations are implemented shortly. These regulations will place a general duty on the Agency to seek the remediation of certain high risk contaminated land sites. We need to work in partnerships with other organisations, especially the local authorities, to address land contamination in an integrated way.

In the Adur and Ouse area, there are a number of closed landfill sites which are known to present a high risk of harm to surface waters. The catchment does not have a significant legacy of major industrial uses, but the risk of pollution from previous gas works sites, e.g. at Shoreham Harbour, will need to be addressed. There is a risk to the beach and public amenity from the Shoreham site and the site is subject to development proposals. We will need to review the environmental risks associated with other sites, particularly petrol stations and scrapyards.

| ACTION | TOTAL COST (£K) | FUNDING (£K) | | | | | | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| | | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | | |
| Assess extent of contaminated land and associated risk.<br>Seek remediation of high risk sites. | 100 | 30 | 30 | 20 | 20 | | | EPI, LAs, Landowners |  |
| Ensure any redevelopment of former gas works in Shoreham Harbour fully addresses any contaminated land concerns | U | | | | | | | EPI, LAs, Developers |  |

## ISSUE 23: THE SUSTAINABLE MANAGEMENT OF WASTE MUST BE FORWARDED TO REDUCE IMPACTS ON THE ENVIRONMENT

***Background:*** The Agency has a role to play in encouraging sustainable waste management practices in five key areas: regulation, influencing the market, planning, promotion and data acquisition. The Agency's principal aim is to contribute towards attaining the objective of sustainable development. For waste management, this means reducing the amount of waste produced, making the best use of the waste that is produced, reducing the impacts of wastes on the environment, and encouraging the movement up the 'waste hierarchy'. The waste hierarchy was established in the 1995 Government White Paper on sustainable waste management, 'Making Waste Work', and is as follows:

REDUCTION

REUSE

RECOVERY: recycling, composting, energy

DISPOSAL

The hierarchy does not aim to be prescriptive as the Best Practicable Environmental Option (BPEO) for particular types of waste may differ. The Agency will therefore promote the identification of the BPEO for each waste 'stream' through Life Cycle Analysis (LCA). At present some 97% of wastes from the LEAP area are sent to landfill. Landfill capacity in East Sussex, West Sussex and Brighton and Hove is also limited. In order to achieve sustainable waste management, and to meet targets set out in *Making Waste Work*, levels of minimisation, reuse and recycling need to be increased for industrial, commercial and household wastes and amounts of packaging reduced.

As the major component of household waste is putrescible matter, there is considerable scope for composting. Local Authorities are responsible for setting up home composting schemes, as well as developing more household waste recycling facilities. Proposals for composting facilities must always be compatible with the protection of the local environment, in relation to surface water runoff contamination, and emissions to air.

**Targets for waste minimisation are:**

**By 2005 we need to** COMPOST 25% of our household waste

**By 2010 we need to** RECOVER 45% of which at least 30% must be recycled or composted

**By 2015** (under the new Landfill Directive) we need to RECOVER 66% of our waste of which 50% must be recycled and composted

Increases in waste generation will arise from new proposals for housing and commercial/industrial development. There is a need to ensure adequate provision of recycling facilities in conjunction with development, through local planning policy and planning conditions. We are promoting local initiatives with businesses, such as the Avis Way Industrial Estate waste minimisation project (with East Sussex County Council), and encouraging a greater understanding of waste minimisation and recycling in the public and private sectors through seminars, educational leaflets, and our recently produced Waste Minimisation and Recycling Directory for Businesses in Sussex. We are also investigating opportunities for clinical waste minimisation at Lewes hospital. We aim to build on this work by establishing a partnership with Sussex Business link, local waste management businesses and Local Authorities, in order to encourage greater waste minimisation in a more strategic and co-ordinated way. Opportunities for external funding/partnerships to promote sustainable waste management will be forwarded.

We will also support local authorities in the inclusion of specific policies and conditions encouraging sustainable waste management in local authority development plans and planning consents.

In partnership with local authorities, we are also working to raise awareness and achieve waste minimisation in schools which adopt the Tidy Britain Group's 'Eco-Schools' standard.

| ACTION | TOTAL COST (£K) | FUNDING (£K) | | | | | | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| | | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | | |
| Undertake education campaigns for public, business and public sector | U | | | | | | | EPI/CS, LAs Industry, Public sector ** |  |
| Promote and forward recycling composting initiatives and facilities | U | | | | | | | EPI, LAs, Public Private contractors ** |  |
| Require adequate provision of recycling facilities in new proposals for housing and commercial/ industrial development | R | • | • | • | • | • | • | EPI/CS, LPAs Developers |  |
| Evaluate impacts of existing waste minimisation and recycling campaigns | U | | | | | | | EPI, LAs, Public Industry ** |  |

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Develop collaborative waste minimisation initiatives with business | U | | | | | | | EPI, LAs, Business Industry ** |  |
| Work with schools on waste minimisation and education | U | | | | | | | EPI/CS, LAs Schools, Tidy Britain Group ** |  |

** Note: Resources/money available will be dependent on degree of partnerships and/or external funding obtained

## ISSUE 24: THE CAPACITY OF LANDFILLS FOR THE DISPOSAL OF WASTE WILL BE UTILISED WITHIN SIX YEARS

***Background:*** As waste minimisation, reuse and recycling initiatives become established, the quantity of waste requiring final disposal should reduce. However, some wastes will always require landfilling. It is recognised that at current rates of disposal, the few licensed landfill sites in the LEAP area will be full in the next 6 years. Household waste from Rother District Council is also contracted to be sent to Pebsham Waste Derived Fuel (WDF) plant in the Cuckmere and Pevensey Levels LEAP area until 2007.

Local landfill sites are licensed to dispose of only a restricted quantity of tyres due to inherent problems with 'floating' and fire hazards. This has resulted in a build up of tyres at scrap yards, vehicle dismantlers, tyre outlets, and flytipping. There are insufficient waste management facilities in the LEAP area for the recovery or disposal of waste tyres, partly due to the large numbers of garages in the area. The nearest waste transfer station is in Worthing.

Other options for waste disposal and treatment include incineration and anaerobic digestion. Any such facility will require authorisation from the Agency. In determining any application we will ensure we follow the principles of BPEO.

There are also insufficient facilities for the management of commercial and industrial wastes in the Brighton and Hove area. As a result, this waste is transferred to other parts of the LEAP area (Shoreham, Burgess Hill, Sompting and Lewes). This is of concern for its conflict with the proximity principle of disposing of wastes close to where they are generated.

In addition, there is a shortage of facilities for managing clinical wastes. Some low level clinical waste is disposed at Beddingham landfill site near Lewes, but the majority is transported to London for incineration. This is also in conflict with the proximity principle. As well as requiring new disposal facilities, this is also being tackled through an Agency project to try to have better segregation of clinical wastes at source to ensure that the waste going into the clinical waste stream actually is clinical waste.

| ACTION | TOTAL COST (£K) | FUNDING (£K) | | | | | | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| | | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | | |
| Forward sustainable waste management in advising planning authorities on sites, methods of disposal and policies in Waste Local Plans | R | ● | ● | ● | ● | ● | ● | EPI/CS, LAs |  |
| Promote waste tyre recovery and disposal facilities | R | ● | ● | ● | ● | ● | ● | EPI/CS, LAs, Private Sector |  |
| Promote facilities for commercial/ industrial waste treatment/ recovery/ disposal in Brighton and Hove | R | ● | ● | ● | ● | ● | ● | EPI/CS, LAs, Private Sector |  |
| Provide relevant waste data to local authorities for planning and waste strategies | R | ● | ● | ● | ● | ● | ● | EPI/CS, LAs, Private Sector |  |
| Ensure any new proposals for management of waste follow the principles of BPEO | R | ● | ● | ● | ● | ● | ● | EPI , LAs, Private Sector |  |
| Forward opportunities for clinical waste minimisation | U | | | | | | | EPI/CS, LAs, Private Sector ** |  |

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Promote aggregate re-use and reclamation of production process base materials | R | • | • | • | • | • | • | EPI/CS, LAs, Private Sector | |

** Note: Resources/money available will be dependent on degree of partnerships and/or external funding obtained

## ISSUE 25: ILLEGAL WASTE DISPOSAL (FLY TIPPING) IS OF CONCERN

***Background:*** With the introduction in 1996 of the Landfill Tax, fly tipping was generally expected to increase. A lack of adequate data on the levels of fly tipping before the introduction of the Landfill Tax however, means that this is unlikely to be confirmed with accuracy. We have developed a protocol for the control of fly tipping with Local Authorities and this provides clear guidance on those categories of flytipping to be dealt with by the Agency and those to be dealt with by Local Authorities.

The illegal disposal of rubbish, including garden refuse/cuttings, into watercourses and the storage of materials and waste on river bank tops is of particular concern. Apart from degradation of amenity, such materials can be washed downstream in flood flows (when flow may overtop channel bank tops), causing obstructions within the channel, blocking culverts and screens (as has happened at Lewes and Haywards Heath).

A particular problem of fly tipping has been identified at Mill Hill (Adur), Malthouse Lane (Burgess Hill), Maresfield Caravan site and land adjacent to railway lines.

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Encourage public and landowners to report, take action against offender | R | • | • | • | • | • | • | EPr, LAs, Public | |
| Educate and increase public awareness | 2 | 1 | 1 | | | | | CS/EPr/EPI, LAs, Public, Industry, Schools | |

## ISSUE 26: POTENTIAL INCREASE IN LAND APPLICATION OF WASTES

***Background:*** The land application of waste, such as sewage sludge, to agricultural land has the potential to cause serious pollution and potential risk to health if not properly managed and controlled. This activity is currently carried out in the area and is likely to increase over the next few years due to increased sewage treatment, higher landfill costs and the cessation of sea disposal of sewage sludge since the end of 1998. In particular, Southern Water's proposals for a new sludge treatment centre at Portobello, to meet the requirements of the EU Urban Waste Water Treatment Directive will increase the potential for disposal of sludge to land in the area.

The Agency has responsibility for effectively enforcing regulations which allow the application of such wastes to agricultural land where beneficial effects can be demonstrated. The treatment and use of sewage sludge on land is subject to European and UK legislation and is controlled by regulators and also by industry codes of practice and agreements between retailers and water companies. The revised Sludge (Use in Agriculture) should become law by July 2000 with a new Code of Practice for the Use of Sludge in Agriculture being introduced at the same time. Likely changes in the regulations will be reduction of metal limits, a new charging scheme and considerations for microbiology.

SWS has a sludge strategy for the treatment and use of sewage sludge to ensure compliance with directives and codes of practice. This will eliminate liquid sludges recycled to land. The exemption of industrial waste spread on land from waste management licensing and future guidelines for land spreading, are under review by the Government. There is concern regarding the long-term environmental capacity of the land to absorb these wastes. Careful monitoring and regulation is required to ensure the procedure does not represent a hazard to health via the food chain and that it is carried out without harming the environment, including the pollution of sensitive groundwater resources.

| ACTION | TOTAL COST (£K) | FUNDING (£K) | | | | | | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| | | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | | |
| Develop and implement a coherent strategy for regulation | R | • | • | • | • | • | • | EPr, Landowners Farmers |  |

## ISSUE 27: LICENSED WASTE MANAGEMENT SITES ARE NOT MEETING ENVIRONMENTAL TARGETS

***Background:*** Several licensed landfill sites in the LEAP area have difficulties with meeting environmental requirements for leachate management. The groundwater at the Washington Landfill site is vulnerable to pollution and the operator has been made aware of the situation and is investigating appropriate remediation options. The Beddingham landfill has breached its licence conditions in relation to leachate levels in groundwater around the site and this is being further investigated.

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Investigation into extent and nature of problems at specific sites | R | • | • | • | • | • | • | EPr, Industry |  |
| Ensure remedial action where necessary | R | • | • | • | • | • | • | EPr, Industry |  |

## ISSUE 28: THERE IS A POTENTIAL RISK OF WATER POLLUTION FROM CLOSED LANDFILLS

***Background:*** Leachate from old closed and unlined landfills has the potential to cause significant environmental impact. Several sites are known to be presenting a high risk of harm to surface waters, including Freaks Lane landfill (Burgess Hill), Castlewood landfill, and Henfield brickworks landfill. The introduction of the contaminated land provisions of the Environment Act 1995 will require the Agency to identify and seek remediation of certain high risk contaminated land sites, to be known as 'special sites'.

| ACTION | TOTAL COST (£K) | FUNDING (£K) 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| Identify priority sites of concern and investigate pollution risk | 60 | 15 | 15 | 15 | 15 | | | EPr/EPl, LAs |  |
| Remedial action where necessary | U | | | | | | | EPr/EPl, LAs Landowners |  |

## ISSUE 29: METHANE FROM LANDFILL SITES IS CONTRIBUTING TO GREENHOUSE EFFECT

***Background:*** Methane is estimated to be between 20 and 30 times more damaging, as a greenhouse gas, than carbon dioxide. Under anaerobic conditions, biodegradable waste breaks down to (essentially) a mixture of methane and carbon dioxide. The concentration ratio is dependant upon numerous factors including age of the waste, site conditions and moisture content and is neither a predictable nor exact science. In consequence, there are endless computations, both theoretical and practical, of the quantity of methane generated by unit weight of degradable refuse. ETSU (Energy Technology Support Unit) suggests that each tonne of degradable refuse should produce $6m^3$/annum for ten years after placement and $4m^3$ / tonne for the succeeding 10 to 50 years. In theory the total quantity generated could be as high as $400m^3$/tonne.

Some sites have gas incineration facilities which burn off the methane, producing carbon dioxide and in some cases, energy for electricity production. Such initiatives should be promoted and further implemented.

| ACTION | TOTAL COST (£K) | FUNDING (£K) | | | | | | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| | | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | | |
| Seek to improve management of methane gas generation from landfill sites through flaring or utilisation schemes for energy.<br>Promote use of Landfill Tax to encourage recycling of methane generating waste that would otherwise go to landfill | R | ● | ● | ● | ● | ● | ● | EPI/EPr, LAs, Operators of landfills |  |

## ISSUE 30: MANAGEMENT OF PORT WASTES

***Background:*** Major ports in the LEAP area which potentially involve the import of wastes from overseas or other parts of the UK are Shoreham and Newhaven, together with the lesser port of Brighton Marina. The ports themselves generate various wastes, including special wastes, through their activities of ship and boat handling, repair and maintenance. There are opportunities for partnerships with port authorities and companies to establish port waste management plans and clear procedures.

The Agency has been working in conjunction with land remediation experts to ensure the decontamination of an area of Shoreham Port contaminated with diesel. The Agency has also been working closely with the local authority to ensure the safe remediation of the former gasworks area of Shoreham Port which is causing contamination of the adjacent beach.

| ACTION | TOTAL COST (£K) | FUNDING (£K) | | | | | | Agency lead dept & potential partners | Additional Comments/ Environmental themes |
|---|---|---|---|---|---|---|---|---|---|
| | | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | FUTURE | | |
| Establish formal partnerships for port waste management planning | R | ● | ● | ● | ● | ● | ● | EPr, Port Authorities |  |
| Establish Memorandum of Understanding between Agency and port authorities | R | ● | ● | ● | ● | ● | ● | EPr, Port Authorities |  |
| Continue joint approach between Agency and LA's into investigation and remediation of the contaminated area of Shoreham port | R | ● | ● | ● | ● | ● | ● | EPr, LA's |  |

**APPENDIX 1:**

**DUTIES, POWERS AND INTERESTS OF THE ENVIRONMENT AGENCY**

The Environment Agency has a wide range of interests in the areas of water management, waste management and pollution prevention and control. Whilst many of these interests are supported by statutory duties and powers, much of the Agency's work is advisory, with the relevant powers resting with other bodies such as local planning authorities. The following table therefore summarises the Agency's duties, powers and interests and their relationship to land use planning in Southern Region.

**Water Resources**

**The Agency has duties to:**

- Conserve, redistribute, augment and secure the proper use of water resources.
- Secure the proper use of water resources through its role in water resources planning, the assessment of reasonable need for abstractions and promotion of more efficient use of water resources.
- Determine water abstraction and impoundment licences on application.
- Publish information on actual and prospective demands for water and available resources.
- Maintain public registers of licences for abstraction and improvement.
- Promote sustainability.

**The Agency has powers to:**

- Revoke or vary existing licences with the consent of the licence holder. If no consent is given the matter is referred to the Secretary of State to determine. Compensation is normally payable.
- Monitor and enforce abstraction and impoundment licence conditions.

**The Agency has an interest (but no powers) in:**

- The more efficient use of water by water companies, developers, industry, agriculture and the public and the introduction of water-efficiency measures and suitable design and layout of the infrastructure.

**Partnership**

- The Agency is committed to water-demand management and will work closely with water companies and developers, Local Authorities and relevant organisations to promote the efficient use of water.
- The Agency acknowledges that new resources will be needed in the future and supports a twin track approach of planning for water resource development alongside the promotion of demand-management measures. The Agency seeks to influence planning decisions for new development by encouraging the inclusion of water-conservation measures in new properties, particularly in areas where water resources are under stress, and by ensuring that planning authorities allow for the lead time for resource development.

**Flood Defence**

**Agency Duty**

- The Agency has a duty to exercise general supervision over all matters relating to land drainage and flood defence throughout each catchment. The principal aim is to provide effective defence and warning systems to protect people and property against flooding from rivers and the sea.

**The Agency has powers to:**

- Control, through land drainage consents, development within 8m of main river (15 m on a tidal main river) (Water Resources Act, 1991 Section 109) or construction of a structure that would affect the flow of an ordinary watercourse (Land Drainage Act, 1991 Section 23).
- Produce flood risk maps for all main rivers under s105 of Water Resources Act 1991.
- Undertake works to main rivers using permissive powers.
- Issue flood warnings relating to main rivers to the public, Local Authorities and the police.
- Control through Land Drainage Bylaws erections, excavations, etc which may affect sea defences.
- Supervise the maintenance of tidal flood defences within the Agency's jurisdiction. (Note: Many of the sea defences within the Southern Region are controlled by Local Authorities).
- Maintain and operate flood control structures.

**The Agency has an interest (but no powers) in:**

- Granting of planning permission throughout a catchment but especially floodplains where development can significantly increase flood risk. This permission is granted by Local Planning Authorities.
- Installation of surface water source control measures eg flood attenuation structures.
- Supervising the maintenance of ordinary watercourses which is a Local Authority remit, but may impact on main rivers.
- Installation of buffer zones which reduce flood risk and have significant environmental benefits.
- Urban and rural land use and measures that can reduce flood risk or the need for watercourse maintenance.

**Partnership**

- As a statutory consultee on planning applications the Agency offers advice based on knowledge of flood risk. It also advises on the environmental impacts of proposed flood plain development.
- The Agency advises solicitors on potential flood risk during property searches for prospective purchasers.
- The Agency will encourage best practice, including source control measures and common standards, among Local Authorities and riparian owners to protect and enhance the environment.
- The Agency works with the civil authorities to prepare flood-warning dissemination plans and supports their endeavours to protect communities at risk.

**Water Quality**

**Agency Duty**

- The Agency has a duty to monitor, protect, manage and, where possible, enhance the quality of all controlled waters including rivers, groundwaters, lakes, canals, estuaries and coastal waters through the prevention and control of pollution.

**The Agency has powers to:**

- Issue discharge consents to control pollution loads in controlled waters.
- Regulate discharges to controlled waters in respect of water quality through the issue and enforcement of discharge consents.
- Issue 'works notices' where action is required to reduce the risk of pollution.
- Prosecute polluters and recover the costs of clean-up operations.

**The Agency has an interest (but no powers) in:**

- The control of run off from roads and highways. This is a Highways Agency duty.
- The greater use of source-control measures to reduce pollution by surface-water run off.
- Prevention and education campaigns to reduce pollution incidents.

**Partnership**

- The Agency will liaise with Local Authorities, developers, the Highways Agency, industry and agriculture to promote pollution prevention and the adoption of source-control measures.
- As a statutory consultee on planning applications, the Agency will advise Local Planning Authorities on the water-quality impact of proposed developments.

## Air Quality

**Agency Duty**

- The Agency has a duty to implement Part 1 of the Environmental Protection Act 1990.

**The Agency has powers to:**

- Regulate the largest technically-complex and potentially most polluting prescribed industrial processes such as refineries, chemical works and power stations including enforcement of, and guidance on, BATNEEC and BPEO.
- Have regard to the government's National Air Quality Strategy when setting standards for the releases to air from industrial processes.

**The Agency has an interest (but no powers) in:**

- The vast number of smaller industrial processes which are controlled by Local Authorities.
- Control over vehicular emissions and transport planning.

**Partnership**

- The Agency provides data on IPC processes and advice on planning applications to Local Authorities.
- The Agency is willing to offer its technical experience to Local Authorities on the control of air pollution.
- The Agency wishes to liaise with Local Authorities in the production of their Air Quality Management Plans.
- The Agency will advise and contribute to the government's National Air Quality Strategy.

## Radio-active Substances

**Agency Duty**

- The Agency has a duty under the Radio-active Substances Act 1993 to regulate the use of radio-active materials and the disposal of radio-active waste.

**The Agency has powers to:**

- To issue certificates to users of radio-active materials and disposers of radio-active waste, with an overall objective of protecting members of the public.

**The Agency has an interest (but no powers) in:**

- The health effects of radiation.

**Partnership**

- The Agency will work with users of the radio-active materials to ensure that radio-active wastes are not unnecessarily created, and that they are safely and appropriately disposed of.

- The Agency will work with the Nuclear Installations Inspectorate to ensure adequate protection of workers and the public at nuclear sites.
- The Agency will work with the Health and Safety Executive on worker protection issues at non-nuclear sites.

**Waste Management**

**Agency Duty**

- The Agency has a duty to regulate the management of waste, including the treatment, storage, transport and disposal of controlled waste, to prevent pollution of the environment, harm to public health or detriment to local amenities.

**The Agency has powers to:**

- Vary waste management licence conditions.
- Suspend and revoke licences.
- Investigate and prosecute illegal waste management operations.

**The Agency has an interest (but no powers) in:**

- The siting and granting of planning permission for waste management facilities. This is conducted by the waste industry and Local Planning Authorities.
- The Agency, as a statutory consultee on planning applications, can advise on such matters.

**Partnership**

- The Agency will work with waste producers, the waste-management industry and Local Authorities to reduce the amount of waste produced, increase re-use and recycling and improve standards of disposal.

**Contaminated Land**

**Agency Duty**

- The Agency has a duty to develop an integrated approach to the prevention and control of land contamination ensuring that remediation is proportionate to risks and cost-effective in terms of the economy and environment.

**The Agency has powers to:**

- Regulate the remediation of contaminated land designated as special sites.
- Prevent future land contamination by means of its IPC, Water Quality and other statutory powers.
- Report on the state of contaminated land.

**The Agency has an interest (but no powers) in:**

- Securing with others, including Local Authorities, landowners and developers, the safe remediation of contaminated land.

**Partnership**

- The Agency supports land remediation and will promote this with developers and Local Authorities and other stakeholders.

**Conservation**

**Agency Duty**

- The Agency will further conserve the environment, wherever possible, when carrying out water-management functions; have regard to conservation when carrying out pollution-control functions; and promote the conservation of flora and fauna which are dependent on an aquatic environment.

**The Agency has powers to:**

- Exploit opportunities for furthering and promoting conservation with regard to water management and pollution control. The Agency has no direct conservation powers.

**The Agency has an interest (but no powers) in:**

- The conservation impacts of new development. These are controlled by Local Planning Authorities.
- Protection of specific sites or species, which is a function of English Nature. The Agency does, however, provide advice to Local Authorities and developers to protect the integrity of such sites or species.
- Implementation of the UK Biodiversity Plan for which it is the contact point for 12 species and one habitat.

**Partnership**

- The Agency supports action to sustain or improve natural and man-made assets so that they are made available for the benefit of present and future generations. Many development schemes have significant implications for conservation.
- The Agency will work with developers, Local Authorities, conservation bodies and landowners to conserve and enhance biodiversity.

**Landscape**

**Agency Duty**

- The Agency will further landscape conservation and enhancement when carrying out water-management functions; have regard to the landscape when carrying out pollution control functions; and promote the conservation and enhancement of the natural beauty of rivers and associated land.

**The Agency has powers to:**

- Further the conservation and enhancement of natural beauty when exercising its water-management powers and have regard to the landscape in exercising its pollution control powers.

**The Agency has an interest (but no powers) in:**

- The landscape impact of new development, particularly within river corridors. This is controlled by Local Planning Authorities.

**Partnership**

- The Agency produces River Landscape Assessments and Design Guidelines which it uses when working with Local Authorities and developers to conserve and enhance diverse river landscapes.

## Archaeology

**Agency Duty**

- The Agency has a duty to consider the impact of all of its regulatory, operational and advising activities upon archaeology and heritage, and implement mitigation and enhancement measures where appropriate.

**The Agency has powers to:**

- Promote its archaeological objectives through the exercise of its water-management and pollution-control powers and duties.

**The Agency has an interest (but no powers) in:**

- Direct protection or management of sites of archaeological or heritage interest. This is carried out by LPAs, County Archaeologists and English Heritage.

**Partnership**

- The Agency will liaise with those organisations which have direct control over archaeological and heritage issues to assist in the conservation and enhancement of these interests.

## Fisheries

**Agency Duty**

- The Agency has a duty to maintain, improve and develop salmon, trout, freshwater and eel fisheries.

**The Agency has powers to:**

- Regulate fisheries by a system of licensing.
- Make and enforce fisheries bylaws to prevent illegal fishing.
- Promote the free passage of fish and consent fish passes.
- Monitor fisheries and enforce measures to prevent fish-entrainment in abstractions.
-

**The Agency has an interest (but no powers) in:**

- The determination of planning applications which could affect fisheries.

**Partnership**

- Many development schemes have significant implications for fisheries.
- The Agency will work with anglers, riparian owners, developers and Local Authorities to protect fisheries.

## Recreation

**Agency Duty**

- The Agency has a duty to promote rivers and water space for recreational use.

**The Agency has powers to:**

- Contribute towards recreation through the exercise of its statutory powers and duties in water management.

**The Agency has an interest (but no powers) in:**

- Promotion of water sports. This is carried out by the English Sports Council and other sports bodies.

**Partnership**

- The Agency will work with the Countryside Agency, the English Sports Council, British Waterways and other recreational and amenity organisations to optimise recreational use of the water environment.

**Navigation**

**Agency Duty**

- None in Adur and Ouse catchment

**The Agency has powers to:**

- None in Adur and Ouse catchment

**The Agency has an interest (but no powers) in:**

- The management and operation of navigations within the region.

**Partnership**

- The Agency will work with British Waterways, other navigation authorities and navigation users to improve navigations generally as valuable environmental, recreational, commercial and heritage resources.

**APPENDIX 2:**

**ORGANISATIONS CONTACTED FOR PRELIMINARY CONSULTATION**

Adur District Council
Brighton and Hove Council
British Canoe Union
Business in the Community
Council for the Protection of Rural England
Country Landowners Association
Countryside Commission
East Sussex County Council
English Heritage
English Nature
Farming and Rural Conservation Agency
Forestry Commission
Horsham District Council
Inland Waterways Association
Lewes District Council
Ministry of Agriculture, Fisheries and Food
Mid Sussex District Council
National Farmers Union
National Society for Clean Air
National Trust
Railway Land Wildlife Trust
Royal Society for the Protection of Birds
Royal Yachting Association
Shoreham Port Authority
South East Water
Southern Water Services
Sussex Area Environment Group
Sussex Downs Conservation Board
Sussex Fisheries Consultation Association
Sussex Ouse Conservation Society
Sussex Sea Fisheries Committee
Sussex Wildlife Trust
Wealden District Council
West Sussex County Council

**APPENDIX 3:**

**RESPONSES RECEIVED TO THE CONSULTATION DRAFT**

Adur District Council
Brighton and Hove Council
British Canoe Union - London & South East Region,
British Canoe Union - Nottingham
Church Lane Residents Association of Southwick
Council for the Protection of Rural England
East Chiltington Parish Council
Farming and Rural Conservation Agency
The Hawk and Owl Trust
Mr A R Hughes
Inland Waterways Association
Lewes District Council
Mid Sussex District Council
Ministry of Agriculture, Fisheries and Food
National Farmers Union
Ouse Angling Preservation Society
Pells Amenity Group
Royal Society for the Protection of Birds
Royal Yachting Association
Shoreham Port Authority
South East Water
Southern Water Services
Sussex Area Environment Group
Sussex Downs Conservation Board
Sussex Fisheries Consultation Association
Sussex Ouse Conservation Society
Sussex Ouse Restoration Project
Sussex Wildlife Trust
Mr D M Waller, Environment Agency REPAC
Wealden District Council
West Sussex County Council

## APPENDIX 4

## GENERAL POINTS RAISED IN CONSULTEE RESPONSES

The following comments/points have been extracted from responses made by consultees to the Adur and Ouse Consultation Draft and the Environmental Overview. General comments of support have not been identified nor has advice given with respect to omissions or errors to the original texts. All comments will however, be considered in the complete review of the Consultation Draft and Environmental Review planned within the next 5 years. The Agency would like to thank all those who contributed to the LEAP consultation process.

Climate Change

- The Agency must ensure that flood defence alterations to a more sustainable regime do not increase the risk of flooding of property and low-lying developments within the towns of Lewes and Newhaven and the Ouse Valley.
- Climate change will affect more than only coastal defences
- Salt water should be prevented from flooding back onto productive land.
- There should be a connection made between climate change and waste production concerning the influence of greenhouse gases on global warming
- Long term costs involved in maintenance and improvement of existing defences should be identified
- Local effects of the predicted increase in storminess and measures to drain inundated areas should be included and vulnerable areas indicated on flood risk maps

Integrated River Basin Management

- There is potential for restoration of the River Ouse to navigation to Ryelands
- Ensure that no measures are undertaken which would prevent navigation being restored in the future on the Ouse
- Fully address the wide social benefits which could be gained through sensitive environmental enhancement for recreation and tourism
- Insufficient water space for canoeists, especially on smaller lowland rivers. Launching sites and white water facilities should be provided, together with carparks.
- Include policies whereby the Agency actively encourages the making of agreements to enable canoeing to take place on physically canoeable waterways and act to bring together parties to potential agreements
- There is no mention of navigation rights above the tidal limit on the Adur or above Barcombe Mills on the Ouse.
- The rich architectural heritage of the River Ouse relating to its past as a river navigation should be preserved
- Promotion of awareness among farming community of intermittent pollutions from agriculture
- New areas of water for recreational use including the use of embankments for walking and/or riding should be promoted. Other potential improvements to recreational opportunities/projects need to be analysed in more depth with clear improvements identified.
- Medieval salt-making industry in the Adur Valley flood plain should be mentioned
- There should be more detail on the Agency's national policy on archaeology
- There should be substantial improvements to discharges from STWs on the Ouse and the Uck.
- Clear policies and proposals for recreational access to rivers are needed, including walking, riding and canoeing. The Downs Link could be partly re-routed along the floodbank.
- The importance of the coastal heritage needs to be acknowledged.
- Flood bank construction has adversely affected the quality of the wildlife habitat in the Pells Wetland and priority should be given to habitat protection, restoration and creation in the Pells.
- The Agency should produce a local Habitat Action Plan for floodplain grazing marsh to include the Pells Wetland site and improvements made in quantity and quality of the water.
- There is concern over the integrity of the floodbanks to the Ouse on the Pells Wetland site

- Careful regard should be given to the effects on the viability of farming in the Ouse Valley from continued maintenance of flood control infrastructure along the lower Ouse
- The navigability of the Ouse and the sustainability of Newhaven as a deep sea port should not be compromised
- Research should be undertaken into the risk of any new marsh in the Ouse Valley becoming a breeding ground for mosquitoes
- Weeds should be cut early in the year to ensure they do not seed onto agricultural land
- There should be a firm objective as to where a line is drawn between tidal flow and permanent areas of fresh water
- The Agency should consult with farmers/landowners prior to constructing fencing adjacent to rivers
- There have been problems with cyclists frightening livestock near watercourses
- Concern that the recreational value of boating on the Adur and Ouse has been depleted by both the speed of the fresh water current - due to increased run-off from housing and increases in agricultural efficiency - and the strict regime within which the river is constrained.
- Little reference is made to the recreational value of the tidal sections or the Channel Coast in the LEAP area.
- Water recreation is viewed negatively within the Agency and should be promoted as a duty, not a commitment.
- Facilities for launching and mooring should be developed and improved in the Adur at Shoreham.
- Encouragement to boaters to avoid creating wash rather than defining a specific speed limit on the Adur may be more appropriate, given the fast tidal flow and the need to maintain steerage way.

Water Resources

- There should be specific actions to avoid additional exploitation of groundwater
- The Agency should take a strong line in respect of developments which impact on surface water management
- Concern over low summer flows on the Ouse tributaries and that excessive water abstraction is the reason for many of the major environmental problems which affect the Ouse and its tributaries
- The Agency and water companies must devote sufficient resources to promoting and achieving water demand management and not rely on high-cost capital and maintenance schemes.
- Waste water recycling should be fully explored to reduce unnecessary discharge to the sea
- The Agency should use its new powers over discharges to minimise the inefficient or unnecessary use of water.
- Concern over pressures for development in Mid Sussex area
- Any impact of the forecast increase of activity at Gatwick Airport should be taken into account in the water demand equation
- West Sussex County Council should be fully consulted on any medium/long term water reserve planning
- Any proposals to alter the Ardingly Reservoir levels should be the subject of consultation with the public and the County Council
- Farmers/landowners should be recognised as potential partners in long term water resource planning
- There should be more details into which activities are covered by the new regulations covering Groundwater Protection Zones.

Waste

- No mention of quarries
- Concern about capacity for landfill - need urgent activities to solve the problem
- There should be proposals for dealing with tyres. A twin approach of better enforcement and recycling/recovery is needed.
- Identified problems of fly-tipping should be solved; a balance should be achieved between the responsibilities of the Agency and authorities involved
- Concerns over land application of waste causing potential risk to health

- Concerns over licensed waste management sites which do not meet environmental targets
- Concern over possible pollution of the Bevern Stream from development of a waste handling site at Hamsey Brickworks
- There should be a moratorium on all new development while a strategy of waste disposal is developed
- Concern over potential of pollution from Ham Lane landfill
- There should be a clearer distinction between "Trade Waste" and "Municipal Solid Waste" with particular consideration of disposal of builders rubble which could be sorted at source and recycled.
- Back-filling of disused mines should be considered.
- There is no mention of sea dredged aggregates
- Energy from waste should be promoted as part of an integrated strategy for reducing landfill dependence
- Opportunities for incineration should be promoted, not just evaluated and the advantage of longer operational life for landfill sites should be identified.
- The LEAP should set out the Agency's support for the development of a range of waste facilities which collectively represent the Best Practicable Environmental Option (BPEO)

Fisheries

- Concern at decline in numbers of sea trout in the Rivers Ouse and Uck.
- Improvement of weirs and fish passes on the River Ouse for migratory fish, particularly Redbridge, Clappers and Buxted Park weirs.
- The sluice gate on the Northend Stream should be either removed or repaired before the next spawning season
- The older bypass channel adjoining Hempstead Mill should be developed and opened as a flood defence channel and a fishpass
- River Ouse should be designated Salmonid with the objective of restoring historic higher levels on a water by water basis.
- Fisheries management should be integrated more into the broader biodiversity action programme.
- Important to consult with farmers/landowners when reviewing status of in-river structures

The Land

- Need action together with MAFF to advocate no further development along the coast
- New ponds and reservoirs to be built to take excess run-off from farm buildings etc to reduce loss to the sea
- Old meanders in the Upper Ouse could be re-joined to the main river
- Promote rainwater harvesting techniques to create imaginative wetland features in urban locations
- Concern at developers building on ditches which are not under the control of any authority but do have an effect on storm water drainage.
- The Agency should encourage the early completion of an Adur to Brighton Marina coastal defence strategy
- The Agency should augment its new flood risk maps
- Opportunities for environmental enhancement should be seized when planning flood protection schemes
- Increased biodiversity and landscape benefits should be mentioned as an advantage of managed retreat
- The Agency should consider ways of taking existing drainage and linking in with new grassland areas instead of piping it directly into the river system.
- Full account of any significant risk to life and property should be taken if a more natural system for the Adur is promoted.
- Future flood protection should be subject to full landscape appraisal and opportunities should be identified for environmental enhancement
- The Agency should play a full part in the studies on the Shoreham Harbour development.
- A bypass channel should be cut across the meander at Plumpton Green to form a wetland backwater in summer and reduce flood risk.

- The "do nothing" option for standards of protection afforded by sea defences and river floodbanks on the Adur is unacceptable
- Attention should be given to the benefits to wildlife of regular flooding of wetlands
- Concern over possible pollution of the Pells Lake from leachate and discharges
- Policies should be adopted for the conservation of the Tidemills area near Newhaven
- Ongoing benefits to agriculture of defence works should be recognised in the Ouse Valley
- Urgent need to ensure resources are available for ongoing annual beach replenishment at Seaford
- The viability of Newhaven Harbour should not be adversely affected by any decisions relating to dredging the lower Ouse estuary and footpaths should be maintained.
- Very little reference to land drainage issues generally
- In the Ouse recreation of salt marsh would undo the beneficial effects achieved by the creation of the Lewes Brooks SSSI
- Impermeable areas from new development should be examined prior to the commencement of a development
- Amenities and tourism should be considered in resort areas when capital and major maintenance schemes are being designed.
- Contaminated land should include proposed development on sites of old gas holders in Brighton and Hove and the land adjacent to Brighton Station
- Small slipways and off-line moorings could be developed in appropriate creeks and inlets off the main channel if managed retreat were introduced.
- Proposed development north of Burgess Hill will increase surface water run-off and add to river flow.

Air Quality

- Further consideration to how to provide the public with local air quality information.

Biodiversity

- Consideration should be given to opportunities for landscape and ecological enhancement such as wet grassland areas which are currently arable or improved and drained grassland.
- The Agency should encourage MAFF to provide payments to ensure land within 100m of the river is reverted to grassland and undrained
- The LEAP must take forward the actions in the BAP
- Fisheries management needs greater integration into the broader biodiversity action programme: wider issues than the health of the fish population and the issue of alien species should be acknowledged.
- The Agency should draw up a management plan for coppicing of alder (which could be related to local charcoal project) and promote individual trees as standards.
- No mention has been made of the Upper Ouse Valley Group Farm Scheme: a partnership should be fostered with West Sussex County Council's Countryside Management Unit.
- The value to biodiversity of shingle beaches should be stressed.
- Conservation of coastal habitats, in particular vegetated shingle should be addressed
- Installation of barn owl and kestrel nestboxes on the Adur
- There should be bio-diversity enhancement in sections of the river Ouse and tributaries which have suffered habitat degradation.
- Common species should not be overlooked when diverting resources to rare and endangered ones
- Enhancement works should be undertaken with adequate consultation with relevant landowners and farmers
- The Agency should establish a "centre of knowledge", possibly on a web site, concerning the most environmentally beneficial types of trees for the LEAP area, with a view to informing the public and professionals and publicising the subject. A tree audit of all LEAP areas should also be carried out.

General

- There is an imbalance between general aims and objectives and specific individual plans for action. The latter needs to be enlarged and prioritised.
- Relevant research should be indicated in the final version
- The LEAP should state who is responsible for action where the Agency's responsibility is limited to monitoring
- The Appendix should contain list of acronyms
- Concern that high expenditure should start at such a low amount i.e. £250,000.
- Development Planning should be backed by stronger statutory powers

## APPENDIX 5

## DEVELOPMENTS REQUIRING ENVIRONMENT AGENCY CONSULTATION

### General

1. Development with or adjacent to any watercourse or which includes a discharge to a watercourse.

2. Development including landraising, in areas at risk of flooding from rivers including tidal lengths, and the sea.

3. Development on, under or adjacent to any flood bank, sea defence or other flood control structure.

4. Development which may affect an aquatic/wetland site of conservation interest.

5. Development of contaminated land e.g. gas works, historic industrial use, bulk fuel storage, chemical production and landfill.

6. Development involving the disposal of sewage other than to a public sewer, including the use of septic tanks. cesspits, private sewers and private sewage treatment works.

7. Development which could affect sensitive groundwater protection zones.

8. Development which could exacerbate existing sewerage or sewage disposal problems.

9. Development with 250 metres of land which is or has, at any time in the 30 years before, been used for the deposit of refuse or waste and has been notified by the Agency.

10. Development on the site of or with 500 metres (measured from site boundary) of a process subject to Integrated Pollution Control, or subject to the Control of Industrial Air Pollution (registration of Works) Regulations 1989.

11. Development involving the raising or reclamation of land.

12. Development which falls with the Environmental Assessment Regulations 1988.

### Specific

13. Residential, industrial or commercial developments greater than 0.5 hectares in area.

14. Major infrastructure schemes e.g. highways, railways, power stations, wind farms, airports, tunnels, oil refineries, pipelines and any associated facilities.

15. Waste management operations including landfill, waste transfer stations, incinerators, scrap yards, solvent recovery plants, baling and re-cycling plants.

16. Mineral workings and exploratory works to include oil and gas exploration and land restoration projects.

17. Petrol filling stations or other bulk storage facilities for petroleum products and chemicals including hazardous substances, fertilisers and pesticides (above or below ground).

**18.** Vehicle parks including plant hire and transport depots.

**19.** Agricultural developments to include intensive livestock and poultry units, chemical and fertiliser storage, the making and storage of silage and the storage and disposal of manure and effluents.

**20.** Kennels, catteries, stables, etc.

**21.** Camping and caravan sites.

**22.** Timber treatment plants.

**23.** Cemeteries and crematoriums.

**24.** Fish farming activities, fish stocking or relocating of fish or works which will restrict the movement of fish.

**25.** Water-based recreation facilities or developments affecting access to water or waterside areas.

**26.** Ponds, lakes and reservoirs, including water storage for irrigation.

**27.** Golf courses.

**28.** Swimming pools.

**29.** Forestry activities.

## APPENDIX 6:

## LAND USE/PLANNING STATEMENTS

The statements are intended to inform local planning authorities and others, including developers, of possible areas of constraint on development and environmental issues that may be identified by the Agency in any consultation and may impact on the development. The information would also be relevant to any policies/guidance statements included within Development Plans.

### Sustainable Development

The adoption of a precautionary approach to development which might affect the environment is encouraged. The environmental effects of development should minimise adverse impacts and maximise potential benefits. In particular, opportunities should be taken to incorporate natural features and environmental enhancements as part of development.

### Sustainable Waste Management

Opportunities for waste minimisation, reuse and recycling must be forwarded. The promotion of recycling facilities in new development would be promoted and aggregate reuse and reclamation of production process base materials would be encouraged to reduce demand on primary resources, waste disposal facilities and landfill space.

### Effluent Disposal/Pollution Prevention

The availability and provision of adequate sewerage/drainage systems, sewage treatment capacity and pollution prevention facilities must be taken into account when development is planned so that adequate means of disposal for foul sewage, surface water and effluent are provided. The operation of sewage treatment/disposal sites should not be jeopardised by locating new, sensitive development in the immediate vicinity. In the case of proposals producing effluent or waste it should be established that there is an adequate means of disposal. Developments involving the storage or use of oil or potentially polluting toxic substances must incorporate adequate safe-guards to minimise pollution risk. Developments such as intensive livestock units must be located where effluent and waste can be disposed of safely. The use of source control techniques to reduce diffuse pollution will be encouraged.

### Contaminated and Reclaimed Sites

Contaminated sites, such as ex-industrial, gas works, waste disposal operations and old mine workings cause or have the potential to cause, pollution problems and concerns regarding implications of gas movement in the ground. Any works, including redevelopment and any excavations on or close to such sites should be accompanied by a site investigation indicating the degree of contamination and gas movement and where appropriate necessary remediation works and/or construction details. Proposals that present opportunities for environmental enhancement will be encouraged.

### Water Resources

Full account must be taken of the availability and protection of water resources and the provision of water supplies in considering the location and extent of new developments. Key issues are quantity, location and source (i.e. surface water or groundwater) of abstractions and the need to maintain aquifer recharge whilst protecting the resource from pollution. Measures to maintain aquifer recharge and minimise waste through leakage control and demand management are supported. Development particularly industrial, would be resisted in areas identified as being particularly sensitive to pollution.

**River Floodplains and Surface Water Runoff**

The floodplains of watercourses will be safeguarded from encroachment by development. Development in a floodplain would not only itself be at risk to flooding, but any loss of flood waterway or flood storage would exacerbate flooding elsewhere due to increased rates and volumes of runoff. To address these problems, the use of wetland restoration and source control techniques is encouraged. The protection of the integrity of river channels and flood defences must be ensured, together with access to and along rivers for future maintenance and improvement works.

**Source Control**

Local Authorities, in partnership with the Environment Agency, will encourage the use of environmentally sensitive techniques, such as source control, to ensure flood risk due to increased surface water runoff, pollution loads (including silt) and diminished aquifer recharge are not exacerbated by new development.

**Tidal Floodplains**

The risk associated with flooding from the sea and tidal rivers will be assessed for new development proposals. Development will generally be resisted along the undeveloped coastline where an unacceptable risk of flooding is identified and in vulnerable areas along the coastline where there may be a risk to life in the event of a breach of defence. The future integrity of sea and tidal defences must be assured, together with access routes to and along defences for future maintenance and improvement works.

**Watercourse Corridors and Wetlands**

The conservation, fisheries, landscape, heritage/archaeological and recreational value of watercourse corridors and wetlands must be protected and enhanced. Culverting of or bridges across watercourses must be kept to a minimum and environmental mitigation works will be required to compensate for that lost due to such proposals. Inappropriate uses leading to degradation by soil erosion, increased floodrisk etc. must be avoided. The value and need for buffer zones to be retained between development and natural watercourse corridors and wetlands must be forwarded. The retention of watercourse corridors may also be required for future man or machine access for maintenance and improvement works.

**Air Quality**

Due regard should be given to meet the aims of the "National Air Quality Strategy". Development Plans should take account of air quality concerns and minimise HGV and car journeys in assessing development. Plans should also encourage the use of less polluting means of transport.

**Mineral Extraction and Waste Disposal**

The management of mineral extraction and waste disposal sites must provide for the protection of the environment from pollution in their construction, operation and aftercare. The effects on water resources, site drainage, leachate and air borne litter will be considered. Consideration will be given to the possible effects of pollution and nuisance when determining the appropriateness of development within the vicinity of these sites, to avoid conflicting land uses jeopardising their effective operation. Proposals for restoration of worked-out mineral sites which present opportunities for environmental enhancement will be encouraged. The Environment Agency should be consulted both prior to and at the planning application stage for developments involving mineral working and waste disposal.

**Tourism and Recreation**

Local Authorities in partnership with the Environment Agency will seek to ensure tourism and recreation developments are sympathetically designed and located to take into account the protection, and where possible, enhancement, of the water environment. Promotion of water-based recreation facilities will take into account the need to safeguard high quality riverine habitats, with sensitive areas being monitored and protected from recreational pressures as appropriate.

**APPENDIX 7:**

**GLOSSARY/LIST OF ACRONYMS**

| | |
|---|---|
| Abstraction | Removal of water from surface water or groundwater, usually by pumping. |
| Abstraction Licence | Licence issued by the Environment Agency under Section 38 of the Water Resources Act 1991 to permit water to be abstracted. |
| AMP | Asset Management Plans: can be considered as the means by which the water undertakers plan the work required and the capital expenditure necessary, for improvements and maintenance of the water supply, sewage treatment works and sewerage systems. These are drawn up through consultations with the Agency and other bodies to cover a five year period. Asset Management Plans must be agreed by the Department of the Environment Transport and Regions, and OFWAT. |
| AOD | Above Ordnance Datum: Height above mean sea level (Ordnance Survey) |
| AONB | Areas of Outstanding Natural Beauty are designated under the National Parks and Access to the Countryside Act 1949 by the Countryside Agency. Their primary purpose is to conserve natural beauty. |
| Aquifer | A layer of underground porous rock which contains water and allows water to flow through it. |
| BAP | Nationally, a Biodiversity Action Plan was produced in 1995 by the UK Biodiversity Steering Group as part of the Government's commitment to conserving biodiversity made at the "Earth Summit" in Rio de Janeiro. The plan contains costed targets and proposed actions for over 100 species and 14 habitats. Local Biodiversity Action Plans have now been produced at a county level (e.g. the Sussex BAP) which focus upon the habitats and species plans listed in the national BAP, relevant to that particular area. |
| Catchment | The total area of land which contributes surface water to a specified watercourse or water body. |
| Coastal Protection | Natural or man-made features protecting land over 5m AOD contour |
| Controlled Waters | Defined by the Water Resources Act 1991 Section 104. They included groundwaters, inland waters and estuaries. |
| CSO | Combined Sewer Overflow: An overflow structure which allows discharge from the sewerage system to a watercourse during wet weather conditions |

| | |
|---|---|
| Cyprinid | Family: *Cyprinidae*. Coarse fish belonging to the carp family. |
| Diffuse Pollution | Pollution without a single point source e.g. acid rain, pesticides, urban runoff. |
| Discharge Consent | A statutory consent issued by the Environment Agency under Schedule 10 of the Water Resources Act 1991 to indicate any limits and conditions on the discharge of an effluent to a controlled water. |
| Dissolved Oxygen | The amount of oxygen dissolved in water. Oxygen is vital for life so this measurement is an important, but highly variable, indicator of the "health" of a water. It is used to classify waters. |
| ESA | Environmentally Sensitive Area: Area designated under law as being particularly desirable to conserve, protect or enhance, for example by the adoption of particular agricultural methods. |
| Floodplain | This includes all land adjacent to a watercourse and the sea over which water flows or would flow, but for flood defences, in times of flood. |
| Fly Tipping | The unregulated and, hence, illegal, dumping of waste. |
| Global warming | The rise in the temperature of the globe due to the effects of greenhouse gases which cause the greenhouse effect. |
| Greenhouse Gas | Natural and man-made gases which influence the greenhouse effect. Gases include carbon dioxide, methane, ozone and chlorofluorocarbons. |
| Groundwater | Water which is contained in underground rocks (aquifers). |
| HAP | Habitat Action Plan: Conservation Action Plan for specific habitats as documented in both national and local Biodiversity Action Plans. |
| HNDA | High Natural Dispersion Area: Coastal or estuarine areas which have been identified by the DETR as having high natural dispersion characteristics. |
| IDBs | Internal Drainage Boards: Autonomous public bodies under the control of board members (including those elected by agricultural ratepayers and those nominated by local authorities), with responsibilities and powers for flood defence on ordinary watercourses (non-Main Rivers) under the Land Drainage Act. |
| IPPC | Integrated Pollution Prevention and Control Directive. The aim of the Directive is to set an integrated Europe-wide standard for pollution control and prevention. Responsibility for regulating the Directive will be split between the Agency and Local Authorities. The Directive will fully apply across the whole of the EU from 2007. |

| | |
|---|---|
| Landfill Tax | A levy per tonne or cubic metre of waste sent to landfill, used to encourage the use of recycling and waste minimisation. |
| Main River | All watercourses are designated as either 'Main River' (defined in maps held by the EA and MAFF) or 'ordinary watercourses' ('non-Main River'). Main Rivers include all watercourses which contribute significantly to catchment drainage, although ordinary watercourses may be significant locally. The EA has powers to carry out works to protect land and property from flooding by improving drainage of Main Rivers only, under the Water Resources Act 1991. Local authorities (and in some areas Internal Drainage Boards) have powers for flood defences on ordinary watercourses, and the EA has a supervisory role. |
| $PM_{10}$ | Particulate matter smaller than 10 microns in diameter. |
| Riparian Owner | A person or organisation with property rights on a river bank. |
| River Corridor | Land which has visual, physical or ecological links to a watercourse and which is dependent on the quality or level of the water within the channel. |
| RQO | River Quality Objective: The level of water quality that a river should achieve in order to be suitable for its agreed uses. |
| Salmonid | Family: *Salmonidae*. Game fish including salmon, sea trout and trout. |
| SAP | Species Action Plans: Conservation Action Plans for specific species, as documented in both national and local Biodiversity Action Plans |
| Sea Defences | Natural or man-made features protecting land below 5m AOD contour. |
| SSSI | Site of Special Scientific Interest: A site given statutory designation and protection by English Nature because it is particularly important, on account of its nature conservation value under the Wildlife and Countryside Act 1981 as amended. |
| Sustainable development | 'Development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs' (definition from World Commission on Environment and Development, 1987. Our Common Future - The Brundtland Report). |

**APPENDIX 8:**

**FURTHER INFORMATION**

Further information may be obtained from the following publications which have been produced by the Environment Agency:

*An Environmental Strategy for the Millennium and Beyond.* Bristol, 1997

*Environment Agency Corporate Plan 1998-99. Our Forward Look to 2000-02.* Bristol, 1998

*Fishing in the South.* Southern Region, Worthing.

*Guidance for the Control of Invasive Plants near Watercourses.* Bristol.

*Money for nothing - your waste tips for free.* Bristol, 1998.

*Policy and Practice for the Protection of Floodplains.* Bristol, 1997

*Policy and Practice for the Protection of Groundwater.* Bristol, 1998

*Progress in Water Supply Planning. The Environment Agency's Review of Water Company Water Resource Plans.* Bristol, 1998

*Saving Water: On the Right Track.* Bristol, 1998

*Saving Water: Taking Action.* Bristol, 1998

*Sustainable Water Resources for the Future: Values and Challenges.* Bristol, October 1999

*Sustaining Our Resources.* Southern Region. Worthing, 1997

*The Agency's Contribution to Sustainable Development.* Bristol, 1997

*Viewpoints on the Environment.* Bristol, 1997

*Waste Minimisation and Waste Management.* Bristol, 1997

*Water Related Recreation Strategy for the Southern Region.* Consultation Draft. Southern Region/English Sports Council. Worthing, 1997.

## MANAGEMENT AND CONTACTS:

The Environment Agency delivers a service to its customers, with the emphasis on authority and accountability at the most local level possible. It aims to be cost-effective and efficient and to offer the best service and value for money.

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The 24-hour emergency hotline number for reporting all environmental incidents relating to air, land and water.

ENVIRONMENT AGENCY EMERGENCY HOTLINE
**0800 80 70 60**

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